Offshore Wind Power Limited

West of Orkney Windfarm

Offshore HRA: Report to Inform Appropriate Assessment

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1 INTRODUCTION

1.1 Background

The applicant, Offshore Wind Power Limited (OWPL) is proposing the development of the West of Orkney Windfarm (‘the Project’), an Offshore Wind Farm (OWF), located approximately 23 km from the north coast of Caithness and 28 km from the west coast of Hoy, Orkney.

Crown Estate Scotland (CES) awarded OWPL an Option Agreement Area (OAA) within the “N1” Plan Option (PO) to the west of Orkney in January 2022 for the development of the proposed Project following the ScotWind leasing round. The ScotWind leasing round was launched in June 2020 and resulted in 17 projects being awarded OAAs in January 2022. A further three projects were awarded OAAs in April 2022 as part of the ScotWind clearing process. Considering the additional clearing process, the ScotWind leasing round brings a new potential energy supply of 27.6 GW from the 20 projects. The Scottish Government published the Sectoral Marine Plan for Offshore Wind Energy in October 2020 following over two years of extensive analysis, consideration and engagement with a wide range of stakeholders.

1.2 Project overview

The Project has a grid connection agreement with National Grid for a connection to the grid network in Caithness on mainland Scotland. Connection will be to a new Scottish Hydro Electric Transmission plc (SHET-L) substation located at or near Spittal. OWPL are responsible for the construction and operation of its own onshore substation (in order to ensure its power is grid compliant).

OWPL are submitting separate consent applications for the offshore Project (the offshore components, seaward of Mean High Water Springs (MHWS) and for the onshore Project (the onshore components, landward of Mean Low Water Springs (MLWS) in order to consent the OWF and export of power to Caithness. To this end, OWPL is seeking Section 36 Consent for the offshore Project, as required under the Electricity Act 1989, and Marine Licences, as required under the Marine (Scotland) Act 2010 and the Marine and Coastal Access Act 2009; and the onshore Project will be subject to a separate Planning Permission in Principle (PPP) consent application under the Town and Country Planning (Scotland) Act 1997 (as amended), which will be submitted to The Highland Council (THC) for approval.

The proposed Flotta Hydrogen Hub (Flotta, Orkney) provides a second power export opportunity for the Project. OWPL are currently negotiating the terms of this private wire export option through a 'Power Purchase Agreement' (PPA). These negotiations will provide clarity on the timing of availability of this power export option and will determine the timing of a subsequent separate Marine Licence application and onshore planning application for the offshore and onshore transmission infrastructure, respectively, to the Flotta Hydrogen Hub.

This offshore Report to Inform Appropriate Assessment (RIAA) has been prepared to support the application for Section 36 Consent and Marine Licence applications for the offshore Project. The key offshore components of the offshore Project will include:

- Up to 125 Wind Turbine Generators (WTGs) with fixed-bottom foundations (monopile, piled jacket or suction bucket jacket);

- Up to five High Voltage Alternating Current (HVAC) Offshore Substation Platforms (OSPs);
- Up to 500 km of inter-array cables;
- Up to 150 km of interconnector cables; and
- Up to five offshore export cables to landfalls options at Greeny Geo and/or Crosskirk at Caithness, with a total length of up to 320 km (average of 64 km per offshore export cable).

The location of the offshore Project, which includes the OAA and the associated offshore Export Cable Corridor (ECC), is shown in Figure 1-1.

The key Project milestones are likely to be:

- Commencement of onshore construction – 2027;
- Commencement of offshore construction – 2028; and
- First power, earliest date is 2029.

1.3 Report overview

The need for this offshore RIAA was identified through the Stage One Habitats Regulations Appraisal (HRA) Screening and through subsequent stakeholder engagement with Marine Scotland Licensing Operations Team (MS-LOT) and other statutory consultees. The Offshore HRA Screening Report (OWPL, 2022) was submitted to MS-LOT[1] in September 2022, and outlined the details of the offshore Project and provided an assessment of whether, in view of best scientific knowledge, there is potential for the offshore Project, individually or in combination with another plan or project, to have a Likely Significant Effect (LSE) on a European site (Special Areas of Conservation (SACs), Special Protection Areas (SPAs) (including candidate and proposed sites) and Ramsar Sites). Those sites for which LSE could not be excluded have been carried forward for assessment in this RIAA. The HRA Screening Response (MS-LOT, 2022a) was received from MS-LOT in November 2022 (details of the responses received are provided in section 5 of this report).

This RIAA provides the Competent Authority (MD-LOT) with the information required to assist them in undertaking an Appropriate Assessment (AA) for the offshore Project as required under the Conservation (Natural Habitats & c.) Regulations 1994 (as amended), the Conservation of Marine Habitats and Species Regulations 2017 and The Conservation of Habitats and Species Regulations 2017 (as amended) (hereafter referred to as the 'Habitats Regulations'), to ensure compliance with the Habitats Directive (92/43/EEC).

As the Project is submitting separate applications for the respective onshore and offshore Projects to different regulatory bodies, the onshore RIAA will consider the onshore activities of the Project separately. Any onshore designated sites where there is potential connectivity to the offshore development have been considered in this Offshore RIAA, and where any offshore designated site has potential connectivity with the onshore infrastructure of

[1] *At the time of submission MD-LOT were known as MS-LOT*

the Project, this will be considered in the Onshore RIAA, which will be submitted with the onshore planning application to THC.

The assessment within this RIAA is based on the existing understanding of the baseline environment and the offshore Project activities. This report has been developed alongside the Offshore Environmental Impact Assessment (EIA) Report for the offshore Project, which provides further detail on the offshore Project, stakeholder consultation and other technical supporting information (e.g. seabird Collision Risk Modelling (CRM) information). Where applicable, information from the Offshore EIA Report has been incorporated into the assessment presented in this RIAA and referenced accordingly. However, for the avoidance of doubt, this RIAA is considered as separate and distinct from the Offshore EIA process.

1.4 Report structure

The structure of this document is summarised below:

- Section 1: Introduction. Provides the background of the offshore Project;
- Section 2: Project description. Outlines the offshore Project design parameters including the construction, operation and maintenance, and decommissioning stages, as well as the embedded mitigation measures that have been incorporated into the Project design envelope to prevent / reduce any potentially adverse effects on qualifying interests;
- Section 3: The HRA process. Provides the legislative context driving the need for the RIAA, and summarises the process;
- Section 4: Summary of the HRA screening process. Summarises the screening process (Stage One) and identifies relevant European sites to be considered within the HRA assessment;
- Section 5: HRA consultation. Summarises the consultation of relevance to the HRA that has taken place to date;
- Section 6: SPAs Designated for ornithological features. Provides an assessment of potential effects on SPAs with ornithological qualifying interests;
- Section 7: Conclusions of the RIAA. Summarises the conclusions of the potential adverse effects of the offshore Project on qualifying interests, either alone or in-combination;
- Section 8: References;
- Section 9: Abbreviations;
- Section 10: Glossary;
- Appendix A: Summary of SPA apportioning results;
- Appendix B: Collated in-combination impacts;
- Appendix C: Predicted impacts and change in adult survival;
- Appendix D: Population Viability Analysis methods, inputs and results;
- Appendix E: Population Viability Analysis of SPAs with de minimis impacts from the Project alone; and
- Appendix F: SeabORD Analyses

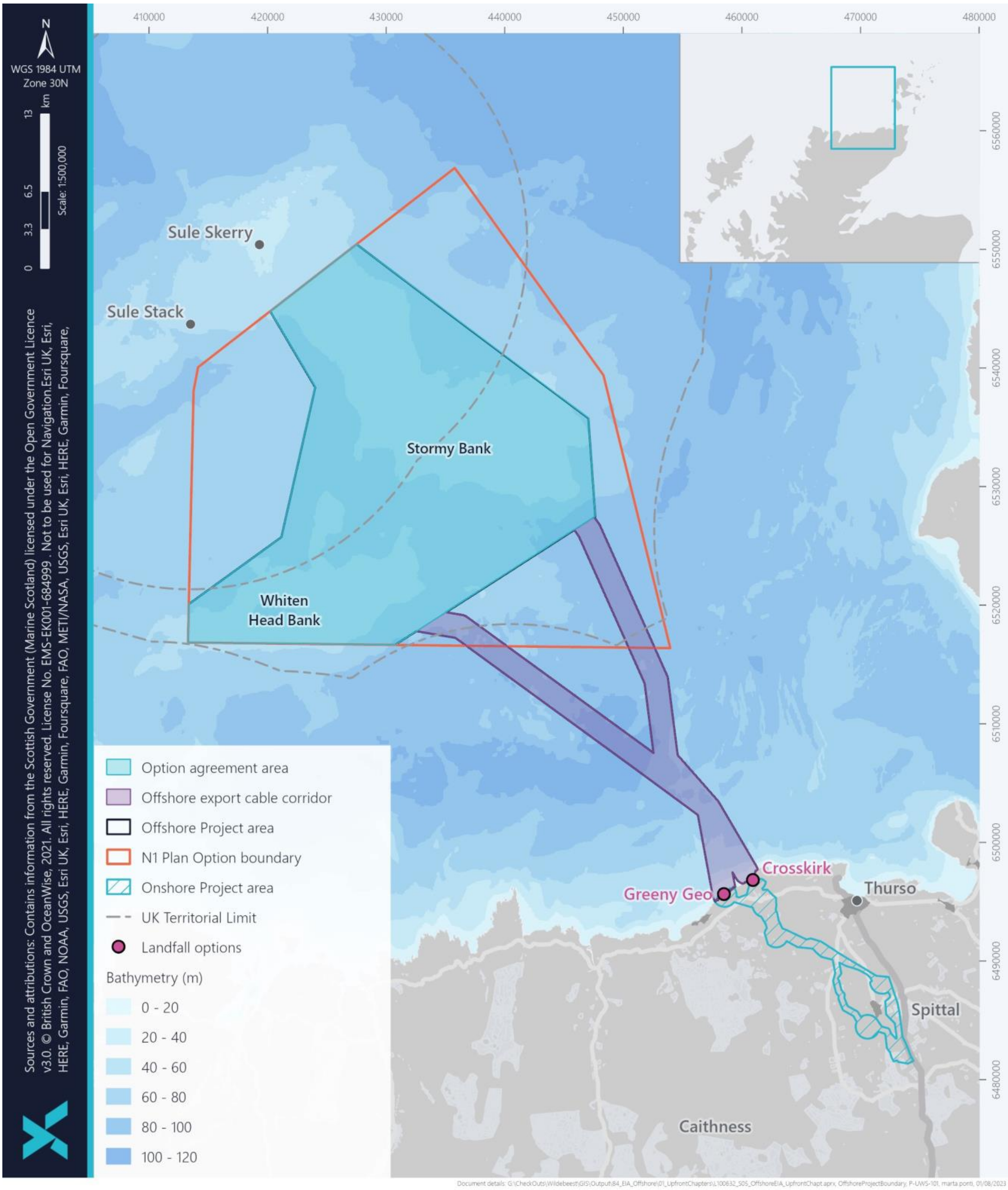

Figure 1-1 Offshore Project overview

Box. 1 Approach to assessing effects on SPAs

Following the feedback obtained in the HRA Screening Response, the first step initially identified a long list of SPAs and Ramsar sites with relevant offshore ornithological features based on potential theoretical connectivity to the offshore Project (section 4.1).

Screening of seabirds and divers (section 6.2.1) differed between the breeding and non-breeding season. In the breeding season, NatureScot guidance (2023: Guidance Note 3) was followed, applying foraging range distances to determine whether potential connectivity occurred between the offshore Project and breeding seabird SPAs. In the non-breeding season, NatureScot guidance (2023: Guidance Note 4) was followed to determine potential connectivity occurred by applying the Biologically Defined Minimum Population Scale (BDMPS) approach (Furness 2015). The only exception to this was for guillemot, where NatureScot guidance (2023: Guidance Note 4) recommends that connectivity uses the same foraging range information used in the breeding season. Due to the location of the offshore Project, on the boundary of two BDMPS regions, the assessment was based on the BDMPS region and season with the largest predicted impact on adult survival rate.

For SPAs designated for breeding divers in the marine environment, NatureScot guidance (2023: Guidance Note 4) was followed by applying a 10 km buffer from the offshore Project. To determine which SPA (or Ramsar) sites with terrestrial qualifying features (including non-breeding water birds) have theoretical connectivity with the offshore Project during migration, the strategic assessment of collision risk of Scottish OWFs to migrating birds report (Wildfowl & Wetlands Trust and MacArthur Green, 2014) was used to assess migratory range overlap with the offshore Project.

For all sites identified as having theoretical connectivity with the offshore Project, the second step of the screening exercise was to determine whether there may be a potential pathway for impact, and hence a requirement for an AA to be completed (section 6.2.2). Pathways were considered for the construction and decommissioning stage and, the operation and maintenance stage. In the construction and decommissioning stage the impact pathways assessed were:

- Disturbance and/or displacement effects;
- Indirect impacts through effects on habitats and/or prey species; and
- Lighting effects on construction vessels (phototaxis).

In the operation and maintenance stage the impact pathways considered were:

- Disturbance and/or displacement effects (including barrier effects);
- Collision mortality;
- Indirect impacts through effects on habitats and/or prey species; and
- Lighting effects on turbines and vessels (phototaxis).

The RIAA considers the potential impacts to SPAs screened in to the assessment. This included terrestrial migratory species, seabirds, and inshore wintering waterfowl, little gull and Manx shearwater.

A strategic assessment of the potential collision risk for ScotWind projects on terrestrial migratory species, including from this Project, is currently underway. However, the results were not available to inform this assessment at the time of writing. Following NatureScot guidance (2023; Guidance Note 7), the assessment of collisions on these features of SPAs was based on the assessment completed for the Scottish Territorial Waters and Round 3 sites (in Scottish waters) by WWT and MacArthur Green (2014) (section 6.3).

For the remaining SPAs requiring assessment the worst case scenario for the assessment of no adverse effect on site integrity is based on the design option (or combination of options) that represents the greatest potential for change (section 6.5).

Embedded mitigation that affects the ornithology assessment is outlined in section 6.6.

The assessment of predicted impacts from the Project alone on the qualifying features of SPAs (section 6.7) draws on the impact assessment completed for the Offshore EIA Report (chapter 13: Offshore and intertidal ornithology). Estimates of predicted collisions and predicted displacement impacts from the EIA were used as the basis for the assessment of impacts on the qualifying feature of SPAs.

CRM results from the EIA were used to inform the RIAA (Offshore EIA report, Supporting Study 12: Offshore ornithology technical supporting study). As with the Offshore EIA, the assessment was based on the results from outputs of the stochastic CRM (sCRM, McGregor et al. 2018) using only Option 2 results, following NatureScot guidance (2023; Guidance Note 7) (section 6.7.1).

Displacement and barrier impacts were assessed using two potential methods: the matrix approach and seabORD (Searle et al. 2018) (section 6.7.2). The matrix approach was used to predicted number of birds that would be killed as a result of being displaced from the offshore Project and a suitable buffer area around it, following NatureScot guidance (2023; Guidance Note 8). Where NatureScot guidance has suggested a range of potential mortality rates as a result of displacement, these have been assessed at three levels (LOW, MID and HIGH). Following advice from NatureScot (written correspondence received 31st May 2023) seabORD was used to model the effects on individual colonies of guillemot and puffins where there was a predicted impact from the Project alone, or in-combination with other projects, that had the potential to be significant.

Indirect disturbance and displacement of birds, including those resulting from the production of underwater noise (e.g. during piling), temporary habitat loss and disturbance (e.g. during preparation of the seabed for foundations and cable installation) that may alter the behaviour or availability of bird prey species, was based upon the outcomes of the Offshore EIA Report chapter: 8 Marine physical and coastal processes and chapter 10: Benthic subtidal and intertidal ecology (section 6.7.3).

Negative effect associated with lighting were assessed following a recently published review by Furness (2018) (section 6.7.4).

Following NatureScot (2023) guidance (Guidance Note 4), SPAs for inshore wintering waterfowl, little gull, Manx shearwater and non-breeding seabirds that were greater than 15 km from the offshore Project were screened out as having no LSE.

Predicted impacts that were estimated for the EIA were for all birds present within the offshore Project area (and a 2 km buffer for displacement impacts). However, the birds that were present within the offshore Project area (and buffer) included birds not of breeding age, birds of breeding age but on sabbatical years (in the breeding season only) and birds from breeding colonies not within SPAs. It was therefore necessary to apportion these predicted impacts to individual SPAs so that the total effect of the Project alone and in-combination could be assessed on each SPA qualifying feature where No LSE could not be determined (section 6.7.6).

In the breeding season apportioning was based on hypothetical connectivity between the offshore Project (and buffer) based on existing information on species specific foraging ranges as recommended by NatureScot (2023; Guidance Note 3). In the absence of NatureScot Guidance Note 10 being available, the NatureScot distance decay model was used. In the non-breeding season, (except for guillemot), the relative proportion of birds from difference sources within the offshore Project area (and buffer) were calculated based on the BDMPS (Furness 2015). Due to the location of the offshore Project near the boundary of the two major BDMPS regions (UK North Sea Waters & UK Western Waters) it was necessary to estimate the predicted impact to each SPA for both regions. It is important to note, that following advice from NatureScot, this approach was not taken for predicted impacts on guillemot, and breeding season foraging range information was used.

In-combination effects on SPA were based on predicted impacts from other reasonably foreseeable plans and projects (section 6.7.7). The assessment of adverse effects in-combination with other reasonably foreseeable plans and projects has been informed by the assessment of cumulative effects within the Offshore EIA Report. In the breeding season, following consultation with NatureScot, the in-combination assessment was based upon other OWFs in the Moray Firth and Pentland Firth. In the non-breeding season, the assessment was based on other offshore windfarms in the UK North Sea (and Channel where appropriate) or Western Waters (and Channel where appropriate) BDMPS regions.

Predicted impacts from the Project alone and in-combination with other reasonably foreseeable plans and projects that resulted in a predicted change in adult survival that exceeded a 0.02% point change was assessed using Population Viability Analysis. Following NatureScot guidance (2023; Guidance Note 11) the Natural England and JNCC Population Viability Analysis (PVA) tool was used. For each SPA qualifying feature, a PVA was run based on the total impacts from the Project alone (using LOW, MID or HIGH displacement impact depending on the species), the in-combination impact alone and the combined impacts from the Project alone and in-combination. PVA metrics the described the Counterfactual (ratio) of final Population Size (CPS) and Counterfactual (ratio) of population Growth Rate (CGR), following NatureScot guidance (2023; Guidance Note 11).

Throughout the assessment of potential impacts on SPAs, NatureScot guidance was followed where this was available. However, since this guidance was generic and may not apply to every situation it may not account for site specific information. Further information that represents the best available scientific knowledge for the Project specifically was reviewed and applied to the conclusions derived following NatureScot guidance (section 6.22.1).

2 PROJECT DESCRIPTION

As set out in section 1.2, a full description of the offshore Project is provided in chapter 5: Project description of the Offshore EIA Report. The following information within this section provides a summary of the key project design parameters for the offshore Project infrastructure that are relevant to the assessment provided in this RIAA.

In accordance with best practice, including the recent Scottish Government (2022) Guidance on using the Design Envelope Approach for Section 36 Applications, the Project utilises a design envelope approach to inform the RIAA. A design envelope approach allows a range of parameter values to be presented for each Project aspect. This ensures that flexibility is retained in the design so that the final Project can be accommodated within the offshore Project consent.

The Project Design Envelope (PDE) parameter values which represent the worst case scenario for the assessments presented within this RIAA have been determined on a case-by-case basis, depending on the receptor and impact being considered. This approach ensures that the scenario that would have the greatest impact (e.g. largest footprint, longest exposure, or tallest dimensions, depending on the topic) is assessed for each relevant receptor; it can then be assumed that any other (lesser) scenarios will have an impact that is no greater than that assessed.

2.1 Offshore Project boundary

The offshore Project boundary (i.e. offshore Project area), within which the OWF and associated offshore transmission infrastructure will be located, is presented in Figure 1-1. The offshore Project boundary includes:

- The OAA;
- The offshore ECC to the north coast of Caithness; and
- Landfall (up to MHWS) at Greeny Geo and/or Crosskirk- where the offshore export cables come ashore and interface with the onshore Project.

2.2 Offshore infrastructure

The key offshore Project design parameters are outlined in Table 2-1 and Figure 2-1. OWPL is proposing to develop and construct a fixed OWF encompassing the following:

- The OAA: The area within which the WTGs, OSPs and associated infrastructure (inter-array cables, interconnector cables and export cable connections to the OSPs) will be located;
- The offshore ECC: The area within which the offshore export cables will be located and the associated landfall areas.

Table 2-1 Key offshore Project parameters

AREA	PROJECT ASPECT	DESCRIPTION
Seabed preparation activities	Boulder clearance	Maximum seabed footprint – 30,448,900 m^2.
	Bedform clearance	Maximum seabed footprint – 25,722,500 m^2.
	Pre-lay grapnel run	Maximum seabed footprint – 1,940,000 m^2.
	UXO clearance	Detonation of up to 22 UXO over 22 days. High-order clearance of a maximum charge of 247 kg + 5 kg donor charge.
OAA	WTGs	Number of WTGs – up to 125 Minimum hub height – 147.52 above Lowest Astronomical Tide (LAT) Upper blade tip height – up to 359.52 m above LAT Lower blade tip height - up to 29.52 m above LAT Minimum spacing (of the smallest turbine) – 944 m Maximum rotor diameter – up to 330 m Maximum rotor swept area (per turbine) – up to 85,530 m^2
	WTG foundations	Three fixed-bottom foundation options - monopile, piled jacket and suction-bucket jacket. Maximum seabed footprint for OWF including scour protection – up to 1,253,900 m^2 (resulting from suction-bucket jackets).
	OSPs	Two foundation options – piled jacket and suction-bucket jacket. Maximum seabed footprint for OWF including scour protection – up to 107,100 m^2 (resulting from suction-bucket jackets).
	Inter-array cables	Maximum voltage – 145 kV. Maximum cable length – 500 km. Target burial depth – 1-3 m. Installation methodologies under consideration - cable plough, jet trenching, Controlled Flow Excavator (CFE), dredging, rock cutting, backfilling or other burial techniques.

AREA	PROJECT ASPECT	DESCRIPTION
		Maximum total area of seabed disturbance – 25,000,000 m^2. Cable protection material – concrete mattresses, rock placement, grout bags, rock bags, cement bags, sandbags, articulated pipes, cast iron shells, bend restrictors., filter units and gabion bags. Maximum length of inter-array cables requiring protection – 100,000 m. Maximum total inter-array cable protection footprint for the OWF - up to 2,000,000 m^2. Maximum total inter-array cable protection volume for OWF – 3,300,000 m^3.
	Interconnector cables	Number of cables – up to six. Maximum voltage – 420 kV. Maximum total cable length – 150 km. Target burial depth – 1 – 3 m. Installation methodologies under consideration - trenching, dredging, jetting, ploughing, controlled flow excavation, rock cutting, backfilling or other burial technique. Maximum total area of seabed disturbance – 7,500,000 m^2. Cable protection material - concrete mattresses, rock placement, grout bags, rock bags, cement bags, sandbags, articulated pipes, cast iron shells, bend restrictors., filter units and gabion bags. Maximum length of inter-array cables requiring protection – 99,000 m. Maximum total inter-array cable protection footprint for the OWF - 1,980,000 m^2. Maximum total inter-array cable protection volume for OWF – 3,267,000 m^3.
Offshore ECC	Offshore Export Cables	Maximum number of cables - Up to five offshore export cables to landfall(s) at Crosskirk and/or Greeny Geo.
		Total maximum cable length - Up to 320 km.
		Target burial depth - 1 – 3 m

AREA	PROJECT ASPECT	DESCRIPTION
		Installation methodologies - Trenching, dredging, jetting, ploughing, controlled flow excavation, rock cutting, backfilling or other burial technique.
		Maximum total area of seabed disturbance - 16,000,000 m^2
		Cable protection material - Concrete mattresses, rock placement, rock bags, grout bags, cement bags, sandbags, articulated pipes, cast iron shells, bend restrictors, and vortex-induced vibrations suppression strakes.
		Maximum length of export cables requiring protection - 93,500 m
		Maximum total export cable protection footprint for the OWF Cable - 1,870,000 m^2
		Maximum total export cable protection volume for OWF - 3,085,500 m^3
		Landfall infrastructure - The installation of offshore export cables at landfall(s) through Horizontal Directional Drilling (HDD). Maximum number of ducts installed – six.
Cable crossings	Cable crossings	Number of crossings -10 crossings in total for all cables (including inter-array, interconnector and export cables).
		Cable crossing protection dimensions - 4 x 500 x 25 m. Maximum total area of crossings - 125,000 m^2 Maximum total volume of protection material across OWF - 260,000 m^3.

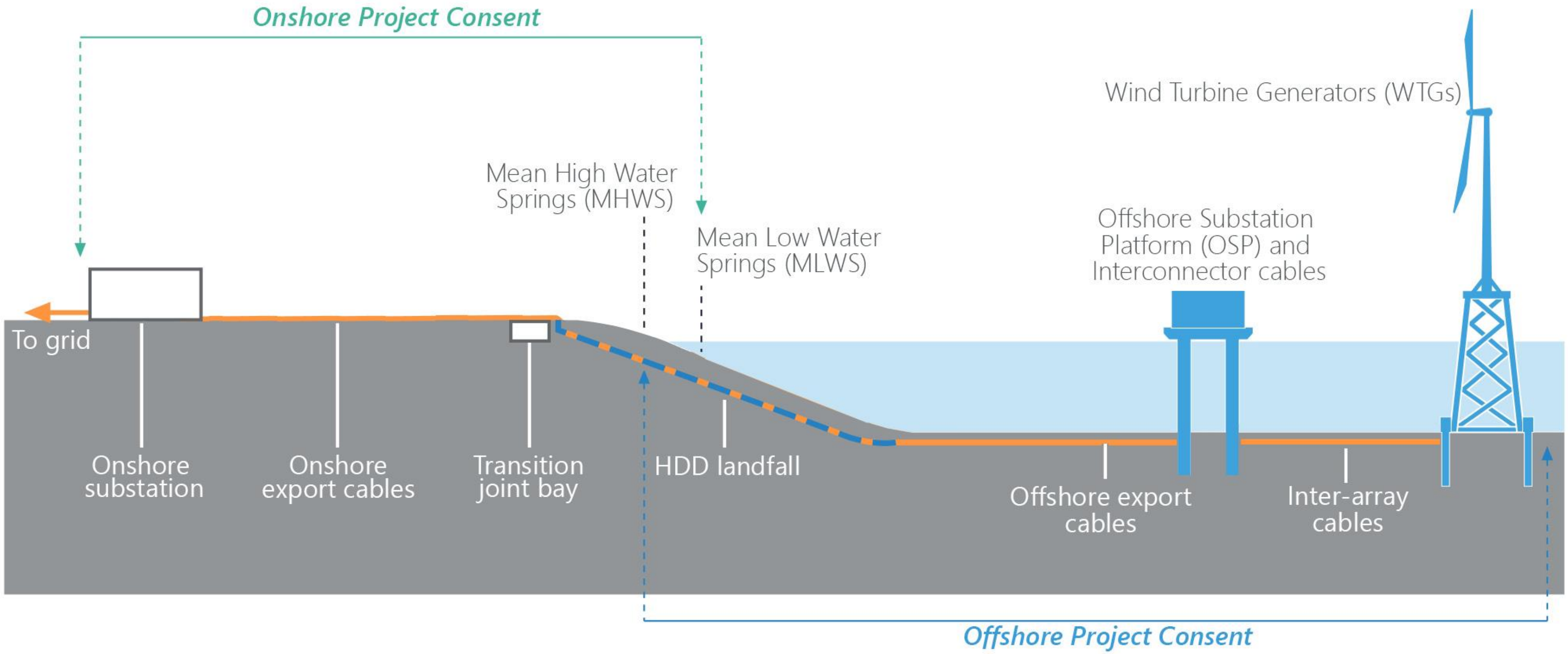

Figure 2-1 Schematic offshore Project overview

2.3 Project stages

2.3.1 Construction (including pre-construction)

It is anticipated that the construction of the offshore Project will take approximately four years between 2028 to 2031 with an additional year of pre-construction works. The general series of activities includes:

1. Pre-construction surveys and site investigations;
2. Site preparation;
3. WTG foundation installation;
4. OSP installation;
5. Offshore export cable – landfall and offshore installation;
6. Inter-array and interconnector cable installation; and
7. WTG installation/commissioning.

The indicative construction programme is presented in Figure 2-2. Offshore construction may last up to four years (with an additional one year of pre-construction activities). Construction activities are expected to occur within distinct construction seasons with delays between each season (i.e. construction is not continuous throughout this period). It may be possible for construction activities to be continuous through the construction stage to reduce the overall construction duration. Construction works would typically be undertaken 24 hours a day, seven days a week offshore, dependent upon weather conditions. It is anticipated that construction will only occur up to nine months a year. Weather conditions during the winter months, particularly November to January, are unlikely to be suitable for offshore construction. First power may occur ahead of the construction stage being complete.

Durations for major works are subject to change, which may arise, for example, from weather or site conditions. Furthermore, specific details on installation will vary depending on the technologies adopted.

Construction of the offshore Project will require a variety of different vessel options dependent on the final design selected and vessel availability. Full details of the vessels which may be required are provided in the Offshore EIA Report, chapter 5: Project description.

Conservative assumptions have been made on the vessel activities for the construction period and these are presented in Table 2-2.

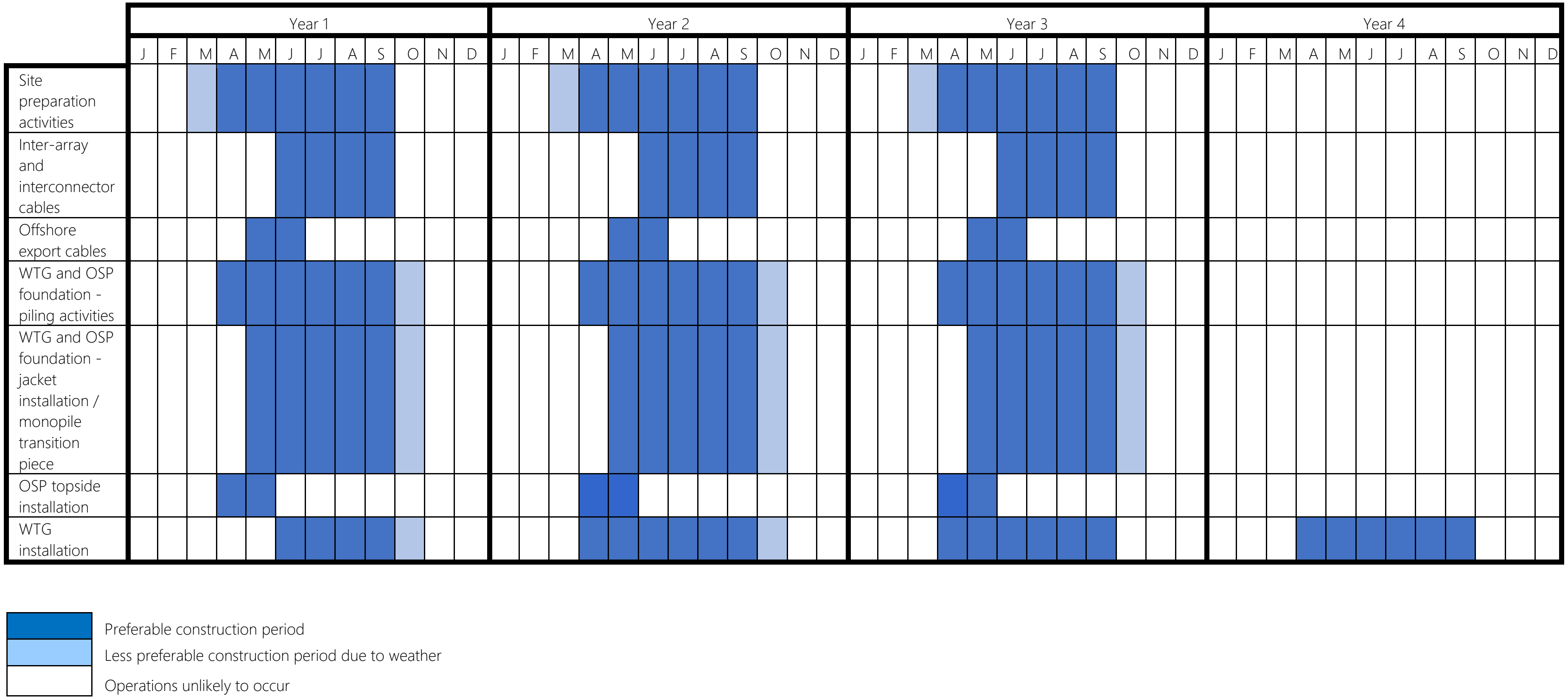

Figure 2-2 Construction programme

Table 2-2 Construction vessel requirements

VESSEL REQUIREMENT	MAXIMUM DESIGN ENVELOPE
Number of vessels	101
Maximum number of return transits	1,722
Maximum number of vessels on site simultaneously	30

Further details on the construction approach for the offshore Project are included in the Offshore EIA Report, chapter 5: Project description.

2.3.2 Operation and maintenance

The operational stage will commence once the Project is commissioned. The design operational life of the offshore Project is anticipated to be 30 years[2].

During the operation and maintenance stage, the offshore Project will operate with minimum day-to-day intervention. The overall operation and maintenance strategy will be finalised once the onshore operation and maintenance base location and technical specifications are known. The operation and maintenance activities associated with the various components of the offshore Project are provided in Table 2-3.

Table 2-3 Operation and maintenance requirements

OPERATION AND MAINTENANCE ACTIVITIES	INDICATIVE FREQUENCY
WTGs	
• Scheduled / preventative maintenance: – Regular scheduled / preventative maintenance on all WTGs including, where applicable, statutory inspections and certification of certain equipment; and – Planned campaigns of work may require additional equipment or plant such as work platforms to assist with blade repair campaigns.	• Annual routine inspections; and • Major maintenance will be ad hoc on discovery of a failure, or as part of a pre-emptive maintenance campaign.

[2] *An operational period of 35 years has been assumed for CRM as turbines will be present in the OAA and potentially turning ahead of first power.*

OPERATION AND MAINTENANCE ACTIVITIES	INDICATIVE FREQUENCY
• Minor faults and troubleshooting: correction of unplanned events (either remotely or through the attendance of technicians and/or trouble-shooters) when an unplanned loss of generation requires intervention or troubleshooting; and • Major component replacement: over the life of the asset it is anticipated that there will be a requirement for major component replacement including but not limited to replacement of gearbox, switchgear, blades, main bearing, transformer or generator.	
Balance of Plant (BOP) and High Voltage (HV) infrastructure, including foundations, cables, OSPs and all ancillary equipment and infrastructure	
• Offshore Transmission Owner (OFTO) assets: – It is anticipated that there may be a period where the Project will be responsible for the maintenance of the OFTO assets prior to completion of the OFTO transaction. – The assets will be monitored remotely; and – Operation and maintenance activities will be carried out in accordance with Original Equipment Manufacturer (OEM) manuals and will include routine inspection, testing and replacement of components; • BOP routine inspections: – Visual inspections, testing and survey work; and – Inspections will be undertaken on structural strength, lifting, climbing, safety equipment, corrosion and scour protection and cable protection systems; • BOP remedial or unscheduled maintenance: – More significant works can include repairs to grouted joints, rock placement to augment scour protection and intermittent repairs to secondary steelwork such as ladders, gates, grills and platforms; and – Other tasks can include the removal of marine growth, guano cleaning and painting of structures; • Surveys: – Ongoing surveys will be required throughout the life of the offshore Project to monitor cable location and seabed conditions. These surveys are generally conducted with specialist equipment from a CTV, with ROVs, Unmanned Surface Vessel (USVs); • Visual inspections of cable assets; and • Reactive cable repair, replacement and re-burial, as required, in the identification of a cable fault or in response to external factors (e.g. seabed mobility, erosion, third-party damage).	• Annual routine inspections (eventually moving to three years for the cable assets); • Frequency of surveys will be dependent on the rate of any change on the seabed or the requirement for heavy lift vessels; and • Any significant maintenance and replacements will be ad hoc on discovery of a failure, or as part of a pre-emptive maintenance campaign.

All offshore infrastructure, including WTGs, foundations, cables, and OSPs will be included in monitoring and maintenance programmes.

The operation and maintenance vessel and helicopter requirements are included in Table 2-4.

Table 2-4 Operation and maintenance vessel and helicopter requirements

VESSEL REQUIREMENT	PROJECTDESIGN ENVELOPE
Maximum number of annual helicopter trips	195
Maximum number of annual vessel trips	273
Maximum number of vessels present at the offshore Project at any one time	19

Further details on the operation and maintenance activities are included in the Offshore EIA Report, chapter 5: Project description.

2.3.3 Decommissioning

The Scottish Government's Decommissioning of Offshore Renewable Energy Installations in Scottish Waters (Scottish Government, 2022b) states that in order to minimise residual liabilities, retain value in Crown Estate Scotland assets, maximise seabed re-use and for the safety of other marine users, it is expected that all relevant objects will be fully removed at the end of their operational life. The Scottish ministers will consider exemptions from full removal only on presentation of compelling evidence that removal would create unacceptable risks to personnel or to the marine environment, be technically unfeasible or involve extreme costs. The preferred decommissioning option will be for as close to full removal as possible, whilst recognising that this will be subject to assessments and consultation closer to the time of decommissioning. This preference has been integral to the selection of design options and will continue to be through the detailed design stage.

The Energy Act 2004 and the Scotland Act 2016 contain statutory requirements in relation to the decommissioning of offshore renewable energy installations (OREI) and require the offshore Project to provide a Decommissioning Programme ahead of construction activities commencing, supported by details of the type and timing of appropriate financial security proposed. The Decommissioning Programme will follow the guidance found in the Scottish Government's Decommissioning of Offshore Renewable Energy Installations in Scottish Waters (Scottish Government, 2022b). Decommissioning activities will comply with all relevant legislation at that time and best practice at the time of decommissioning will be followed.

Throughout the offshore Project lifespan, the Decommissioning Programme will be reviewed and updated every five years. Consultee bodies listed in the S105 Notices, and any additional consultees identified by MD-LOT or OWPL will be provided with the opportunity to comment on the decommissioning strategy prior to it being finalised. It is anticipated that the final revision process will commence two years prior to the initiation of decommissioning activities. Best practice will be followed when developing a Decommissioning Programme.

Further details on the decommissioning approach for the offshore Project are included in the Offshore EIA Report, chapter 5: Project description.

2.4 Embedded mitigation

A number of embedded mitigation measures and management plans have been incorporated into the PDE to prevent / reduce any potential adverse effects on receptors where possible. These embedded mitigation measures and management plans have been accounted for in this RIAA when assessing the potential magnitude of effect from the identified impacts. As detailed in section 3.4, in line with case law, these embedded mitigation measures were not used during the screening stage of the HRA, that is, they were not used to assess the potential for LSE on a European site. Embedded mitigation measures relevant to ornithology (the focus of this RIAA) are outlined in section 6.6.

3 THE HRA PROCESS

3.1 Legislative context

The requirement to consider the potential effects of plans and projects on European sites falls under the following legislation ('The Habitats Regulations'):

- The Conservation (Natural Habitats, &c.) Regulations 1994 (as amended) – applicable to projects within the 12 Nautical Mile (NM) limit;
- The Conservation of Offshore Marine Habitats and Species Regulations 2017 – applicable to projects between the 12 and 200 NM limits; and
- The Conservation of Habitats and Species Regulations 2017 (as amended) – applicable to Section 36 Consent applications

The Habitats Regulations require for the consideration of potential effects from projects and plans on European sites, including SACs, candidate SACs (cSACs), SPAs, proposed SPAs (pSPAs), Sites of Community Importance (SCI) and Ramsar sites (under the Conservation on Wetlands of International Importance especially as Waterfowl Habitat 'the Ramsar Convention')[3]. An HRA must be carried out to determine the potential for a development to result in a LSE on European sites, either individually or in-combination with other plans or projects. Sites of Special Scientific Interest (SSSIs) and other marine protected areas are not protected under the Habitats Regulations and do not form part of the HRA process.

The Habitats Regulations are in place to protect European sites. As the UK is no longer part of the EU, amendments were made to the Habitats Regulations in Scotland to ensure that they continue to work in the same manner in Scotland's inshore and offshore waters. The amendments made are minor and technical in nature, for example references to European Economic Area (EEA) states are corrected to exclude the UK and the European sites located within the UK now form part of the UK's National Site Network and are no longer part of the Natura 2000 network. The policies and procedures under the HRA Regulations remain unchanged. These amendments were made through The Conservation (Natural Habitats, &c.) (EU Exit) (Scotland) (Amendment) Regulations 2019 and the Conservation of Habitats and Species Amendment (EU Exit) Regulations 2019 (the "EU Exit Regulations"). Guidance on the implications of EU Exit on the HRA regulations is available through the Scottish Government website (Scottish Government, 2020a).

The Habitats Regulations contain the procedural requirements to undertake HRAs in order to assess the potential implications of plans / projects for European sites (Scottish Government, 2020a). The objectives in relation to the UK Site Network include:

- To maintain or restore habitats and species listed in the Habitats Directive to favourable conservation status; and

[3] *It is Scottish Policy for Ramsar sites to be considered as a European site, see Policy 4 of the National Planning Framework 4:* *https://www.gov.scot/publications/national-planning-framework-4/documents/*

- To contribute to ensuring the survival and reproduction of certain species of wild bird in their area of distribution and to maintaining their populations at levels which correspond to ecological, scientific, and cultural requirements, while taking account of economic and recreational requirements.

3.2 The HRA Process

The European Commission's (2021) guidance identifying a staged process for the assessment of plans or projects is relevant for this assessment. The three stages are commonly categorised as the following (as outlined in Figure 3-1):

- Stage One: HRA Screening - to determine whether a proposal is likely to have a significant effect on a European site; this stage does not take into account any embedded mitigation measures as detailed in section 3.4;
- Stage Two: AA carried out by the Competent Authority and informed by the RIAA - to ascertain whether the proposal will or will not adversely affect the integrity of a European site; this stage considers the embedded mitigation measures implemented for the offshore Project (as detailed in section 2.4);
- Stage Three:
  - Assessment of Alternative Solutions - if it cannot be ascertained that a European site's integrity will not be adversely affected, alternative solutions will need to be considered; and
  - Assessment of 'Imperative Reasons of Overriding Public Interest' (IROPI) - if there are no alternative solutions which can be implemented to ensure no adverse effects on a European site's integrity then an assessment of whether there are imperative reasons of over-riding public interest for the proposal will be undertaken.

The Offshore HRA Screening Report (OWPL, 2022) addressed Stage One of the HRA process (see section 4 for a summary of this report). This RIAA addresses Stage Two of the HRA process. The RIAA provides the Competent Authority with the information required to assist them in undertaking an AA and determine whether there is any 'adverse effect on site integrity' from the offshore Project.

Stage three would become relevant if the RIAA cannot exclude adverse effect on site integrity.

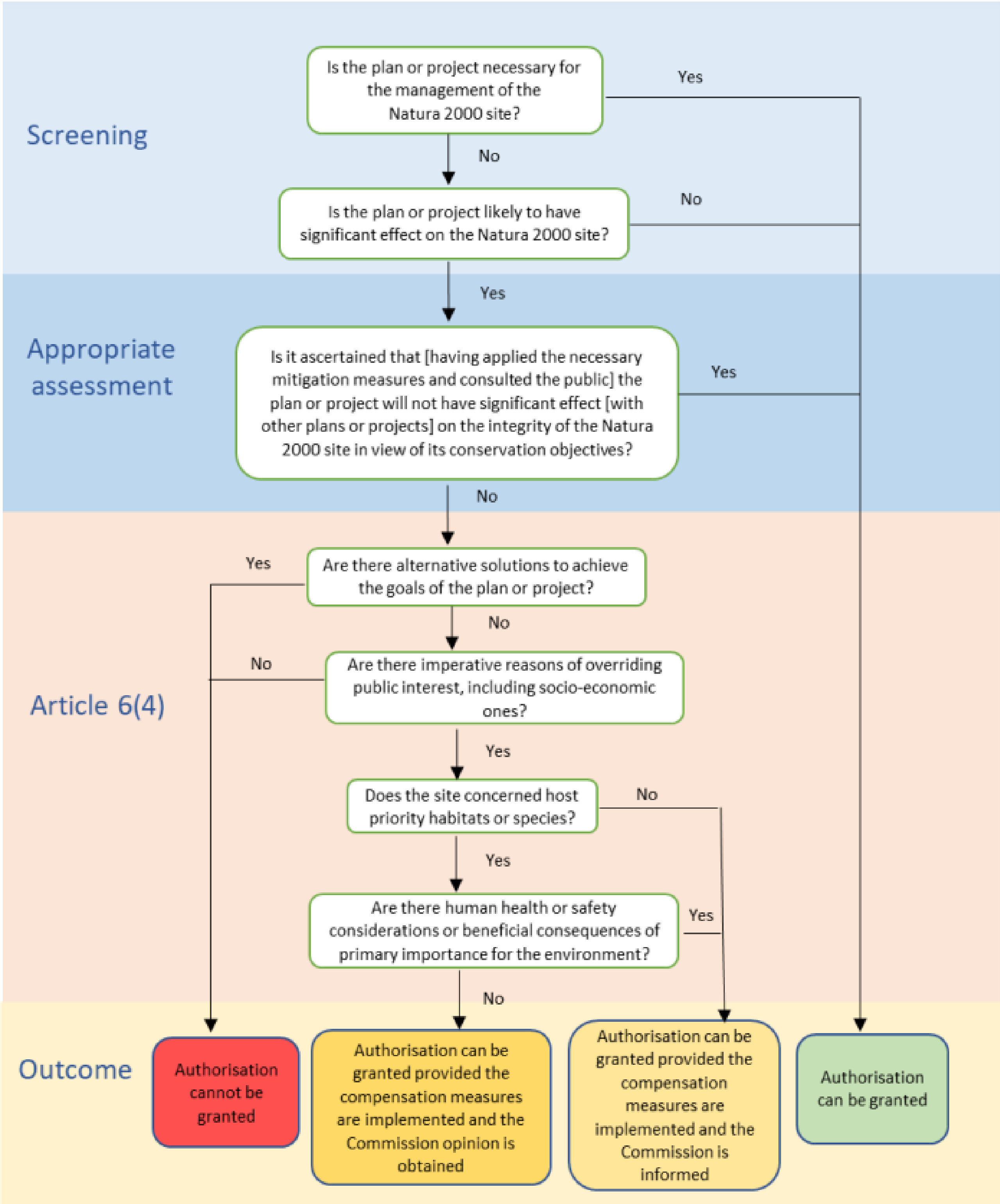

Figure 3-1 Stages of the HRA process (taken from European Commission, 2021)

3.3 Guidance documents

A number of key guidance documents and advice are available to inform the HRA process. This RIAA has been informed by:

- Article 6 - Managing and protecting Natura 2000 sites (European Commission, 2000);
- Assessment of plans and projects in relation to Natura 2000 sites – Methodological guidance on Article 6(3) and (4) of the Habitats Directive 92/43/EEC (European Commission, 2021);
- Guidance document on wind energy developments and EU nature legislation (European Commission, 2020);
- Managing Natura 2000 sites – The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC (European Commission, 2018);
- Habitats Regulations Appraisal: Guidance for Plan-making Bodies in Scotland (Tyldesley *et al.*, 2015);
- The handling of mitigation in Habitats Regulations Appraisal – the People Over Wind CJEU judgement (SNH, n.d.);
- Marine Scotland Consenting and Licensing Guidance for Offshore Wind, Wave and Tidal Energy Applications (Scottish Government, 2018);
- EU Exit: habitats regulations in Scotland (Scottish Government, 2020a);
- Guidance For Plan-Making Bodies In Scotland (Scottish Natural Heritage, 2015);
- Natura Casework Guidance: How to consider plans and projects affecting Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) (Scottish Natural Heritage, 2014).

3.4 Key case law in relation to consideration of mitigation

Where the RIAA indicates that there is the potential for significant effects on European site qualifying interests, the project proposal will be reviewed in accordance with regulatory guidance and against current case law, following which Marine Directorate would seek expert advice to identify and categorise the actual impacts of the development on European sites and qualifying interests, and identify what mitigation measures may be required (Scottish Government, 2018).

Following the judgement of the European Court of Justice in the People Over Wind and Sweetman case in 2018 (Case C323/17), NatureScot (then Scottish Natural Heritage (SNH)) provided guidance to clarify what stage mitigation can be considered in the HRA process for Scottish developments (SNH, n.d.). NatureScot (SNH, n.d) interpreted the judgement from the European Court of Justice as stating that mitigation measures that intend to avoid or reduce harmful effects to a European site cannot be considered at the screening stage. However, embedded mitigation measures which are not specifically designed to avoid or reduce effects on a European site, but do so incidentally, can be considered. Therefore, there must be a distinction between these two types of mitigation.

In response to this guidance, the Offshore HRA Screening Report did not consider mitigation measures that are specifically implemented to reduce or avoid effects on a European site. Mitigation measures remain applicable for the determination of adverse effects, which is the focus of this RIAA.

4 OVERVIEW OF THE HRA SCREENING PROCESS

4.1 Screening process

4.1.1 Overview

This section outlines the Stage One HRA screening process which was used to inform the Offshore HRA Screening Report (OWPL, 2022) The screening process followed a stepwise approach and was used consistently across the receptor specific topic assessments.

4.1.2 Identification of European sites and features with connectivity

European sites and features were identified with connectivity to the offshore Project. The identification of European sites was undertaken with reference to the qualifying interests / features in line with the following process:

- Identifying the range of effects that the offshore Project could have on qualifying feature(s) of a site (pathways for LSE); and
- Determining connectivity with the sites (e.g. if a qualifying interest / feature of the European site may overlap with the boundary of the offshore Project or the wider zone of influence).

Effect identification was informed by the Sectoral Marine Plan for Offshore Wind and the supporting Strategic Environmental Assessment (particularly Appendix C) (Scottish Government, 2020b), as well as industry experience and scientific research. It also took into account feedback received through the Scottish Ministers Scoping Opinion (MS-LOT, 2022b).

Connectivity depends on a number of factors including life cycle, foraging, behavioural, breeding, and migratory characteristics of those qualifying features associated with a particular site and the characteristics and potential effects of the offshore Project. Each particular receptor topic defined the relevant criteria used to determine connectivity. The outcome of this step is a list of European sites and features for which there is connectivity with the offshore Project.

Table 4-1 Initial screening criteria used within the Offshore HRA Screening Report

TOPIC	SCREENING CRITERIA
European sites Designated for Annex I Habitats	• The site boundaries of the offshore Project overlap with one or more European sites; • The European site is located within the Zone of Influence (ZOI) of effects associated with the offshore Project, which is considered as extending up to a maximum of 10 km from the boundaries of the offshore Project. In the context of Annex I habitats the majority of effects occur within the offshore Project footprint; however, sediment disturbance generated during offshore works may result in adverse effects on water quality and generate

TOPIC	SCREENING CRITERIA
	smothering effects where sediments resettle. These effects may extend beyond the boundaries of the offshore Project.
European sites Designated for Diadromous Fish and Associated Features	• European sites that overlap with the offshore Project boundary; and • European sites designated for diadromous fish with migratory routes that are likely to cross the offshore Project or the ZOI of the offshore Project, where these effects occur over a larger range (e.g. underwater noise).
European sites Designated for Marine Mammal Features	• European sites which spatially overlap with the boundary of the offshore Project; and • European sites which are located within the range (foraging range or management unit) of the Annex II marine mammal species for which they are designated.
European sites Designated for Ornithological Features	• European sites designated for bird features that overlaps with the offshore Project: Including physical overlap between offshore Project boundary and SPA / Ramsar site; • European sites with breeding seabird qualifying features with a mean of the maximum foraging range (km) + one standard deviation of the mean (1SD hereafter) overlaps with the offshore Project, as requested by NS (12^{th} July 2022). Foraging range data is from Woodward *et al.* (2019); • European sites with qualifying bird features whose migratory range overlaps with the offshore Project based on data presented in the strategic assessment of collision risk of Scottish offshore windfarms to migrating birds (Wildfowl & Wetlands Trust and MacArthur Green, 2014); and • European sites and / or a qualifying feature located within the potential extent of effects associated with the offshore Project: An indirect effect acting through prey or access to habitat.

4.1.3 Determination of no Likely Significant Effect (LSE)

Where it was identified that there is connectivity between the offshore Project and the qualifying interests of a European site, further appraisal was undertaken to determine whether, as a result of this connectivity, no LSE can be concluded.

In order to determine no LSE, it is necessary to:

- Determine whether that qualifying feature(s) would, by virtue of its behavioural and foraging characteristics, be affected by a particular effect (species sensitivity); and
- Where a qualifying feature is likely to be affected by an effect, identify whether or not this is likely to have a significant effect on the conservation objectives for the site (conclusion of LSE or no LSE).

The assessment of no LSE combines information on effect pathways and characteristics of qualifying interests as part of a high-level appraisal to determine whether or not there is potential for any of the conservation objectives relating to the qualifying interests of a European site to be undermined on the basis of the potential effects. Where there is no potential for the conservation objective to be undermined, no LSE is concluded.

4.2 Screening conclusions

4.2.1 Receptors screened in

Table 4-2 presents a summary of the European sites for which LSE could not be ruled out. This considers the findings of the West of Orkney HRA Screening report (OWPL, 2022), the HRA Screening Response (MS-LOT, 2022a) and further consultation. Further detail on the European sites screened in is provided in section 6.

Table 4-2 Summary of designated sites and features for which LSE could not be ruled out

TOPIC	DESCRIPTION
European sites Designated for Ornithological Features	The HRA Screening report concluded that LSE with 258 SPAs designated for ornithological features could not be ruled out. Section 5 outlines the consultation undertaken on the HRA Screening report. Section 6.2 provide further information on the SPA and Ramsar sites considered within this RIAA.

4.2.2 Receptors screened out

Table 4-3 presents a summary of the European sites for which LSE could be ruled out. This considers the findings of the West of Orkney HRA Screening report (OWPL, 2022) and the HRA Screening Response (MS-LOT, 2022a). Details on the feedback provided in the HRA screening response are included in section 5.

Table 4-3 Summary of designated sites and features for which LSE could be ruled out

TOPIC	DESCRIPTION
European sites Designated for Annex I Habitats	There are no European sites with relevant Annex I habitats that have a connectivity to the offshore Project, due to the distance to these sites (i.e. all sites are located > 10 km from the offshore Project, which is considered as the ZOI for potential LSE). Therefore, no potential LSE was concluded for European sites designated for Annex I habitats and this receptor is not taken forward for assessment within this RIAA. As detailed in the HRA screening response, NatureScot agreed with this conclusion (see section 5).
European sites Designated for Diadromous Fish and Associated Features	SACs designated for sea lamprey (*Petromyzon marinus*) or river lamprey (*Lampetra fluviatilis*) were screened out by the Offshore HRA Screening Report. The closest European site designated for sea lamprey is River Spey SAC, approximately 108 km from the offshore Project.

TOPIC	DESCRIPTION
	Considering this distance, it is unlikely that the offshore Project will have an LSE on European sites designated for this species. The closest European site designated for river lamprey is approximately 187 km from the offshore Project. The rivers (and river mouths) designated for river lamprey do not overlap with the offshore Project, and therefore, connectivity has been ruled out. Considering the above, European sites designated for sea lamprey and river lamprey have not been taken forward for assessment within this RIAA. As detailed in the HRA screening response, MS-LOT and NatureScot agreed with this conclusion (see section 5). European sites designated for Atlantic salmon and freshwater pearl mussel were originally screened into the RIAA and this aligned with the feedback from MS-LOT and NatureScot in the HRA screening response (see section 5). However, following further consultation in the form of a letter to NatureScot (WO1-WOW-HSE-EV-LT-0015) around the approach to the assessment of adverse effects on European sites designated for Atlantic salmon and freshwater pearl mussel, NatureScot and Marine Directorate have since advised that these effects should be assessed through the EIA only and not within this RIAA. Therefore, effects on European sites designated for Atlantic salmon and freshwater pearl mussel have not been taken forward for assessment within this RIAA.
European sites Designated for Marine Mammal Features	Bottlenose dolphin (*Tursiops truncatus*) have been scoped out of the assessment following advice from NatureScot, based on there being very few sightings of the species on the north coast of Scotland or around Orkney, and no evidence of connectivity of individuals to the Moray Firth SAC. European otter (*Lutra lutra*) has been scoped out as there is considered to be no pathway for effect on this species as a result of offshore Project works. All European sites designated for harbour seal (*Phoca vitulina*) and grey seal (H*alichoerus grypus*) have been screened out as they are outside of the screening ranges presented within Table 4-1, with the closest site for grey seal at 70.1 km (Faray and Holm of Faray SAC) and for harbour seal at 85.5 km (Sanday SAC) from the offshore Project. The nearest SAC designated for harbour porpoise (*Phocoena phocoena*) is the Inner Hebrides and the Minches SAC, which is 93.9 km from the offshore Project. Given the significant distance to this SAC and in turn all other SACs, no potential LSE was concluded. Therefore, European sites designated for marine mammal features (including bottlenose dolphin, otter, harbour seal, grey seal and harbour porpoise) have not been taken forward for assessment within the RIAA. As detailed in the HRA screening response, MS-LOT and NatureScot agreed with this conclusion (see section5).
European sites Designated for Ornithological Features	As outlined in the HRA Screening Report (OWPL, 2022), 270 SPAs were considered for the determination of LSE. It was possible to conclude no LSE for a number of SPAs, LSE pathways and features as outlined within the HRA Screening report. Section 5 outlines the consultation undertaken on the HRA Screening report. Section 6.2 provide further information on the SPA and Ramsar sites considered within this RIAA.

5 HRA CONSULTATION

5.1 Consultation and HRA screening

Consultation with key stakeholders was undertaken as part of Stage One of the HRA process. As outlined above, the Offshore HRA Screening Report (OWPL, 2022) was submitted to Marine Scotland in September 2022 and outlined the details of the offshore Project and an assessment of whether, in view of best scientific knowledge, there was the potential for the offshore Project, individually or in combination with another plan or project, to have an LSE on a European site. A Screening Opinion was received from Marine Scotland in November 2022 and the comments received, together with responses, have been summarised in Table 5-2. As outlined in Table 5-2, the Screening Opinion confirmed that Annex I habitats and marine mammals could be screened out of further assessment.

In addition to the Screening Opinion, further consultation was undertaken through the EIA process in relation to the HRA consideration of diadromous fish and offshore ornithology. European sites designated for Atlantic salmon and freshwater pearl mussel were originally screened into the RIAA, as noted in section 4.2.2 and this aligned with the feedback from MS-LOT and NatureScot in the HRA screening response in November 2022. However, following further consultation in the form of a letter to NatureScot (email response received 25th May 2023) around the approach to the assessment of adverse effects on European sites designated for Atlantic salmon and freshwater pearl mussel, NatureScot and Marine Scotland have since advised the following:

> "*We note that the proposed approach for West of Orkney mainly considers Atlantic salmon – this is due to the fact that more is known about this species than other diadromous fish species in the marine environment. However, there is a paucity of information for all diadromous fish movements / behaviours in the marine environment. Due to this absence of robust evidence about the behaviour and distribution of diadromous fish within marine waters, it is not currently possible to apportion potential impacts back to individual SACs. Therefore, we advise impacts to diadromous fish (including freshwater pearl mussel) should be assessed through EIA only and not through HRA. We have discussed and agreed this approach recently with Marine Directorate.*
>
> *We are aware of work being led by ScotMER on diadromous fish and this is an area of research that may change conclusions on how diadromous fish are treated in both EIA and HRA in the future, but this will not be in time to inform this application. We therefore encourage offshore wind developers to consider contributing to research as well as other initiatives such as the Wild Salmon Strategy Implementation Plan[1] that are being developed for diadromous fish interests.*"

Therefore, effects on Atlantic salmon and freshwater pearl mussel are assessed through the EIA only and not within this RIAA. The ScotMER fish and fisheries and diadromous fish receptor groups have identified a number of key research themes which the Offshore EIA Report can both inform and address as the Project moves forward to development including data and mapping, stakeholder engagement and strategic survey trials and monitoring

In order to inform the offshore ornithology assessments (both EIA and HRA), several meetings with relevant stakeholders were held as well as other forms of consultation. The consultation is outlined within Table 5-1.

Table 5-1 Consultation to inform the offshore ornithology assessments

CONSULTEE AND TYPE OF CONSULTATION	DATE	SUMMARY
NatureScot	November 2018	Digital Aerial Survey (DAS) programme for the OAA was discussed and agreed with NatureScot (then Scottish Natural Heritage (SNH)) prior to July 2020). Additional meetings were held in November 2020 to confirm the surveys were underway in accordance with the agreed strategy.
Offshore Ornithology Consultee Online Meeting - OWPL, Xodus, MacArthur Green, NatureScot and RSPB	12th July 2022	Discussion on the following topics: Project overview, DAS key findings from the first breeding season, Habitats Regulations Appraisal (HRA) screening, scoping feedback, displacement analysis, collision analysis and PVA.
Offshore Ornithology Consultee Online Meeting - OWPL, Xodus, MacArthur Green and NatureScot	9th September 2022	Discussion about PVA metrics to include in the assessment including the difference between CPS and the CGR. Discussion also included the level of change in the CGR required to demonstrate that mitigation measures are likely to be beneficial.
Offshore Ornithology Consultee – written letter	16th November 2022	Letter (Ref. WO1-WOW-HSE-CN-LT-0002) to NatureScot from OWPL regarding the avoidance rate guidance for seabirds to be used in CRM. NatureScot email response received 5th December 2022
Offshore Ornithology Consultee Online Meeting - OWPL, Xodus, MacArthur Green and NatureScot	8th February 2023	Discussion about the final baseline outputs, initial EIA assessment results and HRA approach. Approach to cumulative assessment presented and discussed. Breeding season based on Pentland Firth Offshore Wind Farm (PFOWF), Moray, West, Moray East, Beatrice. Non-breeding season based on both BDMPS North Sea ("east") and Western Waters ("west") due to the Project being near the boundary between BDMPS regions.
Offshore Ornithology Consultee – written letter	2nd March 2023	Letter (Ref. WO1-WOW-HSE-EV-LT-0007). Letter to NatureScot from OWPL regarding follow up actions from meeting 8th February 2023 and clarifications regarding changes to NatureScot guidance. NatureScot letter response (Ref. CNS REN OSWF-ScotWind-N1 OWPL West of Orkney Pre App) received 5th April 2023.

CONSULTEE AND TYPE OF CONSULTATION	DATE	SUMMARY
Offshore Ornithology Consultee Online Meeting - OWPL, Xodus and NatureScot	18th April 2023	Presentation of changes to DAS area that took place during programme and reflected the awarded OAA area.
Offshore Ornithology Online Meeting - OWPL, Xodus, MacArthur Green, NatureScot and MS-LOT	25th April 2023	Discussed updates to the EIA results following feedback from NatureScot and initial HRA outputs.
Offshore Ornithology Consultee – written letter	18th May 2023	Letter (Ref. WO1-WOW-HSE-EV-LT-0020). Letter to NatureScot from OWPL regarding follow up actions from meeting 25th April 2023. Letter outlined the concerns identified with using SeabORD to assess displacement and barrier effects and why the matrix approach should be utilised for the RIAA. NatureScot email response received 31st May 2023.
Offshore Ornithology Consultee – written letter	18th May 2023	Letter (Ref. WO1-WOW-HSE-EV-LT-00017). Letter to NatureScot, clarifying the change made to the DAS area.
Offshore Ornithology Consultee - email	19th May 2023	Letter to NatureScot from MacArthur Green regarding clarification on PVA projections. NatureScot email response received 31st May 2023.
Offshore Ornithology Online Meeting - OWPL, Xodus, MacArthur Green, MS-LOT, and NatureScot	24th May 2023	Initial discussion of Derogation Strategy.

OWPL will maintain communication with key statutory and non-statutory stakeholders throughout the HRA process to capture and address comments regarding the offshore Project.

Table 5-2 Summary of HRA consultation feedback and responses

CONSULTEE	TOPIC	CONSULTEE COMMENT	RESPONSE
General			
NatureScot	West of Orkney connection to Flotta Hydrogen Hub	It is noted that the Marine Licence applications for the offshore transmission infrastructure associated with the connection of the offshore Project area to the proposed Flotta Hydrogen Hub will be submitted at a later date and will be the subject of a separate HRA Screening Report and thus is not covered by our advice below.	A separate HRA Screening report and subsequent RIAA for the West of Orkney Connection to the Flotta Hydrogen Hub will be submitted alongside the consent application for this development.
MS-LOT	EIA Scoping Opinion	The HRA assessment must fully align with the impact pathways identified for assessment in the Scoping Opinion adopted by the Scottish Ministers in relation to the Proposed Development, dated 29th June 2022 ("the Scoping Opinion").	Noted, feedback obtained in the Scoping Opinion has been reviewed in the development of this RIAA.
NatureScot	Project design envelope	Following the receipt of correspondence (document reference: WO1-WOW-HSE-CN-LT-0001) from West of Orkney confirming that floating foundation options have been removed from the Project Design Envelope (PDE), floating foundations and their potential impacts are not covered by our advice below.	Noted.
Diadromous fish			
MS-LOT and NatureScot	Atlantic Salmon	MS-LOT: "The proposal to screen out Special Areas of Conservation ("SAC") that do not overlap with the Proposed Development is unacceptable. The connectivity with 13 river SACs designated for Atlantic salmon on the west, north	Effects on Atlantic salmon as a qualifying feature of SACs have been since been screened out of this RIAA, following additional advice received from NatureScot (25th May 2023), as outlined in section 4.2.2 and 5. These features

CONSULTEE	TOPIC	CONSULTEE COMMENT	RESPONSE
		and north east coasts of Scotland are correct however we advise that all SACs in Scotland with Atlantic salmon listed as a qualifying interest are screened in." NatureScot: "The HRA Screening Report acknowledges that movements of returning salmon from rivers south of the Aberdeenshire coast may primarily travel in a northerly direction (Malcolm *et al*, 2010) and thus there may be some interaction between salmon returning to the rivers of the south of the River Dee. In addition, it is also acknowledged that east to west migrations do occur (Youngson, 2017), with Malcolm *et al* (2010) finding that returning adults from west coast SACs may run off course and then adjust their route to return to their natal river in an east to west direction. We acknowledge there is a lack of data on diadromous fish movements in and around the north coasts of Scotland. However, a lack of data is not sufficient evidence to conclude no LSE. Therefore, taking the above into account we advise that all SACs designated for Atlantic salmon in Scotland are screened in at this stage for further assessment."	are considered within the Offshore EIA Report (chapter 11: Fish and shellfish ecology).
MS-LOT and NatureScot	Freshwater pearl mussel	MS-LOT: "We also highlight that SACs with freshwater pearl mussel as a qualifying feature must also be screened in, as per NatureScot representation." NatureScot: "Atlantic salmon are a host species for Freshwater Pearl Mussel (FWPM) during a critical parasitic phase of the mussels lifecycle and so there is a need to consider indirect impacts upon this species. to ensure populations are not adversely affected. Therefore, we advise that SACs with FWPM as a qualifying feature are also screened in for further assessment."	Effects on freshwater pearl mussel as a qualifying feature of SACs have been since been screened out of this RIAA following additional advice received from NatureScot (25th May 2023),, as outlined in section 4.2.2. These features are considered within the Offshore EIA Report (chapter 11: Fish and shellfish ecology).
MS-LOT and NatureScot	Lamprey species	MS-LOT: "With regards to impacts on other qualifying diadromous species such as sea and river lamprey, these can be screened out from the HRA and should instead be considered through the EIA Report." NatureScot: "There is limited information on the distribution and behaviour of sea and river lamprey in marine waters and it is possible that migration routes may overlap with the proposed development. However, considering the	Effects on Annex II sea and river lamprey as qualifying features within SACs have been screened out, following additional advice received from NatureScot (25th May 2023), as outlined in section 4.2.2. These features are considered within the Offshore EIA Report (chapter 11: Fish and shellfish ecology).

CONSULTEE	TOPIC	CONSULTEE COMMENT	RESPONSE
		distance to the nearest SAC (108km and 187km respectively), it is unlikely that the proposal will have a significant effect and we agree with the approach to screen them out from further HRA assessment."	
NatureScot	Atlantic salmon	As noted in Section 6.2.1 there is the potential for European sites that have Atlantic salmon as a qualifying feature to have connectivity with the offshore Project area, despite being located a large distance away. This is due to the mobile nature of migrating Atlantic salmon, either as smolts travelling from rivers to offshore feeding grounds, or as adults returning to natal rivers to spawn. Although limited information is currently available on migratory routes, available tracking and tagging data for Atlantic salmon indicates that the Pentland Firth may be an important migratory route for returning adults and smolts to/from the north and east coasts of Scotland (Malcolm *et al*, 2010; Youngson, 2017).	Noted. Effects on Atlantic salmon as a qualifying feature of SACs have been since been screened out of this RIAA following additional advice received from NatureScot (25th May 2023),, as outlined in section 4.2.2. These features are considered within the Offshore EIA Report (chapter 11: Fish and shellfish ecology).
NatureScot	Atlantic salmon	Downie (2018) illustrates the potential coastal migration routes of Grilse and Atlantic salmon, showing that they are now known to utilise coastal areas long distances from natal rivers and that migration patterns are not necessarily those which might be expected or predicted.	Noted. Effects on Atlantic salmon as a qualifying feature of SACs have been since been screened out of this RIAA following additional advice received from NatureScot (25th May 2023),, as outlined in section 4.2.2. These features are considered within the Offshore EIA Report (chapter 11: Fish and shellfish ecology).
NatureScot	Apportioning impacts on Atlantic salmon and freshwater pearl mussel	Despite advising that all Atlantic salmon and FWPM sites are included as having LSE, as we cannot currently apportion impacts correctly to individual SACs further discussion will be required to agree how this will be assessed in the next stage of the HRA process.	Noted. Effects on Atlantic salmon as a qualifying feature of SACs have been since been screened out of this RIAA, following additional advice received from NatureScot (25th May 2023),, as outlined in section 4.2.2. These features are considered within the Offshore EIA Report (chapter 11: Fish and shellfish ecology).
The Northern	Diadromous fish	Thank you for the opportunity to respond to the above screening report. We have consulted with our Scientific Advisor regarding this and can confirm that	Noted. Effects on Atlantic salmon as qualifying features of SACs have been since been screened out of this RIAA, following additional advice received

CONSULTEE	TOPIC	CONSULTEE COMMENT	RESPONSE
District Salmon Fishery Board		The Northern DSFB is content with the HRA Screening Report at this stage and have no comment to make.	from NatureScot (25th May 2023), as outlined in section 4.2.2. These features are considered within the Offshore EIA Report (chapter 11: Fish and shellfish ecology).
Offshore ornithology			
Scottish Ministers (via MS-LOT)	HRA Screening	We refer to the representations made by NS and RSPB Scotland, who both highlight difficulties in evaluating the information in the HRA Screening Report regarding the assessment of connectivity and pathways. We support the NS representation in relation to producing an initial long list of Special Protection Area (SPA) and Ramsar qualifying features that can then be refined.	The LSE screening is described in detail in section 6.2 and long list of SPAs is provided.
Scottish Ministers (via MS-LOT)	HRA Screening – storm petrel, Leach's petrel and Manx shearwater	With respect to the qualifying features to be considered, impacts to European storm petrel, Leach's petrel and Manx shearwater from the potential effects from lighting attraction should be assessed qualitatively within the HRA. In relation to the potential displacement of any species of marine birds, we agree with the NS representation that an assessment of disturbance and/or displacement impacts from the Proposed Development itself should be included within the HRA. We also draw your attention to incorrect and contrary statements on individual species and/or sites that should be refined to show clear justification for screening decisions, as outlined by NS an RSPB Scotland.	A recently published review by Furness (2018) concludes that, "the evidence indicates that obstruction or navigation lights on turbines will have no significant effects on marine birds or on migrant terrestrial birds passing nearby". Assessment of disturbance/displacement is described in section 6.7.2. SPA for terrestrial migratory species noted by NatureScot as being "incorrectly" included in the long list have been screened out. Statements that NatureScot noted were contrary to their guidance/advice have been addressed as follows: 1. Migratory seabirds were removed as a category and the assessment was based only on breeding and non-breeding seasons as advised by NatureScot.

CONSULTEE	TOPIC	CONSULTEE COMMENT	RESPONSE
			2. European (greater) white-fronted goose interests of Stodmarsh, Severn Estuary and Minsmere-Walberswick SPA and Ramsar sites have been screened out of the assessment. 3. Movement of vessels to/from the offshore Project area no longer have connectivity with SPAs, including the Scapa Flow SPA, so have been screened out. 4. Due to the absence of red-throated divers recorded from the offshore Project area, no connectivity exists with breeding and/or non-breeding SPAs for this species.
Scottish Ministers (via MS-LOT)	HRA Screening	Furthermore, we refer you to the NatureScot representation with regards the species and sites to be screened in and out for further assessment including the impact pathways for each species and advise that this must be fully implemented. We advise that an updated final list of qualifying features and sites, including relevant justification, is provided to and discussed with the relevant stakeholders. We note that NS provided further ornithology comments, dated 28th October 2022 and this is included in Appendix A and associated Annex A.	NatureScots representation has been taken into account and section 6.2 describes the HRA screening process and results.
Scottish Ministers (via MS-LOT)	Advice for further assessment	Additionally, with regards to clear justification for screening in and out each protected site and/or species, consideration should be given to the use of matrix tables with evidence to support HRA Screening assessments and conclusions.	Section 6.2 describes the HRA screening process and results.
NatureScot	HRA Screening	We advise for HRA Stage 1 LSE screening, that an initial long list of European sites be drawn up based solely on potential theoretical connectivity to the proposed development. Once this initial long list of Special Protection Area (SPA) and Ramsar qualifying features is produced, it can be refined using information from site-specific baseline characterisation surveys or other agreed	NatureScots representation has been taken into account and section 6.2 describes the HRA screening process and results.

CONSULTEE	TOPIC	CONSULTEE COMMENT	RESPONSE
		data sources, as well as consideration of relevant impact pathways and sensitivity. This will result in a list of sites and qualifying features for which an Appropriate Assessment is required. However, the approach to compiling the initial long list (Table 8-1) is confusing and does not indicate on what basis each site has been included, which has made evaluation difficult.	
NatureScot	HRA Screening	Having reviewed Table 8-1, we note: • All UK seabird colony SPAs with connectivity in the breeding season are included. • All relevant UK SPAs for migratory geese, swans, ducks, waders, raptors, owls, divers, grebes and crakes are included. • For all types of interest, relevant sites in the Irish Republic (including e.g. Manx shearwater and fulmar colonies and wintering goose sites) are not considered. • The North Orkney and Scapa Flow marine SPAs have been omitted from the long list and these should be added and retained for LSE for all development phases on the basis of potential for disturbance impacts from vessel movements associated with the proposed offshore development transiting through these sites. All other relevant marine SPAs with wintering waterfowl features are included on the basis of potential collision risk to qualifying features on migration, which is also relevant to the two aforementioned Orkney marine SPAs. • The initial long list incorrectly includes many sites with no potential connectivity to the proposed development given the qualifying features (e.g. chough, Bewick's swan, great crested grebe, stone curlew) and/or location (e.g. cormorant and tern colonies in southern Britain).	NatureScots representation has been taken into account and section 6.2 describes the HRA screening process and results. Migratory species have been assessed in section 6.3.

CONSULTEE	TOPIC	CONSULTEE COMMENT	RESPONSE
		• Loch an Duin (Ramsar) does not have any bird features so can be removed from the long list.	
NatureScot	Migratory seabirds	Contrary to our advice of 12th July 2022, migratory seabirds have been identified as a separate category to seabirds in the breeding and non-breeding seasons. Although our previous advice relates more directly to the apportioning phase (of the impact assessment) for which we identify two distinct seasons. Movements of seabirds between breeding and non-breeding seasons is relevant to connectivity if birds from breeding colonies may move through a site on passage to distinct wintering areas. Given the northerly location of this development, there are relatively few SPA colonies where migratory/dispersal movements (rather than breeding or non-breeding season distributions) might be relevant and these are detailed in our advice.	Seasonal assessment of seabirds was based on recommended breeding and non-breeding seasons from NatureScot. No separate assessment for migratory seasons for seabirds was completed following NatureScot scoping advice. It should be noted that the BDMPS approach identifies seasons within the non-breeding season. So in all cases, except guillemot, the total non-breeding season predicted impacts from the Project alone and in-combination were compared to each BDMPS region seasonal population estimate. Migratory species are assessed in section 6.3.
NatureScot	Terminology	For the sites retained for further consideration (213 sites listed in Table 8-2), rather than a clear conclusion of LSE the phrase used is 'No potential LSE cannot be concluded'. This wording used here is confusing, but we assume the intention is to progress to Appropriate Assessment for all these sites.	This terminology was used as Waddenzee ruling states that, "in case of doubt as to the absence of significant effects" an Appropriate Assessment is required. Thus, it is necessary to demonstrate that there is no likely significant effect on a SPA, not the presence of a likely significant effect. Where no LSE cannot be concluded an appropriate assessment will be necessary and the Report to Inform the Appropriate Assessment will provide the necessary information to the competent authority to complete this.
NatureScot	HRA Screening	In the justification column in Table 8-2 all references to disturbance/displacement impacts relate to disturbance from vessels and there is no reference to potential displacement of any species of marine birds arising from the presence of the wind farm itself. There is also no mention of potential effects arising from lighting attraction with respect to European storm petrel, Leach's petrel and Manx shearwater. Both of which need to be addressed.	Disturbance/displacement of seabirds from the Project have been assessed. The approach used, following NatureScot guidance and advice, is provided in section 6.7.2 A recently published review by Furness (2018) concludes that, "the evidence indicates that obstruction or navigation lights on turbines will have no significant effects on marine birds or on migrant terrestrial birds passing nearby". Lighting is considered further in section 6.7.4.

CONSULTEE	TOPIC	CONSULTEE COMMENT	RESPONSE
NatureScot	HRA Screening	In general, we support the conclusions as to which sites should be retained for further consideration in the Appropriate Assessment on the basis of potential connectivity and generic impact pathways. However, not all associated commentaries on individual species/sites are correct, for example: • For Sule Skerry and Sule Stack SPA, shag should be included in the list of qualifying species with connectivity to the OAA. • For Foula, Flannan Isles and Ramna Stacks and Gruney SPAs, Leach's petrel should be included in the list of qualifying species with connectivity to the OAA. • For Troup, Pennan and Lion's Heads SPA and also the Shiant Isles SPA, guillemot and razorbill features are not within the relevant mean max (+1SD) foraging ranges. The same applies to puffin in Mingulay and Berneray SPA, and these should be removed. • LSE associated with vessel disturbance should be concluded for breeding red-throated divers from the Orkney Mainland Moors SPA during all phases. Conversely, it isn't clear why the breeding red-throated diver feature of Foula SPA is considered to be at risk of disturbance. Therefore, this feature should be removed. • LSE associated with potential collision risk in the operational phase should be concluded for all breeding red-throated diver SPAs in Shetland and Orkney given potential migration routes and wintering areas. • LSE should be concluded with respect to the Arctic tern feature of Papa Stour SPA. • Given migration fronts for gadwall from northern and eastern Europe wintering in the UK, it is unclear why gadwall are not identified as one of the species at risk of collision during the operational phase for all 21 SPA/Ramsar sites with wintering gadwall features. This impacts conclusion with respect to	The assessment of no LSE was based on connectivity between the OAA and appropriate species specific buffer and SPAs and the presence of the species in the OAA and buffer from DAS. The OAA and cable route no longer includes connectivity with the SPAs in Orkney for red-throated diver. The Project is beyond the mean max foraging range of all SPAs with Arctic tern as a qualifying feature, including Papa Stour SPA. No Leach's petrels were recorded in the Project area, so there was no connectivity with SPAs designated for this species. Connectivity of breeding seabirds with SPAs has been based on NatureScot (2023) guidance. Connectivity of guillemot and razorbill with the Troup, Pennan and Lion's Heads SPA and Shiant Isles SPA have been updated for the breeding season. Breeding season connectivity with the Mingulay and Berneray SPA for puffin has been updated. For all migratory terrestrial species, including red-throated divers, that are qualifying feature of SPA no AESI was concluded based on the findings of the strategic level assessment of collisions on these features completed for the Scottish Territorial Waters and Round 3 sites (in Scottish waters) by WWT and MacArthur Green (2014).

CONSULTEE	TOPIC	CONSULTEE COMMENT	RESPONSE
		LSE for four sites. The same applies to the 22 sites for which shoveler are a wintering or passage feature, which affects conclusion with respect to LSE for an additional two sites.	
NatureScot	HRA Screening	Due to the above as well as the way the information has been presented, it was difficult to follow the qualifying features and sites through the various steps of the HRA Stage 1 LSE screening process. This has been further compounded as there are some inconsistencies with the impact pathway justification used. Therefore, we request sight of an updated final list of qualifying features and sites, along with the relevant justification, being taken forward to the Report to Inform Appropriate Assessment.	The HRA screening process is summarised in section 6.2. The pathways are described in sections 6.2.2and 6.2.3. The SPAs to be assessed in the RIAA are summarised in section 6.4.
MS-LOT and NatureScot	In-combination assessment	MS-LOT: "We advise finfish aquaculture, focusing on mortality for species including gannets and large gulls (associated with top nets) and disturbance of breeding red-throated divers and wintering waterfowl by vessel movements within the Scapa Flow and North Orkney marine SPAs should be screened in to the in-combination assessment. This view takes into consideration the NS representation with respect to ornithology." NatureScot: We broadly agree with the approach to in-combination assessment. However, we advise that the in-combination assessment with respect to ornithology should also include finfish aquaculture, with particular focus on mortality for species including gannets and large gulls (associated with top nets) and disturbance of breeding red-throated divers and wintering waterfowl by vessel movements within the Scapa Flow and North Orkney marine SPAs.	There are nine finfish aquaculture sites within the Scapa Flow SPA and eight within the North Orkney SPA. The design of the offshore Project for the current application has changed since the HRA Screening opinion was provided and no longer includes power export to the Flotta Hydrogen Hub, therefore there is no longer connectivity with the Scapa Flow and North Orkney SPAs. As a result there is no longer the potential for in-combination with predicted impacts from fin fish farms in the Scapa Flow and North Orkney SPAs and these SPAs can be screened out.
NatureScot	Consultation to date	We previously provided advice to the West of Orkney ornithology consultants regarding the approach to the HRA screening assessment at an offshore ornithology meeting on 12th July 2022.	Foraging ranges were used to understand potential connectivity for both the LSE screening and RIAA. Existing published tracking data were considered in section 6.2.

CONSULTEE	TOPIC	CONSULTEE COMMENT	RESPONSE
		Breeding seabirds During this meeting we recommended use of relevant foraging range criteria only for the first stage of the HRA LSE screening assessment to compile the initial long list of sites, with information such as tracking data being relevant at the Appropriate Assessment stage as it requires detailed consideration to interpret this data. We also advised that we recommend some minor variations to the foraging distances for some species with respect to colonies in the Northern Isles. Migrating/wintering seabirds It was noted during the aforementioned meeting that Biologically Defined Minimum Population Scales (BDMPS) (Furness, 2015) boundaries are close to the project area and it was queried which region impacts should be assessed upon. We advised that the consultants provided some thoughts and detailed reasoning as to an assessment approach, based on a couple of examples, for further consideration and review. We have not yet received any information on this aspect ahead of submission of this HRA Screening Report. However, we note that the details of BDMPS regions become more important at the later apportioning stage and that for HRA LSE screening, the more general information provided in Furness 2015 (e.g. on dispersal or migration patterns that will determine connectivity in the non-breeding season) is relevant. It was also suggested that the update to the previous 'Strategic assessment of collision risk of Scottish offshore wind farms to migrating birds' might be used to inform the assessment and this would be our preference. However, we are unclear as to the expected timescales for publication of this update, noting that the updated report does not include any true seabirds. In the absence of an updated report, we advised use of either colony foraging range or BDMPS for HRA screening for true seabirds in all seasons as we do not support the approach taken to migratory seabirds in the 2014 migration review.	Foraging ranges for colonies in the Northern Isles were based on the values in Woodward et al. (2019) that included tracking from Fair Isle. The approach taken to assessment of non-breeding season impacts on BDMPS regions assessed the predicted impacts against all relevant BDMPS regions and seasons. Where the largest relative impact on any BDMPS region and season exceeded a change in adults survival rate of 0.02% point a PVA was run on the region and season with the largest relative impact. Thus, the assessment was precautionary. The BDMPS approach was presented to NatureScot in a meeting on 8th February 2023. In the absence of the update to the strategic assessment of predicted collisions on migratory species the report by WWT and MacArthur Green (2014) was relied upon to address potential impacts (section 6.3).

CONSULTEE	TOPIC	CONSULTEE COMMENT	RESPONSE
NatureScot	Initial screening criteria	The criteria used to develop the initial long list of sites with potential connectivity to the project area is detailed in Section 8.1 of the HRA Screening Report and includes SPAs and Ramsar sites: • That overlap the offshore project boundary. • With breeding seabird features where mean max plus 1 SD foraging range(s) overlap the offshore project boundary (see comments on Section 8.2.1.1). • With qualifying bird features whose migratory range overlaps the offshore project boundary based on data in WWT (Consulting) Ltd and MacArthur Green Ltd (2014) (see comments on Section 8.2.1.4). • For which the site or qualifying feature is located within the potential extent of indirect effects associated with the offshore Project acting through prey or access to habitat (see comments on Section 8.2.1). There is no reference here to seabirds in the non-breeding season.	Non-breeding season assessment of seabirds was based on the relevant BDMPS region (both “eastern” and “western” regions were assessed). Within each BDMPS region the predicted total impact on each SPA qualifying feature was collated for all the windfarms within each BDMPS region (section 6.7.6.2).
NatureScot	Ornithology features with potential connectivity	Ornithology features with potential connectivity are categorised as: • Breeding seabirds • Non-breeding seabirds • Migratory seabirds; and • Migratory terrestrial birds (including water birds). This list does include non-breeding seabirds, but as detailed below (Section 8.2.1.2) it is unclear how these have been considered. In addition, this list excludes breeding red-throated divers and non-breeding waterfowl features of marine SPAs that may be impacted by movements of vessels to and from the project area. As public consultation information identifies the Scapa Deep Water	Section 6.2 describes the HRA screening process and results. Potential connectivity for non-breeding seabirds was determined using the Biologically Defined Minimum Population Scales (BDMPS) Report (Furness, 2015) to assess seabird dispersal or migration patterns. An exception was made for common guillemot connectivity, this species was treated the same in breeding and non-breeding seasons in accordance with NatureScot guidance. Scapa Flow and North Orkney SPAs were identified as having potential connectivity and were screened into the long list. However, since the design of the Project has changed since the HRA Screening opinion was provided there is no longer connectivity with the Scapa Flow and North Orkney SPAs. The offshore export cables in Scapa Flow to the Flotta Hydrogen Hub do not

CONSULTEE	TOPIC	CONSULTEE COMMENT	RESPONSE
		Quay as the construction port for the Project, connectivity (and LSE) should be concluded for both the Scapa Flow and North Orkney SPAs.	form part of this consent application and are not considered within this Offshore RIAA.
NatureScot	Breeding seabird features	The use of the mean maximum plus 1 SD foraging ranges from Woodward *et al* (2019) to compile the initial long list is broadly correct. However, as noted above in the Northern Isles we advise some exceptions to this with respect to gannets, guillemots and razorbills (see information contained in Annex A).	The recommended foraging ranges were used throughout the RIAA.
NatureScot	Non-breeding seabird features	The HRA Screening Report states that 'seabird species in general disperse widely during non-breeding seasons, so that effects to some degree may be felt on the SPA populations during these seasons. The species are not constrained by extents of central-place foraging and for that reason no potential LSE on all species that are SPA qualifying or named assemblage features cannot be concluded. It is however expected that densities of species will be lower in non-breeding seasons or lower apportioning values to the relevant SPA will be appropriate (compared to the breeding season)'. It is unclear from this explanation how seabird colony SPAs have been screened in for inclusion in the long list with respect to potential connectivity in the non-breeding season. In particular, there is no reference here or in Table 8-1 to BDMPS (Furness, 2015), although this is mentioned for a number of sites in Table 8-2. The exception for guillemot, which we advise should be treated the same in breeding and non-breeding seasons (see Annex A), will have been applied by default through consideration of breeding season connectivity.	Non-breeding season impacts were assessed for each BDMPS region and season, with the exception of guillemot. Guillemot was assessed in the same way in the breeding and non-breeding season based on NatureScot advice.
NatureScot	Migratory seabirds	It is detailed here that not enough information is known around the presence of migratory seabirds at the offshore Project, and therefore, a conclusion of no potential LSE cannot be made. As highlighted above, considering migratory seabirds as a separate category to breeding or non-breeding seabirds during	Seasonal assessment of seabirds was based on recommended breeding and non-breeding seasons from NatureScot. No separate assessment for migratory seasons for seabirds was completed. It should be noted that the BDMPS approach identifies seasons within the non-breeding season. So in all cases, except guillemot, the total non-breeding season predicted impacts

CONSULTEE	TOPIC	CONSULTEE COMMENT	RESPONSE
		the apportioning phase is contrary to the advice provided at the meeting of 12th July 2022.	from the Project alone and in-combination were compared to each BDMPS region seasonal population estimate.
NatureScot	Migratory terrestrial birds	We note here that the 'Strategic assessment of collision risk of Scottish offshore wind farms to migrating birds' (WWT (Consulting) Ltd and MacArthur Green Ltd, 2014) has been used to establish whether there is likely to be connectivity for migratory terrestrial birds and the offshore Project. This is an appropriate source pending publication of the updated review recently commissioned by Marine Scotland.	In the absence of the update to the strategic assessment of predicted collisions on migratory species the report by WWT and MacArthur Green (2014) was relied upon to address potential impacts (Section 6.3).
NatureScot	Initial screening results	The outputs from this initial screening exercise are detailed in Table 8-1 and the relevant sites are mapped in Figure 8-1. It would have been helpful if Table 8-1 had included an indication as to which of the criteria detailed in Section 8.1 and species categories in Section 8.2.1 had informed inclusion of each site and also the relevant qualifying interests on which the inclusion was based. However, we have reviewed the list and have the following comments to make. For breeding seabirds we reviewed the list against all relevant SPAs in the UK for: gannet, kittiwake, all large gulls, great skua, Arctic skua, Arctic tern, common tern, guillemot, razorbill, puffin, shag, cormorant, red-throated diver, fulmar, Manx shearwater, European storm petrel and Leach's petrel. We have also checked the information for migratory geese, swans, ducks, waders, raptors, owls, divers, grebes and crakes. All 40 breeding seabird colony SPAs in the UK that we would expect to see in the initial long list based on relevant breeding season foraging ranges are included in Table 8-1. We also checked the exceptions of mean max plus 1 SD for the Northern Isles colony SPAs for gannets, guillemots and razorbill. The only instance where this could have differed is for both guillemots and razorbills at Fair Isle SPA, which lies beyond the generic mean max plus 1 SD foraging ranges for these species	Noted and this NatureScot advice has been followed as laid out in section 6.2 which describes the HRA screening process and results. SPAs in the Republic of Ireland have not been assessed in the RIAA as these are not part of the UK SPA network. A transboundary assessment is provided in the Offshore EIA Report, chapter 13: Offshore and intertidal ornithology. SPAs that have been screened into the RIAA are described in section 6.4. Due to the absence of red-throated divers recorded from the Project, no connectivity exists with breeding and/or non-breeding SPAs for this species. The assessment of terrestrial migratory species is described in section 6.3. No connectivity with SPAs was due to the presence of chough as features of any SPA.

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		(95.2km and 122.2km respectively) but within the ranges for colonies in the Northern Isles (153.7km and 164.6km respectively). However, Fair Isle SPA has correctly been included in Table 8-1. Connectivity should also be presumed for all five Manx shearwater SPAs in the Republic of Ireland (Blasket Islands, Cruagh Island, Deenish Island and Scariff Island, Puffin Island and Skelligs) and for the majority if not all 17 fulmar SPAs. A further 16 seabird colony SPAs, which include tern qualifying features, plus one moorland common gull site and two breeding red-throated diver sites that are beyond mean max plus 1 SD foraging ranges for any of the qualifying features are also included in Table 8-1 and should be removed. Loch an Duin (Ramsar) does not have any bird features so can be removed from the long list of sites. It is unclear why the seven tern and cormorant sites in southern Scotland, England and Wales were initially included in Table 8-1 given the lack of connectivity. We do not support the conclusion of no LSE for the red-throated diver interest of Otterswick and Graveland SPA (see below). All relevant UK SPAs for migratory geese, swans, ducks, waders, raptors, owls, divers, grebes and crakes are also listed in Table 8-1. However, there are additional sites listed with no connectivity that should be removed. In particular, the migration fronts for dark-bellied brent goose, European (greater) white-fronted goose and Bewick's swan in the UK are such that inclusion of any sites solely on the basis of one or more of these species is not supported. The same applies to great crested grebe, avocet, bittern, stone curlew, nightjar, wood lark, Dartford warbler and little egret interests. Therefore, it is unclear why Belfast Lough Open Water SPA, Deben Estuary SPA and Ramsar, Arun Valley SPA and Ramsar, Porton Down SPA, Walmore Common SPA and Ramsar, Tamar Estuaries Complex SPA, Crouch and Roach Estuaries (Mid-Essex Coast Stage 3) SPA and Ramsar, Thorne and Hatfield Moors, Breckland, Sandlings, Thames Basin Heaths, Thursley, Hankley and Frensham Commons, Wealden Heaths (Phase 1 and Phase 2), Ashdown Forest, East Devon Heaths and Marazion Marsh	

CONSULTEE	TOPIC	CONSULTEE COMMENT	RESPONSE
		SPAs were included in Table 8-1. In Table 8-2 no LSE is then concluded for all of these on the basis of a lack of connectivity. Also, the European (greater) white-fronted goose interests of Stodmarsh, Severn Estuary and Minsmere-Walberswick SPA and Ramsar sites would not migrate through the offshore project area (contrary to information in Table 8-2). As for breeding seabirds, relevant SPAs in the Irish Republic have not been considered. The rationale for inclusion of eight sites with only breeding black-throated diver features (Knapdale Lochs SPA, Loch Shiel SPA, Rannoch Lochs SPA, Loch Maree SPA and Ramsar, Wester Ross Lochs, Inverpolly, Loch Urigill and nearby Lochs, Assynt Lochs, Lairg and Strath Brora Lochs SPAs) is also unclear and all of these sites are also excluded at the next step (Table 8-2) given absence of connectivity. There is also no rationale for including sites designated solely for red-billed chough and both sites, The Oa and Mynydd Cilan, Trwyn y Wylfa ac Ynysoedd Sant Tudwal SPAs, listed in Table 8-1 are ruled out from further consideration in Table 8-2 given absence of connectivity.	
NatureScot	Potential pathways for LSE	The categories of pathways identified at the various project phases are appropriate. However, contrary to statements in the final sentences of Sections 8.3.1, 8.3.2 and 8.3.3 disturbance and/or displacement effects associated with vessel movements to and from ports used as operational bases during pre-construction, construction, operation or decommissioning could arise outwith the offshore Project area. In particular, as noted previously for Scapa Flow and North Orkney marine SPAs.	Section 6.7.2 summarises the methods used to assess displacement. Disturbance assessed comes from the presence of the OWF within the OAA, NatureScot guidance has been followed to assess disturbance. The offshore export cables in Scapa Flow to the Flotta Hydrogen Hub do not form part of this consent application and are not considered within this Offshore EIA Report.
NatureScot	Determination of no potential LSE	This is essentially the second step of the screening exercise, in which it is determined whether there may be LSE, and hence requirement for Appropriate Assessment, for sites/features identified as having theoretical connectivity. This should be informed by results of site characterisation surveys or other agreed data sources, species impact pathways and species sensitivity to impacts.	Section 6.2 describes the HRA screening process and results. Section 6.4 lists the 41 SPAs that are assessed in the RIAA where no LSE could not be concluded.

CONSULTEE	TOPIC	CONSULTEE COMMENT	RESPONSE
		For each of the sites (SPA or Ramsar) listed in Table 8-1, relevant project phases (i.e. pre-construction, construction, decommissioning and operation) and associated impact pathways are considered. Table 8-2 asks for all the site's qualifying features 'Can it be concluded that there will be no potential LSE?' This form of wording is convoluted and open to misinterpretation, a simpler question 'Is LSE likely?' would be preferable. No details are provided as to how this step has been approached and specifically whether there has been any consideration of site-specific survey data or existing information sources of direct relevance to the offshore Project area. There is nothing in the supporting text in Table 8-2 to indicate that this step has been informed by such specific information. Given the very large number of sites and qualifying features, as well as the issues highlighted in our advice, we found it difficult to check the commentary for individual species. Therefore, we have focused our advice on: The 40 seabird colony SPAs identified as having breeding season connectivity to the Project (note: we have not checked whether at-sea foraging distances have been applied). • Seabird and other sites for which the rationale for inclusion in the original long list was unclear. • The sites/project phase combinations for which no LSE has been concluded.	The HRA screening was based on the approach recommended in existing case law that the Project must demonstrate the ABSENCE of a likely significant effect. The HRA screening was updated to follow NatureScot (2023) guidance (Guidance Note 3 & 4).
NatureScot	Determination of no potential LSE - Seabird colony SPA assessments	In the operational phases it is noted that 'There is the potential for disturbance to breeding species including [for various sites, European storm petrel, Leach's storm-petrel, gannet, fulmar, great skua, great black-backed gull, herring gull, kittiwake, common guillemot, razorbill and puffin] from operation and maintenance vessels'. However, there is no reference to potential displacement of any species of marine birds arising from the presence of the wind farm itself.	Noted and NatureScot comments are addressed in section 6.2 which describes the HRA screening process and results. The recommended foraging ranges were used throughout. Fulmar was not assessed as being at risk of collisions. The approach to CRM is described in section 6.7.1. A recently published review by Furness (2018) concludes that, "the evidence indicates that obstruction or navigation lights on turbines will have no

CONSULTEE	TOPIC	CONSULTEE COMMENT	RESPONSE
		In addition, there are some inconsistences with respect to identification of which species may be at collision risk during operational phases. For example, fulmar is included for Hoy SPA but not for the many other sites at which it is a qualifying (including named assemblage) feature. Gannet, large gulls, kittiwake and great skua features should consistently be listed as at collision risk where there is connectivity but given flight heights we would not consider fulmar as vulnerable to collision risk. There is no mention of the potential effects of lighting attraction with respect to European storm petrels, Leach's petrels and/or Manx shearwaters (this applies to Sule Skerry and Sule Stack, Auskerry, North Rona and Sule Sgeir, Rum, Priest Island (Summer Isles), Foula, Mousa, Flannan Isles, Ramna Stacks and Gruney, St Kilda, Treshnish Isles, Copeland Islands, Irish Sea Front, Glannau Aberdaron ac Ynys Enlli/Aberdaron Coast, Bardsey Island and Skomer, Skokholm and the Seas off Pembrokeshire/Sgomer, Sgogwm a Moreoedd Penfro SPAs). This should be recognised as presenting additional potential risk to these species; in particular attraction to turbine lighting and/or lighting on vessels could impact assessment of both displacement and collision risks. For Sule Skerry and Sule Stack SPA, shag should be included in the list of qualifying species with connectivity to the OAA. For Foula, Flannan Isles and also Ramna Stacks and Gruney SPAs, Leach's petrel should be included in the list of qualifying species with connectivity to the OAA based on the updated mean from Woodward *et al* (2019) of 657km, thus all of these SPAs are well within the relevant foraging range of the proposed Project area. For Ramna Stacks and Gruney SPA, this does not impact conclusion but strengthens the potential for LSE. For Troup, Pennan and Lion's Heads SPA and the Shiant Isles SPA, guillemot and razorbill features are not within the relevant mean max (+1 SD) foraging ranges of 95.2km and 122.2km respectively (Woodward *et al*, 2019). The same	significant effects on marine birds or on migrant terrestrial birds passing nearby". The effects of lighting is considered further within section 6.7.4. Shag was not recorded in the Project area so was screened out of the RIAA for Sule Skerry & Sule Stack SPA or Moray Firth SPA. Leach's petrel was not recorded in the Project area, so was not assessed in the RIAA for any SPA. Connectivity of breeding seabirds with SPAs has been based on NatureScot (2023) guidance. Connectivity of guillemot and razorbill with the Troup, Pennan and Lion's Heads SPA and Shiant Isles SPA have been updated for the breeding season. Breeding season connectivity with the Mingulay and Berneray SPA for puffin has been updated. The proportions of non-breeding (BDMPS) populations that might be impacted were not be considered until the apportioning stage of the impact assessment. SPAs in each BDMPS region were considered in the non-breeding season, see section 6.7.6.2. The Project Design Envelope was changed and no longer includes connectivity with Scapa Flow SPA or North Orkney SPA and so no connectivity with terrestrial breeding red-throated diver SPAs in Orkney. The offshore export cables in Scapa Flow to the Flotta Hydrogen Hub do not form part of this consent application and are not considered within this Offshore EIA Report. Assessment of migratory species is considered in section 6.3.

CONSULTEE	TOPIC	CONSULTEE COMMENT	RESPONSE
		applies to puffin at Mingulay and Berneray SPA; the updated mean max (+1 SD) foraging range for puffin is 265.4km. For Moray Firth SPA it is unclear why shag are considered at risk of disturbance. Reference is made to BDMPS for 19 sites with breeding seabird features outwith relevant mean max (+1SD) foraging ranges of the offshore Project. For the majority of these the associated commentary reads 'The proportion of the seabird populations migrating through the OSS and offshore export cable corridor will be small relative to BDMPS'. As per our comments above, the proportions of non-breeding (BDMPS) populations that might be impacted should not be considered until the apportioning stage of the impact assessment. However, the conclusions with respect to LSE can be supported. BDMPS is not referenced with respect to over 40 sites with breeding tern features outwith relevant foraging ranges. For these sites, statements are made with respect to the pre-construction, construction and decommissioning phases such as 'Breeding terns from this SPA likely migrate south…after breeding, therefore connectivity with the offshore Project is unlikely', or 'SPA is beyond mean maximum foraging range (+1D) to the OAA and offshore export cable corridor for breeding [seabird species]. There is very limited potential for disturbance…from…vessels'. In most of these cases there is no reference to potential collision risk in the operational phase and it is unclear why there is a focus on vessel disturbance as a potential impact pathway. However, given their locations, the conclusion of no LSE with respect to breeding tern species at these sites can be supported, with the exception of breeding Arctic tern feature of Papa Stour SPA. From Liverpool Bay SPA it is stated 'During migration, there is potential for designated wintering fulmar to be disturbed by…vessels' The same text is used for the breeding fulmar (assemblage) feature at Flamborough and Filey Coast SPA. The basis for this conclusion is unclear.	

CONSULTEE	TOPIC	CONSULTEE COMMENT	RESPONSE
		Potential LSE should be concluded for breeding red-throated divers from the Orkney Mainland Moors SPA during the pre-construction, construction and decommissioning phases as these birds may forage in either the Scapa Flow or North Orkney marine SPAs and are therefore at risk of disturbance associated with project vessel movements to and from ports in these waters. Disturbance risk also applies in the operational phase. Conversely, it is unclear why the red-throated diver feature of Foula SPA is considered to be at risk of disturbance in the operational phase (but not in the pre-construction, construction and decommissioning phases). Potential LSE associated with collision risk in the operational phase for migrating red-throated diver should be concluded for all breeding red-throated diver SPAs in Shetland and Orkney (Foula SPA, Ronas Hill - North Roe and Tingon SPA and Ramsar, Otterswick and Graveland SPA, Hermaness, Saxa Vord and Valla Field, Hoy and Orkney Mainland Moors SPAs). This pathway is only referenced for Otterswick and Graveland SPA for which no associated LSE is concluded on the basis that 'Due to the distance between the SPA and the offshore Project, the southern migration direction of red-throated divers after the breeding season and that migration is most likely to occur in a coastal band from 0-20km from shore, this species is unlikely to migrate through the OAA'. No reference is given to support this and the conclusion is contrary to the summary information in Furness (2015) and recent evidence around wintering areas for red-throated divers (Duckworth *et al*, 2022).	
NatureScot	Determination of no potential LSE – migratory birds (non-seabirds)	Given the very large number of sites and qualifying features and the issues highlighted above, we found it difficult to check the commentary for individual species at these sites. However, we have noted a generic inconsistency in wording. For many sites (e.g. Switha SPA) for pre-construction, construction and decommissioning phases it is stated '[Qualifying interests] are unlikely to migrate through the OAA and offshore export cable corridor' whereas for the operational phase it is stated 'Uncertain proportions of the [qualifying interests]	Section 6.3 describes the reasons why migratory species through Scottish waters are not considered to be at risk during the operational stage.

CONSULTEE	TOPIC	CONSULTEE COMMENT	RESPONSE
		population may migrate through the OAA and could potentially be affected by collision risk and barrier effects'. We agree that it is the operational phase collision and barrier effects that require further consideration for these interests, but the basis on which LSE can be ruled out in the pre-construction, construction and decommissioning phases is not migratory routes but rather impact pathways. For a large number of sites including Moray Firth SPA, Lough Foyle, Strangford Lough, Lough Neagh and Lough Beg SPA and Ramsar, and Dungeness, Romney Marsh and Rye Bay SPA no details of qualifying interests considered at risk during migration are provided. For Outer Firth of Forth and St Andrews Bay Complex marine SPA, red-breasted merganser and velvet scoter are excluded from lists of qualifying interests identified as at potential risk during migration, whereas these species are (correctly) included for adjacent Firth of Tay and Eden Estuary and Firth of Forth SPA and Ramsar sites. Given migration fronts for gadwall from northern and eastern Europe wintering in the UK, it is unclear why gadwall are not identified as one of the species at risk of collision during the operational phase for all 21 SPA/Ramsar sites with wintering gadwall features. The only sites where this affects conclusion with respect to LSE at a site level are Hornsea Mere SPA (other qualifying feature mute swan), Avon Valley (other qualifying feature is Bewick's swan) and also Lee Valley and South West London Wetlands SPA and Ramsar sites, for both of which the other qualifying feature is shoveler. LSE should be concluded for all four of these sites in the operational phase for collision risk. The same applies to the 22 UK sites for which shoveler are a wintering or passage feature, but collision risk in operational phase is only recognised for Medway Estuary and Marshes SPA and Ramsar. In addition to Lee Valley and South West London Waterbodies SPA and Ramsar, the only sites where this affects conclusion with respect to LSE at a site level are Midland Meres and Mosses Phase 2 Ramsar	

CONSULTEE	TOPIC	CONSULTEE COMMENT	RESPONSE
		(other qualifying features are cormorant, bittern and water rail) and Chew Valley Lake SPA (single feature). Short-eared owls from Orkney Mainland Moors SPA could potentially move through the offshore Project area and should be included with hen harrier and red-throated diver in consideration of collision risk.	
NatureScot	Determination of no potential LSE – other comments	In section 2.1 it states that pSPAs are potential SPAs - just to note that this should be proposed SPAs. We also noted in Table 8-2 on page 1134 in relation to Monach Islands SPA the text refers to common terns rather than little terns, which are the qualifying feature.	It is acknowledged that pSPAs are proposed SPAs. We note the qualifying features of the Monach Isles SPA.
NatureScot	Variations to standard approach to establishing connectivity	We advise that mean max + 1SD from Woodward *et al* (2019) should be used to screen in connectivity to colony SPAs with the following exceptions: 1. Tracking on Fair Isle showed foraging distances are greater than those of all other colonies for both common guillemot and razorbill. Therefore, for common guillemot and razorbill we recommend: • Use of mean max +1SD, including data from Fair Isle for all Northern Isles designated sites. • For all designated sites south of the Pentland Firth (i.e. excluding the Northern Isles) use mean max +1SD discounting Fair Isles values. 2. For gannet we recommend using mean max +1SD for all colonies without site specific maximum values. However, for SPA colonies where site specific evidence exceeds this value (509.4km) then the site specific maximum should also be used - includes Forth Islands (Bass Rock), Grassholm and St Kilda.	The recommended foraging ranges have been used throughout the assessment.

<table>
<tr><th>CONSULTEE</th><th>TOPIC</th><th>CONSULTEE COMMENT</th><th>RESPONSE</th></tr>
<tr><td></td><td></td><td>3. For species with insufficient data to calculate mean max +1SD then the closest metric is to be used in the following order of preference:
<table>
<tr><th>Species</th><th>Exception Applied</th><th>Recommended Foraging Range (km)</th><th>Metric</th></tr>
<tr><td>Northern gannet</td><td>Forth Islands SPA</td><td>590</td><td>Max</td></tr>
<tr><td></td><td>Grassholm SPA</td><td>516.7</td><td>Max</td></tr>
<tr><td></td><td>St Kilda SPA</td><td>709</td><td>Max</td></tr>
<tr><td>Common guillemot</td><td>All Northern Isles SPAs</td><td>153.7</td><td>MM+SD</td></tr>
<tr><td>Razorbill</td><td>All Northern Isles SPAs</td><td>164.6</td><td>MM+SD</td></tr>
</table></td><td></td></tr>
<tr><td>NatureScot</td><td>Variations to standard approach to establishing connectivity – marine SPAs</td><td>For most qualifying features of marine SPAs, in particular wintering waterfowl, to determine LSE both connectivity and impact pathways needs to be considered only within close proximity to the marine SPA. Within our developing GIS tool we have applied a generic 15km buffer to identify developments that are within close proximity to a marine SPA. This approach can be used to produce a long list of SPA qualifying features including marine SPAs. However, the following considerations should also be taken into account:
• Determining connectivity for wintering gull qualifying features of Marine SPAs: Some marine SPAs have wintering gulls as a qualifying feature, and this is part may reflect their use of the adjacent shorelines as a roost. During the winter months gulls use roosts with a similar centrally-placed foraging behaviour to breeding seabirds. In the absence of specific gull wintering foraging ranges we therefore recommend that connectivity for wintering gulls within marine SPAs is determined using the recommended breeding foraging range distance (see above and Woodward et al, 2019).
• Determining connectivity for breeding seabird features of Marine SPAs: We recognise that the seabird populations using the marine SPAs during the breeding season includes breeders from potentially multiple colonies within foraging range as well as non-breeders, sabbaticals and juveniles. For</td><td>The 15 km buffer was applied to the OAA and buffer and cable route and was used to screen out connectivity with all marine SPAs.</td></tr>
</table>

CONSULTEE	TOPIC	CONSULTEE COMMENT	RESPONSE
		breeding seabirds within marine SPAs determining connectivity will be addressed through consideration of connectivity from the seabird colony SPAs (i.e. using the recommended breeding season foraging ranges, as summarised above and detailed in Woodward *et al*, 2019). No additional consideration is required for the breeding seabirds using marine SPAs.	
NatureScot	Variations to standard approach to establishing connectivity – marine SPAs	For all marine SPA qualifying interests we advise that the following points are considered with regard to connectivity and impact pathways: • Will disturbance/displacement result in a redistribution of birds within the marine SPA? It is important to consider all aspects of the development including associated works and activities e.g. cable routes or vessel movements associated with construction, operation or decommissioning works. • Will the development provide a barrier in terms of access to birds flying to or from the marine SPA (e.g. commuting to roosts off-site or migratory routes)? Flight direction data or tracking studies may be helpful in determining if there are any important commuting routes. • Are there any direct impacts on prey or supporting habitat within the marine SPA? For example a cabling route directly adjacent to a marine SPA or barriers to fish movement that may impact on prey populations and habitats within the SPA. • Are there indirect impacts e.g. water flow or quality that may alter the foraging resource?	The 15 km buffer was applied to the OAA and buffer and cable route and was used to screen out connectivity with all marine SPAs.
NatureScot	Variations to standard approach to establishing	This includes non-breeding seabirds that are qualifying features of marine SPAs and breeding seabirds from colony SPAs during the non-breeding season. To determine which colony SPAs have connectivity with a marine energy development site during the non-breeding season we recommend the BDMPS	The BDMPS approach was applied to all seabirds, except guillemot. Guillemot was treated equally in the breeding and non-breeding seasons.

CONSULTEE	TOPIC	CONSULTEE COMMENT	RESPONSE
	connectivity – non-breeding seabirds	Report (Furness, 2015) should be used. The exception to this is common guillemot which regularly attend colonies over winter (Bennett *et al*, 2022; Sinclair, 2018) and recent studies (Buckingham *et al*, 2022) show they largely remain in the northern North Sea during the non-breeding season. For this species we advise the non-breeding season population is defined in terms of the mean max foraging range (Woodward *et al*, 2019) as per our breeding season advice.	
RSPB	HRA Screening	We have reviewed the screening report (Document L-100632-S09-A-REPT-00, Rev A01) and appreciate the applicant's application of a cautious approach to LSE and their initial broad inclusion of sites. This broad approach is important to prevent prejudgement of adverse effect on site integrity and for later assessment of cumulative impacts.	Noted
RSPB	HRA Screening	It is not however always clear exactly what criteria has been used in the subsequent consideration of pathways to conclude potential or no potential for LSE. In particular, for some sites and species there are contradictory statements. For example, wintering barnacle geese as a qualifying species for Switha SPA are "unlikely to migrate through the OAA and offshore export cable corridor" and yet "Uncertain proportions of the barnacle goose population may migrate through the OAA and could potentially be affected by collision risk and barrier effects". This makes it difficult to understand the assessment of connectivity and pathways for impact presented in Table 8-2.	For all migratory terrestrial SPA qualifying features the WWT and MacArthur Green (2014) strategic assessment report was used to assess migratory species, with the conclusion of no adverse effect on site integrity for all species.
RSPB	HRA Screening	Furthermore, while "indirect effects through effects on habitats and/or prey species" are, correctly, identified as a potential pathway to Likely Significant Effect during the operational phase, no details as to how these effects may manifest or the implications of them are given. This means it is impossible to understand the justification for screening decisions.	The conclusions for the assessment of benthic habitats and fish and shellfish was used to determine the indirect effects on seabirds.

CONSULTEE	TOPIC	CONSULTEE COMMENT	RESPONSE
RSPB	HRA Screening	Nevertheless, based on there being breeding seabird colonies with a foraging range that extends through the proposed development and an impact pathway for these species, we agree with the overall conclusion that it is not possible to rule out the potential risk of significant effects on a European site either alone or in-combination with other projects. As likely significant effects (LSE) cannot be ruled out we agree that an appropriate assessment must be undertaken by the competent authority before a consent could be granted.	Noted.
RSPB	Advice on further assessment	We would welcome the use of matrix tables with evidence supporting conclusions within HRA screening assessments This would make it clear for each protected site, exactly which species is being screening in or out (and whether they are breeding wintering), for what phase of development (e.g., construction, operation and maintenance, and decommissioning) that is, and what the impact mechanism being considered is (e.g. disturbance, displacement, collision, barrier to movement, habitat loss, prey availability). The evidence supporting conclusions should provide species- and site-specific narrative to adequately justify the decisions made.	Matrix tables have been used to assess displacement in accordance with NatureScot guidance. A summary of the approach to the displacement assessment is provided in section 6.7.2.
Annex I habitats			
NatureScot	Annex I habitats	Identification of European sites, designated for Annex 1 habitats, is considered in Section 5 of the HRA Screening Report. The closest of these is Solan Bank Reef Special Area of Conservation (SAC) located approximately 25km away. Using an initial screening criterion of up to 10km Zone of Influence (ZOI), which we agree is reasonable, the HRA Screening Report concludes no connectivity to any European sites designated for Annex 1 habitats and therefore no potential for LSE. We agree with this conclusion.	Response confirms the screening out of Annex I habitats as outlined in section 4.2.2. No further consideration is given to Annex I habitats within the RIAA.

CONSULTEE	TOPIC	CONSULTEE COMMENT	RESPONSE
Marine mammals			
MS-LOT and NatureScot	HRA Screening	MS-LOT: "With regards to the five marine mammal species identified in the HRA Screening Report, we are content with those listed." NatureScot: "Identification of European sites, designated for marine mammals, is considered in Section 7 of the HRA Screening Report and we agree with the relevant features identified: otter, harbour seal, grey seal, bottlenose dolphin and harbour porpoise."	Noted that the species identified in the HRA Screening report are agreed. Further response confirm the screening out of marine mammals as outlined in section 4.2.2. No further consideration is given to marine mammals within the RIAA.
MS-LOT and NatureScot	HRA Screening - seals	MS-LOT: "For the avoidance of doubt, a 20 km buffer for grey seals and a 50 km buffer for harbour seals are advised for the connectivity of the Proposed Development. We agree that as all European sites designated for seals are out-with these distances, they can be screened out." NatureScot: "Seals are considered in Section 7.2.1 of the HRA Screening Report and as previously advised the relevant connectivity buffers have been used in the screening assessment, 20km for grey seal and 50km for harbour seal. As a result, all European sites designated for seals are outwith these distances and have no connectivity to the Project area. Therefore, we agree with the conclusion of no LSE."	Noted that the appropriate buffer distances for grey and harbour seals have been confirmed and that all European sites designated for seals are outwith these distances. The response confirm the screening out of marine mammals as outlined in section 4.2.2. No further consideration is given to marine mammals within the RIAA.
MS-LOT and NatureScot	HRA Screening – bottlenose dolphins	MS-LOT: "With regards to bottlenose dolphins, as there is little to suggest the bottlenose dolphins sighted in the area of the Proposed Development have connectivity to the Moray Firth SAC, we agree that they can be screened out of the HRA assessment." NatureScot: "We agree with the conclusions regarding cetaceans as set out in Section 7.2.2 of the HRA Screening Report. Few bottlenose dolphins are sighted along the north coast and there is very little evidence that any individuals present	Response confirm the screening out of marine mammals as outlined in section 4.2.2. No further consideration is given to marine mammals within the RIAA.

CONSULTEE	TOPIC	CONSULTEE COMMENT	RESPONSE
		are from the Moray Firth SAC population, therefore we agree with the conclusion of no LSE."	
MS-LOT	HRA Screening – harbour porpoise	**MS-LOT:** "In relation to harbour porpoise, we agree that all SACs with harbour porpoise as the qualifying feature can be screened out." **NatureScot:** "As noted in Section 7.2.2 all harbour porpoise SACs within the West Scotland and North Sea Management Units have been initially screened in for assessment. The Inner Hebrides and the Minches SAC is located 93.9km from the Project area and at this distance we agree there is unlikely to be any associated pressure connectivity and thus agree with the conclusion of no LSE. We are also content that all other harbour porpoise SACs are also screened out."	Response confirm the screening out of marine mammals as outlined in section 4.2.2. No further consideration is given to marine mammals within the RIAA.
MS-LOT and NatureScot	HRA Screening - otter	**MS-LOT:** We agree that otter can be screened out and will be assessed as part of the onshore HRA assessment providing the impacts within the sub-tidal zone, particularly waters less than 10m deep and within 100m from shore where foraging dives of otter are most likely to occur, is fully considered. **NatureScot**: "It states in Section 7.2.3 of the HRA Screening Report that otter have been screened out from further HRA assessment as there is considered to be no potential for effects as a result of the offshore works. They will instead be considered as part of the onshore HRA assessment. We are content with this approach providing impacts within the sub-tidal zone, particularly waters less than 10m deep and within 100m from shore (Kruuk, 2006) where foraging dives of otter are most likely to occur, are fully considered."	Response confirm the screening out of marine mammals as outlined in section 4.2.2. No further consideration is given to marine mammals within the RIAA. The Onshore RIAA will consider impacts on otters further.

6 SPAS

6.1 Introduction

This section provides an assessment of the adverse effects from the offshore Project on SPAs and Ramsars designated for the conservation of protected bird species which have been screened into the assessment, providing consideration to the specific conservation objectives of the sites.

6.2 Summary of HRA screening

HRA screening was completed following advice from NatureScot in their Scoping Opinion and following updated NatureScot (2023) guidance.

6.2.1 SPAs and Ramsar sites screened in for assessment

In accordance with feedback obtained in the HRA Screening Response (Table 5-2), the first step of the HRA LSE screening assessment initially identified a long list of SPAs and Ramsar sites with relevant offshore ornithological features based on potential theoretical connectivity to the offshore Project.

Ornithology features with potential theoretical connectivity were categorised as:

- Breeding seabirds (including breeding divers);
- Non-breeding seabirds (including non-breeding seabirds that are qualifying features of SPAs as well as breeding seabirds from colony SPAs during the non-breeding season); and
- Migratory terrestrial birds (including non-breeding water birds).

Migrating seabirds between breeding and non-breeding seasons were considered relevant to potential connectivity if birds from breeding colonies could pass through a SPA on passage to wintering areas.

No SPA or Ramsar sites designated for bird features physically overlap the offshore Project. Screening criteria utilised to identify theoretical connectivity between SPAs and Ramsar Sites with relevant ornithology features and the offshore Project are outlined below.

6.2.1.1 Breeding seabird and diver features:

- To determine which SPA or Ramsar sites with breeding seabird and/or diver qualifying features have theoretical connectivity with the offshore Project during the breeding season, the mean of the maximum foraging range (km) + one standard deviation of the mean (1SD hereafter) was used to assess overlap with the offshore Project. Foraging range data for each species was taken from Woodward *et al.* (2019), exceptions (see bullet points below) applied to guillemots, razorbills and gannets.
- For guillemots and razorbills, the mean maximum +1SD foraging range for 'all Northern Isle SPAs' (Woodward *et al.*, 2019) included data from the Fair Isle colonies.

- For gannet, the mean maximum +1SD foraging range (509.4 km) was used for all colonies without site specific maximum values. However, for SPA colonies where site specific evidence exceeds this value, then a site specific maximum was used; specific sites include the Forth Islands (Bass Rock), Grassholm and St Kilda.

6.2.1.2 Non-breeding seabird features:

- To determine which SPA or Ramsar sites have theoretical connectivity with the offshore Project during the non-breeding season, the BDMPS Report (Furness, 2015) was used to assess seabird dispersal or migration patterns; an exception was made for common guillemot.
- For common guillemot, non-breeding season connectivity was defined in terms of the mean max foraging range plus one standard deviation (Woodward et al, 2019) as per NatureScot 2023 advice (i.e. connectivity for this species was treated the same in breeding and non-breeding seasons.

6.2.1.3 Migratory terrestrial bird features (including non-breeding water birds):

- To determine which SPA or Ramsar sites with terrestrial bird qualifying bird features (including non-breeding water birds) have theoretical connectivity with the offshore Project during migration, the strategic assessment of collision risk of Scottish offshore windfarms to migrating birds report (Wildfowl & Wetlands Trust and MacArthur Green, 2014) was used to assess migratory range overlap with the offshore Project.

6.2.2 Pathways for LSE screened in

For all sites identified as having theoretical connectivity with the offshore Project, the second step of the screening exercise was to determine whether there may be a potential pathway for LSE, and hence a requirement for Appropriate Assessment. Assessment of impact pathways was informed by species impact pathways, results of site characterisation surveys and species sensitivity to impacts.

The impact pathways that could not be ruled out for qualifying features with theoretical connectivity to the offshore Project, and hence the SPAs and Ramsar sites are screened into the RIAA, are presented in Table 6-1. These pathways may occur during the pre-construction, construction, operation and maintenance, and decommissioning stages of the offshore Project.

Phototaxis (attraction towards light) is recognised as a potential risk specifically for nestlings of European storm-petrel, Leach's storm-petrel and Manx shearwater (Furness, 2018). However, the author concludes that, "*the evidence indicates that obstruction or navigation lights on turbines will have no significant effects on marine birds or on migrant terrestrial birds passing nearby*". The assessment of the effects of lighting on seabirds is provided in section 6.7.4.

Table 6-1 Impact pathways screened into the RIAA for offshore ornithology

POTENTIAL PATHWAY	RECEPTOR
Construction (including pre-construction) and decommissioning	
Disturbance and/or displacement effects	• Breeding, non-breeding and migrating seabirds and divers • Breeding and migrating European storm-petrel, Leach's storm-petrel and Manx shearwater
Indirect impacts through effects on habitats and/or prey species	
Lighting effects on construction vessels (phototaxis)	
Operation and maintenance	
Disturbance and/or displacement effects (including barrier effects)	• Breeding, non-breeding and migrating seabirds and divers. • Migrating terrestrial birds • Breeding, non-breeding and migrating seabird and divers • Breeding and migrating European storm-petrel, Leach's storm-petrel and Manx shearwater
Collision mortality	
Indirect impacts through effects on habitats and/or prey species	
Lighting effects on turbines and vessels (phototaxis)	

6.2.3 Pathways for LSE screened out

Following the assessment during HRA Screening and receipt of the HRA Screening Response (MS-LOT, 2022), and in line with the position that embedded mitigation is not to be included for the purposes of determining the potential of LSE, the following potential impact pathway on ghost fishing presented in Table 6-2 has been screened out for further assessment within this RIAA.

Table 6-2 Impact pathways screened out of RIAA

POTENTIAL PATHWAY	RECEPTOR	JUSTIFICATION
Operation and Maintenance		
Ghost fishing	Breeding and migrating diving seabirds including: gannet, guillemot, razorbill and puffin.	The assessment is for fixed foundations only (due to floating WTGs no longer being within the Project Design Envelope for the current application) and therefore there will be no cables/moorings in the water column. Ghost fishing was discussed at the Offshore ornithology consultee online meeting 12th July 2022 and agreed that the risk was negligible.

6.2.4 SPAs and Ramsar sites considered in the RIAA

Table 6-3 presents the SPAs and Ramsar sites that have been taken forward for assessment within this RIAA (i.e. those species for which it is not possible to conclude no LSE). An SPA or Ramsar site was screened into the RIAA if at least one qualifying ornithological species for which there was theoretical connectivity (based on the criteria set out in section 6.2.1) also had a potential impact pathway during any one of the pre-construction, construction, operation and decommissioning stages (Table 6-1).

Site-specific survey data collected during baseline aerial surveys for the offshore Project was also considered in the screening assessment. For each site, if an ornithology feature with theoretical connectivity and a potential impact pathway was also recorded during baseline surveys, this is indicated with a 'Y' in Table 6-1.

Table 6-3 List of SPA and Ramsar Sites designated for ornithological features considered within the RIAA.

*Indicates a species that is part of an assemblage only.

** Scapa Flow and North Orkney SPAs was screened out of the assessment following consultation due to changes in the proposed Project, which no longer includes a cable to Flotta Hydrogen Hub through the Scapa Flow SPA.

SITE NAME	SITE STATUS	QUALIFYING INTEREST / FEATURES	DISTANCE TO OAA (KM)	DISTANCE TO OFFSHORE ECC (KM)	THEORETICAL CONNECTIVITY TO OFFSHORE PROJECT (Y/N)	POTENTIAL PATHWAY FOR LSE (Y/N)	QUALIFYING INTEREST SPECIES RECORDED IN BASELINE SURVEY DATA (Y/N)	CAN CONCLUDE NO POTENTIAL LSE (Y/N)
Sule Skerry and Sule Stack	SPA	Breeding: European storm-petrel, Leach's storm-petrel, Northern gannet, European shag*, Common guillemot*, Atlantic puffin	1.7	29.2	Y	Y	Y	N
Caithness and Sutherland Peatlands	SPA and Ramsar	Breeding: Red-throated diver, Black-throated diver, Eurasian wigeon, Common scoter, Hen harrier, Golden eagle, Merlin, European golden plover, Common greenshank, Wood sandpiper, Short-eared owl, Dunlin	22.9	6.9	Y	Y	Y	N
North Sutherland Coastal Islands	SPA	Wintering: Barnacle goose	24.5	27.6	Y	Y	N	N
Hoy	SPA	Breeding: Red-throated diver, Northern fulmar*, Peregrine falcon, Arctic skua*, Great skua, Great	24.7	21.8	Y	Y	Y	N

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		black-backed gull*, Black-legged kittiwake*, Common guillemot*, Atlantic puffin*						
Cape Wrath	SPA	Breeding: Northern fulmar*, Black-legged kittiwake*, Common guillemot*, Razorbill*, Atlantic puffin*	25.9	41.8	Y	Y	Y	N
North Caithness Cliffs	SPA	Breeding: Northern fulmar*, Peregrine falcon, Black-legged kittiwake*, Common guillemot, Razorbill*, Atlantic puffin*	27.2	1.7	Y	Y	Y	N
Scapa Flow	SPA	Wintering: Great northern diver, Red-throated diver, Black-throated diver, Slavonian grebe, European shag, Common eider, Long-tailed duck, Red-breasted merganser	31.2	30.0	Y	Y	Y	Y**
Marwick Head	SPA	Breeding: Black-legged kittiwake*, Common guillemot	35.0	38.6	Y	Y	Y	N
Caithness Lochs	SPA and Ramsar	Wintering: Whooper swan, Greylag goose, Greenland white-fronted goose	40.1	7.3	Y	Y	Y	N

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Orkney Mainland Moors	SPA	Breeding: Red-throated diver, Hen harrier, Short-eared owl Wintering: Hen harrier	40.9	40.0	Y	Y	Y	N
North Orkney	SPA	Wintering: Great northern diver, Slavonian grebe, Velvet scoter	46.2	46.9	Y	Y	N	Y**
Switha	SPA	Wintering: Barnacle goose	46.8	36.7	Y	Y	N	N
Rousay	SPA	Breeding: Northern fulmar*, Arctic skua*, Black-legged kittiwake*, Arctic tern, Common guillemot*	49.3	52.9	Y	Y	Y	N
Pentland Firth Islands	SPA	Breeding: Arctic tern	50.9	36.5	Y	Y	Y	Y
Grassholm	SPA	Breeding: Northern gannet	785	770	Y	Y	Y	N
Handa	SPA	Breeding: Northern fulmar*, Arctic skua, Great skua*, Black-legged kittiwake*, Common guillemot, Razorbill	56.1	71.3	Y	Y	Y	N

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West Westray	SPA	Breeding: Northern fulmar*, Arctic skua*, Black-legged kittiwake*, Arctic tern, Common guillemot, Razorbill*	60.2	64.6	Y	Y	Y	N
Copinsay	SPA	Breeding: Northern fulmar*, Great black-backed gull*, Black-legged kittiwake*, Common guillemot*	67.2	59.7	Y	Y	Y	N
East Caithness Cliffs	SPA	Breeding: Northern fulmar*, Great cormorant*, European shag, Peregrine falcon, Herring gull, Great black-backed gull*, Black-legged kittiwake, Common guillemot, Razorbill	70.1	40.0	Y	Y	Y	N
Calf of Eday	SPA	Breeding: Northern fulmar*, Great cormorant*, Great black-backed gull*, Black-legged kittiwake*, Common guillemot*	72.3	75.7	Y	Y	Y	N
Auskerry	SPA	Breeding: European storm-petrel, Arctic tern	77.6	75.1	Y	Y	Y	N
Moray Firth	SPA	Wintering: Red-throated diver, Great northern diver, Slavonian grebe, European shag, Greater scaup, Common eider, Long-tailed duck, Common	79.2	48.8	Y	Y	N	N

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		scoter, Velvet scoter, Common goldeneye, Red-breasted merganser Breeding: European shag						
North Rona and Sula Sgeir	SPA	Breeding: Northern fulmar*, European storm-petrel , Leach's storm-petrel , Northern gannet , Great black-backed gull*, Black-legged kittiwake*, Common guillemot , Razorbill*, Atlantic puffin*	79.7	98.4	Y	Y	Y	N
Strath Carnaig and Strath Fleet Moors	SPA	Breeding: Hen harrier	80.9	67.3	Y	Y	N	N
East Sanday Coast	SPA and Ramsar	Wintering: Purple sandpiper, Bar-tailed godwit , Ruddy turnstone	81.5	84.3	Y	Y	N	N
Dornoch Firth and Loch Fleet	SPA and Ramsar	Wintering: Greylag goose, Eurasian wigeon, Eurasian teal*, Greater scaup*, Eurasian oystercatcher*, Bar-tailed godwit, Eurasian curlew*, Common redshank*, Dunlin* Breeding: Osprey"	90.0	72.4	Y	Y	Y	N

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Lewis Peatlands	SPA and Ramsar	Breeding: Red-throated diver, Black-throated diver , Golden eagle, Merlin, European golden plover , Common greenshank, Dunlin	104.6	123.1	Y	Y	Y	N
Beinn Dearg	SPA	Breeding: Eurasian dotterel	105.5	106.2	Y	Y	N	N
Ness and Barvas, Lewis	SPA	Breeding: Corncrake	105.6	124.5	Y	Y	N	N
Priest Island (Summer Isles)	SPA	Breeding: European storm-petrel	108.2	120.9	Y	Y	Y	N
Loch Eye	SPA and Ramsar	Wintering: Whooper swan , Greylag goose	110.7	89.5	Y	Y	Y	N
Cromarty Firth	SPA and Ramsar	Wintering: Whooper swan , Greylag goose , Eurasian wigeon*, Northern pintail*, Greater scaup*, Red-breasted merganser*, Eurasian oystercatcher*, Bar-tailed godwit , Eurasian curlew*, Common redshank*, Red knot*, Dunlin* Breeding: Osprey, Common tern"	116.1	95.7	Y	Y	Y	N

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Ben Wyvis	SPA	Breeding: Eurasian dotterel	118.8	108.4	Y	Y	N	N
Seas off Foula	SPA	Breeding: Northern fulmar, Arctic skua, Great skua, Common guillemot, Atlantic puffin Wintering: Northern fulmar, Great skua, Common guillemot"	126.9	136.9	Y	Y	Y	N
Moray and Nairn Coast	SPA and Ramsar	Wintering: Pink-footed goose , Greylag goose , Eurasian wigeon*, Red-breasted merganser*, Eurasian oystercatcher*, Bar-tailed godwit , Common redshank , Dunlin* Breeding: Osprey"	128.6	103.3	Y	Y	Y	N
Inner Moray Firth	SPA and Ramsar	Wintering: Great cormorant*, Greylag goose , Eurasian wigeon*, Eurasian teal*, Greater scaup*, Common goldeneye*, Red-breasted merganser , Goosander*, Eurasian oystercatcher*, Black-tailed godwit , Eurasian curlew*, Common redshank Breeding: Osprey, Common tern	131.8	111.4	Y	Y	Y	N

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Loch Spynie	SPA and Ramsar	Wintering: Greylag goose	133.4	104.1	Y	Y	Y	N
Loch Flemington	SPA	Breeding: Slavonian grebe	138.5	117.6	Y	Y	N	N
Fair Isle	SPA	Breeding: Northern fulmar*, Northern gannet*, European shag*, Arctic skua*, Great skua*, Black-legged kittiwake*, Arctic tern, Common guillemot , Razorbill*, Atlantic puffin*, Fair Isle wren	140.1	143.2	Y	Y	Y	N
Shiant Isles	SPA	Breeding: Northern fulmar*, European shag, Black-legged kittiwake*, Common guillemot*, Razorbill, Atlantic puffin Wintering: Barnacle goose"	141.7	157.4	Y	Y	Y	N
Loch Ashie	SPA	Passage: Slavonian grebe	154.8	137.4	Y	Y	N	N
North Inverness Lochs	SPA	Breeding: Slavonian grebe	157.7	144.0	Y	Y	N	N

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Troup, Pennan and Lion's Heads	SPA	Breeding: Northern fulmar*, Herring gull*, Black-legged kittiwake , Common guillemot , Razorbill*	160.1	127.3	Y	Y	Y	N
Foula	SPA	Breeding: Red-throated diver, Northern fulmar*, Leach's storm-petrel, European shag, Arctic skua*, Great skua, Black-legged kittiwake*, Arctic tern, Common guillemot , Razorbill*, Atlantic puffin	160.9	167.1	Y	Y	Y	N
Loch Ruthven	SPA and Ramsar	Breeding: Slavonian grebe	162.2	144.5	Y	Y	N	N
West Coast of the Outer Hebrides	SPA	Wintering: Black-throated diver , Great northern diver , Slavonian grebe , Common eider , Long-tailed duck , Red-breasted merganser Breeding: Red-throated diver	166.9	183.9	Y	Y	N	N
West Inverness-shire Lochs	SPA	Breeding: Black-throated diver , Common scoter	171.4	165.7	Y	Y	N	N

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Loch Vaa	SPA	Breeding: Slavonian grebe	173.5	150.7	Y	Y	N	N
Loch Knockie and Nearby Lochs	SPA	Breeding: Slavonian grebe	176.9	163.1	Y	Y	N	N
Sumburgh Head	SPA	Breeding: Northern fulmar*, Black-legged kittiwake*, Arctic tern, Common guillemot*	177.2	181.5	Y	Y	Y	N
Cairngorms	SPA	Breeding: Golden eagle , Osprey , Merlin , Peregrine falcon , Western capercaillie , Eurasian dotterel , Scottish crossbill	178.4	155.4	Y	Y	N	N
Lochs of Spiggie and Brow	SPA	Wintering: Whooper swan	181.8	186.4	Y	Y	N	N
Loch of Strathbeg	SPA and Ramsar	Wintering: Sandwich tern , Whooper swan , Pink-footed goose , Greylag goose , Barnacle goose , Eurasian teal*, Common goldeneye*	181.9	150.0	Y	Y	Y	N

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Flannan Isles	SPA	Breeding: Northern fulmar*, Leach's storm-petrel , Black-legged kittiwake*, Common guillemot*, Razorbill*, Atlantic puffin*	183.9	202.8	Y	Y	Y	N
River Spey - Insh Marshes	SPA and Ramsar	Breeding: Eurasian wigeon , Osprey , Spotted crake , Wood sandpiper Wintering: Whooper swan, Hen harrier	184.3	162.5	Y	Y	N	N
Mousa	SPA	Breeding: European storm-petrel , Arctic tern	193.2	197.8	Y	Y	Y	N
North Uist Machair and Islands	SPA and Ramsar	Breeding: Corncrake, Eurasian oystercatcher, Ringed plover, Common redshank, Dunlin Wintering: Barnacle goose, Ringed plover, Purple sandpiper, Ruddy turnstone	194.2	211.1	Y	Y	N	N
Papa Stour	SPA	Breeding: Arctic tern , Ringed plover	195.9	202.0	Y	Y	Y	N
Seas off St Kilda	SPA	Breeding: Northern fulmar, European storm-petrel, Northern gannet , Common guillemot , Atlantic puffin	197.1	215.7	Y	Y	Y	N

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Creag Meagaidh	SPA	Breeding: Eurasian dotterel	198.4	182.4	Y	Y	N	N
Buchan Ness to Collieston Coast	SPA	Breeding: Northern fulmar*, European shag*, Herring gull*, Black-legged kittiwake*, Common guillemot*	199.4	167.1	Y	Y	Y	N
Muir of Dinnet	SPA and Ramsar	Wintering: Greylag goose	202.2	173.1	Y	Y	Y	N
Ythan Estuary, Sands of Forvie and Meikle Loch	SPA and Ramsar	Wintering: Pink-footed goose , Common eider*, Northern lapwing*, Common redshank* Breeding: Sandwichtern,, Common tern, Little tern	202.3	169.1	Y	Y	Y	N
East Mainland Coast, Shetland	SPA	Wintering: Great northern diver , Slavonian grebe Breeding: Red-throated diver	204.0	209.2	Y	Y	Y	N

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Noss	SPA	Breeding: Northern fulmar*, Northern gannet , Great skua , Black-legged kittiwake*, Common guillemot , Atlantic puffin*	206.3	211.1	Y	Y	Y	N
Drumochter Hills	SPA	Breeding: Merlin , Eurasian dotterel	206.4	187.4	Y	Y	N	N
Glen Tanar	SPA	Breeding: Hen harrier , Osprey , Scottish crossbill Permanent: Western capercaillie	207.5	178.3	Y	Y	N	N
Lochnagar	SPA	Breeding: Eurasian dotterel	210.0	183.3	Y	Y	N	N
Loch of Skene	SPA and Ramsar	Wintering: Greylag goose , Common goldeneye , Goosander	210.5	178.4	Y	Y	Y	N
Caenlochan	SPA	Breeding: Golden eagle , Eurasian dotterel	210.8	184.9	Y	Y	N	N
Rum	SPA	Breeding: Red-throated diver , Manx shearwater , Golden eagle , Black-legged kittiwake*, Common guillemot*	212.2	220.9	Y	Y	Y	N

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Ben Alder	SPA	Breeding: Eurasian dotterel	213.5	196.8	Y	Y	N	N
Ronas Hill - North Roe and Tingon	SPA and Ramsar	Breeding: Red-throated diver , Great skua	219.2	225.5	Y	Y	Y	N
Canna and Sanday	SPA	Breeding: European shag*, Herring gull*, Black-legged kittiwake*, Common guillemot*, Atlantic puffin*	221.9	233.4	Y	Y	Y	N
Forest of Clunie	SPA	Breeding: Hen harrier , Osprey , Merlin , Short-eared owl	222.9	198.8	Y	Y	N	N
Aird and Borve, Benbecula	SPA	Breeding: Corncrake	223.8	239.8	Y	Y	N	N
Monach Islands	SPA	Breeding: Barnacle goose, Little tern	228.4	244.9	Y	Y	N	N

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South Uist Machair and Lochs	SPA and Ramsar	Wintering: Corncrake, Ringed plover, Sanderling, Common redshank, Little tern, Dunlin Breeding: Eurasian oystercatcher, Ringed plover	229.3	244.9	Y	Y	N	N
Otterswick and Graveland	SPA	Breeding: Red-throated diver	234.1	240.0	Y	Y	Y	N
Fowlsheugh	SPA	Breeding: Northern fulmar*, Herring gull*, Black-legged kittiwake , Common guillemot , Razorbill*	236.8	204.9	Y	Y	Y	N
Ramna Stacks and Gruney	SPA	Breeding: Leach's storm-petrel	238.8	245.1	Y	Y	N	N
Loch of Lintrathen	SPA and Ramsar	Wintering: Greylag goose	241.1	214.5	Y	Y	Y	N
Fetlar	SPA	Breeding: Northern fulmar*, Whimbrel , Red-necked phalarope , Arctic skua*, Great skua , Arctic tern , Dunlin	241.6	247.4	Y	Y	Y	N

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Loch of Kinnordy	SPA and Ramsar	Wintering: Pink-footed goose , Greylag goose	244.3	217.0	Y	Y	Y	N
Montrose Basin	SPA and Ramsar	Wintering: Pink-footed goose , Greylag goose , Common shelduck*, Eurasian wigeon*, Common eider*, Eurasian oystercatcher*, Common redshank , Red knot*, Dunlin*	247.1	217.3	Y	Y	Y	N
Kilpheder and Smerclate, South Uist	SPA	Breeding: Corncrake	249.5	264.3	Y	Y	N	N
St Kilda	SPA	Breeding: Northern fulmar*, Manx shearwater*, European storm-petrel , Leach's storm-petrel , Northern gannet , Great skua , Black-legged kittiwake*, Common guillemot*, Razorbill*, Atlantic puffin	249.8	268.3	Y	Y	Y	N
Coll and Tiree	SPA	Wintering: Great northern diver , Common eider	253.0	260.3	Y	Y	N	N

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Hermaness, Saxa Vord and Valla Field	SPA	Breeding: Red-throated diver, Northern fulmar*, Northern gannet, European shag*, Great skua, Black-legged kittiwake*, Common guillemot*, Atlantic puffin	257.7	263.7	Y	Y	Y	N
Eoligarry, Barra	SPA	Breeding: Corncrake	259.4	274.0	Y	Y	N	N
Coll	SPA and Ramsar	Wintering: Barnacle goose , Greenland white-fronted goose	261.4	268.2	Y	Y	N	N
Outer Firth of Forth and St Andrews Bay Complex	SPA	Wintering: Red-throated diver, European shag, Slavonian grebe, Common eider, Long-tailed duck, Common scoter, Velvet scoter, Common goldeneye, Red-breasted merganser, Little gull, Black-headed gull, Common gull, Herring gull, Black-legged kittiwake, Common guillemot, Razorbill, Atlantic puffin Breeding: Manx shearwater, Northern gannet, European shag, Herring gull, Black-legged kittiwake, Common tern, Arctic tern, Common guillemot	266.0	236.6	Y	Y	Y	N

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Firth of Tay and Eden Estuary	SPA and Ramsar	Wintering: Great cormorant*, Pink-footed goose, Greylag goose, Common shelduck*, Common eider*, Long-tailed duck*, Common scoter*, Velvet scoter*, Common goldeneye*, Red-breasted merganser*, Goosander*, Eurasian oystercatcher*, Grey plover*, Sanderling*, Bar-tailed godwit, Common redshank, Black-tailed godwit*, Dunlin* Breeding: Eurasian marsh harrier, Little tern	267.8	241.1	Y	Y	Y	N
South Tayside Goose Roosts	SPA and Ramsar	Wintering: Pink-footed goose, Greylag goose Breeding: Eurasian wigeon	271.8	248.0	Y	Y	Y	N
Coll (corncrake)	SPA	Breeding: Corncrake	271.9	279.3	Y	Y	N	N
Treshnish Isles	SPA	Breeding: European storm-petrel Wintering: Barnacle goose	275.6	280.0	Y	Y	Y	N
Sléibhtean agus Cladach Thiriodh (Tiree	SPA and Ramsar	Breeding: Eurasian oystercatcher, Ringed plover, Common redshank, Dunlin Wintering: Barnacle goose, Ringed plover, Ruddy turnstone, Greenland white-fronted goose	281.9	290.0	Y	Y	N	N

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Wetlands and Coast)								
Mingulay and Berneray	SPA	Breeding: Northern fulmar*, European shag*, Black-legged kittiwake*, Common guillemot*, Razorbill , Atlantic puffin*	282.5	296.6	Y	Y	Y	N
Cameron Reservoir	SPA and Ramsar	Wintering: Pink-footed goose	288.6	261.2	Y	Y	Y	N
Loch Leven	SPA and Ramsar	Wintering: Great cormorant , Whooper swan , Pink-footed goose , Gadwall , Eurasian teal , Northern shoveler , Common pochard , Tufted duck , Common goldeneye	289.3	264.8	Y	Y	Y	N
Tiree (corncrake)	SPA	Breeding: Corncrake	293.3	302.0	Y	Y	N	N
Firth of Forth	SPA and Ramsar	Wintering: Red-throated diver, Great crested grebe*, Slavonian grebe , Great cormorant*, Pink-footed goose , Common shelduck , Eurasian wigeon*, Mallard*, Greater scaup*, Common eider*, Long-tailed duck*, Common scoter*, Velvet	295.1	266.6	Y	Y	Y	N

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		scoter*, Common goldeneye*, Red-breasted merganser*, Eurasian oystercatcher*, Ringed plover*, European golden plover , Grey plover*, Northern lapwing*, Red knot , Bar-tailed godwit , Eurasian curlew*, Common redshank , Ruddy turnstone, Dunlin* Passage: Sandwich tern						
Loch Lomond	SPA and Ramsar	Wintering: Greenland white-fronted goose Permanent: Western capercaillie	299.4	283.2	Y	Y	N	N
Forth Islands	SPA	Breeding: Northern gannet , Great cormorant*, European shag , Lesser black-backed gull , Herring gull*, Black-legged kittiwake*, Sandwich tern , Roseate tern , Common tern , Arctic tern , Common guillemot*, Razorbill*, Atlantic puffin	301.9	273.5	Y	Y	Y	N
Inner Clyde Estuary	SPA and Ramsar	Wintering: Common redshank	310.8	295.4	Y	Y	N	N
Oronsay and South Colonsay	SPA	Breeding: Red-billed chough, Corncrake Wintering: Red-billed chough	320.1	319.0	Y	Y	N	N

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Renfrewshire Heights	SPA	Breeding: Hen harrier	320.5	305.8	Y	Y	N	N
Black Cart	SPA	Wintering: Whooper swan	322.9	304.7	Y	Y	N	N
Sound of Gigha	SPA	Wintering: Great northern diver , Slavonian grebe , Common eider , Red-breasted merganser	328.3	321.2	Y	Y	N	N
Fala Flow	SPA and Ramsar	Wintering: Pink-footed goose	338.1	311.8	Y	Y	Y	N
Gruinart Flats, Islay	SPA and Ramsar	Beeding: Red-billed chough Wintering: Barnacle goose, Greenland white-fronted goose, Red-billed chough Passage: Pale-bellied brent goose	338.8	337.9	Y	Y	N	N
Westwater	SPA and Ramsar	Wintering: Pink-footed goose	339.8	315.8	Y	Y	Y	N
Gladhouse Reservoir	SPA and Ramsar	Wintering: Pink-footed goose	340.9	315.4	Y	Y	Y	N

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Rinns of Islay	SPA and Ramsar	Breeding: Common scoter, Hen harrier, Corncrake, Red-billed chough, Wintering: Red-billed chough , Greenland white-fronted goose Permanent: Whooper swan	342.0	341.2	Y	Y	N	N
Arran Moors	SPA	Breeding: Hen harrier	346.5	334.9	Y	Y	N	N
Kintyre Goose Roosts	SPA and Ramsar	Wintering: Greenland white-fronted goose	348.4	339.9	Y	Y	N	N
Bridgend Flats, Islay	SPA and Ramsar	Wintering: Barnacle goose	350.2	348.0	Y	Y	N	N
Muirkirk and North Lowther Uplands	SPA	Breeding: Hen harrier, Merlin, Peregrine falcon, European golden plover, Short-eared owl Wintering: Hen harrier	354.3	333.2	Y	Y	Y	N
Laggan, Islay	SPA	Wintering: Barnacle goose , Greenland white-fronted goose	354.5	352.5	Y	Y	N	N

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Greenlaw Moor	SPA and Ramsar	Wintering: Pink-footed goose	354.6	326.7	Y	Y	Y	N
Eilean na Muice Duibhe (Duich Moss)	SPA and Ramsar	Wintering: Greenland white-fronted goose	355.1	352.6	Y	Y	N	N
Northumbria Coast	SPA and Ramsar	Breeding: Arctic tern, Little tern Wintering: Purple sandpiper, Ruddy turnstone	362.7	333.1	Y	Y	Y	N
Lindisfarne	SPA and Ramsar	Wintering: Whooper swan, Greylag goose, Common shelduck, Eurasian wigeon, Common eider, Long-tailed duck, Common scoter, Red-breasted merganser, Ringed plover, European golden plover, Grey plover, Sanderling, Bar-tailed godwit, Common redshank, Dunlin, Light-bellied brent goose Breeding: Roseate tern, Little tern	365.3	335.7	Y	Y	Y	N
Din Moss - Hoselaw Loch	SPA and Ramsar	Wintering: Pink-footed goose , Greylag goose	374.3	346.0	Y	Y	Y	N

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Holburn Lake and Moss	SPA and Ramsar	Wintering: Greylag goose	377.5	348.0	Y	Y	Y	N
Ailsa Craig	SPA	Breeding: Northern gannet , Lesser black-backed gull , Herring gull*, Black-legged kittiwake*, Common guillemot*	391.9	378.3	Y	Y	Y	N
Langholm - Newcastleton Hills	SPA	Breeding: Hen harrier	400.0	374.3	Y	Y	N	N
Castle Loch, Lochmaben	SPA and Ramsar	Wintering: Pink-footed goose	409.9	386.4	Y	Y	Y	N
Glen App and Galloway Moors	SPA	Breeding: Hen harrier	411.6	396.5	Y	Y	N	N
Antrim Hills	SPA	Breeding: Hen harrier , Merlin	412.0	405.7	Y	Y	N	N

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Loch Ken and River Dee Marshes	SPA and Ramsar	Wintering: Greylag goose , Greenland white-fronted goose	412.4	391.9	Y	Y	Y	N
Solway Firth	SPA and Ramsar	Wintering: Red-throated diver, Great cormorant*, Whooper swan, Pink-footed goose, Barnacle goose, Common shelduck*, Eurasian teal*, Northern pintail, Northern shoveler*, Greater scaup, Common scoter*, Common goldeneye*, Goosander*, Eurasian oystercatcher, European golden plover, Grey plover*, Northern lapwing*, Red knot, Sanderling*, Bar-tailed godwit, Eurasian curlew, Common redshank, Ruddy turnstone*, Black-headed gull*, Common gull*, Herring gull*, Dunlin* Passage: Ringed plover	419.5	396.7	Y	Y	Y	N
Garron Plateau	Ramsar	Breeding: Golden plover	426.3	419.2	Y	Y	Y	N
Lough Foyle	SPA and Ramsar	Wintering: Whooper swan , Bar-tailed godwit , Light-bellied brent goose , Red-throated diver*, Great crested grebe*, Bewick swan*, Greylag	426.7	426.7	Y	Y	Y	N

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		goose*, Shelduck*, Eurasian teal*, Mallard*, Eurasian wigeon*, Common eider*, Red-breasted merganser*, Oystercatcher*, European golden plover*, Grey plover*, Northern lapwing*, Red knot*, Dunlin*, Eurasian curlew*, Common redshank*, Common greenshank*, Slavonian grebe*						
Loch of Inch and Torrs Warren	SPA and Ramsar	Wintering: Hen harrier , Greenland white-fronted goose	431.8	416.6	Y	Y	N	N
Horn Head to Fanad Head SPA	SPA	Breeding: Chough*, Fulmar*, Cormorant*, European Shag*, Kittiwake*, Razorbill*, Common Guillemot*, Peregrine, Black Guillemot, Puffin, Herring gull, Lesser black-backed gull*, great black-backed gull, Common gull. Wintering: Barnacle Goose*, Greater White-fronted Goose*	434.2	439.0	Y	Y	Y	N
North Pennine Moors	SPA	Breeding: Hen harrier , Merlin , Peregrine falcon , European golden plover	438.9	412.1	Y	Y	Y	N

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Larne Lough	SPA and Ramsar	Breeding: Mediterranean gull, Sandwich tern, Roseate tern, Common tern Wintering: Light-bellied brent goose	445.4	436.2	Y	Y	N	N
Tory Island SPA	SPA	Breeding: Corncrake*, Fulmar*, Puffin*, Razorbill*	450.8	459.0	Y	Y	Y	N
Lough Neagh and Lough Beg	SPA and Ramsar	Wintering: Bewick swan , Whooper swan , Common pochard , Tufted duck , Common goldeneye , Little grebe*, Great crested grebe*, Great cormorant*, Greylag goose*, Shelduck*, Eurasian wigeon*, Gadwall*, Eurasian teal*, Mallard*, Northern shoveler*, Greater Scaup*, Common coot* Breeding: Common tern	457.3	452.3	Y	Y	Y	N
Belfast Lough	SPA and Ramsar	Breeding: Common tern, Arctic tern, Wintering: Bar-tailed godwit, Common redshank, Black-tailed godwit	458.6	448.6	Y	Y	N	N
Copeland Islands	SPA	Breeding: Manx shearwater, Arctic tern	458.8	447.1	Y	Y	Y	N

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Outer Ards	SPA and Ramsar	Breeding: Arctic tern Wintering: Ringed plover, European golden plover, Ruddy turnstone, Light-bellied brent goose	460.7	449.5	Y	Y	Y	N
Strangford Lough	SPA and Ramsar	Wintering: Red knot , Common redshank , Light-bellied brent goose , Bar-tailed godwit*, Black-tailed godwit*, Common coot*, Eurasian curlew*, Dunlin*, Common eider*, Gadwall*, Great crested grebe*, Greylag goose*, Common greenshank*, Common goldeneye*, European golden plover*, Grey plover*, Northern lapwing*, Mallard*, Oystercatcher*, Northern pintail*, Red-breasted merganser*, Common ringed plover*, Shelduck*, Northern shoveler*, Eurasian teal*, Ruddy turnstone*, Eurasian wigeon* Breeding: Sandwich tern, Common tern, Arctic tern	473.1	462.2	Y	Y	Y	N
Teesmouth and Cleveland Coast	SPA and Ramsar	Wintering: Red knot, Ruff, Gadwall*, Northern shoveler*, Sanderling*, Eurasian wigeon*, Northern lapwing*, Herring gull*, Black-headed gull*	482.1	452.1	Y	Y	N	N

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		Breeding: Pied avocet, Common tern, Little tern Passage: Common redshank, Sandwich tern						
Morecambe Bay and Duddon Estuary	SPA and Ramsar	Breeding: Lesser black-backed gull, Herring gull, Sandwich tern, Common tern, Little tern Wintering: Little egret, Whooper swan, European golden plover, Ruff, Bar-tailed godwit, Mediterranean gull, Great egret*, Eurasian spoonbill*, Brent goose*, Eurasian wigeon*, Eurasian teal*, Teal*, Mallard*, Ring-necked duck*, Common eider*, Common goldeneye*, Red-breasted merganser*, Great cormorant*, Northern lapwing*, Little stint*, Spotted redshank*, Common greenshank*, Black-headed gull*, Common gull*, Herring gull* Passage: Pink-footed goose, Common shelduck, Northern pintail, Eurasian oystercatcher, Ringed plover, Grey plover, Red knot, Sanderling, Eurasian curlew, Common redshank, Ruddy turnstone, Lesser black-backed gull, Black-tailed godwit, Dunlin	492.8	469.7	Y	Y	Y	N
Killough Bay	SPA and Ramsar	Wintering: Light-bellied brent goose	508.0	496.1	Y	Y	N	N

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North York Moors	SPA	Breeding: Merlin , European golden plover	512.5	482.5	Y	Y	Y	N
Slieve Beagh - Mullaghfad - Lisnaskea	SPA	Breeding: Hen harrier	516.8	514.3	Y	Y	N	N
Pettigoe Plateau	SPA and Ramsar	Breeding: European golden plover	517.2	520.0	Y	Y	Y	N
Liverpool Bay / Bae Lerpwl	SPA	Wintering: Red-throated diver, Common scoter, Little gull, Red-breasted merganser*, Great cormorant*, Black-headed gull*, Common gull*, Common eider*, Northern Fulmar*, Great black-backed gull*, Great crested grebe*, Common guillemot*, Northern gannet*, Atlantic puffin*, Herring gull*, Black-legged kittiwake*, Lesser black-backed gull*, Black-throated diver*, European shag*, Razorbill*, Velvet scoter* Breeding: Common tern, Little tern	533.7	511.3	Y	Y	N	N

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Carlingford Lough	SPA and Ramsar	Breeding: Sandwich tern, Common tern Wintering: Light-bellied brent goose	534.3	525.1	Y	Y	N	N
Upper Lough Erne	SPA and Ramsar	Wintering: Whooper swan	534.7	534.2	Y	Y	N	N
Bowland Fells	SPA	Breeding: Hen harrier , Merlin , Lesser black-backed gull	535.3	509.9	Y	Y	N	N
Flamborough and Filey Coast	SPA	Breeding: Northern gannet , Black-legged kittiwake , Common guillemot , Razorbill , Northern Fulmar*	556.7	525.6	Y	Y	Y	N
Irish Sea Front	SPA	Breeding: Manx shearwater	558.6	542.5	Y	Y	Y	N
South Pennine Moors Phase 2	SPA	Breeding: Merlin , European golden plover , Short-eared owl	559.1	531.7	Y	Y	Y	N
Ribble and Alt Estuaries	SPA and Ramsar	Wintering: Great cormorant, Bewick swan, Whooper swan, Pink-footed goose, Common shelduck, Eurasian wigeon, Eurasian teal, Northern	561.8	537.7	Y	Y	Y	N

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		pintail, Greater scaup, Common scoter, Eurasian oystercatcher, European golden plover, Grey plover, Northern lapwing, Red knot, Sanderling, Bar-tailed godwit, Eurasian curlew, Common redshank, Black-tailed godwit, Dunlin Breeding: Ruff, Black-headed gull, Lesser black-backed gull, Common tern Passage: Ringed plover, Sanderling, Whimbrel, Common redshank						
Lower Derwent Valley	SPA and Ramsar	Wintering: Bewick swan, Eurasian wigeon, Eurasian teal, European golden plover, Ruff Breeding: Northern shoveler	575.2	545.6	Y	Y	Y	N
Martin Mere	SPA and Ramsar	Wintering: Bewick swan , Whooper swan , Pink-footed goose , Eurasian wigeon , Northern pintail	579.3	554.8	Y	Y	Y	N
Greater Wash	SPA	Breeding: Sandwich tern, Common tern, Little tern Wintering: Red-throated diver, Common scoter, Little gull	584.6	553.7	Y	Y	N	N
Peak District Moors (South	SPA	Breeding: Merlin , European golden plover , Short-eared owl	594.5	567.5	Y	Y	Y	N

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Pennine Moors Phase 1)								
Mersey Narrows and North Wirral Foreshore	SPA and Ramsar	Wintering: Great cormorant*, Eurasian oystercatcher*, Grey plover*, Sanderling*, Bar-tailed godwit, Common redshank*, Red knot, Dunlin* Breeding: Common tern Passage: Little gull, Common tern	596.1	572.0	Y	Y	N	N
Hornsea Mere	SPA	Breeding: Mute swan Wintering: Gadwall	596.1	565.2	Y	Y	N	N
Humber Estuary	SPA and Ramsar	Wintering: Great bittern, Common shelduck*, Eurasian wigeon*, Eurasian teal*, Mallard*, Common pochard*, Greater scaup*, Common goldeneye*, Hen harrier, Eurasian oystercatcher*, Pied avocet, Ringed plover*, European golden plover, Grey plover*, Northern lapwing*, Red knot, Sanderling*, Bar-tailed godwit, Eurasian curlew*, Common redshank, Ruddy turnstone*, Black-tailed godwit, Dunlin, Dark-bellied brent goose* Breeding: Great bittern, Eurasian marsh harrier,	598.7	569.3	Y	Y	Y	N

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		Pied avocet, Little tern Passage: Ringed plover*, Grey plover*, Red knot, Sanderling*, Ruff, Whimbrel*, Common redshank, Common greenshank*, Black-tailed godwit, Dunlin						
The Dee Estuary	SPA and Ramsar	Wintering: Common shelduck, Eurasian teal, Northern pintail, Eurasian oystercatcher, Grey plover, Red knot, Bar-tailed godwit, Eurasian curlew, Common redshank, Black-tailed godwit, Dunlin Breeding: Common tern, Little tern Passage: Sandwich tern, Common redshank	603.3	579.8	Y	Y	Y	N
Mersey Estuary	SPA and Ramsar	Wintering: Great crested grebe, Common shelduck, Eurasian wigeon, Eurasian teal, Northern pintail, European golden plover, Grey plover, Northern lapwing, Eurasian curlew, Common redshank, Black-tailed godwit, Dunlin Passage: Ringed plover, Common redshank	606.6	582.5	Y	Y	Y	N
Traeth Lafan/ Lavan Sands, Conway Bay	SPA	Wintering: Red-breasted merganser, Eurasian oystercatcher, Eurasian curlew, Common redshank Passage: Great crested grebe	612.6	591.6	Y	Y	Y	N

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Rostherne Mere	Ramsar	Wintering: Northern shoveler, Pochard	614.0	588.4	Y	Y	Y	N
Midland Meres and Mosses Phase 2	Ramsar	Passage: Northern shoveler; Wintering: Cormorant, great bittern, water rail	625.0	600.1	Y	Y	Y	N
Migneint-Arenig-Dduallt	SPA	Breeding: Hen harrier , Merlin , Peregrine falcon	639.5	617.7	Y	Y	N	N
Berwyn	SPA	Breeding: Red kite , Hen harrier , Merlin , Peregrine falcon	648.5	625.6	Y	Y	N	N
Glannau Aberdaron ac Ynys Enlli/ Aberdaron Coast and Bardsey Island	SPA	Breeding: Manx shearwater, Red-billed chough Wintering: Red-billed chough	660.3	642.2	Y	Y	Y	N

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Gibraltar Point	SPA and Ramsar	Wintering: Grey plover, Sanderling, Bar-tailed godwit Breeding: Little tern	690.6	659.8	Y	Y	N	N
Dyfi Estuary / Aber Dyfi	SPA	Wintering: Greenland white-fronted goose	691.5	670.2	Y	Y	N	N
Cors Fochno and Dyfi	Ramsar	Passage: Common greenshank	692.6	671.2	Y	Y	N	N
The Wash	SPA and Ramsar	Wintering: Bewick swan, Pink-footed goose, Common shelduck, Eurasian wigeon, Gadwall, Northern pintail, Common scoter, Common goldeneye, Eurasian oystercatcher, Grey plover, Red knot, Sanderling, Bar-tailed godwit, Eurasian curlew, Common redshank, Ruddy turnstone, Black-tailed godwit, Dunlin, Dark-bellied brent goose Breeding: Common tern, Little tern	692.7	661.9	Y	Y	Y	N
North Norfolk Coast	SPA and Ramsar	Breeding: Great bittern, Eurasian marsh harrier, Pied avocet, Sandwich tern, Common tern, Little tern	710.5	679.5	Y	Y	Y	N

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		Wintering: Pink-footed goose, Eurasian wigeon, Pied avocet, Red knot, Dark-bellied brent goose						
Rutland Water	SPA and Ramsar	Wintering: Great crested grebe , Mute swan , Eurasian wigeon , Gadwall , Eurasian teal , Northern shoveler , Tufted duck , Common goldeneye , Goosander , Common coot	714.7	685.9	Y	Y	N	N
Cors Caron	Ramsar	Wintering: Whooper swan	723.3	701.9	Y	Y	N	N
Nene Washes	SPA and Ramsar	Breeding: Gadwall, Garganey, Northern shoveler, Black-tailed godwit Wintering: Bewick swan, Eurasian wigeon, Gadwall, Eurasian teal, Northern pintail, Northern shoveler	735.4	705.9	Y	Y	N	N
Upper Nene Valley Gravel Pits	SPA and Ramsar	Wintering: Great crested grebe*, Great cormorant*, Great bittern , Eurasian wigeon*, Gadwall , Mallard*, Northern shoveler*, Common pochard*, Tufted duck*, Common coot*, European golden plover , Northern lapwing*	744.9	716.0	Y	Y	Y	N

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Ouse Washes	SPA and Ramsar	Wintering: Great cormorant, Mute swan, Bewick swan, Whooper swan, Eurasian wigeon, Gadwall, Eurasian teal, Northern pintail, Northern shoveler, Common pochard, Tufted duck, Hen harrier, Common coot, Ruff Breeding: Gadwall, Mallard, Garganey, Northern shoveler, Black-tailed godwit	748.0	717.6	Y	Y	N	N
Broadland	SPA and Ramsar	Wintering: Bewick swan, Whooper swan, Eurasian wigeon, Gadwall, Northern shoveler, Hen harrier, Ruff Breeding: Great bittern, Eurasian marsh harrier	756.7	724.5	Y	Y	N	N
Breydon Water	SPA and Ramsar	Wintering: Bewick swan, Pied avocet, European golden plover, Northern lapwing Breeding: Common tern Passage: Ruff	778.4	746.2	Y	Y	Y	N
Skomer, Skokholm and the Seas off Pembrokeshire / Sgomer,	SPA	Breeding: Manx shearwater , European storm-petrel , Lesser black-backed gull , Atlantic puffin , Short-eared owl , Red-billed chough , Razorbill*, Common guillemot*, Black-legged kittiwake*	780.4	764.0	Y	Y	Y	N

SITE NAME	SITE STATUS	QUALIFYING INTEREST / FEATURES	DISTANCE TO OAA (KM)	DISTANCE TO OFFSHORE ECC (KM)	THEORETICAL CONNECTIVITY TO OFFSHORE PROJECT (Y/N)	POTENTIAL PATHWAY FOR LSE (Y/N)	QUALIFYING INTEREST SPECIES RECORDED IN BASELINE SURVEY DATA (Y/N)	CAN CONCLUDE NO POTENTIAL LSE (Y/N)
Sgogwm a Moroedd Penfro								
Bae Caerfyrddin/ Carmarthen Bay	SPA	Wintering: Common scoter	784.1	764.8	Y	Y	N	N
Severn Estuary	SPA and Ramsar	Wintering: Bewick swan , Common shelduck , Gadwall , Common redshank , Greater white-fronted goose , Dunlin	788.0	763.2	Y	Y	N	N
Burry Inlet	SPA and Ramsar	Wintering: Common shelduck , Eurasian wigeon , Eurasian teal , Northern pintail , Northern shoveler , Eurasian oystercatcher , Grey plover , Red knot , Eurasian curlew , Common redshank , Ruddy turnstone , Dunlin	790.0	769.4	Y	Y	Y	N
Minsmere-Walberswick	SPA and Ramsar	Breeding: Great bittern, Gadwall , Eurasian teal, Northern shoveler, Eurasian marsh harrier, Pied avocet, Little tern, European nightjar	805.3	773.4	Y	Y	N	N

SITE NAME	SITE STATUS	QUALIFYING INTEREST / FEATURES	DISTANCE TO OAA (KM)	DISTANCE TO OFFSHORE ECC (KM)	THEORETICAL CONNECTIVITY TO OFFSHORE PROJECT (Y/N)	POTENTIAL PATHWAY FOR LSE (Y/N)	QUALIFYING INTEREST SPECIES RECORDED IN BASELINE SURVEY DATA (Y/N)	CAN CONCLUDE NO POTENTIAL LSE (Y/N)
		Wintering: Gadwall, Northern shoveler, Hen harrier, Greater white-fronted goose						
Alde-Ore Estuary	SPA and Ramsar	Breeding: Eurasian marsh harrier, Pied avocet, Lesser black-backed gull, Sandwich tern, Little tern Wintering: Pied avocet, Ruff, Common redshank	819.6	788.0	Y	Y	N	N
Lee Valley	SPA and Ramsar	Wintering: Great bittern , Gadwall , Northern shoveler	821.0	791.7	Y	Y	N	N
Stour and Orwell Estuaries	SPA and Ramsar	Wintering: Great crested grebe*, Great cormorant*, Mute swan, Common shelduck*, Eurasian wigeon*, Gadwall*, Northern pintail, Greater scaup, Common goldeneye*, Ringed plover*, European golden plover, Grey plover, Northern lapwing*, Red knot, Eurasian curlew*, Common redshank, Ruddy turnstone*, Black-tailed godwit, Dunlin, Dark-bellied brent goose Breeding: Pied avocet Passage: Ringed plover*, Common redshank	823.6	792.6	Y	Y	Y	N
Chew Valley Lake	SPA	Wintering: Northern shoveler	833.2	809.0	Y	Y	N	N

SITE NAME	SITE STATUS	QUALIFYING INTEREST / FEATURES	DISTANCE TO OAA (KM)	DISTANCE TO OFFSHORE ECC (KM)	THEORETICAL CONNECTIVITY TO OFFSHORE PROJECT (Y/N)	POTENTIAL PATHWAY FOR LSE (Y/N)	QUALIFYING INTEREST SPECIES RECORDED IN BASELINE SURVEY DATA (Y/N)	CAN CONCLUDE NO POTENTIAL LSE (Y/N)
Abberton Reservoir	SPA and Ramsar	Wintering: Great crested grebe, Mute swan, Eurasian wigeon, Gadwall, Eurasian teal, Northern shoveler, Common pochard, Tufted duck, Common goldeneye, Common coot Breeding: Great cormorant	836.6	806.1	Y	Y	N	N
Colne Estuary (Mid-Essex Coast Phase 2)	SPA and Ramsar	Breeding: Common pochard, Ringed plover, Little tern, Dark-bellied brent goose Wintering: Hen harrier, Common redshank	837.9	807.3	Y	Y	N	N
Hamford Water	SPA and Ramsar	Wintering: Common shelduck, Eurasian teal, Pied avocet, Ringed plover, Grey plover, Common redshank, Black-tailed godwit, Dark-bellied brent goose Breeding: Little tern	838.1	807.0	Y	Y	N	N
Blackwater Estuary (Mid-Essex Coast Phase 4)	SPA and Ramsar	Breeding: Common pochard, Ringed plover, Little tern Wintering: Hen harrier, Ringed plover, Grey plover, Black-tailed godwit, Dunlin, Dark-bellied brent goose	840.9	810.4	Y	Y	N	N

SITE NAME	SITE STATUS	QUALIFYING INTEREST / FEATURES	DISTANCE TO OAA (KM)	DISTANCE TO OFFSHORE ECC (KM)	THEORETICAL CONNECTIVITY TO OFFSHORE PROJECT (Y/N)	POTENTIAL PATHWAY FOR LSE (Y/N)	QUALIFYING INTEREST SPECIES RECORDED IN BASELINE SURVEY DATA (Y/N)	CAN CONCLUDE NO POTENTIAL LSE (Y/N)
Salisbury Plain	SPA	Breeding: Eurasian hobby, Common quail, Stone-curlew Wintering: Hen harrier	845.2	819.6	Y	Y	N	N
South West London Waterbodies	SPA and Ramsar	Wintering: Gadwall, Northern shoveler	846.2	818.1	Y	Y	N	N
Somerset Levels and Moors	SPA and Ramsar	Wintering: Bewick swan, Eurasian teal, European golden plover, Northern lapwing	846.5	822.8	Y	Y	Y	N
Dengie (Mid-Essex Coast Phase 1)	SPA and Ramsar	Wintering: Hen harrier, Grey plover, Red knot, Dark-bellied brent goose	847.1	816.6	Y	Y	N	N
Foulness (Mid-Essex Coast Phase 5)	SPA and Ramsar	Wintering: Hen harrier, Eurasian oystercatcher, Pied avocet, Grey plover, Red knot, Bar-tailed godwit, Common redshank, Dark-bellied brent goose Breeding: Pied avocet, Ringed plover, Sandwich tern, Common tern, Little tern	860.0	829.4	Y	Y	N	N

SITE NAME	SITE STATUS	QUALIFYING INTEREST / FEATURES	DISTANCE TO OAA (KM)	DISTANCE TO OFFSHORE ECC (KM)	THEORETICAL CONNECTIVITY TO OFFSHORE PROJECT (Y/N)	POTENTIAL PATHWAY FOR LSE (Y/N)	QUALIFYING INTEREST SPECIES RECORDED IN BASELINE SURVEY DATA (Y/N)	CAN CONCLUDE NO POTENTIAL LSE (Y/N)
Benfleet and Southend Marshes	SPA and Ramsar	Wintering: Ringed plover , Grey plover , Red knot , Dunlin , Dark-bellied brent goose	861.0	831.1	Y	Y	N	N
Thames Estuary and Marshes	SPA and Ramsar	Wintering: Hen harrier, Pied avocet, Grey plover, Red knot, Common redshank, Black-tailed godwit, Dunlin Passage: Ringed plover	862.0	832.3	Y	Y	N	N
Medway Estuary and Marshes	SPA and Ramsar	Wintering: Red-throated diver*, Great crested grebe*, Great cormorant*, Bewick swan, Common shelduck, Eurasian wigeon, Eurasian teal, Mallard*, Northern pintail, Northern shoveler, Common pochard*, Hen harrier, Merlin, Eurasian oystercatcher, Pied avocet, Ringed plover, Grey plover, Red knot, Eurasian curlew, Common redshank, Common greenshank, Ruddy turnstone, Black-tailed godwit, Dunlin, Dark-bellied brent goose, Northern lapwing* Breeding: Pied avocet, Common tern, Little tern	872.4	842.5	Y	Y	Y	N
The Swale	SPA and Ramsar	Wintering: Gadwall*, Eurasian teal*, Eurasian oystercatcher*, Ringed plover*, Grey plover*,	880.0	849.9	Y	Y	Y	N

SITE NAME	SITE STATUS	QUALIFYING INTEREST / FEATURES	DISTANCE TO OAA (KM)	DISTANCE TO OFFSHORE ECC (KM)	THEORETICAL CONNECTIVITY TO OFFSHORE PROJECT (Y/N)	POTENTIAL PATHWAY FOR LSE (Y/N)	QUALIFYING INTEREST SPECIES RECORDED IN BASELINE SURVEY DATA (Y/N)	CAN CONCLUDE NO POTENTIAL LSE (Y/N)
		Eurasian curlew*, Common redshank, Dunlin, Dark-bellied brent goose						
New Forest	SPA and Ramsar	Breeding: European honey-buzzard, Eurasian hobby, European nightjar, Wood lark, Dartford warbler, Wood warbler Wintering: Hen harrier	883.7	857.8	Y	Y	N	N
Dorset Heathlands	SPA and Ramsar	Breeding: European nightjar, Wood lark, Dartford warbler Wintering: Hen harrier, Merlin	888.7	863.1	Y	Y	N	N
Avon Valley	SPA and Ramsar	Wintering: Bewick swan, Gadwall	889.6	863.9	Y	Y	N	N
Solent and Southampton Water	SPA and Ramsar	Breeding: Mediterranean gull, Sandwich tern, Roseate tern, Common tern, Little tern Wintering: Eurasian teal, Ringed plover, Black-tailed godwit, Dark-bellied brent goose	890.1	863.8	Y	Y	N	N

SITE NAME	SITE STATUS	QUALIFYING INTEREST / FEATURES	DISTANCE TO OAA (KM)	DISTANCE TO OFFSHORE ECC (KM)	THEORETICAL CONNECTIVITY TO OFFSHORE PROJECT (Y/N)	POTENTIAL PATHWAY FOR LSE (Y/N)	QUALIFYING INTEREST SPECIES RECORDED IN BASELINE SURVEY DATA (Y/N)	CAN CONCLUDE NO POTENTIAL LSE (Y/N)
Thanet Coast and Sandwich Bay	SPA and Ramsar	Breeding: Little tern Wintering: European golden plover, Ruddy turnstone	890.2	859.8	Y	Y	Y	N
Stodmarsh	SPA and Ramsar	Wintering: Great bittern, Eurasian wigeon*, Gadwall, Mallard*, Northern shoveler, Common pochard*, Tufted duck*, Hen harrier, Water rail*, Northern lapwing*, Common snipe*, Greater white-fronted goose* Breeding: Gadwall	898.7	868.2	Y	Y	N	N
Exe Estuary	SPA and Ramsar	Wintering: Slavonian grebe , Eurasian oystercatcher , Pied avocet , Grey plover , Black-tailed godwit , Dunlin , Dark-bellied brent goose	901.1	878.8	Y	Y	N	N
Portsmouth Harbour	SPA and Ramsar	Wintering: Red-breasted merganser , Black-tailed godwit , Dunlin , Dark-bellied brent goose	903.6	876.8	Y	Y	N	N
Poole Harbour	SPA and Ramsar	Wintering: Little egret, Common shelduck, Pied avocet, Spoonbill, Black-tailed godwit, Dark-bellied brent goose*, Great cormorant*, Eurasian curlew*, Dunlin*, Common goldeneye*, Common pochard*, Red-breasted merganser*, Common	906.2	881.0	Y	Y	Y	N

SITE NAME	SITE STATUS	QUALIFYING INTEREST / FEATURES	DISTANCE TO OAA (KM)	DISTANCE TO OFFSHORE ECC (KM)	THEORETICAL CONNECTIVITY TO OFFSHORE PROJECT (Y/N)	POTENTIAL PATHWAY FOR LSE (Y/N)	QUALIFYING INTEREST SPECIES RECORDED IN BASELINE SURVEY DATA (Y/N)	CAN CONCLUDE NO POTENTIAL LSE (Y/N)
		redshank*, Spotted redshank*, Common greenshank*, Eurasian teal*, Black-headed gull* Breeding: Mediterranean gull, Sandwich tern, Common tern						
Chichester and Langstone Harbours	SPA and Ramsar	Wintering: Common shelduck, Eurasian wigeon, Eurasian teal, Northern pintail, Northern shoveler, Red-breasted merganser, Ringed plover, Grey plover, Sanderling, Bar-tailed godwit, Eurasian curlew, Common redshank, Ruddy turnstone, Dunlin, Dark-bellied brent goose Breeding: Sandwich tern, Common tern, Little tern	906.6	879.6	Y	Y	Y	N
Chesil Beach and The Fleet	SPA and Ramsar	Breeding: Little tern Wintering: Eurasian wigeon	909.9	885.8	Y	Y	N	N
Dungeness, Romney Marsh and Rye Bay	SPA	Wintering: Greater white-fronted goose, Eurasian wigeon, Gadwall, Common pochard, Little grebe, Great crested grebe, Great cormorant, Common coot, Northern lapwing, Sanderling, Whimbrel, Common sandpiper, Great bittern, Bewick swan, Northern shoveler, Hen harrier, European golden plover, Ruff Breeding: Eurasian marsh harrier, Pied avocet,	922.0	892.2	Y	Y	Y	N

SITE NAME	SITE STATUS	QUALIFYING INTEREST / FEATURES	DISTANCE TO OAA (KM)	DISTANCE TO OFFSHORE ECC (KM)	THEORETICAL CONNECTIVITY TO OFFSHORE PROJECT (Y/N)	POTENTIAL PATHWAY FOR LSE (Y/N)	QUALIFYING INTEREST SPECIES RECORDED IN BASELINE SURVEY DATA (Y/N)	CAN CONCLUDE NO POTENTIAL LSE (Y/N)
		Mediterranean gull, Sandwich tern, Common tern, Little tern Passage: Aquatic warbler						
Falmouth Bay to St Austell Bay	SPA	Wintering: Black-throated diver , Great northern diver , Slavonian grebe	938.8	919.7	Y	Y	N	N

6.3 Migratory species

Hypothetical collision risk from the Project alone, and in-combination, exists for terrestrial species that are qualifying features of SPAs. While a strategic assessment of the potential collision risk for ScotWind projects, including this Project, is currently underway, the results were not available at the time of writing. However, a previous strategic level assessment of collisions on these features of SPAs was completed for the Scottish Territorial Waters and Round 3 sites (in Scottish waters) by WWT and MacArthur Green (2014). That assessment concluded for the ten existing and planned offshore windfarms in Scotland at the time that, "Overall, birds on migration through Scottish waters are not considered to be at risk of significant levels of additional mortality, due to collisions with Scottish offshore wind farms". However, not all of those offshore windfarms were progressed, with the Islay and Argyll Array projects not applying for consent. It is also important to note that the cumulative total number of turbines that were used in that assessment were much larger than the number built or consented. The 2014 strategic assessment was based on 1,123 turbines and the total number of built or consented turbines (without Berwick Bank OWF and PFOWF) was 499. The Berwick Bank RIAA undertook an assessment that showed the addition of that project would have no adverse effect on the integrity of any site designated for migratory terrestrial birds.

The addition of the Project to that already assessed by WWT and MacArthur Green (2014) and Berwick Bank would present no additional risk of being unable to conclude no adverse effect on site integrity to any of these SPAs. Those SPAs are listed in Table 66-4.

Table 66-4 SPAs where no AESI could be concluded for migratory species only and are not assessed further within the RIAA

SITE NAME	SITE STATUS	QUALIFYING INTEREST / FEATURES	CAN CONCLUDE NO AESI? (Y/N)
Caithness and Sutherland Peatlands	SPA and Ramsar	Breeding: Red-throated diver, Black-throated diver, Eurasian wigeon, Common scoter, Hen harrier, Golden eagle, Merlin, European golden plover, Common greenshank, Wood sandpiper, Short-eared owl, Dunlin	Y
North Sutherland Coastal Islands	SPA	Wintering: Barnacle goose	Y
Scapa Flow	SPA	Wintering: Great northern diver, Red-throated diver, Black-throated diver, Slavonian grebe, European shag, Common eider, Long-tailed duck, Red-breasted merganser	Y
Caithness Lochs	SPA and Ramsar	Wintering: Whooper swan, Greylag goose, Greenland white-fronted goose	Y

SITE NAME	SITE STATUS	QUALIFYING INTEREST / FEATURES	CAN CONCLUDE NO AESI? (Y/N)
Orkney Mainland Moors	SPA	Breeding: Red-throated diver, Hen harrier, Short-eared owl	Y
North Orkney	SPA	Wintering: Great northern diver, Slavonian grebe, Velvet scoter	Y
Switha	SPA	Wintering: Barnacle goose	Y
Pentland Firth Islands	SPA	Breeding: Arctic tern	Y
Moray Firth	SPA	Wintering: Red-throated diver, Great northern diver, Slavonian grebe, European shag, Greater scaup, Common eider, Long-tailed duck, Common scoter, Velvet scoter, Common goldeneye, Red-breasted merganser	Y
Strath Carnaig and Strath Fleet Moors	SPA	Breeding: Hen harrier	Y
East Sanday Coast	SPA and Ramsar	Wintering: Purple sandpiper, Bar-tailed godwit, Ruddy turnstone	Y
Dornoch Firth and Loch Fleet	SPA and Ramsar	Wintering: Greylag goose, Eurasian wigeon, Eurasian teal*, Greater scaup*, Eurasian oystercatcher*, Bar-tailed godwit, Eurasian curlew*, Common redshank*, Dunlin*	Y
Lewis Peatlands	SPA and Ramsar	Breeding: Red-throated diver, Black-throated diver, Golden eagle, Merlin, European golden plover, Common greenshank, Dunlin	Y
Beinn Dearg	SPA	Breeding: Eurasian dotterel	Y
Ness and Barvas, Lewis	SPA	Breeding: Corncrake	Y
Loch Eye	SPA and Ramsar	Wintering: Whooper swan, Greylag goose	Y
Cromarty Firth	SPA and Ramsar	Wintering: Whooper swan, Greylag goose, Eurasian wigeon*, Northern pintail*, Greater scaup*, Red-breasted merganser*, Eurasian oystercatcher*, Bar-tailed godwit, Eurasian curlew*, Common redshank*, Red knot*, Dunlin*	Y

SITE NAME	SITE STATUS	QUALIFYING INTEREST / FEATURES	CAN CONCLUDE NO AESI? (Y/N)
Ben Wyvis	SPA	Breeding: Eurasian dotterel	Y
Moray and Nairn Coast	SPA and Ramsar	Wintering: Pink-footed goose, Greylag goose, Eurasian wigeon*, Red-breasted merganser*, Eurasian oystercatcher*, Bar-tailed godwit, Common redshank, Dunlin*	Y
Inner Moray Firth	SPA and Ramsar	Wintering: Great cormorant*, Greylag goose, Eurasian wigeon*, Eurasian teal*, Greater scaup*, Common goldeneye*, Red-breasted merganser, Goosander*, Eurasian oystercatcher*, Black-tailed godwit, Eurasian curlew*, Common redshank	Y
Loch Spynie	SPA and Ramsar	Wintering: Greylag goose	Y
Loch Flemington	SPA	Breeding: Slavonian grebe	Y
Loch Ashie	SPA	Passage: Slavonian grebe	Y
North Inverness Lochs	SPA	Breeding: Slavonian grebe	Y
Loch Ruthven	SPA and Ramsar	Breeding: Slavonian grebe	Y
West Inverness-shire Lochs	SPA	Breeding: Black-throated diver, Common scoter	Y
Loch Vaa	SPA	Breeding: Slavonian grebe	Y
Loch Knockie and Nearby Lochs	SPA	Breeding: Slavonian grebe	Y
Cairngorms	SPA	Breeding: Golden eagle, Osprey, Merlin, Peregrine falcon, Western capercaillie, Eurasian dotterel, Scottish crossbill	Y
Lochs of Spiggie and Brow	SPA	Wintering: Whooper swan	Y

SITE NAME	SITE STATUS	QUALIFYING INTEREST / FEATURES	CAN CONCLUDE NO AESI? (Y/N)
Loch of Strathbeg	SPA and Ramsar	Wintering: Sandwich tern, Whooper swan, Pink-footed goose, Greylag goose, Barnacle goose, Eurasian teal*, Common goldeneye*	Y
River Spey - Insh Marshes	SPA and Ramsar	Breeding: Eurasian wigeon, Osprey, Spotted crake, Wood sandpiper	Y
North Uist Machair and Islands	SPA and Ramsar	Breeding: Corncrake, Eurasian oystercatcher, Ringed plover, Common redshank, Dunlin	Y
Papa Stour	SPA	Breeding: Arctic tern, Ringed plover	Y
Creag Meagaidh	SPA	Breeding: Eurasian dotterel	Y
Muir of Dinnet	SPA and Ramsar	Wintering: Greylag goose	Y
Ythan Estuary, Sands of Forvie and Meikle Loch	SPA and Ramsar	Wintering: Pink-footed goose, Common eider*, Northern lapwing*, Common redshank*	Y
Drumochter Hills	SPA	Breeding: Merlin, Eurasian dotterel	Y
Glen Tanar	SPA	Breeding: Hen harrier, Osprey, Scottish crossbill	Y
Lochnagar	SPA	Breeding: Eurasian dotterel	Y
Loch of Skene	SPA and Ramsar	Wintering: Greylag goose, Common goldeneye, Goosander	Y
Caenlochan	SPA	Breeding: Golden eagle, Eurasian dotterel	Y
Ben Alder	SPA	Breeding: Eurasian dotterel	Y
Forest of Clunie	SPA	Breeding: Hen harrier, Osprey, Merlin, Short-eared owl	Y
Aird and Borve, Benbecula	SPA	Breeding: Corncrake	Y

SITE NAME	SITE STATUS	QUALIFYING INTEREST / FEATURES	CAN CONCLUDE NO AESI? (Y/N)
Monach Islands	SPA	Breeding: Barnacle goose, little tern	Y
South Uist Machair and Lochs	SPA and Ramsar	Wintering: Corncrake, Ringed plover, Sanderling, Common redshank, little tern, Dunlin	Y
Otterswick and Graveland	SPA	Breeding: Red-throated diver	Y
Loch of Lintrathen	SPA and Ramsar	Wintering: Greylag goose	Y
Loch of Kinnordy	SPA and Ramsar	Wintering: Pink-footed goose, Greylag goose	Y
Montrose Basin	SPA and Ramsar	Wintering: Pink-footed goose, Greylag goose, Common shelduck*, Eurasian wigeon*, Common eider*, Eurasian oystercatcher*, Common redshank, red knot*, Dunlin*	Y
Kilpheder and Smerclate, South Uist	SPA	Breeding: Corncrake	Y
Coll and Tiree	SPA	Wintering: Great northern diver, Common eider	Y
Eoligarry, Barra	SPA	Breeding: Corncrake	Y
Coll	SPA and Ramsar	Wintering: Barnacle goose, Greenland white-fronted goose	Y
Firth of Tay and Eden Estuary	SPA and Ramsar	Wintering: Great cormorant*, Pink-footed goose, Greylag goose, Common shelduck*, Common eider*, Long-tailed duck*, Common scoter*, Velvet scoter*, Common goldeneye*, Red-breasted merganser*, Goosander*, Eurasian oystercatcher*, Grey plover*, Sanderling*, Bar-tailed godwit, Common redshank, Black-tailed godwit*, Dunlin*	Y
South Tayside Goose Roosts	SPA and Ramsar	Wintering: Pink-footed goose, Greylag goose	Y
Coll (corncrake)	SPA	Breeding: Corncrake	Y

SITE NAME	SITE STATUS	QUALIFYING INTEREST / FEATURES	CAN CONCLUDE NO AESI? (Y/N)
Sléibhtean agus Cladach Thiriodh (Tiree Wetlands and Coast)	SPA and Ramsar	Breeding: Eurasian oystercatcher, Ringed plover, Common redshank, Dunlin	Y
Cameron Reservoir	SPA and Ramsar	Wintering: Pink-footed goose	Y
Loch Leven	SPA and Ramsar	Wintering: Great cormorant, Whooper swan, Pink-footed goose, Gadwall, Eurasian teal, Northern shoveler, Common pochard, Tufted duck, Common goldeneye	Y
Tiree (corncrake)	SPA	Breeding: Corncrake	Y
Firth of Forth	SPA and Ramsar	Wintering: Red-throated diver, Great crested grebe*, Slavonian grebe , Great cormorant*, Pink-footed goose , Common shelduck , Eurasian wigeon*, Mallard*, Greater scaup*, Common eider*, Long-tailed duck*, Common scoter*, Velvet scoter*, Common goldeneye*, Red-breasted merganser*, Eurasian oystercatcher*, Ringed plover*, European golden plover , Grey plover*, Northern lapwing*, Red knot , Bar-tailed godwit , Eurasian curlew*, Common redshank, Ruddy turnstone, Dunlin*	Y
Loch Lomond	SPA and Ramsar	Wintering: Greenland white-fronted goose	Y
Inner Clyde Estuary	SPA and Ramsar	Wintering: Common redshank	Y
Oronsay and South Colonsay	SPA	Breeding: Red-billed chough, Corncrake	Y
Renfrewshire Heights	SPA	Breeding: Hen harrier	Y
Black Cart	SPA	Wintering: Whooper swan	Y
Fala Flow	SPA and Ramsar	Wintering: Pink-footed goose	Y

SITE NAME	SITE STATUS	QUALIFYING INTEREST / FEATURES	CAN CONCLUDE NO AESI? (Y/N)
Gruinart Flats, Islay	SPA and Ramsar	Beeding: Red-billed chough	Y
Westwater	SPA and Ramsar	Wintering: Pink-footed goose	Y
Gladhouse Reservoir	SPA and Ramsar	Wintering: Pink-footed goose	Y
Rinns of Islay	SPA and Ramsar	Breeding: Common scoter, Hen harrier, Corncrake, Red-billed chough,	Y
Arran Moors	SPA	Breeding: Hen harrier	Y
Kintyre Goose Roosts	SPA and Ramsar	Wintering: Greenland white-fronted goose	Y
Bridgend Flats, Islay	SPA and Ramsar	Wintering: Barnacle goose	Y
Muirkirk and North Lowther Uplands	SPA	Breeding: Hen harrier, Merlin, Peregrine falcon, European golden plover, Short-eared owl	Y
Laggan, Islay	SPA	Wintering: Barnacle goose, Greenland white-fronted goose	Y
Greenlaw Moor	SPA and Ramsar	Wintering: Pink-footed goose	Y
Eilean na Muice Duibhe (Duich Moss)	SPA and Ramsar	Wintering: Greenland white-fronted goose	Y
Lindisfarne	SPA and Ramsar	Wintering: Whooper swan, Greylag goose, Common shelduck, Eurasian wigeon, Common eider, Long-tailed duck, Common scoter, Red-breasted merganser, Ringed plover, European golden plover, Grey plover, Sanderling, Bar-tailed godwit, Common redshank, Dunlin, Light-bellied brent goose	Y

SITE NAME	SITE STATUS	QUALIFYING INTEREST / FEATURES	CAN CONCLUDE NO AESI? (Y/N)
Din Moss - Hoselaw Loch	SPA and Ramsar	Wintering: Pink-footed goose, Greylag goose	Y
Holburn Lake and Moss	SPA and Ramsar	Wintering: Greylag goose	Y
Langholm - Newcastleton Hills	SPA	Breeding: Hen harrier	Y
Castle Loch, Lochmaben	SPA and Ramsar	Wintering: Pink-footed goose	Y
Glen App and Galloway Moors	SPA	Breeding: Hen harrier	Y
Antrim Hills	SPA	Breeding: Hen harrier, Merlin	Y
Loch Ken and River Dee Marshes	SPA and Ramsar	Wintering: Greylag goose, Greenland white-fronted goose	Y
Solway Firth	SPA and Ramsar	Wintering: Red-throated diver, Great cormorant*, Whooper swan, Pink-footed goose, Barnacle goose, Common shelduck*, Eurasian teal*, Northern pintail, Northern shoveler*, Greater scaup, Common scoter*, Common goldeneye*, Goosander*, Eurasian oystercatcher, European golden plover, Grey plover*, Northern lapwing*, Red knot, Sanderling*, Bar-tailed godwit, Eurasian curlew, Common redshank, Ruddy turnstone*, Black-headed gull*, Common gull*, Herring gull*, Dunlin*	Y
Garron Plateau	Ramsar	Breeding: Golden plover	Y
Lough Foyle	SPA and Ramsar	Wintering: Whooper swan, Bar-tailed godwit, Light-bellied brent goose, Red-throated diver*, Great crested grebe*, Bewick swan*, Greylag goose*, Shelduck*, Eurasian teal*, Mallard*, Eurasian wigeon*, Common eider*, Red-breasted merganser*, Oystercatcher*, European golden plover*, Grey plover*, Northern lapwing*, Red knot*, Dunlin*, Eurasian curlew*, Common redshank*, Common greenshank*, Slavonian grebe*	Y

SITE NAME	SITE STATUS	QUALIFYING INTEREST / FEATURES	CAN CONCLUDE NO AESI? (Y/N)
Loch of Inch and Torrs Warren	SPA and Ramsar	Wintering: Hen harrier, Greenland white-fronted goose	Y
Horn Head to Fanad Head SPA	SPA	Breeding: Chough*, Fulmar*, Cormorant*, European Shag*, Kittiwake*, Razorbill*, Common Guillemot*, Peregrine, Black Guillemot, Puffin, Herring gull, Lesser black-backed gull*, great black-backed gull, Common gull.	Y
North Pennine Moors	SPA	Breeding: Hen harrier, Merlin, Peregrine falcon, European golden plover	Y
Larne Lough	SPA and Ramsar	Breeding: Mediterranean gull, Sandwich tern, Roseate tern, Common tern	Y
Tory Island SPA	SPA	Breeding: Corncrake*, Fulmar*, Puffin*, Razorbill*	Y
Lough Neagh and Lough Beg	SPA and Ramsar	Wintering: Bewick swan, Whooper swan, Common pochard, Tufted duck, Common goldeneye, little grebe*, Great crested grebe*, Great cormorant*, Greylag goose*, Shelduck*, Eurasian wigeon*, Gadwall*, Eurasian teal*, Mallard*, Northern shoveler*, Greater Scaup*, Common coot*	Y
Belfast Lough	SPA and Ramsar	Breeding: Common tern, Arctic tern,	Y
Strangford Lough	SPA and Ramsar	Wintering: Red knot , Common redshank , Light-bellied brent goose , Bar-tailed godwit*, Black-tailed godwit*, Common coot*, Eurasian curlew*, Dunlin*, Common eider*, Gadwall*, Great crested grebe*, Greylag goose*, Common greenshank*, Common goldeneye*, European golden plover*, Grey plover*, Northern lapwing*, Mallard*, Oystercatcher*, Northern pintail*, Red-breasted merganser*, Common ringed plover*, Shelduck*, Northern shoveler*, Eurasian teal*, Ruddy turnstone*, Eurasian wigeon*	Y
Teesmouth and Cleveland Coast	SPA and Ramsar	Wintering: Red knot, Ruff, Gadwall*, Northern shoveler*, Sanderling*, Eurasian wigeon*, Northern lapwing*, Herring gull*, Black-headed gull*	Y

SITE NAME	SITE STATUS	QUALIFYING INTEREST / FEATURES	CAN CONCLUDE NO AESI? (Y/N)
Morecambe Bay and Duddon Estuary	SPA and Ramsar	Breeding: Lesser black-backed gull, Herring gull, Sandwich tern, Common tern, little tern	Y
Killough Bay	SPA and Ramsar	Wintering: Light-bellied brent goose	Y
North York Moors	SPA	Breeding: Merlin, European golden plover	Y
Slieve Beagh - Mullaghfad - Lisnaskea	SPA	Breeding: Hen harrier	Y
Pettigoe Plateau	SPA and Ramsar	Breeding: European golden plover	Y
Carlingford Lough	SPA and Ramsar	Breeding: Sandwich tern, Common tern	Y
Upper Lough Erne	SPA and Ramsar	Wintering: Whooper swan	Y
Bowland Fells	SPA	Breeding: Hen harrier, Merlin, Lesser black-backed gull	Y
South Pennine Moors Phase 2	SPA	Breeding: Merlin, European golden plover, Short-eared owl	Y
Ribble and Alt Estuaries	SPA and Ramsar	Wintering: Great cormorant, Bewick swan, Whooper swan, Pink-footed goose, Common shelduck, Eurasian wigeon, Eurasian teal, Northern pintail, Greater scaup, Common scoter, Eurasian oystercatcher, European golden plover, Grey plover, Northern lapwing, Red knot, Sanderling, Bar-tailed godwit, Eurasian curlew, Common redshank, Black-tailed godwit, Dunlin	Y
Lower Derwent Valley	SPA and Ramsar	Wintering: Bewick swan, Eurasian wigeon, Eurasian teal, European golden plover, Ruff	Y
Martin Mere	SPA and Ramsar	Wintering: Bewick swan, Whooper swan, Pink-footed goose, Eurasian wigeon, Northern pintail	Y
Greater Wash	SPA	Breeding: Sandwich tern, Common tern, little tern	Y

SITE NAME	SITE STATUS	QUALIFYING INTEREST / FEATURES	CAN CONCLUDE NO AESI? (Y/N)
Peak District Moors (South Pennine Moors Phase 1)	SPA	Breeding: Merlin, European golden plover, Short-eared owl	Y
Mersey Narrows and North Wirral Foreshore	SPA and Ramsar	Wintering: Great cormorant*, Eurasian oystercatcher*, Grey plover*, Sanderling*, Bar-tailed godwit, Common redshank*, Red knot, Dunlin*	Y
Hornsea Mere	SPA	Breeding: Mute swan	Y
Humber Estuary	SPA and Ramsar	Wintering: Great bittern, Common shelduck*, Eurasian wigeon*, Eurasian teal*, Mallard*, Common pochard*, Greater scaup*, Common goldeneye*, Hen harrier, Eurasian oystercatcher*, Pied avocet, Ringed plover*, European golden plover, Grey plover*, Northern lapwing*, Red knot, Sanderling*, Bar-tailed godwit, Eurasian curlew*, Common redshank, Ruddy turnstone*, Black-tailed godwit, Dunlin, Dark-bellied brent goose*	Y
The Dee Estuary	SPA and Ramsar	Wintering: Common shelduck, Eurasian teal, Northern pintail, Eurasian oystercatcher, Grey plover, Red knot, Bar-tailed godwit, Eurasian curlew, Common redshank, Black-tailed godwit, Dunlin	Y
Mersey Estuary	SPA and Ramsar	Wintering: Great crested grebe, Common shelduck, Eurasian wigeon, Eurasian teal, Northern pintail, European golden plover, Grey plover, Northern lapwing, Eurasian curlew, Common redshank, Black-tailed godwit, Dunlin	Y
Traeth Lafan/ Lavan Sands, Conway Bay	SPA	Wintering: Red-breasted merganser, Eurasian oystercatcher, Eurasian curlew, Common redshank	Y
Rostherne Mere	Ramsar	Wintering: Northern shoveler, Pochard	Y
Midland Meres and Mosses Phase 2	Ramsar	Passage: Northern shoveler; Wintering: Cormorant, great bittern, water rail	Y
Migneint-Arenig-Dduallt	SPA	Breeding: Hen harrier, Merlin, Peregrine falcon	Y
Berwyn	SPA	Breeding: Red kite, Hen harrier, Merlin, Peregrine falcon	Y

SITE NAME	SITE STATUS	QUALIFYING INTEREST / FEATURES	CAN CONCLUDE NO AESI? (Y/N)
Gibraltar Point	SPA and Ramsar	Wintering: Grey plover, Sanderling, Bar-tailed godwit	Y
Dyfi Estuary / Aber Dyfi	SPA	Wintering: Greenland white-fronted goose	Y
Cors Fochno and Dyfi	Ramsar	Passage: Common greenshank	Y
The Wash	SPA and Ramsar	Wintering: Bewick swan, Pink-footed goose, Common shelduck, Eurasian wigeon, Gadwall, Northern pintail, Common scoter, Common goldeneye, Eurasian oystercatcher, Grey plover, Red knot, Sanderling, Bar-tailed godwit, Eurasian curlew, Common redshank, Ruddy turnstone, Black-tailed godwit, Dunlin, Dark-bellied brent goose	Y
North Norfolk Coast	SPA and Ramsar	Breeding: Great bittern, Eurasian marsh harrier, Pied avocet, Sandwich tern, Common tern, little tern	Y
Rutland Water	SPA and Ramsar	Wintering: Great crested grebe, Mute swan, Eurasian wigeon, Gadwall, Eurasian teal, Northern shoveler, Tufted duck, Common goldeneye, Goosander, Common coot	Y
Cors Caron	Ramsar	Wintering: Whooper swan	Y
Nene Washes	SPA and Ramsar	Breeding: Gadwall, Garganey, Northern shoveler, Black-tailed godwit	Y
Upper Nene Valley Gravel Pits	SPA and Ramsar	Wintering: Great crested grebe*, Great cormorant*, Great bittern, Eurasian wigeon*, Gadwall, Mallard*, Northern shoveler*, Common pochard*, Tufted duck*, Common coot*, European golden plover, Northern lapwing*	Y
Ouse Washes	SPA and Ramsar	Wintering: Great cormorant, Mute swan, Bewick swan, Whooper swan, Eurasian wigeon, Gadwall, Eurasian teal, Northern pintail, Northern shoveler, Common pochard, Tufted duck, Hen harrier, Common coot, Ruff	Y
Broadland	SPA and Ramsar	Wintering: Bewick swan, Whooper swan, Eurasian wigeon, Gadwall, Northern shoveler, Hen harrier, Ruff	Y

SITE NAME	SITE STATUS	QUALIFYING INTEREST / FEATURES	CAN CONCLUDE NO AESI? (Y/N)
Breydon Water	SPA and Ramsar	Wintering: Bewick swan, Pied avocet, European golden plover, Northern lapwing	Y
Bae Caerfyrddin/ Carmarthen Bay	SPA	Wintering: Common scoter	Y
Severn Estuary	SPA and Ramsar	Wintering: Bewick swan, Common shelduck, Gadwall, Common redshank, Greater white-fronted goose, Dunlin	Y
Burry Inlet	SPA and Ramsar	Wintering: Common shelduck, Eurasian wigeon, Eurasian teal, Northern pintail, Northern shoveler, Eurasian oystercatcher, Grey plover, Red knot, Eurasian curlew, Common redshank, Ruddy turnstone, Dunlin	Y
Minsmere-Walberswick	SPA and Ramsar	Breeding: Great bittern, Gadwall, Eurasian teal, Northern shoveler, Eurasian marsh harrier, Pied avocet, little tern, European nightjar	Y
Alde-Ore Estuary	SPA and Ramsar	Breeding: Eurasian marsh harrier, Pied avocet, Lesser black-backed gull, Sandwich tern, little tern	Y
Lee Valley	SPA and Ramsar	Wintering: Great bittern, Gadwall, Northern shoveler	Y
Stour and Orwell Estuaries	SPA and Ramsar	Wintering: Great crested grebe*, Great cormorant*, Mute swan, Common shelduck*, Eurasian wigeon*, Gadwall*, Northern pintail, Greater scaup, Common goldeneye*, Ringed plover*, European golden plover, Grey plover, Northern lapwing*, Red knot, Eurasian curlew*, Common redshank, Ruddy turnstone*, Black-tailed godwit, Dunlin, Dark-bellied brent goose	Y
Chew Valley Lake	SPA	Wintering: Northern shoveler	Y
Abberton Reservoir	SPA and Ramsar	Wintering: Great crested grebe, Mute swan, Eurasian wigeon, Gadwall, Eurasian teal, Northern shoveler, Common pochard, Tufted duck, Common goldeneye, Common coot	Y
Colne Estuary (Mid-Essex Coast Phase 2)	SPA and Ramsar	Breeding: Common pochard, Ringed plover, little tern, Dark-bellied brent goose	Y

SITE NAME	SITE STATUS	QUALIFYING INTEREST / FEATURES	CAN CONCLUDE NO AESI? (Y/N)
Hamford Water	SPA and Ramsar	Wintering: Common shelduck, Eurasian teal, Pied avocet, Ringed plover, Grey plover, Common redshank, Black-tailed godwit, Dark-bellied brent goose	Y
Blackwater Estuary (Mid-Essex Coast Phase 4)	SPA and Ramsar	Breeding: Common pochard, Ringed plover, little tern	Y
Salisbury Plain	SPA	Breeding: Eurasian hobby, Common quail, Stone-curlew	Y
South West London Waterbodies	SPA and Ramsar	Wintering: Gadwall, Northern shoveler	Y
Somerset Levels and Moors	SPA and Ramsar	Wintering: Bewick swan, Eurasian teal, European golden plover, Northern lapwing	Y
Dengie (Mid-Essex Coast Phase 1)	SPA and Ramsar	Wintering: Hen harrier, Grey plover, Red knot, Dark-bellied brent goose	Y
Foulness (Mid-Essex Coast Phase 5)	SPA and Ramsar	Wintering: Hen harrier, Eurasian oystercatcher, Pied avocet, Grey plover, Red knot, Bar-tailed godwit, Common redshank, Dark-bellied brent goose	Y
Benfleet and Southend Marshes	SPA and Ramsar	Wintering: Ringed plover, Grey plover, Red knot, Dunlin, Dark-bellied brent goose	Y
Thames Estuary and Marshes	SPA and Ramsar	Wintering: Hen harrier, Pied avocet, Grey plover, Red knot, Common redshank, Black-tailed godwit, Dunlin	Y
Medway Estuary and Marshes	SPA and Ramsar	Wintering: Red-throated diver*, Great crested grebe*, Great cormorant*, Bewick swan, Common shelduck, Eurasian wigeon, Eurasian teal, Mallard*, Northern pintail, Northern shoveler, Common pochard*, Hen harrier, Merlin, Eurasian oystercatcher, Pied avocet, Ringed plover, Grey plover, Red knot, Eurasian curlew, Common redshank, Common greenshank, Ruddy turnstone, Black-tailed godwit, Dunlin, Dark-bellied brent goose, Northern lapwing*	Y
The Swale	SPA and Ramsar	Wintering: Gadwall*, Eurasian teal*, Eurasian oystercatcher*, Ringed plover*, Grey plover*, Eurasian	Y

SITE NAME	SITE STATUS	QUALIFYING INTEREST / FEATURES	CAN CONCLUDE NO AESI? (Y/N)
		curlew*, Common redshank, Dunlin, Dark-bellied brent goose	
New Forest	SPA and Ramsar	Breeding: European honey-buzzard, Eurasian hobby, European nightjar, Wood lark, Dartford warbler, Wood warbler	Y
Dorset Heathlands	SPA and Ramsar	Breeding: European nightjar, Wood lark, Dartford warbler	Y
Avon Valley	SPA and Ramsar	Wintering: Bewick swan, Gadwall	Y
Solent and Southampton Water	SPA and Ramsar	Breeding: Mediterranean gull, Sandwich tern, Roseate tern, Common tern, little tern	Y
Thanet Coast and Sandwich Bay	SPA and Ramsar	Breeding: Little tern	Y
Stodmarsh	SPA and Ramsar	Wintering: Great bittern, Eurasian wigeon*, Gadwall, Mallard*, Northern shoveler, Common pochard*, Tufted duck*, Hen harrier, Water rail*, Northern lapwing*, Common snipe*, Greater white-fronted goose*	Y
Exe Estuary	SPA and Ramsar	Wintering: Slavonian grebe, Eurasian oystercatcher, Pied avocet, Grey plover, Black-tailed godwit, Dunlin, Dark-bellied brent goose	Y
Portsmouth Harbour	SPA and Ramsar	Wintering: Red-breasted merganser, Black-tailed godwit, Dunlin, Dark-bellied brent goose	Y
Poole Harbour	SPA and Ramsar	Wintering: Little egret, Common shelduck, Pied avocet, Spoonbill, Black-tailed godwit, Dark-bellied brent goose*, Great cormorant*, Eurasian curlew*, Dunlin*, Common goldeneye*, Common pochard*, Red-breasted merganser*, Common redshank*, Spotted redshank*, Common greenshank*, Eurasian teal*, Black-headed gull*	Y
Chichester and Langstone Harbours	SPA and Ramsar	Wintering: Common shelduck, Eurasian wigeon, Eurasian teal, Northern pintail, Northern shoveler, Red-breasted merganser, Ringed plover, Grey plover, Sanderling, Bar-	Y

SITE NAME	SITE STATUS	QUALIFYING INTEREST / FEATURES	CAN CONCLUDE NO AESI? (Y/N)
		tailed godwit, Eurasian curlew, Common redshank, Ruddy turnstone, Dunlin, Dark-bellied brent goose	
Chesil Beach and The Fleet	SPA and Ramsar	Breeding: Little tern	Y
Dungeness, Romney Marsh and Rye Bay	SPA	Wintering: Greater white-fronted goose, Eurasian wigeon, Gadwall, Common pochard, little grebe, Great crested grebe, Great cormorant, Common coot, Northern lapwing, Sanderling, Whimbrel, Common sandpiper, Great bittern, Bewick swan, Northern shoveler, Hen harrier, European golden plover, Ruff	Y
Falmouth Bay to St Austell Bay	SPA	Wintering: Black-throated diver, Great northern diver, Slavonian grebe	Y

*Indicates a species that is part of an assemblage only.

Two SPAs were screened in to the assessment as there was a potential for connectivity in the non-breeding season while birds were migrating. These were the Northumbria Coast SPA, for Arctic tern and little tern, and the Outer Ards SPA, for Arctic tern. Since neither Arctic tern nor little tern were recorded from the Project area in the non-breeding season (or at all in the case of little tern) it can be concluded that there will be no LSE for either of these SPAs.

6.4 SPAs to be assessed within the RIAA

Following the conclusion of no adverse effect on site integrity for SPAs with only migratory species as qualifying features (section 6.3) forty one SPAs remained that required further assessment within the RIAA. These are summarised in Table 6-5.

Table 6-5 SPAs where no LSE could not be concluded and are assessed within the RIAA

SITE NAME	SITE STATUS	QUALIFYING INTEREST / FEATURES	THEORETICAL CONNECTIVITY TO OFFSHORE PROJECT (Y/N)	POTENTIAL PATHWAY FOR LSE (Y/N)	RECORDED IN SURVEY BASELINE DATA (Y/N)	CAN CONCLUDE NO POTENTIAL LSE (Y/N)
Sule Skerry and Sule Stack	SPA	Breeding: European storm-petrel, Leach's storm-petrel, Northern gannet, European shag*, Common guillemot*, Atlantic puffin	Y	Y	Y	N
Hoy	SPA	Breeding: Red-throated diver, Northern fulmar*, Peregrine falcon, Arctic skua*, Great skua, Great black-backed gull*, Black-legged kittiwake*, Common guillemot*, Atlantic puffin*	Y	Y	Y	N
Cape Wrath	SPA	Breeding: Northern fulmar*, Black-legged kittiwake*, Common guillemot*, Razorbill*, Atlantic puffin*	Y	Y	Y	N
North Caithness Cliffs	SPA	Breeding: Northern fulmar*, Peregrine falcon, Black-legged kittiwake*, Common guillemot, Razorbill*, Atlantic puffin*	Y	Y	Y	N
Marwick Head	SPA	Breeding: Black-legged kittiwake*, Common guillemot	Y	Y	Y	N

SITE NAME	SITE STATUS	QUALIFYING INTEREST / FEATURES	THEORETICAL CONNECTIVITY TO OFFSHORE PROJECT (Y/N)	POTENTIAL PATHWAY FOR LSE (Y/N)	RECORDED IN BASELINE SURVEY DATA (Y/N)	CAN CONCLUDE NO POTENTIAL LSE (Y/N)
Rousay	SPA	Breeding: Northern fulmar*, Arctic skua*, Black-legged kittiwake*, Arctic tern, Common guillemot*	Y	Y	Y	N
Pentland Firth Islands	SPA	Breeding: Arctic tern	Y	Y	Y	N
Handa	SPA	Breeding: Northern fulmar*, Arctic skua, Great skua*, Black-legged kittiwake*, Common guillemot, Razorbill	Y	Y	Y	N
West Westray	SPA	Breeding: Northern fulmar*, Arctic skua*, Black-legged kittiwake*, Arctic tern, Common guillemot, Razorbill*	Y	Y	Y	N
Copinsay	SPA	Breeding: Northern fulmar*, Great black-backed gull*, Black-legged kittiwake*, Common guillemot*	Y	Y	Y	N
East Caithness Cliffs	SPA	Breeding: Northern fulmar*, Great cormorant*, European shag, Peregrine falcon, Herring gull, Great black-backed gull*, Black-legged kittiwake, Common guillemot, Razorbill	Y	Y	Y	N

SITE NAME	SITE STATUS	QUALIFYING INTEREST / FEATURES	THEORETICAL CONNECTIVITY TO OFFSHORE PROJECT (Y/N)	POTENTIAL PATHWAY FOR LSE (Y/N)	RECORDED IN BASELINE SURVEY DATA (Y/N)	CAN CONCLUDE NO POTENTIAL LSE (Y/N)
Calf of Eday	SPA	Breeding: Northern fulmar*, Great cormorant*, Great black-backed gull*, Black-legged kittiwake*, Common guillemot*	Y	Y	Y	N
Auskerry	SPA	Breeding: European storm-petrel, Arctic tern	Y	Y	Y	N
North Rona and Sula Sgeir	SPA	Breeding: Northern fulmar*, European storm-petrel , Leach's storm-petrel , Northern gannet , Great black-backed gull*, Black-legged kittiwake*, Common guillemot , Razorbill*, Atlantic puffin*	Y	Y	Y	N
Priest Island (Summer Isles)	SPA	Breeding: European storm-petrel	Y	Y	Y	N
Fair Isle	SPA	Breeding: Northern fulmar*, Northern gannet*, European shag*, Arctic skua*, Great skua*, Black-legged kittiwake*, Arctic tern, Common guillemot , Razorbill*, Atlantic puffin*, Fair Isle wren	Y	Y	Y	N
Shiant Isles	SPA	Breeding: Northern fulmar*, European shag, Black-legged kittiwake*, Common guillemot*, Razorbill, Atlantic puffin	Y	Y	Y	N

SITE NAME	SITE STATUS	QUALIFYING INTEREST / FEATURES	THEORETICAL CONNECTIVITY TO OFFSHORE PROJECT (Y/N)	POTENTIAL PATHWAY FOR LSE (Y/N)	RECORDED IN BASELINE SURVEY DATA (Y/N)	CAN CONCLUDE NO POTENTIAL LSE (Y/N)
		Wintering: Barnacle goose"	N	N	N	Y
Troup, Pennan and Lion's Heads	SPA	Breeding: Northern fulmar*, Herring gull*, Black-legged kittiwake , Common guillemot , Razorbill*	Y	Y	Y	N
Foula	SPA	Breeding: Red-throated diver, Northern fulmar*, Leach's storm-petrel, European shag, Arctic skua*, Great skua, Black-legged kittiwake*, Arctic tern, Common guillemot , Razorbill*, Atlantic puffin	Y	Y	Y	N
Sumburgh Head	SPA	Breeding: Northern fulmar*, Black-legged kittiwake*, Arctic tern , Common guillemot*	Y	Y	Y	N
Flannan Isles	SPA	Breeding: Northern fulmar*, Leach's storm-petrel , Black-legged kittiwake*, Common guillemot*, Razorbill*, Atlantic puffin*	Y	Y	Y	N
Mousa	SPA	Breeding: European storm-petrel , Arctic tern	Y	Y	Y	N

SITE NAME	SITE STATUS	QUALIFYING INTEREST / FEATURES	THEORETICAL CONNECTIVITY TO OFFSHORE PROJECT (Y/N)	POTENTIAL PATHWAY FOR LSE (Y/N)	RECORDED IN BASELINE SURVEY DATA (Y/N)	CAN CONCLUDE NO POTENTIAL LSE (Y/N)
Buchan Ness to Collieston Coast	SPA	Breeding: Northern fulmar*, European shag*, Herring gull*, Black-legged kittiwake*, Common guillemot*	Y	Y	Y	N
Noss	SPA	Breeding: Northern fulmar*, Northern gannet , Great skua , Black-legged kittiwake*, Common guillemot , Atlantic puffin*	Y	Y	Y	N
Rum	SPA	Breeding: Red-throated diver , Manx shearwater , Golden eagle , Black-legged kittiwake*, Common guillemot*	Y	Y	Y	N
Ronas Hill - North Roe and Tingon	SPA and Ramsar	Breeding: Red-throated diver , Great skua	Y	Y	Y	N
Canna and Sanday	SPA	Breeding: European shag*, Herring gull*, Black-legged kittiwake*, Common guillemot*, Atlantic puffin*	Y	Y	Y	N
Fowlsheugh	SPA	Breeding: Northern fulmar*, Herring gull*, Black-legged kittiwake , Common guillemot , Razorbill*	Y	Y	Y	N

SITE NAME	SITE STATUS	QUALIFYING INTEREST / FEATURES	THEORETICAL CONNECTIVITY TO OFFSHORE PROJECT (Y/N)	POTENTIAL PATHWAY FOR LSE (Y/N)	RECORDED IN BASELINE SURVEY DATA (Y/N)	CAN CONCLUDE NO POTENTIAL LSE (Y/N)
Fetlar	SPA	Breeding: Northern fulmar*, Whimbrel , Red-necked phalarope , Arctic skua*, Great skua , Arctic tern , Dunlin	Y	Y	Y	N
St Kilda	SPA	Breeding: Northern fulmar*, Manx shearwater*, European storm-petrel , Leach's storm-petrel , Northern gannet , Great skua , Black-legged kittiwake*, Common guillemot*, Razorbill*, Atlantic puffin	Y	Y	Y	N
Hermaness, Saxa Vord and Valla Field	SPA	Breeding: Red-throated diver, Northern fulmar*, Northern gannet, European shag*, Great skua, Black-legged kittiwake*, Common guillemot*, Atlantic puffin	Y	Y	Y	N
Treshnish Isles	SPA	Breeding: European storm-petrel	Y	Y	Y	N
		Wintering: Barnacle goose	N	N	N	Y
Mingulay and Berneray	SPA	Breeding: Northern fulmar*, European shag*, Black-legged kittiwake*, Common guillemot*, Razorbill , Atlantic puffin*	Y	Y	Y	N

SITE NAME	SITE STATUS	QUALIFYING INTEREST / FEATURES	THEORETICAL CONNECTIVITY TO OFFSHORE PROJECT (Y/N)	POTENTIAL PATHWAY FOR LSE (Y/N)	RECORDED IN SURVEY BASELINE DATA (Y/N)	CAN CONCLUDE NO POTENTIAL LSE (Y/N)
Firth of Forth	SPA and Ramsar	Wintering: Red-throated diver, Great crested grebe*, Slavonian grebe , Great cormorant*, Pink-footed goose , Common shelduck , Eurasian wigeon*, Mallard*, Greater scaup*, Common eider*, Long-tailed duck*, Common scoter*, Velvet scoter*, Common goldeneye*, Red-breasted merganser*, Eurasian oystercatcher*, Ringed plover*, European golden plover , Grey plover*, Northern lapwing*, Red knot , Bar-tailed godwit , Eurasian curlew*, Common redshank , Ruddy turnstone, Dunlin*	Y	Y	Y	N
		Passage: Sandwich tern				
Forth Islands	SPA	Breeding: Northern gannet , Great cormorant*, European shag , Lesser black-backed gull , Herring gull*, Black-legged kittiwake*, Sandwich tern , Roseate tern , Common tern , Arctic tern , Common guillemot*, Razorbill*, Atlantic puffin	Y	Y	Y	N
Ailsa Craig	SPA	Breeding: Northern gannet , Lesser black-backed gull , Herring gull*, Black-legged kittiwake*, Common guillemot*	Y	Y	Y	N

SITE NAME	SITE STATUS	QUALIFYING INTEREST / FEATURES	THEORETICAL CONNECTIVITY TO OFFSHORE PROJECT (Y/N)	POTENTIAL PATHWAY FOR LSE (Y/N)	RECORDED IN SURVEY BASELINE DATA (Y/N)	CAN CONCLUDE NO POTENTIAL LSE (Y/N)
Copeland Islands	SPA	Breeding: Manx shearwater , Arctic tern	Y	Y	Y	N
Flamborough and Filey Coast	SPA	Breeding: Northern gannet , Black-legged kittiwake , Common guillemot , Razorbill , Northern Fulmar*	Y	Y	Y	N
Irish Sea Front	SPA	Breeding: Manx shearwater	Y	Y	Y	N
Skomer, Skokholm and the Seas off Pembrokeshire / Sgomer, Sgogwm a Moroedd Penfro	SPA	Breeding: Manx shearwater, European storm-petrel , Lesser black-backed gull , Atlantic puffin , Short-eared owl , Red-billed chough , Razorbill*, Common guillemot*, Black-legged kittiwake*	Y	Y	Y	N

6.5 Design envelope parameters relevant to ornithological features

The worst case scenario for the assessment of no adverse effect on site integrity is based on the design option (or combination of options) that represents the greatest potential for change. Confidence can be held that the development of any alternative options within the design parameters will give rise to no effects greater or worse than those assessed in this impact assessment.

Since the Project design is dependent upon site constraints, the detailed design can only take place post-consent once all the data has been gathered including seabed survey data, Unexploded Ordnance (UXO) and boulder presence. The final design of the offshore Project will be confirmed through detailed ongoing engineering design studies, including the development of the ground model. The final design, including array area and number of WTG, will be captured in the Development Specification and Layout Plan (DSLP) which will be informed by this ongoing engineering work and in consultation with interested stakeholders. It is likely that the number of WTG and array area will be less than those values that have been used to inform the predicted collision risk and displacement effects to seabirds presented in the assessment. As a result, the assessment of predicted impacts on birds is a worst case scenario.

Table 6-6 presents the worst case design parameters for potential impacts on ornithological features during construction, operation and maintenance, and decommissioning stages of the offshore Project.

Since the Project design is dependent upon site constraints, the detailed design can only take place post-consent once all the data has been gathered including seabed survey data, Unexploded Ordnance (UXO) and boulder presence. The final design of the offshore Project will be confirmed through detailed ongoing engineering design studies, including the development of the ground model. The final design, including array area and number of WTG, will be captured in the Development Specification and Layout Plan (DSLP) which will be informed by this ongoing engineering work and in consultation with interested stakeholders. It is likely that the number of WTG and array area will be less than those values that have been used to inform the predicted collision risk and displacement effects to seabirds presented in the assessment. As a result, the assessment of predicted impacts on birds is a worst case scenario.

Table 6-6 Design parameters specific to the ornithological assessment

POTENTIAL IMPACT	DESIGN ENVELOPE SCENARIO ASSESSED
Construction (including pre-construction) and decommissioning*	
Distributional responses and displacement	• Up to a maximum of 30 construction vessels within the offshore Project simultaneously; • Maximum piling duration of 290 days; • Maximum construction schedule of 24 hours a day, 7 days a week; and • A total of up to 4 years of construction period (with an additional year of pre-construction activities)

POTENTIAL IMPACT	DESIGN ENVELOPE SCENARIO ASSESSED
Indirect effects as a result of displacement of prey species due to increased noise and disturbance to seabed	• Maximum spatial disturbance to fish and shellfish during construction due to underwater noise from piling of up to 125 WTGs with monopile foundations is maximum hammer energy of 5,000 kJ with maximum of 1 pile per day (over 125 days) and up to 16 hours piling per day; • Maximum temporal disturbance to fish and shellfish during construction piling of up to 125 jacket foundations (500 piles) using maximum hammer energy of 3,000 kJ with maximum of 2 piles per day and up to 8 hours piling per day (over 250 days); • Additionally piling of up to five OSP pin-pile jacket foundations, each with 16 piles required (total of 80 piles) with a maximum of two piles per day and up to eight hours of piling per day (40 piling days), at 3,000 kJ hammer energy (in hard or soft sediment). • Maximum area of temporary habitat disturbance or loss to benthic habitats during construction would be approximately 69.12 km^2 across the offshore Project; and • Disturbance/displacement from increased suspended sediment concentration.
Operation and maintenance	
Distributional responses, displacement and barrier effects	• WTGs and OSPs across the full OAA; • Maximum of 125 turbines with minimum spacing of 944 m between turbines; • Maximum of five high voltage alternating current (HVAC) offshore substation platforms (OSPs); • Up to 12,695 transits from operation and maintenance vessels estimated throughout the operational life of the offshore Project; and • Maximum of 19 vessels at the site simultaneously.
Indirect effects due to habitat loss / change for key prey species	• Maximum area of seabed footprint occupied by the offshore Project resulting in permanent habitat loss is up to 7.34 km^2.
Collision risk	• Maximum of 125 turbines x 330 m rotor diameter; • WTGs and OSPs across the full OAA; and • Operational life up to 30 years[4].
Combined operational collision risk and displacement	• As per operational disturbance and displacement and collision risk.

[4] *An operational period of 35 years has been assumed for CRM as WTGs will be present in the OAA and potentially turning ahead of first power*

POTENTIAL IMPACT	DESIGN ENVELOPE SCENARIO ASSESSED
***In the absence of detailed information regarding decommissioning works, the implications for SPAs designated for ornithological features are considered analogous to or likely less than those of the construction stage. Therefore, the worst case parameters defined for the construction stage also apply to decommissioning.**	

6.6 Embedded mitigation and management plans relevant to ornithological features

Certain measures have been adopted as part of the Project development process in order to reduce the potential for impacts to the environment, as presented in Table 6-7. These have been accounted for in the assessment presented below. General mitigation measures, which would apply to all parts of the Project, are set out first. Thereafter mitigation measures that would apply specifically to offshore ornithology issues associated with the OAA and offshore export cable corridor, are described separately.

Table 6-7 Embedded mitigation measures relevant to offshore ornithology.

MITIGATION MEASURE	FORM (PRIMARY/ TERTIARY)	DESCRIPTION	HOW MITIGATION WILL BE SECURED
Site selection	Primary	The offshore Project including the OAA and the offshore ECC avoids any overlap with designated sites (i.e. SPAs) for birds.	Already secured through the OAA boundary.
Minimum WTG blade clearance	Primary	Blade clearance of 27.05 m above MSL (29.52 m above LAT), which is in excess of the minimum requirement of 22 m above MHWS.	Secured through the description of the development within the Section 36 Consent and/or Marine Licence.
Lighting	Primary	Excess lighting, above levels set by regulatory requirements for navigation, aviation, escape/emergency procedures and general activity, will be avoided wherever possible. External general lighting will use timers and/or PIR devices to reduce excessive lighting of the turbines and OSPs.	Requirements will be detailed in the LMP, required under Section 36 Consent and/or Marine Licence conditions. An outline LMP is provided as part of the offshore application in Offshore EIA Report, OP6: Outline Lighting and Marking Plan. The outline LMP contains details on the proposed lighting requirements for the construction and operation and maintenance stage.

MITIGATION MEASURE	FORM (PRIMARY/ TERTIARY)	DESCRIPTION	HOW MITIGATION WILL BE SECURED
Decommissioning Programme	Tertiary	The development of, and adherence to, a Decommissioning Programme approved by Scottish Ministers prior to construction and updated throughout the Project lifespan.	The production and approval of a Decommissioning Programme will be required under Section 105 of the Energy Act 2004 (as amended).

6.7 Approach to assessment

The assessment of predicted impacts from the Project alone on the qualifying features of SPAs draws on the impact assessment completed for the Offshore EIA Report (chapter 13: Offshore and intertidal ornithology). Estimates of predicted collisions and predicted displacement impacts from the EIA were used as the basis for the assessment of impacts on the qualifying feature of SPAs. These were then apportioned to demographic unit (i.e. breeding adult population size) and appropriate SPA as described in Section 6.7.6 (below).

Impacts from the different pathways, seasons and other reasonably foreseeable plans and projects were collated to provide a single, reasonable worst case, predicted impact. Where this impact was of a sufficiently high level PVA was completed to project the effects on the populations of the relevant SPA qualifying feature. Where PVA's were used, the metrics from these PVAs was used to assess whether the Project alone, and in-combination with other reasonably foreseeable plans and project, could be shown to have no adverse effect on the integrity of the site. Metrics from the PVA are presented in the RIAA at ten year intervals and at five year intervals in Appendix D.

The assessment of potential impacts used in the RIAA (section 6.7 to 6.21) follows NatureScot (2023) guidance and specific advice provided though consultation on the Project. Conclusions of the RIAA in section 6.22 follows this guidance and advice. Further evidence, that takes into account the specific nature of this Project rather than high level general guidance, is presented in section 6.22.1.

6.7.1 Collision risk

CRM results from the EIA were used to inform the RIAA (Offshore EIA report, Supporting Study 12: Offshore Ornithology Technical Supporting Study). As with the EIA, the assessment was based on the results from outputs of the stochastic CRM (sCRM, McGregor et al. 2018) using only Option 2 results (Basic model using proportion of birds at collision risk height from Johnston et al. 2014), following NatureScot Scoping advice and guidance (2023).

The sCRM provides results of predicted collisions for each calendar month. Using the recommended seasonal definitions from NatureScot[5], each month was assigned as either the breeding season, non-breeding season, or for

[5] https://www.nature.scot/doc/guidance-note-9-guidance-support-offshore-wind-applications-seasonal-periods-birds-scottish-marine

some species for some months, as both. For the months where the season was split between the breeding and non-breeding seasons half of the predicted collisions were assigned to each season.

The predicted collisions for each species that were qualifying features of SPAs requiring assessment are summarised in the tables below (Table 6-8 to Table 6-11).

Table 6-8 Predicted collisions on all kittiwakes in the Project by month.

	PREDICTED COLLISIONS (INDIVIDUAL BIRDS)			SEASONAL TOTALS	
MONTH	MEAN	SD	MEDIAN	BREEDING	NON-BREEDING
Jan	1.03	0.46	0.99		1.03
Feb	3.20	0.98	3.14		3.20
Mar	14.38	3.81	14.17		14.38
Apr	4.88	1.30	4.83	2.44	2.44
May	1.58	0.76	1.55	1.58	
Jun	0.90	0.52	0.86	0.90	
Jul	10.38	4.59	10.10	10.38	
Aug	1.30	0.44	1.28	1.30	
Sep	1.52	0.55	1.48		1.52
Oct	10.07	2.60	9.86		10.07
Nov	3.05	0.97	2.99		3.05
Dec	0.71	0.29	0.70		0.71
Total				16.59	36.39

Table 6-9 Predicted collisions on all great black-backed gulls in the Project by month.

	PREDICTED COLLISIONS (INDIVIDUAL BIRDS)			SEASON	
MONTH	MEAN	SD	MEDIAN	BREEDING	NON-BREEDING
Jan	1.93	0.59	1.85		1.93
Feb	1.86	0.58	1.82		1.86
Mar	0.71	0.46	0.66		0.71
Apr	0.00	0.00	0.00	0.00	
May	0.00	0.00	0.00	0.00	
Jun	0.82	0.53	0.74	0.82	
Jul	0.00	0.00	0.00	0.00	
Aug	0.00	0.00	0.00	0.00	
Sep	0.00	0.00	0.00		0.00
Oct	0.68	0.43	0.62		0.68
Nov	2.86	1.11	2.74		2.86
Dec	4.32	1.20	4.22		4.32
Total				0.82	12.36

Table 6-10 Predicted collisions on all great skuas in the Project by month.

MONTH	PREDICTED COLLISIONS (INDIVIDUAL BIRDS)			SEASON	
	MEAN	SD	MEDIAN	BREEDING	NON-BREEDING
Jan	0	0	0		0.00
Feb	0	0	0		0.00
Mar	0	0	0		0.00
Apr	0.124	0.119	0.09	0.06	0.06
May	0	0	0	0.00	
Jun	0.034	0.032	0.025	0.03	
Jul	0.046	0.058	0.031	0.05	
Aug	0.147	0.181	0.1	0.15	
Sep	0	0	0	0.00	0.00
Oct	0	0	0		0.00
Nov	0	0	0		0.00
Dec	0	0	0		0.00
Total				0.29	0.06

Table 6-11 Predicted collisions on all gannet in the Project by month

MONTH	PREDICTED COLLISIONS (INDIVIDUAL BIRDS)			SEASON	
	MEAN	SD	MEDIAN	BREEDING	NON-BREEDING
Jan	0.131	0.106	0.10		0.13
Feb	0.765	0.489	0.65		0.77
Mar	1.845	1.004	1.67	0.92	0.92
Apr	5.105	2.556	4.72	5.11	
May	4.683	2.467	4.22	4.68	
Jun	4.443	2.197	4.09	4.44	
Jul	6.276	3.516	5.72	6.28	
Aug	6.516	3.719	5.84	6.52	
Sep	9.833	4.574	9.10	9.83	
Oct	7.881	3.796	7.46		7.88
Nov	0.134	0.111	0.11		0.13
Dec	0.297	0.232	0.24		0.30
Total				37.78	10.13

6.7.2 Displacement

Two potential methods can be applied to assess the predicted impact to seabirds from displacement impacts, following NatureScot (2023; Guidance Note 8) guidance. The recommended matrix approach can be used to simply calculate the predicted number of birds that would be killed as a result of being displaced from the windfarm and a suitable buffer area around it. The buffer area can vary between species, but all of the species potentially impacted by the Project alone are based on the advised 2 km buffer around the windfarm boundary. The matrix approach uses the proportion of birds predicted to be displaced from the windfarm and buffer, based on expert judgement, and the predicted proportion of displacement birds that will die as a results, also based on expert judgement.

The second recommended methodology, seabORD (Searle et al. 2018), is an individual based energetics model that can be used to estimate the effects of displacement and barrier effects on the body mass of breeding birds. This model estimates the effects on individual colonies and is limited to assessing six colonies at a time. Following consultation with NatureScot (letter WO1-WOW-HSE-EV-LT-0020 31 May 2023), the seabORD model was run on guillemot and puffin colonies where there was a predicted impact from the Project alone, that had the potential to be significant. Due to the limitations of seabORD the following SPA colonies were run in the model for guillemot:

- North Caithness Cliffs;
- Sule Skerry and Sule Stack;
- Hoy;
- Marwick Head;
- Rousay;
- Cape Wrath; and
- West Westray.

For puffin, four SPAs were assessed for displacement effects using seabORD. These were:

- North Caithness Cliffs;
- Sule Skerry and Sule Stack;
- Hoy; and
- Cape Wrath.

Details of the seabORD methodology used are in Appendix F. In summary, the approach taken modelled 20% of the population of each SPA colony, the model region was based on the mean of the maximum foraging range (plus one standard deviation), foraging location were based on the distance decay method, with 95% of foraging within the foraging range. The model assumed that prey were uniformly distributed in space. It was assumed that 60% of birds would be displaced from the offshore Project footprint plus a 2 km buffer and that 100% of bird crossing the offshore Project would experience barrier effects (i.e. all bird would fly around the windfarm for the duration of the offshore Project). It was assumed that displaced birds would move in to a 5 km buffer around the offshore Project.

The assessment method for displacement used the NatureScot displacement matrix approach which does not explicitly address barrier effects. While results from seabORD (Searle et al. 2018) have suggested that barrier effects can be important they have been considered as unrealistic (e.g. see Inch Cape Revised Design HRA15). In addition, the recent review and sensitivity analyses for Berwick Bank OWF concluded that, “the model is associated with a large amount of uncertainty and that the model can be highly sensitive to certain key input parameters. Given this, it does not seem to be the correct tool to derive the concise, transparent and comparable predictions required for general use for impact assessment in its current form” (Vallejo et al. 2022).” Detailed results from the seabORD model are also presented in Appendix F for information only and are not used in the assessment of predicted impact from the Project.

The matrix approach was used in the EIA to provide an estimate of the total impact on all birds occurring within the Project and 2 km buffer (Offshore EIA report, SS12: Offshore Ornithology Technical Supporting Study, Annex 12.3 and Annex 12.13 for the *Alternative Approach* displacement matrices). The total predicted impact on each species from the Project and 2 km buffer are summarised in Table 6-12. For the assessment of impacts on each SPA qualifying feature the full range of predicted displacement mortality values were used, as requested by NatureScot. The range of mortality levels provide greater context across the recommended displacement and mortality rates from NatureScot advice[6]. Within the assessment "Low" refers to the lower recommended displacement mortality value, "Mid" refers to the midpoint between the "Low" and "High" recommended displacement mortality value. "High" refers to the higher recommended displacement mortality value. In the assessment of predicted impacts on the Project alone and in-combination the range of predicted impact will be provided for each species where displacement has been assessed. This is referring to the "Low" and "High" values. This approach differs from the Offshore EIA Report, chapter 13: Offshore and intertidal ornithology, as the RIAA is intended to inform the Competent Authorities AA, which has been assumed will follow the methods recommended by their Statutory Advisors.

Table 6-12 Predicted breeding season and non-breeding season displacement mortality on all birds in the Project and a 2 km buffer.

		DISPLACEMENT IMPACT (NUMBER OF INDIVIDUALS)		
SPECIES	SEASON	LOW	MID	HIGH
Kittiwake	Breeding season (DA + 2 km)	3.3	6.7	10.0
	Non-breeding season (DA + 2 km)	3.7	7.3	10.0
Guillemot	Breeding season (DA + 2 km)	143.5	191.3	239.2
	Non-breeding season (DA + 2 km)	26.4	52.7	79.1
Razorbill	Breeding season (DA + 2 km)	2.5	3.4	4.2
	Non-breeding season (DA + 2 km)	0.8	1.6	2.4
Puffin	Breeding season (DA + 2 km)	94.9	126.5	158.2
	Non-breeding season (DA + 2 km)	12.8	25.6	38.4

[6] https://www.nature.scot/doc/guidance-note-8-guidance-support-offshore-wind-applications-marine-ornithology-advice-assessing

SPECIES	SEASON	DISPLACEMENT IMPACT (NUMBER OF INDIVIDUALS)		
		LOW	MID	HIGH
Fulmar	Breeding season (DA + 2 km)	3.1	6.1	9.2
	Non-breeding season (DA + 2 km)	5.7	11.5	17.2
Gannet	Breeding season (DA + 2 km)	6.0	11.9	17.9
	Non-breeding season (DA + 2 km)	8.2	16.4	24.6

6.7.2.1 Barrier effects

The small risk of impact to migrating birds resulting from flying around rather than through, the WTG array of an offshore windfarm is considered a potential barrier effect. The assessment on direct disturbance and displacement effects for the operation and maintenance stage is based on the SNCB (2022) Advice Note which in turn is based on the work of Furness et al. (2013) and Bradbury et al. (2017). Displacement is defined as 'a reduced number of birds occurring within or immediately adjacent to an offshore windfarm' (Furness et al., 2013) and involves birds present in the air and on the water (SNCB, 2022). Birds that do not intend to utilise a windfarm area but would have previously flown through the area on the way to a feeding, resting or nesting area, and which either stop short or detour around a development, are subject to barrier effects (SNCB, 2022). For the purposes of assessment of displacement for resident birds, it is usually not possible to distinguish between displacement and barrier effects - for example to define where individual birds may have intended to travel to, or beyond an offshore windfarm, even when tracking data are available. Therefore, in this assessment the effects of displacement and barrier effects on the key resident species are considered together.

6.7.3 Indirect effects through effects on habitats and prey species

Indirect disturbance and displacement of birds may occur during the construction stage if there are impacts on prey species and the habitats of prey species. These indirect effects include those resulting from the production of underwater noise (e.g. during piling), temporary habitat loss and disturbance (e.g. during preparation of the seabed for foundations and cable installation) that may alter the behaviour or availability of bird prey species.

With regard to changes to the seabed and to suspended sediment levels, Offshore EIA Report chapter: 8 Marine physical and coastal processes and chapter 10: Benthic subtidal and intertidal ecology discusses the nature of any change and impacts on the seabed and benthic habitats. The impact on benthic habitats is predicted to be minor adverse due to the limited spatial extent (i.e. restricted to discrete areas within the offshore Project), the relatively short-term duration (as it is limited to the duration of construction activities), intermittent and with high reversibility nature of the effect. The consequent indirect impact is considered to be minor, and this is also likely to be the case for species such as herring, sprat and sandeel which are the main prey items of seabirds such as gannet and auks. As outlined in Offshore EIA Report chapter 11: Fish and shellfish ecology, sandeel and herring are potentially vulnerable to seabed disturbance as these species are demersal spawners with specific habitat requirements. However, considering the temporary, intermittent, and localised nature of this effect, it is considered to be a minor adverse impact. The majority of the OAA is not suitable as spawning habitat for herring. However, the majority of benthic sediment samples were suitable habitats for sandeel spawning (see Offshore EIA Report, chapter 11: Fish and shellfish ecology, section 11.4.4.2.1). The impact of increased suspended sediments during the construction stage on fish and shellfish ecology was scoped out of the EIA, as outlined in Offshore EIA Report, chapter 11: Fish and shellfish ecology, and therefore, any effect would be negligible. Therefore, with a minor impact (or below) on fish that are bird prey species, it is concluded that the indirect impact significance on seabirds occurring in or around the OAA during the construction stage is similarly a minor or negligible adverse impact.

6.7.4 Negative effect associated with lighting

Stakeholders recommended the assessment of several species thought to be potentially impacted by artificial lighting from turbines, sub-stations and vessels during construction and operation of the Project. However, a recently published review by Furness (2018) has shown that there is unlikely to be significant negative impacts on seabirds from the lighting associated with OWFs. Specifically, Furness (2018) considered where there may be negative consequences on photoperiod physiology of birds, extension of daytime activity, phototaxis of fledging seabirds, phototaxis of nocturnal migrants, phototaxis of other birds (e.g. shearwaters, petrels and puffins), ability of some birds to use nocturnal feeding assisted by artificial light, or to feed on marine animals aggregating under artificial lights, increased predation risk for nocturnal birds resulting from artificial lighting, birds better able to avoid collision when structures are illuminated and displacement of birds due to avoidance of lights. In all of these situations Furness (2018) concluded that, "obstruction lights on offshore wind farm turbines will almost certainly not be a significant issue for birds".

As a consequence of this review it is possible to change the conclusions of the HRA screening for the SPA's shown in below to be no LSE, as the only potential route to impact these SPA was through the negative effects of lighting on Manx shearwater, European storm petrel or Leach's storm petrel only. These SPAs are:

- Auskerry (European storm petrel);
- Copeland Islands (Manx shearwater);
- Glannau Aberdaron ac Ynys Enlli/ Aberdaron Coast and Bardsey Island (Manx shearwater);
- Irish Sea Front (Manx shearwater);
- Mousa (European storm petrel);
- Outer Firth of Forth and St Andrews Bay Complex (Manx shearwater);
- Priest Island (Summer Isles) (European storm petrel);
- Ramna Stacks and Gruney (Leach's storm petrel);
- Rum (Manx shearwater); and
- Treshnish Isles (European storm petrel).

6.7.5 SPAs for inshore wintering waterfowl, little gull, Manx shearwater and non-breeding seabirds

Following NatureScot (2023) guidance (Guidance Note 4), SPAs for inshore wintering waterfowl, little gull, Manx shearwater and non-breeding seabirds that were greater than 15 km from the Project were screened out as having no LSE. This affected the following SPAs:

- East Mainland Coast, Shetland SPA;
- Sound of Gigha SPA; and
- West Coast of the Outer Hebrides SPA.

6.7.6 Apportioning of predicted impacts to SPAs

Predicted impacts that were estimated for the EIA were for all birds present within the offshore Project area (and a 2 km buffer for displacement impacts). However, the birds that were present within the offshore Project area (and buffer) included birds not of breeding age, birds of breeding age but on sabbatical years (in the breeding season only) and birds from breeding colonies not within SPAs. It was therefore necessary to apportion these predicted impacts to individual SPAs so that the total effect of the Project alone and in-combination could be assessed on each SPA qualifying feature where No LSE could not be determined.

6.7.6.1 Breeding season

In the breeding season apportioning was based on hypothetical connectivity between the offshore Project (and buffer) based on existing information on species specific foraging ranges as recommended by NatureScot[7]. At the time of writing there was no written advice from NatureScot on the approach to apportioning impacts in the breeding season to SPAs, so the NatureScot distance decay model was used, following the interim guidance from NatureScot[8]. The recommended calculation used to estimate the relative proportions of birds from SPAs within the offshore Project area (and buffer) was:

Weight = (Colony Population / Sum of Populations) * (Sum of Distance^2 / Colony Distance^2) * (1/Colony Sea Proportion / Sum of 1/Sea Proportions)

The first stage was to estimate the proportion of the whole population within the recommended foraging range that was from SPAs (Table 6-13).

[7] https://www.nature.scot/doc/guidance-note-3-guidance-support-offshore-wind-applications-marine-birds-identifying-theoretical

[8] https://www.nature.scot/doc/interim-guidance-apportioning-impacts-marine-renewable-developments-breeding-seabird-populations

Table 6-13 Population sizes for SPA qualifying features within foraging range (+ 1 SD) and the proportion of the population in all SPAs. (see Offshore EIA report, SS12: Offshore ornithology technical supporting study)

SPECIES	TOTAL POPULATION SIZE (INDIVIDUAL ADULTS)	POPULATION IN SPAS (INDIVIDUAL ADULTS)	PROPORTION OF BREEDING POPULATION IN SPAS
Kittiwake	256,327	254,941	0.9946
Great Black-backed Gull	2,524	1,424	0.5642
Great Skua	21,124	16,574	0.7846
Common Guillemot	612,608	579,874	0.9466
Razorbill	95,725	94,351	0.9856
Atlantic Puffin	333,421	330,726	0.9919
Fulmar	647,236	438,122	0.6769
European Storm-petrel	67,180	66,752	0.9936
Northern Gannet	404,008	376,692	0.9324

The second stage was to adjust the predicted impacts to account for the proportion of adults in the population, the proportion of sabbatical birds in the population, and the proportion of birds from SPAs in the population (Table 6-14).

Table 6-14 Adjustment of total predicted impacts on all birds to the proportion of breeding season adults from all SPAs for apportioning.

	FULMAR	KITTIWAKE	GREAT BLACK-BACKED GULL	GREAT SKUA	GANNET	GUILLEMOT	RAZORBILL	PUFFIN
Predicted collisions to all birds	0.00	16.59	0.82	0.29	38.70	0.00	0.00	0.00
Predicted displacement (LOW) to all birds	3.1	3.3	0.00	0.00	6.0	143.5	2.5	94.9
Predicted displacement (MID) to all birds	6.1	6.7	0.00	0.00	11.9	191.3	3.4	126.5
Predicted displacement (HIGH) to all birds	9.2	10.0	0.00	0.00	17.9	239.2	4.2	158.2
Total impact to all birds (LOW displacement)	3.1	19.9	0.82	0.29	44.66	143.5	2.5	94.9
Total impact to all birds (MID displacement)	6.1	23.3	0.82	0.29	50.62	191.3	3.4	126.5
Total impact to all birds (HIGH displacement)	9.2	26.6	0.82	0.29	56.59	239.2	4.2	158.2
Proportion of adults[9]	0.551	0.681	0.485	0.432	0.691	0.680	0.723	0.730
Sabbatical proportion[10]	0.00	0.10	0.35	0.09	0.10	0.07	0.07	0.07
Total predicted impact on adults (LOW displacement)	1.69	13.57	0.40	0.12	30.87	115.47	1.84	69.24
Total predicted impact on adults (MID displacement)	3.39	15.85	0.40	0.12	35.00	165.91	2.45	92.33

[9] *From stable age class distribution from a PVA.*

[10] *From Inch Cape (revised design) Scoping opinion* https://marine.gov.scot/sites/default/files/00523413.pdf

	FULMAR	KITTIWAKE	GREAT BLACK-BACKED GULL	GREAT SKUA	GANNET	GUILLEMOT	RAZORBILL	PUFFIN
Total predicted impact on adults (HIGH displacement)	5.08	18.12	0.40	0.12	39.12	216.34	3.06	115.41
Proportion of adults in SPA	0.677	0.995	0.564	0.785	0.932	0.947	0.986	0.992
Predicted impacts to all SPAs (LOW displacement)	1.15	12.15	0.15	0.09	25.91	101.65	1.68	63.88
Predicted impacts to all SPAs (MID displacement)	2.29	14.18	0.15	0.09	29.37	146.05	2.24	85.17
Predicted impacts to all SPAs (HIGH displacement)	3.44	16.22	0.15	0.09	32.83	190.45	2.81	106.46

The final stage was to apply the NatureScot distance decay model to the predicted impacts to all SPAs to estimate the SPA specific predicted impact on each qualifying feature. These are summarised in Appendix A.

6.7.6.2 Non-breeding season

In the non-breeding season, a different approach was necessary (except for guillemot, see below). As seabird disperse from their breeding colonies in the non-breeding season, either to migrate to wintering areas outside UK waters, or to disperse more widely across UK waters, the proportion of birds at sea (including in the offshore Project) from SPAs changes. The relative proportion of birds from difference sources varies between regions and seasons and these are provided in Furness (2015). This report defined these proportions to within BDMPS within biologically relevant seasons (defined to the nearest calendar month). From the data provided in Furness (2015) the predicted non-breeding impacts from the Project alone can be estimated from the numbers adjusted using the proportion of adults in the population, and the proportion from SPAs. Due to the location of the Project near the boundary of the two major BDMPS regions (UK North Sea Waters & UK Western Waters) it was necessary to estimate the predicted impact to each SPA for both regions. In addition, the BDMPS approach in Furness (2015) split the non-breeding seasons for many species between different periods (e.g. migration seasons, winter seasons, non-breeding season as a whole). However, advice from NatureScot in their scoping opinion was to provide the assessment for only the breeding and non-breeding seasons. Therefore, it was necessary, where appropriate for the species being assessed, to estimate the predicted impacts in each BDMPS season. Therefore, for some species, in this assessment there may be estimates of predicted impacts on SPAs in each region and in each season. In each case, across the species specific BDMPS region and season, the highest impact to each SPA was used as the worst case scenario.

It is important to note, that following advice from NatureScot, this approach was not taken for predicted impacts on guillemot. Despite strong evidence that guillemots can disperse very widely in the non-breeding season (Buckingham et al. 2022), the evidence that guillemots can return to their colonies during the non-breeding season was used to recommend that the same apportioning approach used in the breeding season was applied to guillemots in the non-breeding season.

6.7.7 Approach to assessment of in-combination impacts

Any potential effects from the offshore Project could interact with those from reasonably foreseeable plans and projects, resulting in-combination effects on a European site. The assessment of adverse effects in-combination with other reasonably foreseeable plans and projects has been informed by the assessment of cumulative effects within the Offshore EIA Report.

For each SPA qualifying feature where there was a potential effect from the Project alone the in-combination impacts from other projects on that SPA feature were collated following consultation with NatureScot (meeting held on 8th February 2023). The primary sources of information used were:

- Pentland Floating Offshore Wind Farm Habitats Regulations Assessment [*sic*] Report[11];
- Moray West offshore windfarm Report to Inform the Appropriate Assessment[12];
- Berwick Bank Offshore Wind Farm Report to Inform Appropriate Assessment[13]
- East Anglia TWO and East Anglia ONE North Offshore Windfarms Deadline 13 Offshore Ornithology Cumulative and In-Combination Collision Risk and Displacement Update[14]

The collated in-combination impacts from these sources on each qualifying feature of each SPA are summarised in Appendix B, the predicted in-combination impacts are summarised in Appendix C, Section C.2 and the predicted change in adult survival is summarised in Appendix C, Section C.2.8.

There were 33 SPAs where it was not possible to conclude no LSE, and therefore requiring an AA (Table 6-15). These are considered in sections 6.8 to 6.21 below and in Appendix E.

[11] *https://marine.gov.scot/sites/default/files/habitat_regulation_assessment_report_redacted.pdf*

[12] *https://marine.gov.scot/sites/default/files/riaa_report_with_appendices.pdf*

[13] *https://marine.gov.scot/node/23323*

[14] *https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010077/EN010077-005586-ExA.AS-12.D13.V1%20EA1N&EA2%20D13%20Offshore%20Ornithology%20Cumulative%20and%20In-Combination%20Collision%20Risk%20and%20Displacement%20Update.pdf*

Table 6-15 SPAs requiring an Appropriate Assessment.

SITE NAME	SITE STATUS	QUALIFYING INTEREST / FEATURES
Ailsa Craig	SPA	Breeding: Northern gannet, Lesser black-backed gull, Herring gull*, Black-legged kittiwake*, Common guillemot*
Buchan Ness to Collieston Coast	SPA	Breeding: Northern fulmar*, European shag*, Herring gull*, Black-legged kittiwake*, Common guillemot*
Calf of Eday	SPA	Breeding: Northern fulmar*, Great cormorant*, Great black-backed gull*, Black-legged kittiwake*, Common guillemot*
Canna and Sanday	SPA	Breeding: European shag*, herring gull*, black-legged kittiwake*, common guillemot*, Atlantic puffin*
Cape Wrath	SPA	Breeding: Northern fulmar*, Black-legged kittiwake*, Common guillemot*, Razorbill*, Atlantic puffin*
Copinsay	SPA	Breeding: Northern fulmar*, Great black-backed gull*, Black-legged kittiwake*, Common guillemot*
East Caithness Cliffs	SPA	Breeding: Northern fulmar*, Great cormorant*, European shag, Peregrine falcon, Herring gull, Great black-backed gull*, Black-legged kittiwake, Common guillemot, Razorbill
Fair Isle	SPA	Breeding: Northern fulmar*, Northern gannet*, European shag*, Arctic skua*, Great skua*, Black-legged kittiwake*, Arctic tern, Common guillemot, Razorbill*, Atlantic puffin*, Fair Isle wren
Fetlar	SPA	Breeding: red-necked phalarope, Arctic tern, whimbrel, great skua, dunlin, Arctic skua*, Northern fulmar*
Flamborough and Filey Coast	SPA	Breeding: Northern gannet, Black-legged kittiwake, Common guillemot, Razorbill, Northern Fulmar*
Flannan Isles	SPA	Breeding: Northern fulmar*, Leach's storm-petrel, Black-legged kittiwake*, Common guillemot*, Razorbill*, Atlantic puffin*
Forth Islands	SPA	Breeding: Northern gannet, Great cormorant*, European shag, Lesser black-backed gull, Herring gull*, Black-legged kittiwake*, Sandwich tern, Roseate tern, Common tern, Arctic tern, Common guillemot*, Razorbill*, Atlantic puffin

SITE NAME	SITE STATUS	QUALIFYING INTEREST / FEATURES
Foula	SPA	Breeding: Red-throated diver, Northern fulmar*, Leach's storm-petrel, European shag, Arctic skua*, Great skua, Black-legged kittiwake*, Arctic tern, Common guillemot, Razorbill*, Atlantic puffin
Fowlsheugh	SPA	Breeding: Northern fulmar*, Herring gull*, Black-legged kittiwake, Common guillemot, Razorbill*
Grassholm	SPA	Breeding: Northern gannet
Handa	SPA	Breeding: Northern fulmar*, Arctic skua, Great skua*, Black-legged kittiwake*, Common guillemot, Razorbill
Hermaness, Saxa Vord and Valla Field	SPA	Breeding: Red-throated diver, Northern fulmar*, Northern gannet, European shag*, Great skua, Black-legged kittiwake*, Common guillemot*, Atlantic puffin
Hoy	SPA	Breeding: Red-throated diver, Northern fulmar*, Peregrine falcon, Arctic skua*, Great skua, Great black-backed gull*, Black-legged kittiwake*, Common guillemot*, Atlantic puffin*
Marwick Head	SPA	Breeding: Black-legged kittiwake*, Common guillemot
Mingulay and Berneray	SPA	Breeding: Northern fulmar*, European shag*, Black-legged kittiwake*, Common guillemot*, Razorbill, Atlantic puffin*
North Caithness Cliffs	SPA	Breeding: Northern fulmar*, Peregrine falcon, Black-legged kittiwake*, Common guillemot, Razorbill*, Atlantic puffin*
North Rona and Sula Sgeir	SPA	Breeding: Northern fulmar*, European storm-petrel, Leach's storm-petrel, Northern gannet, Great black-backed gull*, Black-legged kittiwake*, Common guillemot, Razorbill*, Atlantic puffin*
Noss	SPA	Breeding: Northern fulmar*, Northern gannet, Great skua, Black-legged kittiwake*, Common guillemot, Atlantic puffin*
Ronas Hill - North Roe and Tingon	SPA	Breeding: red-throated diver, great skua
Rousay	SPA	Breeding: Northern fulmar*, Arctic skua*, Black-legged kittiwake*, Arctic tern, Common guillemot*

SITE NAME	SITE STATUS	QUALIFYING INTEREST / FEATURES
Rum	SPA	Breeding: red-throated diver, golden eagle, Manx shearwater, black-legged kittiwake*, common guillemot*
Shiant Isles	SPA	Breeding: Northern fulmar*, European shag, Black-legged kittiwake*, Common guillemot*, Razorbill, Atlantic puffin
Skomer, Skokholm and the Seas off Pembrokeshire / Sgomer, Sgogwm a Moroedd Penfro	SPA	Breeding: Manx shearwater, European storm-petrel, Lesser black-backed gull, Atlantic puffin, Short-eared owl, Red-billed chough, Razorbill*, Common guillemot*, Black-legged kittiwake*
St Kilda	SPA	Breeding: Northern fulmar*, Manx shearwater*, European storm-petrel, Leach's storm-petrel, Northern gannet, Great skua, Black-legged kittiwake*, Common guillemot*, Razorbill*, Atlantic puffin
Sule Skerry and Sule Stack	SPA	Breeding: European storm-petrel, Leach's storm-petrel, Northern gannet, European shag*, Common guillemot*, Atlantic puffin
Sumburgh Head	SPA	Breeding: Northern fulmar*, Black-legged kittiwake*, Arctic tern, Common guillemot*
Troup, Pennan and Lion's Heads	SPA	Breeding: Northern fulmar*, Herring gull*, Black-legged kittiwake, Common guillemot, Razorbill*
West Westray	SPA	Breeding: Northern fulmar*, Arctic skua*, Black-legged kittiwake*, Arctic tern, Common guillemot, Razorbill*

6.8 Calf of Eday SPA

The Calf of Eday SPA was classified on 29th June 1998, with marine extension classified on 25th September 2009 due to the populations of breeding seabirds. The site is in the Orkney Islands and is approximately 72 km east of the Project.

6.8.1 Site details and qualifying interests

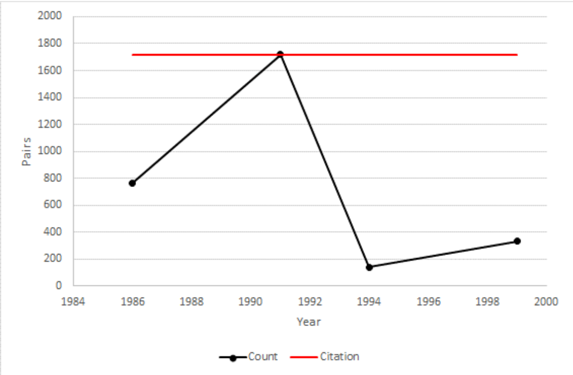
Calf of Eday SPA is a small maritime island to the north of Eday in Orkney. Calf of Eday has a rocky shoreline with cliffs to the north and the west. The island is covered by maritime heath and grassland. These cliffs support a colony of breeding seabirds.

The boundary of the SPA overlaps with the boundary of Calf of Eday SSSI, and the seaward extension extends approximately 2 km into the marine environment to include the seabed, water column and surface.

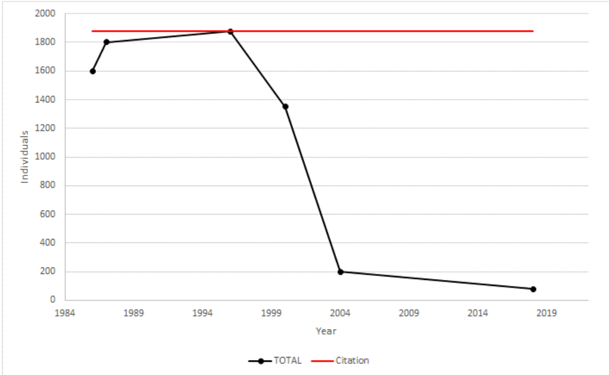
Table 6-16 Qualifying interests and condition for the Cape Wrath SPA

QUALIFYING INTERESTS	FEATURE CONDITION	ASSESSMENT DATE	BROADER CONSERVATION STATUS
Kittiwake	Unfavourable Declining	8 Jun 2016	Red
Great black-backed gull	Unfavourable Declining	1 Jun 2016	Amber
Guillemot	Unfavourable Declining	8 Jun 2016	Amber
Fulmar	Favourable Maintained	8 Jun 2016	Amber
Great cormorant	Favourable Recovered	8 Jun 2016	Green
Seabird assemblage	Unfavourable Declining	8 Jun 2016	n/a

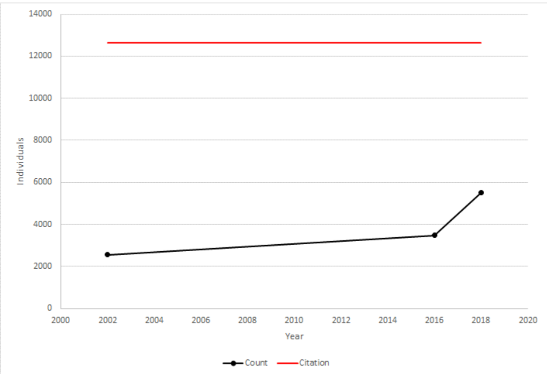
For each qualifying feature requiring assessment (except the breeding seabird assemblage) count data was extracted from the SMP database. These counts were plotted and compared with the citation population size (Figure 6-4).



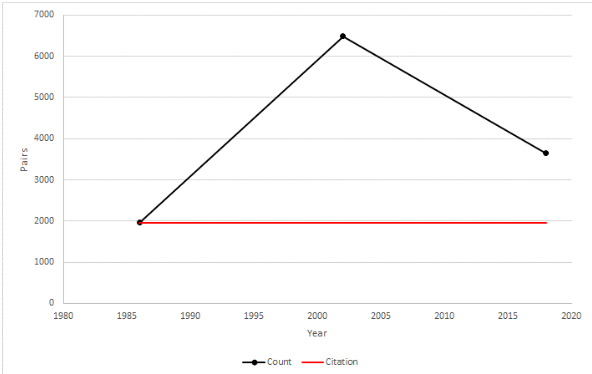
Kittiwake



Great black-backed gull



Guillemot



Fulmar

Figure 6-1 Qualifying feature population trends from 1990 - 2022 (citation population size shown by red line).

Population counts were available from data collected between 1986 and 2016 - 2018. Kittiwake and great black-backed gull have declined across the period. Guillemots have increased slightly but remain well below their citation level. Fulmar numbers have increased since citation and despite a decline between 2002 and 2016 – 2018 the population remains above the citation population size.

6.8.2 Conservation objectives

The conservation objectives of the Calf of Eday SPA are to:

"To avoid deterioration of the habitats of the qualifying species or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained; and

To ensure for the qualifying species that the following are maintained in the long term:

- Population of the species as a viable component of the site;
- Distribution of the species within site;

- Distribution and extent of habitats supporting the species;
- Structure, function and supporting processes of habitats supporting the species; and
- No significant disturbance of the species."

Predicted impacts from the Project alone and in-combination have the potential to affect the conservation objective to ensure the population of the species as a viable component of the site in the long term. The other conservation objectives relate to the SPA itself. As the proposed Project does not overlap with the boundary of the SPA the other conservation objectives cannot be affected.

6.8.3 Assessment of predicted impacts alone and in-combination

The predicted impacts from the Project alone on the qualifying features of the Calf of Eday SPA are summarised in the tables in Appendix C, Section C.1. The predicted effect on adult survival from these impacts are summarised in Appendix C, Section C1.9. The predicted impacts from the Project in-combination with other reasonably foreseeable plans and projects are summarised in Appendix C, Section C.2. The predicted effect on adult survival from these impacts are summarised in Appendix C, Section C2.8.

Great cormorant was not recorded during baseline surveys of the offshore Project, and is consequently screened out of the assessment as have no LSE.

6.8.3.1 Kittiwake

The predicted impacts from the Project alone on the breeding kittiwake population was 0.010 – 0.011 birds per annum in the breeding season (Appendix C, Section C.1, Table C1-1). In the non-breeding season, the predicted impacts were dependent on the BDMPS region used and the seasonal BDMPS population sizes. The largest non-breeding season predicted impact was 0.06 – 0.07 birds per annum based on the UK North Sea population in Spring (Appendix C, Section C.1, Table C1-1). This predicted a total change in adult survival of 0.02% - 0.03% points (Appendix C, Section C.1, Table C2-1) and so a PVA was completed based on this BDMPS region and season with the largest predicted impact.

The predicted impacts from the Project in-combination on the breeding kittiwake population was dependent on the BDMPS region used and the seasonal BDMPS population sizes. The largest predicted impacts were 3.15 – 3.16 birds per annum based on the UK North Sea population in Spring (Appendix C, Section C.2, Table C2-1). This predicted a change in adult survival of 1.10% to 1.11% points and so a PVA was completed based on this BDMPS region and season with the largest predicted impact (Appendix C, Section C.2, Table C2-14).

The PVA provided projected change in population size of the baseline population, the population impacted by the Project alone (with low, medium and high displacement scenarios), impacted by in-combination impacts without the Project and impacted by the in-combination impacts with the Project (with low, medium and high displacement scenarios). The PVA projected that the population would decline in all scenarios based on the input demographic values and the assumptions of the model (Figure 6-5).

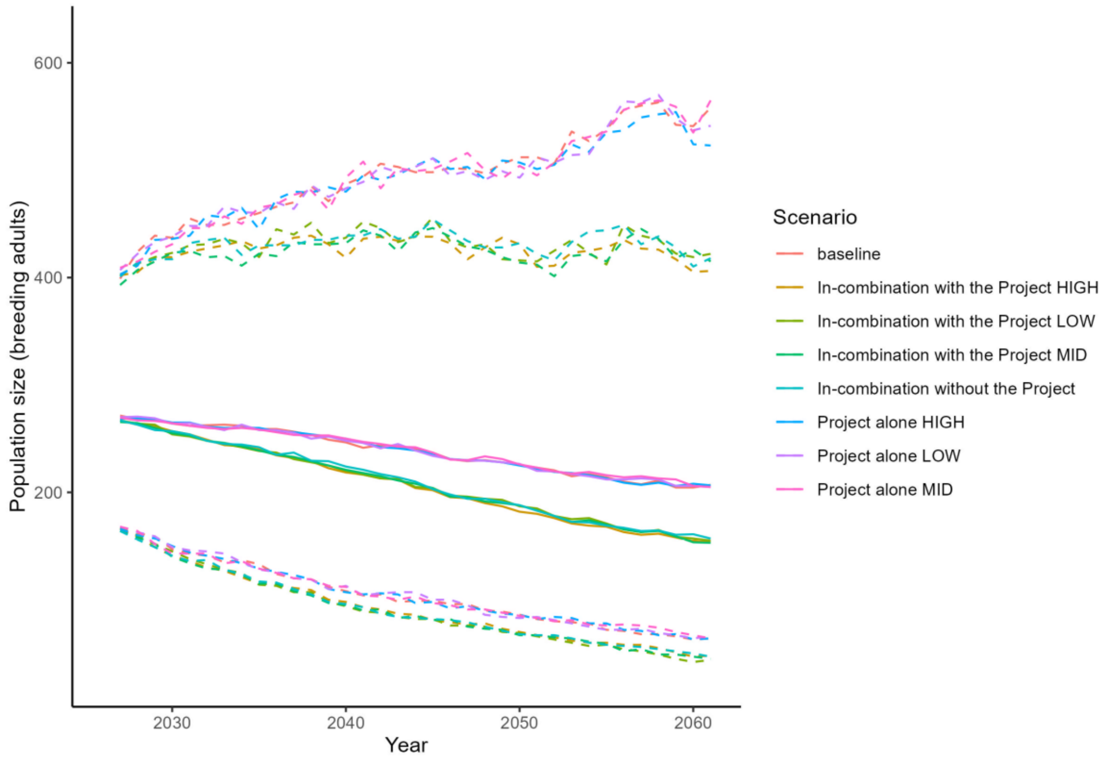


Figure 6-2 Projected population size of the breeding kittiwake feature of the Calf of Eday SPA for the baseline (unimpacted), Project alone, in-combination impacts without the Project and in-combination with the Project from 2027 to 2062. Solid line = mean, dashed line = SD

The PVA metrics (Table 6-17) showed that the mean and median CGR was very close to one across the projected 35 years used in the model for the Project alone (with low, medium and high displacement scenarios). The median (the median value is used hereafter) CGR value for the project alone after 35 years was 1.0000 – 1.0003, or no decline in growth rate. The CGR value for the in-combination impacts was 0.9922, or a 0.78% decline in growth rate. Adding the Project alone to the in-combination impact made a relatively small difference to the predicted change in growth rate (0.9918 - 0.9920). This suggests that the growth rate of the Calf of Eday SPA kittiwake population would not be adversely affected by the Project alone or in-combination impact.

The mean and median CPS values decreased with the duration of the PVA projection (Table 6-17). The CPS values at 35 years of the Project alone, the in-combination values without the Project and the in-combination values with and without the Project show that the majority of the predicted impacts on the SPA are from the in-combination impacts with very little effect from the Project alone. The CPS for the Project alone was very high (1.0058 - 1.0082), suggesting that the PVA predicts that the population would be no smaller than the baseline population size. The in-combination CPS value was larger (0.7518). Thus, the PVA predicts that the population would be about 24.8% smaller than the baseline population size. Adding the predicted impacts from the Project to the existing in-combination impacts made a small difference to the CPS value (0.7396 –– 0.7482), and thus the PVA predicted that the population would be about 25.1% to 26.0% smaller than the baseline population size. The quantile metrics vary across years and the values at 35 years are not notably different from the values at 10 years. These metrics suggest the distributions of the impacted to not impacted populations projected by the PVA will be very similar at 35 years.

Table 6-17 Summary of PVA metrics for the kittiwake population from Calf of Eday SPA for the Project alone, in-combination without the Project and in-combination including the Project. Based on the assessment of in-combination impacts and population sizes for the BDMPS UK North Sea population in Spring migration (January to April) SD = standard deviation, LCI = lower confidence interval, UCI = upper confidence interval.

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone LOW	10	1.0001	1.0002	0.0104	0.9795	1.0206	1.0087	1.0129	0.1394	0.7632	1.3187	49.2	50.7
Project alone MID	10	1.0001	1.0001	0.0100	0.9804	1.0198	1.0000	1.0080	0.1335	0.7774	1.3083	48.5	51.3
Project alone HIGH	10	0.9999	0.9999	0.0102	0.9808	1.0198	1.0000	1.0071	0.1348	0.7611	1.2878	50.0	50.3
In-combination without the Project	10	0.9921	0.9921	0.0099	0.9724	1.0118	0.9151	0.9227	0.1243	0.6962	1.1905	40.9	59.9
In-combination with the Project LOW	10	0.9917	0.9914	0.0103	0.9711	1.0117	0.9174	0.9180	0.1236	0.7017	1.1838	39.2	62.0

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project MID	10	0.9918	0.9918	0.0103	0.9724	1.0115	0.9059	0.9180	0.1304	0.6898	1.1981	39.6	60.5
In-combination with the Project HIGH	10	0.9914	0.9915	0.0104	0.9715	1.0125	0.9119	0.9175	0.1266	0.6786	1.1985	39.3	60.2
Project alone LOW	20	1.0001	1.0001	0.0074	0.9857	1.0154	0.9966	1.0178	0.1748	0.7126	1.4151	50.4	50.0
Project alone MID	20	1.0003	1.0003	0.0072	0.9863	1.0146	1.0024	1.0189	0.1754	0.7148	1.3965	50.6	49.3
Project alone HIGH	20	1.0000	1.0003	0.0073	0.9857	1.0145	1.0042	1.0192	0.1753	0.7106	1.4103	50.6	49.4
In-combination without the Project	20	0.9927	0.9927	0.0072	0.9789	1.0068	0.8562	0.8679	0.1482	0.6079	1.1798	33.7	63.4

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project LOW	20	0.9921	0.9921	0.0075	0.9773	1.0063	0.8484	0.8592	0.1481	0.6078	1.1850	34.7	66.1
In-combination with the Project MID	20	0.9921	0.9921	0.0075	0.9776	1.0069	0.8432	0.8565	0.1571	0.5944	1.2138	33.7	65.9
In-combination with the Project HIGH	20	0.9917	0.9919	0.0074	0.9787	1.0068	0.8357	0.8540	0.1495	0.5973	1.2085	33.7	66.3
Project alone LOW	30	1.0002	1.0001	0.0063	0.9877	1.0128	1.0044	1.0258	0.2164	0.6711	1.5058	52.4	48.0
Project alone MID	30	1.0003	1.0004	0.0060	0.9885	1.0121	1.0086	1.0303	0.2108	0.6833	1.5000	53.4	47.4
Project alone HIGH	30	1.0003	1.0001	0.0061	0.9880	1.0121	1.0079	1.0242	0.2113	0.6707	1.4657	50.0	50.1

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination without the Project	30	0.9923	0.9925	0.0061	0.9809	1.0045	0.7882	0.8062	0.1710	0.5253	1.1789	31.2	66.2
In-combination with the Project LOW	30	0.9923	0.9920	0.0064	0.9793	1.0051	0.7859	0.7973	0.1670	0.5185	1.1752	30.5	67.0
In-combination with the Project MID	30	0.9920	0.9919	0.0064	0.9788	1.0039	0.7726	0.7914	0.1832	0.4999	1.1743	30.5	68.3
In-combination with the Project HIGH	30	0.9918	0.9918	0.0064	0.9787	1.0048	0.7778	0.7922	0.1695	0.5078	1.1929	28.7	68.6
Project alone LOW	35	1.0000	1.0000	0.0059	0.9888	1.0125	1.0058	1.0271	0.2378	0.6416	1.5753	49.7	51.0
Project alone MID	35	1.0003	1.0003	0.0057	0.9892	1.0114	1.0082	1.0341	0.2241	0.6673	1.5303	50.6	49.5

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone HIGH	35	1.0002	1.0001	0.0058	0.9884	1.0111	1.0080	1.0260	0.2295	0.6456	1.5244	50.0	50.5
In-combination without the Project	35	0.9922	0.9924	0.0059	0.9805	1.0042	0.7518	0.7771	0.1809	0.4777	1.1949	30.9	71.4
In-combination with the Project LOW	35	0.9920	0.9919	0.0062	0.9789	1.0038	0.7482	0.7657	0.1780	0.4706	1.1763	30.3	72.5
In-combination with the Project MID	35	0.9918	0.9918	0.0061	0.9798	1.0037	0.7396	0.7616	0.1918	0.4624	1.1761	29.7	70.4
In-combination with the Project HIGH	35	0.9918	0.9918	0.0060	0.9795	1.0028	0.7446	0.7612	0.1739	0.4682	1.1373	29.1	71.7

The assessment of predicted impacts from the Project alone on the breeding kittiwake population in the Calf of Eday SPA population was relatively small. However, the predicted in-combination impacts on the breeding kittiwake population in the Calf of Eday SPA population was relatively large. The assessment method for displacement used the NatureScot displacement matrix approach which does not explicitly address barrier effects. However, since kittiwakes undertake long distance migrations (Frederiksen et al. 2012) it is unlikely that barrier effects would have a significant impact on their survival. While results from seabORD (Searle et al. 2018) have suggested that barrier effects can be important they have been considered as unrealistic (e.g. see Inch Cape Revised Design HRA). In addition, the recent review and sensitivity analyses for Berwick Bank OWF concluded that, "the model is associated with a large amount of uncertainty and that the model can be highly sensitive to certain key input parameters. Given this, it does not seem to be the correct tool to derive the concise, transparent and comparable predictions required for general use for impact assessment in its current form" (Vallejo et al. 2022).

Impacts from the construction stage of the Project, including all cable installation, are short term, temporary and reversible. Following completion of the construction stage the disturbance effects will be removed. Therefore, this impact source will not have an impact on the conservation objectives to maintain the population in the long term.

The predicted impacts on the breeding kittiwake population from the Calf of Eday SPA from the Project alone would not adversely affect the integrity of the site. When applying the significant levels of precaution advised it may not be possible to discount AESI arising from the list of in-combination projects, the predicted impacts from the Project alone is beneath any threshold of significance and *de minimis* and as such would not materially alter the significance or the likelihood of an adverse effect on the integrity of the SPA.

6.8.3.2 Great black-backed gull

The predicted impacts from the Project alone on the breeding great black-backed gull population was 0.0001 birds per annum in the breeding season (Appendix C, Section C.1, Table C1-3). In the non-breeding season, the predicted impacts from the Project alone were 0.08 birds per annum based on the UK North Sea non-breeding population (Appendix C, Section C.1, Table C1-3). This predicted a change in adult survival of 0.07% points (Appendix C, Section C.1) and so a PVA was required.

No predicted in-combination impacts on the breeding great black-backed gull population at the Calf of Eday SPA could be found (Appendix C, Section C.2, Table C2-3).

The PVA provided projected change in population size of the baseline population, the population impacted by the Project alone, impacted by in-combination impacts without the Project and impacted by the in-combination impacts with the Project. The PVA projected that population would increase exponentially in all scenarios based on the input demographic values and the assumptions of the model (Figure 6-9).

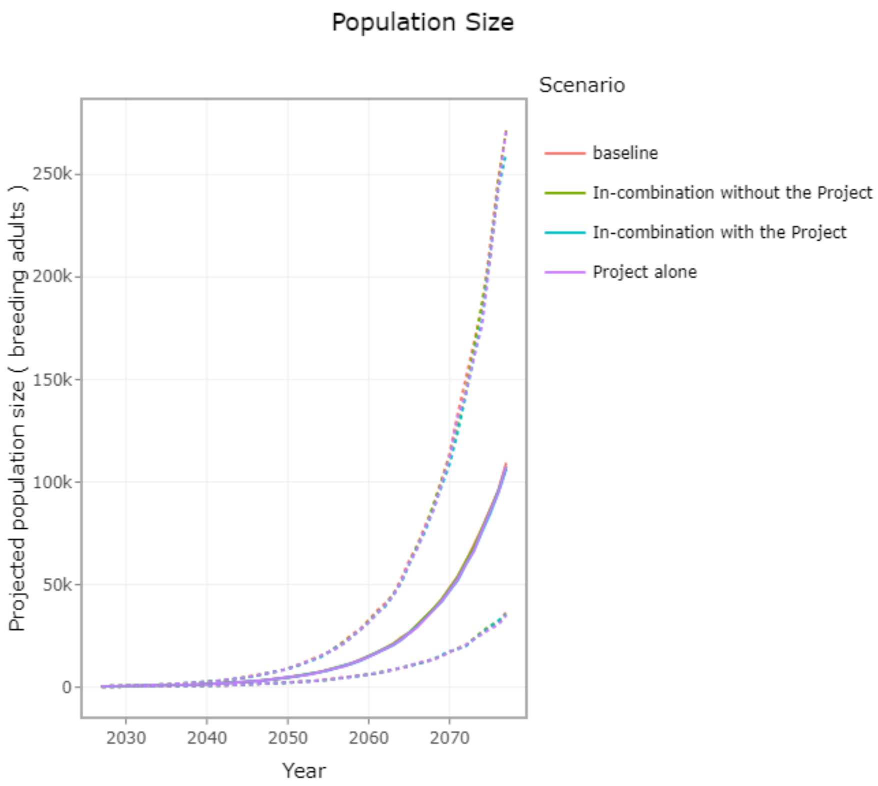


Figure 6-3 Projected population size of the breeding great black-backed gull feature of the Calf of Eday SPA for the baseline (unimpacted), Project alone, in-combination impacts without the Project and in-combination with the Project from 2027 to 2062. Solid line = mean, dashed line = SD

The PVA metrics (Table 6-18) showed that the mean and median CGR was close to one across the projected 35 years used in the model for the Project alone. The CGR value for the project alone after 35 years was 0.9991, or a 0.09% decline in growth rate. The CGR value for the in-combination impacts was 1.000, or no decline in growth rate. Adding the Project alone to the in-combination impact made little difference to the predicted change in growth rate (0.9993). This suggests that the growth rate of the Calf of Eday SPA great black-backed gull population would not be adversely affected by the Project alone or in-combination impact.

The mean and median CPS increase with the duration of the PVA projection (Table 6-18). The CPS values at 35 years of the Project alone, the in-combination values without the Project and the in-combination values with and without the Project show that all of the predicted impacts on the SPA are from the Project alone. However, the CPS for both the Project alone and the Project in-combination are high (0.9699 – 0.9730). Thus, the PVA predicts that the population would only be about 2.7% - 3.0% smaller than the baseline population size. The population projection based on the model inputs creates an unrealistic population increase. The population model is not constrained by density dependent processes which results in this unrealistic projected growth. In reality the population of great black-backed gulls at this SPA has been declining (Figure 6-1). As such, the CPS metrics are unlikely to provide a reliable means for assessing the effects of predicted impacts on this population.

The quantile metrics vary across years and the values at 35 years are not notably different from the values at 10 years. These metrics suggest the distributions of the impacted to not impacted populations projected by the PVA will be very similar at 35 years.

Table 6-18 Summary of PVA metrics for the great black-backed gull population from Calf of Eday SPA for the Project alone, in-combination without the Project and in-combination including the Project. Based on the assessment of in-combination impacts and population sizes for the BDMPS UK North Sea waters during the non-breeding season (September to March) SD = standard deviation, LCI = lower confidence interval, UCI = upper confidence interval.

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project Alone	10	0.9989	0.9991	0.0054	0.9892	1.0110	0.9953	0.9939	0.0800	0.8375	1.1565	47.5	53.1
In-combination (without Project)	10	1.0001	1.0001	0.0055	0.9899	1.0115	1.0000	1.0019	0.0833	0.8566	1.1794	49.1	51.2
In-combination (with Project)	10	0.9997	0.9995	0.0053	0.9891	1.0102	0.9925	0.9960	0.0836	0.8406	1.1668	48.7	51.8
Project Alone	20	0.9992	0.9992	0.0030	0.9935	1.0049	0.9857	0.9868	0.0802	0.8350	1.1553	48.4	51.2
In-combination (without Project)	20	1.0000	1.0000	0.0030	0.9944	1.0061	0.9948	1.0016	0.0863	0.8487	1.1968	51.1	49.1

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination (with Project)	20	0.9993	0.9993	0.0030	0.9938	1.0054	0.9836	0.9876	0.0848	0.8368	1.1740	48.4	51.7
Project Alone	30	0.9992	0.9992	0.0021	0.9954	1.0034	0.9785	0.9784	0.0814	0.8272	1.1514	49.6	50.4
In-combination (without Project)	30	1.0000	1.0000	0.0021	0.9962	1.0041	0.9941	1.0005	0.0873	0.8435	1.1885	51.1	48.9
In-combination (with Project)	30	0.9993	0.9993	0.0020	0.9954	1.0033	0.9747	0.9793	0.0847	0.8220	1.1732	49.5	50.4
Project Alone	35	0.9991	0.9992	0.0018	0.9960	1.0029	0.9730	0.9748	0.0813	0.8251	1.1455	47.9	51.5
In-combination (without Project)	35	1.0000	1.0000	0.0018	0.9966	1.0035	0.9939	1.0011	0.0876	0.8419	1.1884	50.3	49.8
In-combination (with Project)	35	0.9993	0.9993	0.0018	0.9961	1.0028	0.9699	0.9760	0.0847	0.8198	1.1679	48.2	51.7

Impacts from the construction stage of the Project, including all cable installation, are short term, temporary and reversible. Following completion of the construction stage the disturbance effects will be removed. Therefore, this impact source will not have an impact on the conservation objectives to maintain the population in the long term.

The predicted impacts, based on the guidance and advice of NatureScot, on the breeding great black-backed gull population from the Calf of Eday SPA from the Project alone and in combination would therefore not adversely affect the integrity of the site.

6.8.3.3 Guillemot

The impacts from the Project alone in the breeding and non-breeding seasons on the breeding guillemot population of the SPA were predicted to be 0.02 - 0.03 birds killed per annum (Appendix C, Section C.1, Table C1-6). This was a predicted change in adult survival of 0.0002% - 0.0004% points (Appendix C, Section C.1, Table C 1-18). The predicted impacts from other plans and projects was a further 0.11 birds killed per annum, resulting in a total predicted impact from the Project alone and in-combination of 0.13 – 0.14 birds killed per annum, with 12.2% - 20.6% of this total from the Project alone (Appendix C, Section C.2, Table C 2-4). This resulted in a predicted change in adult survival of 0.0016% - 0.0020% points (Appendix C, Section C.2, Table C 2-16). This was a sufficiently small impact on the breeding population of guillemots from the Calf of Eday SPA that no PVA was necessary.

Impacts from the construction stage of the Project, including all cable installation, are short term, temporary and reversible. Following completion of the construction stage the disturbance effects will be removed. Therefore, this impact source will not have an impact on the conservation objectives to maintain the population in the long term.

The predicted impacts, based on the guidance and advice of NatureScot, on the breeding guillemot population from the Calf of Eday SPA from the Project alone and in combination would therefore not adversely affect the integrity of the site.

6.8.3.4 Fulmar

The impacts from the Project alone in the breeding and non-breeding seasons on the breeding fulmar population of the SPA were predicted to be 0.03 – 0.08 birds killed per annum (Appendix C, Section C.1, Table C1-11). This was a predicted change in adult survival of 0.001%- 0.003% points (Appendix C, Section C.1). The predicted impacts from other plans and projects was not possible to estimate as previous projects have screened out impacts on fulmar populations from SPAs. The predicted impact from the Project alone was a sufficiently small impact on the breeding population of fulmars from the Calf of Eday SPA that no PVA was necessary.

Impacts from the construction stage of the Project, including all cable installation, are short term, temporary and reversible. Following completion of the construction stage the disturbance effects will be removed. Therefore, this impact source will not have an impact on the conservation objectives to maintain the population in the long term.

The predicted impacts, based on the guidance and advice of NatureScot, on the breeding fulmar population from the Calf of Eday SPA from the Project alone and in combination would therefore not adversely affect the integrity of the site.

6.8.4 Assessment summary and conclusions

The assessment can conclude that there is no adverse effect on site integrity of the Calf of Eday SPA as outlined in Table 6-19.

Table 6-19 Summary of assessment of Calf of Eday SPA

QUALIFYING FEATURE	POTENTIAL EFFECT	CONCLUSION
Breeding kittiwake	Collisions and, displacement and barrier effects	No adverse effects on site integrity from the Project alone and in-combination with other reasonably foreseeable plans and projects
Breeding great black-backed gull	Collisions	No adverse effects on site integrity from the Project alone and in-combination with other reasonably foreseeable plans and projects
Breeding guillemot	Displacement and barrier effects	No adverse effects on site integrity from the Project alone and in-combination with other reasonably foreseeable plans and projects
Breeding fulmar	Displacement and barrier effects	No adverse effects on site integrity from the Project alone and in-combination with other reasonably foreseeable plans and projects
Breeding cormorant	No likely significant effect	
Breeding seabird assemblage	Collisions and, displacement and barrier effects	No adverse effects on site integrity from the Project alone and in-combination with other reasonably foreseeable plans and projects

6.9 Cape Wrath SPA

The Cape Wrath SPA was classified on 15th March 1996, with marine extension classified on 25th September 2009 due to the populations of breeding seabirds. The site is in north-west Sutherland and is approximately 26 km south-west of the Project.

6.9.1 Site details and qualifying interests

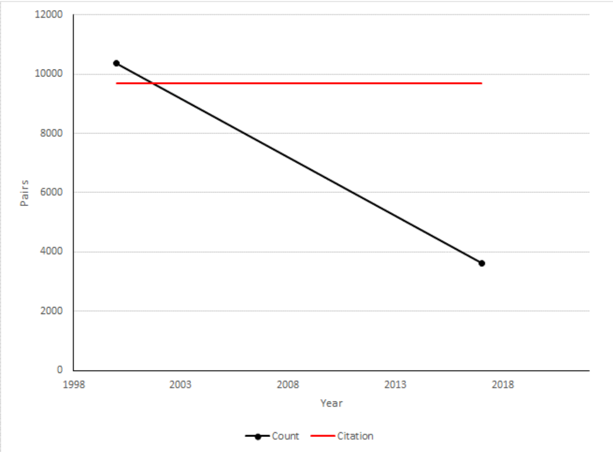
Cape Wrath SPA covers two stretches of Torridonian sandstone and Lewisian gneiss cliff around Cape Wrath headland in north west Scotland. These cliffs support large colonies of breeding seabirds.

The boundary of the SPA overlaps with the boundary of Cape Wrath SSSI, and the seaward extension extends approximately 2 km into the marine environment to include the seabed, water column and surface.

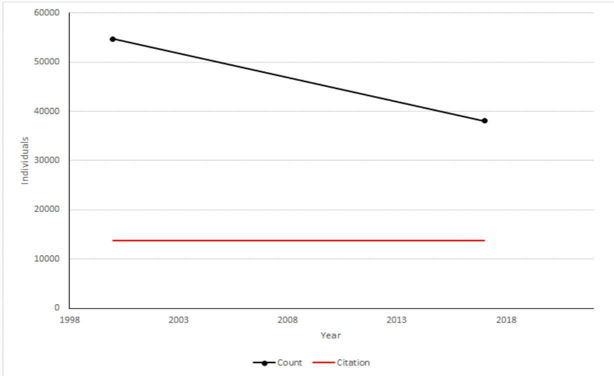
Table 6-20 Qualifying interests and condition for the Cape Wrath SPA

QUALIFYING INTERESTS	FEATURE CONDITION	ASSESSMENT DATE	BROADER CONSERVATION STATUS
Kittiwake	Unfavourable Declining	4 Jun 2017	Red
Guillemot	Favourable Maintained	4 Jun 2017	Amber
Razorbill	Favourable Maintained	4 Jun 2017	Amber
Puffin	Unfavourable No change	5 Jul 2018	Red
Fulmar	Unfavourable Declining	4 Jun 2017	Amber
Seabird assemblage	Favourable Maintained	5 Jul 2018	n/a

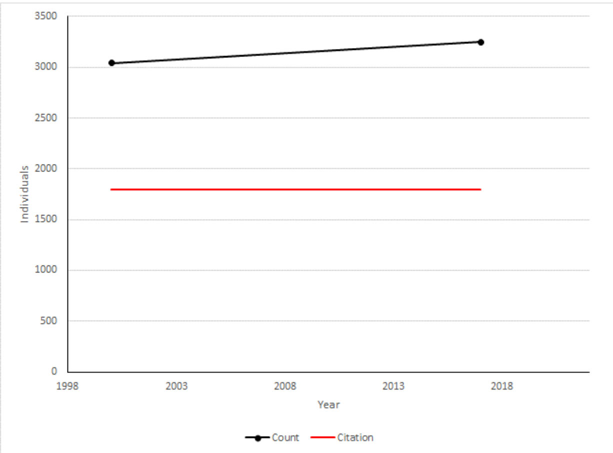
For each qualifying feature requiring assessment (except the breeding seabird assemblage) count data was extracted from the SMP database. These counts were plotted and compared with the citation population size (Figure 6-4).



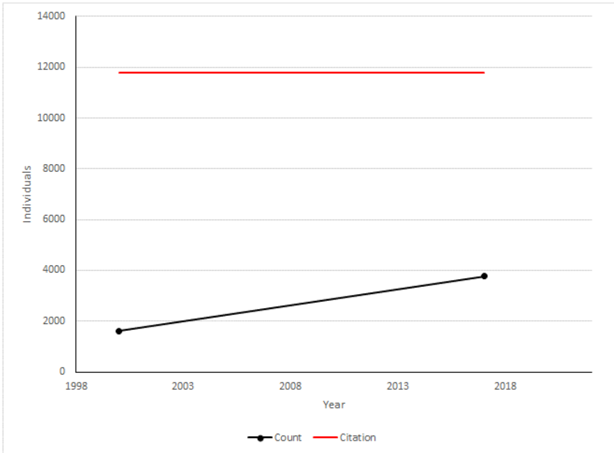
Kittiwake



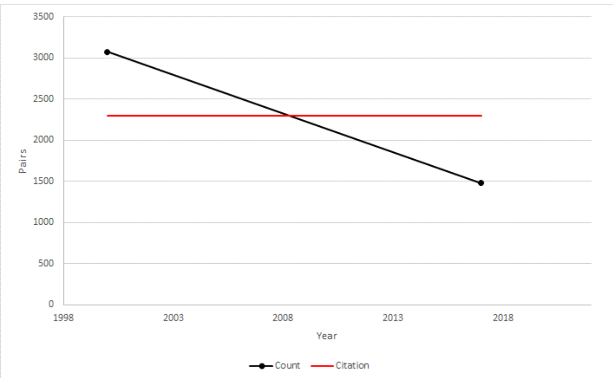
Guillemot



Razorbill



Puffin



Fulmar

Figure 6-4 Qualifying feature population trends from 1990 - 2022 (citation population size shown by red line)

Population counts were only available from data collected in 1999/2000 and 2017/2018. Fulmar, guillemot and kittiwake have declined across the period. Fulmar numbers have declined to below the citation population size. While guillemot numbers have declined the population has remained well above the citation population size. Kittiwake numbers have declined the most and are well below the citation population size. While puffin numbers have increased slightly, numbers have remained well below the citation population size. The razorbill population appears to have increased very slightly and has remained well above the citation population size.

6.9.2 Conservation objectives

The conservation objectives of the Cape Wrath SPA are to:

"To avoid deterioration of the habitats of the qualifying species or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained; and

To ensure for the qualifying species that the following are maintained in the long term:

- Population of the species as a viable component of the site;
- Distribution of the species within site;
- Distribution and extent of habitats supporting the species;
- Structure, function and supporting processes of habitats supporting the species; and
- No significant disturbance of the species."

Predicted impacts from the Project alone and in-combination have the potential to affect the conservation objective to ensure the population of the species as a viable component of the site in the long term. The other conservation objectives relate to the SPA itself. As the proposed Project does not overlap with the boundary of the SPA the other conservation objectives cannot be affected.

6.9.3 Assessment of predicted impacts alone and in-combination

The predicted impacts from the Project alone on the qualifying features of the Cape Wrath SPA are summarised in the tables in Appendix C, Section C.1. The predicted effect on adult survival from these impacts are summarised in Appendix C, Section C1.9. The predicted impacts from the Project in-combination with other reasonably foreseeable plans and projects are summarised in Appendix C, Section C.2. The predicted effect on adult survival from these impacts are summarised in Appendix C, Section C2.8.

6.9.3.1 Kittiwake

The predicted impacts from the Project alone on the breeding kittiwake population was 2.8 – 3.7 birds per annum in the breeding season (Appendix C, Section C.1, Table C1-1). In the non-breeding season, the predicted impacts were dependent on the BDMPS region used and the seasonal BDMPS population sizes. The largest non-breeding season predicted impact was 1.1 – 1.3 birds per annum based on the Western waters & Channel population in Spring (Appendix C, Section C.1). This predicted a change in adult survival of 0.05% - 0.07% points (Appendix C, Section C.1) and so a PVA was completed based on this BDMPS region and season with the largest predicted impact.

The predicted impacts from the Project in-combination on the breeding kittiwake population was dependent on the BDMPS region used and the seasonal BDMPS population sizes. The largest predicted impacts were 3.9 – 4.9 birds per annum based on the Western waters & Channel population in Spring (Appendix C, Section C.2, Table C2-1). This predicted a change in adult survival of 0.06% to 0.07% points and so a PVA was completed based on this BDMPS region and season with the largest predicted impact (Appendix C, Section C.2).

The PVA provided projected change in population size of the baseline population, the population impacted by the Project alone (with low, medium and high displacement scenarios), impacted by in-combination impacts without the Project and impacted by the in-combination impacts with the Project (with low, medium and high displacement scenarios). The PVA projected that the population would decline in all scenarios based on the input demographic values and the assumptions of the model (Figure 6-5).

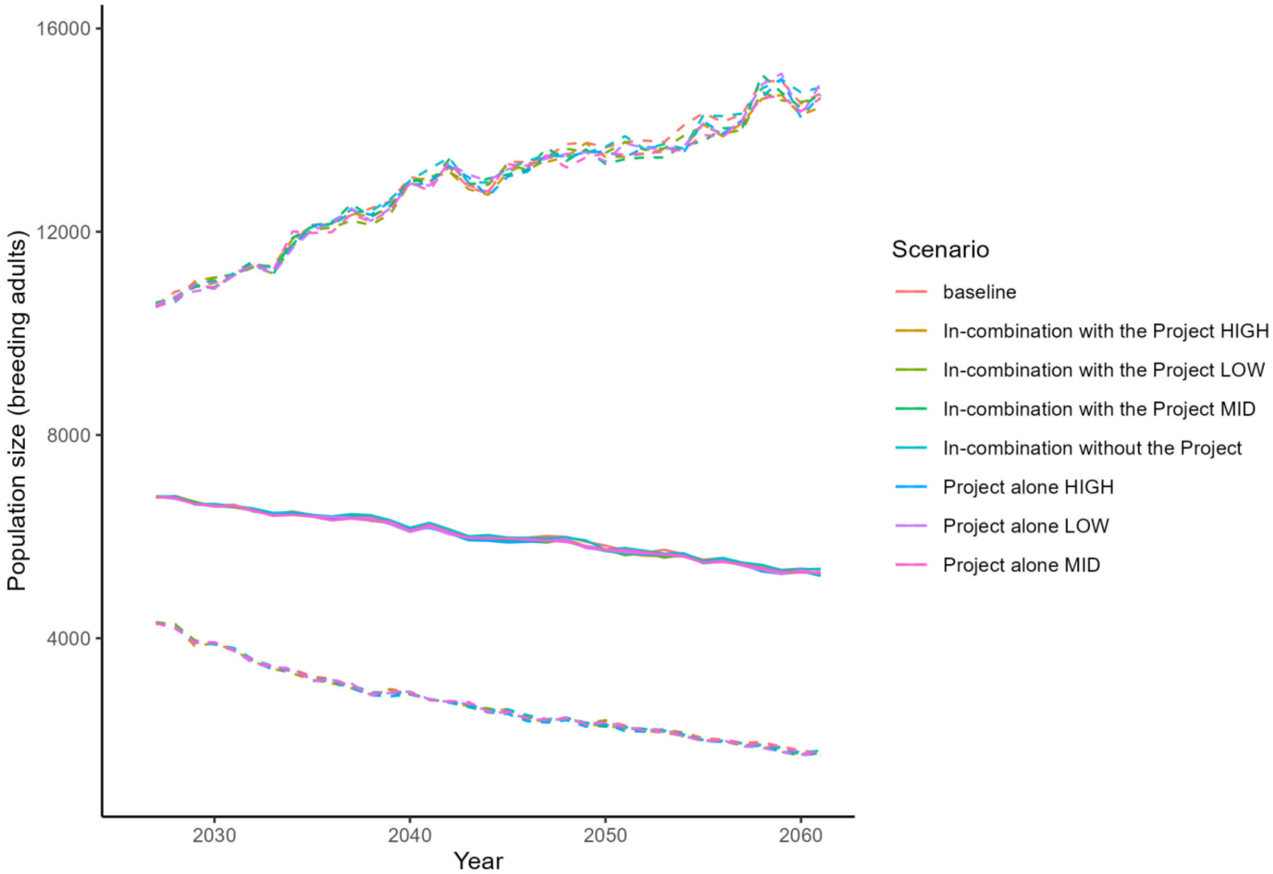


Figure 6-5 Projected population size of the breeding kittiwake feature of the Cape Wrath SPA for the baseline (unimpacted), Project alone, in-combination impacts without the Project and in-combination with the Project from 2027 to 2062. Solid line = mean, dashed line = SD

The PVA metrics (Table 6-21) showed that the mean and median CGR was very close to one across the projected 35 years used in the model. This suggests that the growth rate of the Cape Wrath SPA kittiwake population would not be adversely affected by the Project alone or in-combination.

The mean and median CPS increase with the duration of the PVA projection (Table 6-17). The CPS values at 35 years of the Project alone, the in-combination values without the Project and the in-combination values with and without the Project show that the majority of the predicted impacts on the SPA are from the Project alone. However, the CPS for both the Project alone and the Project in-combination are relatively high (0.9861 - 0.9826). Thus, the PVA predicts that the population would only be about 1.4 - 1.7% smaller than the baseline population size. This is well within the error of the margin of error of the ability to count the population size of the SPA.

The quantile metrics vary across years and the values at 35 years are not notably different from the values at 10 years. These metrics suggest the distributions of the impacted to not impacted populations projected by the PVA will be very similar at 35 years.

Impacts from the construction stage of the Project, including all cable installation, are short term, temporary and reversible. Following completion of the construction stage the disturbance effects will be removed. Therefore, this impact source will not have an impact on the conservation objectives to maintain the population in the long term.

The predicted impacts, based on the guidance and advice of NatureScot, on the breeding kittiwake population from the Cape Wrath SPA from the Project alone and in combination would therefore not adversely affect the integrity of the site.

Table 6-21 Summary of PVA metrics for the kittiwake population from Cape Wrath SPA for the Project alone (low, mid and high predicted displacement impacts combined with mean sCRM predicted collisions), in-combination without the Project and in-combination including the Project. Based on the assessment of in-combination impacts and population sizes for the BDMPS UK western waters & Channel during Spring migration (January to April) SD = standard deviation, LCI = lower confidence interval, UCI = upper confidence interval.

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone LOW	10	0.9996	0.9996	0.0021	0.9956	1.0039	0.9946	0.9965	0.0285	0.9432	1.0558	49.2	50.9
Project alone MID	10	0.9996	0.9996	0.0020	0.9958	1.0033	0.9961	0.9960	0.0267	0.9428	1.0466	48.8	51.2
Project alone HIGH	10	0.9995	0.9995	0.0020	0.9958	1.0034	0.9938	0.9955	0.0273	0.9404	1.0485	48.9	51.4
In-combination without the Project	10	1.0001	1.0001	0.0020	0.9959	1.0042	1.0024	1.0016	0.0271	0.9487	1.0561	50.6	49.9
In-combination with the Project LOW	10	0.9996	0.9997	0.0019	0.9960	1.0034	0.9968	0.9969	0.0267	0.9426	1.0502	49.5	50.3

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project MID	10	0.9996	0.9996	0.0020	0.9955	1.0036	0.9963	0.9962	0.0272	0.9436	1.0519	49.5	50.4
In-combination with the Project HIGH	10	0.9996	0.9995	0.0020	0.9956	1.0036	0.9968	0.9958	0.0273	0.9413	1.0497	50.3	49.9
Project alone LOW	20	0.9996	0.9996	0.0015	0.9968	1.0024	0.9925	0.9932	0.0349	0.9274	1.0656	48.7	51.4
Project alone MID	20	0.9995	0.9996	0.0014	0.9969	1.0024	0.9907	0.9918	0.0339	0.9292	1.0631	48.8	51.9
Project alone HIGH	20	0.9996	0.9995	0.0014	0.9968	1.0022	0.9921	0.9911	0.0339	0.9284	1.0591	48.6	51.4
In-combination without the Project	20	1.0001	1.0000	0.0014	0.9972	1.0029	1.0017	1.0020	0.0339	0.9334	1.0727	49.6	50.8

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project LOW	20	0.9996	0.9997	0.0014	0.9968	1.0023	0.9931	0.9934	0.0329	0.9256	1.0584	48.2	52.1
In-combination with the Project MID	20	0.9996	0.9996	0.0014	0.9968	1.0024	0.9917	0.9926	0.0337	0.9267	1.0590	48.6	52.0
In-combination with the Project HIGH	20	0.9995	0.9995	0.0014	0.9969	1.0026	0.9904	0.9910	0.0331	0.9269	1.0615	48.8	51.4
Project alone LOW	30	0.9997	0.9996	0.0012	0.9972	1.0019	0.9879	0.9891	0.0401	0.9088	1.0679	49.1	50.7
Project alone MID	30	0.9996	0.9996	0.0012	0.9973	1.0019	0.9885	0.9881	0.0395	0.9121	1.0650	49.5	50.3
Project alone HIGH	30	0.9995	0.9995	0.0012	0.9972	1.0018	0.9861	0.9863	0.0393	0.9102	1.0634	49.3	50.4

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination without the Project	30	1.0001	1.0000	0.0012	0.9975	1.0024	1.0011	1.0017	0.0413	0.9227	1.0877	50.1	49.9
In-combination with the Project LOW	30	0.9996	0.9996	0.0012	0.9972	1.0020	0.9885	0.9891	0.0398	0.9126	1.0669	49.5	50.7
In-combination with the Project MID	30	0.9995	0.9996	0.0012	0.9973	1.0019	0.9865	0.9880	0.0393	0.9186	1.0697	49.2	51.0
In-combination with the Project HIGH	30	0.9995	0.9995	0.0012	0.9972	1.0019	0.9864	0.9857	0.0402	0.9095	1.0677	49.2	50.8
Project alone LOW	35	0.9996	0.9996	0.0011	0.9974	1.0017	0.9875	0.9885	0.0439	0.9045	1.0753	49.6	50.3
Project alone MID	35	0.9996	0.9996	0.0012	0.9975	1.0018	0.9859	0.9863	0.0439	0.9060	1.0757	48.9	50.6

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone HIGH	35	0.9996	0.9995	0.0011	0.9974	1.0017	0.9827	0.9846	0.0437	0.9004	1.0745	49.2	50.5
In-combination without the Project	35	1.0000	1.0000	0.0011	0.9976	1.0023	1.0015	1.0018	0.0438	0.9148	1.0978	50.1	49.9
In-combination with the Project LOW	35	0.9996	0.9996	0.0011	0.9975	1.0018	0.9861	0.9871	0.0420	0.9061	1.0756	48.9	51.5
In-combination with the Project MID	35	0.9996	0.9996	0.0011	0.9974	1.0017	0.9845	0.9866	0.0421	0.9095	1.0726	49.3	51.0
In-combination with the Project HIGH	35	0.9995	0.9995	0.0012	0.9970	1.0019	0.9826	0.9838	0.0439	0.8980	1.0773	49.0	51.0

6.9.3.2 Guillemot

The impacts from the Project alone in the breeding and non-breeding seasons on the breeding guillemot population of the SPA were predicted to be 2.52 - 4.73 birds killed per annum (Appendix C, Section C.1, Table C1-6). This was a predicted change in adult survival of 0.005% - 0.009% points (Appendix C, Section C.1, Table C1-18). The predicted impacts from other plans and projects was a further 5.2 birds killed per annum, resulting in a total predicted impact from the Project alone an in-combination of 7.7 - 9.9 birds killed per annum, with 32.7% - 47.7% of this total from the Project alone (Appendix C, Section C.2, Table C2-4). This resulted in a predicted change in adult survival of 0.01% - 0.02% points (Appendix C, Section C.2) and so a PVA was completed.

The PVA provided projected change in population size of the baseline population, the population impacted by the Project alone (with low, medium and high displacement scenarios), impacted by in-combination impacts without the Project and impacted by the in-combination impacts with the Project (with low, medium and high displacement scenarios). The PVA projected that the population would increase in all scenarios based on the input demographic values and the assumptions of the model (Figure 6-6).

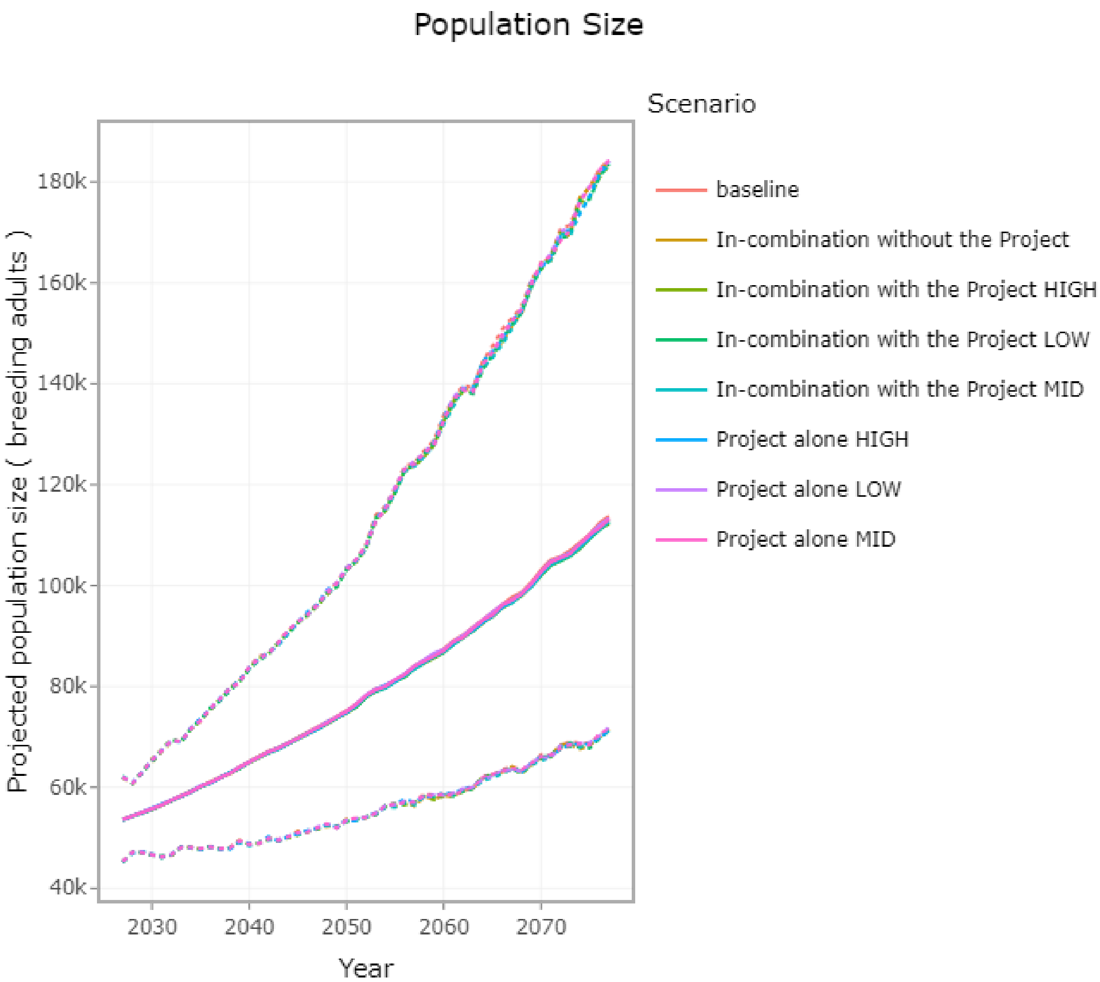


Figure 6-6 Projected population size of the breeding guillemot feature of the Cape Wrath SPA for the baseline (unimpacted), Project alone, in-combination impacts without the Project and in-combination with the Project from 2027 to 2062. Solid line = mean, dashed line = SD

The PVA metrics (Table 6-22) showed that the mean and median CGR was very close to one across the projected 35 years used in the model. This suggests that the growth rate of the Cape Wrath SPA guillemot population would not be adversely affected by the Project alone or in-combination.

The mean and median CPS increase with the duration of the PVA projection (Table 6-22). The CPS values at 35 years of the Project alone, the in-combination values without the Project and the in-combination values with and without the Project show that the majority of the predicted impacts on the SPA are from the Project alone. However, the CPS for both the Project alone and the Project in-combination are relatively high (0.9939 - 0.9919). Thus, the PVA predicts that the population would only be about 0.61 – 0.81% smaller than the baseline population size. This is well within the error of the margin of error of the ability to count the population size of the SPA.

The quantile metrics vary across years and the values at 35 years are not notably different from the values at 10 years. These metrics suggest the distributions of the impacted to not impacted populations projected by the PVA will be very similar at 35 years.

Impacts from the construction stage of the Project, including all cable installation, are short term, temporary and reversible. Following completion of the construction stage the disturbance effects will be removed. Therefore, this impact source will not have an impact on the conservation objectives to maintain the population in the long term.

The predicted impacts, based on the guidance and advice of NatureScot, on the breeding guillemot population from the Cape Wrath SPA from the Project alone and in combination would therefore not adversely affect the integrity of the site.

Table 6-22 Summary of PVA metrics for the guillemot population from Cape Wrath SPA for the Project alone (low, mid and high predicted displacement impacts combined with mean sCRM predicted collisions), in-combination without the Project and in-combination including the Project. Based on the assessment of in-combination impacts and population sizes within foraging range. SD = standard deviation, LCI = lower confidence interval, UCI = upper confidence interval.

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% UNIMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone LOW	10	1.0000	1.0000	0.0005	0.9990	1.0008	0.9995	0.9996	0.0056	0.9880	1.0102	49.8	50.1
Project alone MID	10	0.9999	0.9999	0.0005	0.9990	1.0008	0.9990	0.9991	0.0058	0.9881	1.0104	50.0	49.9
Project alone HIGH	10	0.9999	0.9999	0.0005	0.9990	1.0008	0.9991	0.9990	0.0054	0.9878	1.0093	49.6	50.6
In-combination without the Project	10	0.9999	0.9999	0.0005	0.9989	1.0008	0.9986	0.9984	0.0056	0.9872	1.0092	50.2	49.9
In-combination with the Project LOW	10	0.9998	0.9998	0.0005	0.9990	1.0007	0.9979	0.9980	0.0056	0.9874	1.0089	49.2	50.7

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% UNIMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project MID	10	0.9998	0.9998	0.0005	0.9988	1.0007	0.9978	0.9978	0.0055	0.9870	1.0089	49.1	51.1
In-combination with the Project HIGH	10	0.9998	0.9998	0.0005	0.9989	1.0007	0.9978	0.9978	0.0054	0.9873	1.0082	49.2	50.6
Project alone LOW	20	0.9999	0.9999	0.0003	0.9993	1.0005	0.9984	0.9987	0.0071	0.9852	1.0123	49.4	50.4
Project alone MID	20	0.9999	0.9999	0.0003	0.9993	1.0005	0.9981	0.9980	0.0071	0.9838	1.0118	49.7	50.1
Project alone HIGH	20	0.9999	0.9999	0.0003	0.9992	1.0005	0.9976	0.9978	0.0070	0.9835	1.0119	48.9	50.7
In-combination without the Project	20	0.9999	0.9999	0.0003	0.9992	1.0005	0.9972	0.9971	0.0069	0.9834	1.0109	48.9	50.8

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% UNIMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project LOW	20	0.9998	0.9998	0.0003	0.9992	1.0005	0.9957	0.9961	0.0069	0.9828	1.0100	48.9	50.6
In-combination with the Project MID	20	0.9998	0.9998	0.0003	0.9992	1.0005	0.9956	0.9957	0.0072	0.9812	1.0105	48.2	50.9
In-combination with the Project HIGH	20	0.9998	0.9998	0.0003	0.9991	1.0004	0.9952	0.9953	0.0071	0.9811	1.0091	48.2	50.8
Project alone LOW	30	0.9999	0.9999	0.0002	0.9994	1.0004	0.9981	0.9980	0.0079	0.9814	1.0133	49.4	50.5
Project alone MID	30	0.9999	0.9999	0.0003	0.9994	1.0004	0.9973	0.9972	0.0082	0.9815	1.0128	49.4	50.8
Project alone HIGH	30	0.9999	0.9999	0.0003	0.9994	1.0004	0.9972	0.9968	0.0082	0.9809	1.0130	49.4	50.6

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% UNIMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination without the Project	30	0.9999	0.9999	0.0002	0.9994	1.0003	0.9962	0.9959	0.0079	0.9801	1.0112	48.9	50.9
In-combination with the Project LOW	30	0.9998	0.9998	0.0003	0.9993	1.0003	0.9943	0.9942	0.0082	0.9785	1.0092	49.0	51.5
In-combination with the Project MID	30	0.9998	0.9998	0.0003	0.9993	1.0003	0.9935	0.9935	0.0080	0.9774	1.0088	48.9	51.2
In-combination with the Project HIGH	30	0.9998	0.9998	0.0003	0.9993	1.0003	0.9931	0.9931	0.0081	0.9770	1.0087	48.9	51.4
Project alone LOW	35	0.9999	0.9999	0.0002	0.9995	1.0004	0.9977	0.9977	0.0084	0.9813	1.0136	49.8	50.0
Project alone MID	35	0.9999	0.9999	0.0002	0.9994	1.0003	0.9969	0.9968	0.0085	0.9788	1.0129	48.8	50.6

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% UNIMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone HIGH	35	0.9999	0.9999	0.0002	0.9994	1.0003	0.9967	0.9962	0.0086	0.9791	1.0122	49.2	50.6
In-combination without the Project	35	0.9999	0.9999	0.0002	0.9994	1.0003	0.9956	0.9954	0.0082	0.9790	1.0115	49.1	50.7
In-combination with the Project LOW	35	0.9998	0.9998	0.0002	0.9994	1.0002	0.9939	0.9934	0.0084	0.9771	1.0095	48.3	51.2
In-combination with the Project MID	35	0.9998	0.9998	0.0002	0.9993	1.0002	0.9926	0.9925	0.0084	0.9747	1.0090	49.2	50.6
In-combination with the Project HIGH	35	0.9998	0.9998	0.0002	0.9993	1.0002	0.9919	0.9921	0.0086	0.9749	1.0092	48.8	51.2

6.9.3.3 Razorbill

The predicted impacts from the Project alone on the breeding razorbill population was 0.4 - 0.6 birds per annum in the breeding season (Appendix C, Section C.1, Table C1-7). In the non-breeding season, the predicted impacts were dependent on the BDMPS region used and the seasonal BDMPS population sizes. The largest non-breeding season predicted relative impact was based on the Western Waters migration seasons (August to October, and January to March) resulting in a total impact of 0.4 - 0.7 birds per annum (Appendix C, Section C.1, Table C1-8). This predicted change in adult survival of 0.009% - 0.016% points and so a PVA was not required (Appendix C, Section C.1).

The predicted impacts from the Project in-combination on the breeding razorbill population was dependent on the BDMPS region used and the seasonal BDMPS population sizes. The largest predicted impact was 1.61 - 1.88 birds per annum based on the UK Western waters migration seasons (August to October, and January to March) (Appendix C, Section C.2, Table C2-7). However, the largest predicted change in adult survival was from the UK North Sea and Channel in non-breeding season of 0.038% - 0.044% points (Appendix C, Section C.2, Table C2-17) and so a PVA was completed based on this BDMPS region and season with the largest predicted impact.

The PVA projected change in population size of the baseline population, the population impacted by the Project alone (with low, medium and high displacement scenarios), impacted by in-combination impacts without the Project and impacted by the in-combination impacts with the Project (with low, medium and high displacement scenarios). The PVA projected that the population would decline in all scenarios based on the input demographic values and the assumptions of the model (Figure 6-7).

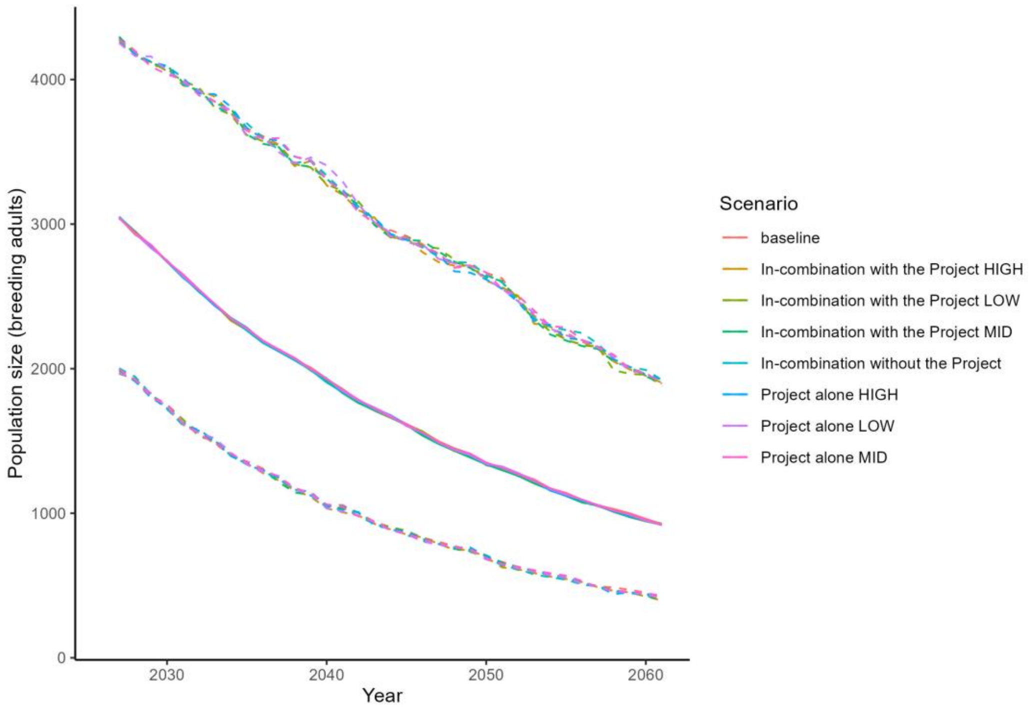


Figure 6-7 Projected population size of the breeding razorbill feature of the Cape Wrath SPA for the baseline (unimpacted), Project alone, in-combination impacts without the Project and in-combination with the Project from 2027 to 2062. Solid line = mean, dashed line = SD

The PVA metrics (Table 6-23) showed that the mean and median CGR was very close to one across the projected 35 years used in the model. This suggests that the growth rate of the Cape Wrath SPA razorbill population would not be adversely affected by the Project alone or in-combination.

The mean and median CPS increased with the duration of the PVA projection (Table 6-23). The CPS for both the Project alone and the Project in-combination are relatively high (about 0.9858 to 0.9897 at 35 years). Thus, the PVA predicts that the population would only be about 1.0% - 1.4% smaller than the baseline population size across the range of predicted impacts. This is well within the error of the margin of error of the ability to count the population size of the SPA.

The quantile metrics vary across years and the values at 35 years are not notably different from the values at 10 years. These metrics suggest the distributions of the impacted to not impacted populations projected by the PVA will be very similar at 35 years.

Impacts from the construction stage of the Project, including all cable installation, are short term, temporary and reversible. Following completion of the construction stage the disturbance effects will be removed. Therefore, this impact source will not have an impact on the conservation objectives to maintain the population in the long term.

The predicted impacts, based on the guidance and advice of NatureScot, on the breeding razorbill population from the Cape Wrath SPA from the Project alone and in combination would therefore not adversely affect the integrity of the site.

Table 6-23 Summary of PVA metrics for the razorbill population from Cape Wrath SPA for the Project alone, in-combination without the Project and in-combination including the Project. Based on the assessment of in-combination impacts and population sizes for the BDMPS UK western waters & Channel during migration (August to October, and January to March). SD = standard deviation, LCI = lower confidence interval, UCI = upper confidence interval.

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone LOW	10	1.0000	0.9999	0.0029	0.9943	1.0053	0.9996	0.9993	0.0379	0.9225	1.0719	49.6	50.5
Project alone MID	10	1.0000	1.0000	0.0029	0.9945	1.0059	1.0000	1.0001	0.0376	0.9303	1.0748	49.7	50.2
Project alone HIGH	10	0.9999	0.9998	0.0029	0.9936	1.0052	0.9986	0.9982	0.0378	0.9273	1.0668	49.4	50.7
In-combination without the Project	10	0.9997	0.9997	0.0028	0.9937	1.0051	0.9955	0.9969	0.0376	0.9234	1.0718	49.1	51.7
In-combination with the Project LOW	10	0.9997	0.9997	0.0028	0.9941	1.0053	0.9986	0.9984	0.0377	0.9287	1.0756	49.1	50.7

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project MID	10	0.9996	0.9996	0.0029	0.9936	1.0052	0.9954	0.9956	0.0372	0.9221	1.0726	49.7	50.4
In-combination with the Project HIGH	10	0.9996	0.9996	0.0029	0.9937	1.0052	0.9975	0.9964	0.0379	0.9269	1.0683	49.4	51.0
Project alone LOW	20	0.9999	0.9999	0.0022	0.9954	1.0043	0.9963	0.9988	0.0509	0.8998	1.1046	49.4	51.1
Project alone MID	20	0.9999	0.9999	0.0023	0.9954	1.0044	0.9965	0.9991	0.0514	0.9032	1.1017	49.6	50.6
Project alone HIGH	20	0.9998	0.9998	0.0023	0.9953	1.0040	0.9956	0.9957	0.0524	0.8989	1.0941	49.6	50.6
In-combination without the Project	20	0.9998	0.9997	0.0022	0.9953	1.0040	0.9966	0.9956	0.0514	0.8955	1.0996	49.4	51.1

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project LOW	20	0.9998	0.9997	0.0022	0.9952	1.0042	0.9986	0.9968	0.0514	0.9025	1.1007	49.4	50.6
In-combination with the Project MID	20	0.9998	0.9997	0.0024	0.9948	1.0039	0.9941	0.9936	0.0533	0.8906	1.1021	49.1	51.2
In-combination with the Project HIGH	20	0.9997	0.9996	0.0023	0.9948	1.0039	0.9934	0.9936	0.0522	0.8912	1.0917	49.4	51.0
Project alone LOW	30	0.9999	0.9999	0.0021	0.9957	1.0041	0.9969	0.9987	0.0667	0.8704	1.1415	50.0	50.0
Project alone MID	30	0.9999	0.9999	0.0021	0.9961	1.0041	0.9969	0.9984	0.0666	0.8799	1.1386	49.8	50.1
Project alone HIGH	30	0.9999	0.9998	0.0020	0.9956	1.0036	0.9956	0.9961	0.0672	0.8579	1.1312	49.4	50.7

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination without the Project	30	0.9997	0.9997	0.0020	0.9957	1.0036	0.9900	0.9938	0.0669	0.8705	1.1232	49.9	50.4
In-combination with the Project LOW	30	0.9997	0.9997	0.0020	0.9955	1.0037	0.9905	0.9936	0.0668	0.8708	1.1343	49.8	50.4
In-combination with the Project MID	30	0.9996	0.9997	0.0021	0.9956	1.0039	0.9890	0.9910	0.0684	0.8660	1.1356	49.6	50.4
In-combination with the Project HIGH	30	0.9997	0.9996	0.0021	0.9955	1.0037	0.9921	0.9916	0.0672	0.8657	1.1322	49.4	50.5
Project alone LOW	35	0.9999	0.9999	0.0020	0.9961	1.0039	0.9939	0.9985	0.0728	0.8625	1.1574	50.0	50.0
Project alone MID	35	0.9999	0.9999	0.0020	0.9960	1.0039	0.9985	0.9993	0.0745	0.8628	1.1514	50.2	49.6

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone HIGH	35	0.9999	0.9999	0.0020	0.9959	1.0036	0.9965	0.9978	0.0745	0.8475	1.1450	50.1	49.7
In-combination without the Project	35	0.9998	0.9998	0.0020	0.9958	1.0037	0.9901	0.9943	0.0756	0.8583	1.1545	49.9	50.3
In-combination with the Project LOW	35	0.9997	0.9998	0.0019	0.9960	1.0036	0.9896	0.9947	0.0743	0.8589	1.1472	50.0	50.0
In-combination with the Project MID	35	0.9997	0.9997	0.0021	0.9957	1.0039	0.9897	0.9909	0.0757	0.8465	1.1539	50.1	49.8
In-combination with the Project HIGH	35	0.9996	0.9996	0.0021	0.9956	1.0039	0.9858	0.9907	0.0772	0.8492	1.1569	49.4	50.5

6.9.3.4 Puffin

The impacts from the Project alone in the breeding season on the breeding puffin population of the SPA were predicted to be 0.0076 – 0.0125 birds killed per annum (Appendix C, Section C.1). This was a predicted change in adult survival of 0.000006% - 0.000017% points (Appendix C, Section C.1). In the non-breeding season, the predicted impacts were dependent on the BDMPS region used and the seasonal BDMPS population sizes. The largest non-breeding season predicted relative impact was based on the Western Waters non-breeding season (mid-August to March) resulting in a total impact of 0.03 - 0.07 birds per annum. This predicted change in adult survival of 0.0130% - 0.0342% points and so a PVA was and so a PVA was completed (Appendix C, Section C.1).

The predicted impacts from other plans and projects, resulting in a total predicted impact from the Project alone an in-combination of 0.08 - 0.12 birds killed per annum, with 35.9% - 59.6% of this total from the Project alone (Appendix C, Section C.2). This resulted in a predicted change in adult survival of 0.0034% - 0.0054% points. This was a sufficiently small impact on the breeding population of puffins from the Cape Wrath SPA that no PVA was necessary.

Impacts from the construction stage of the Project, including all cable installation, are short term, temporary and reversible. Following completion of the construction stage the disturbance effects will be removed. Therefore, this impact source will not have an impact on the conservation objectives to maintain the population in the long term.

The predicted impacts, based on the guidance and advice of NatureScot, on the breeding puffin population from the Cape Wrath SPA from the Project alone and in combination would therefore not adversely affect the integrity of the site.

6.9.3.5 Fulmar

The impacts from the Project alone in the breeding and non-breeding seasons on the breeding fulmar population of the SPA were predicted to be 0.03 – 0.10 birds killed per annum (Appendix C, Section C.1, Table C1-11). This was a predicted change in adult survival of 0.001%- 0.003% points (Appendix C, Section C.1, Table C1-22). The predicted impacts from other plans and projects was not possible to estimate as previous projects have screened out impacts on fulmar populations from SPAs. The predicted impact from the Project alone was a sufficiently small impact on the breeding population of fulmars from the Cape Wrath SPA that no PVA was necessary.

Impacts from the construction stage of the Project, including all cable installation, are short term, temporary and reversible. Following completion of the construction stage the disturbance effects will be removed. Therefore, this impact source will not have an impact on the conservation objectives to maintain the population in the long term.

The predicted impacts, based on the guidance and advice of NatureScot, on the breeding fulmar population from the Cape Wrath SPA from the Project alone and in combination would therefore not adversely affect the integrity of the site.

6.9.4 Assessment summary and conclusions

The assessment can conclude that there is no adverse effect on site integrity of the Cape Wrath SPA as outlined in Table 6-24.

Table 6-24 Summary of assessment of Cape Wrath SPA.

QUALIFYING FEATURE	POTENTIAL EFFECT	CONCLUSION
Breeding kittiwake	Collisions and, displacement and barrier effects	No adverse effects on site integrity from the Project alone and in-combination with other reasonably foreseeable plans and projects
Breeding guillemot	Displacement and barrier effects	No adverse effects on site integrity from the Project alone and in-combination with other reasonably foreseeable plans and projects
Breeding razorbill	Displacement and barrier effects	No adverse effects on site integrity from the Project alone and in-combination with other reasonably foreseeable plans and projects
Breeding puffin	Displacement and barrier effects	No adverse effects on site integrity from the Project alone and in-combination with other reasonably foreseeable plans and projects
Breeding fulmar	Displacement and barrier effects	No adverse effects on site integrity from the Project alone and in-combination with other reasonably foreseeable plans and projects
Seabird assemblage	Collisions and, displacement and barrier effects	No adverse effects on site integrity from the Project alone and in-combination with other reasonably foreseeable plans and projects

6.10 Copinsay SPA

The Copinsay SPA was classified on 29th March 1994, with marine extension classified on 25th September 2009 due to populations of breeding seabirds. The site is in eastern Orkney and is approximately 67 km south-east of the Project on the opposite of the Orkney archipelago.

6.10.1 Site details and qualifying interests

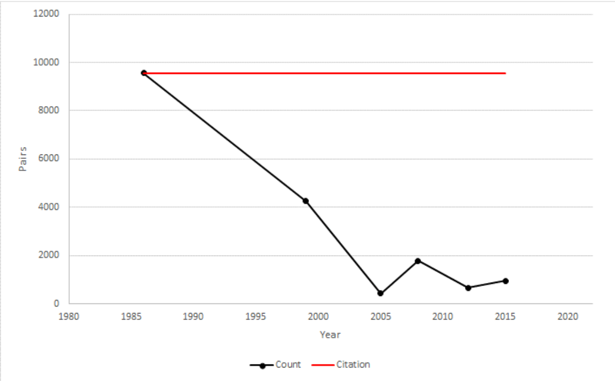
The Copinsay SPA comprises a group of islands 4 km off the east coast of Orkney Mainland. The islands have a cliffed rocky coastline and maritime vegetation that support large colonies of breeding seabirds.

The boundary of the SPA encompasses Copinsay SSSI, and the seaward extension extends approximately 2 km into the marine environment to include the seabed, water column and surface.

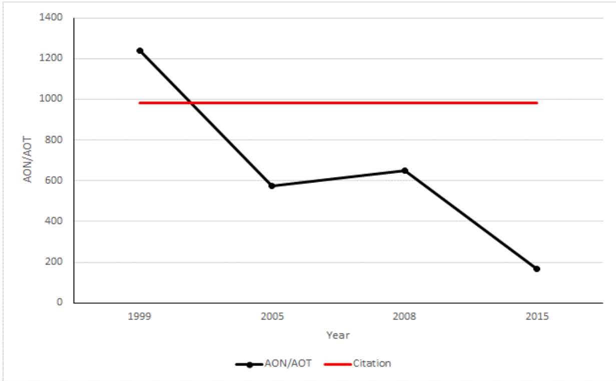
Table 6-25 Qualifying interests and condition for the Copinsay SPA

QUALIFYING INTERESTS	FEATURE CONDITION	ASSESSMENT DATE	BROADER CONSERVATION STATUS
Kittiwake	Unfavourable Declining	11 Jun 2015	Red
Great black-backed gull	Unfavourable Declining	11 Jun 2015	Amber
Guillemot	Unfavourable No change	11 Jun 2015	Amber
Fulmar	Favourable Maintained	11 Jun 2015	Amber
Seabird assemblage	Unfavourable No change	11 Jun 2015	n/a

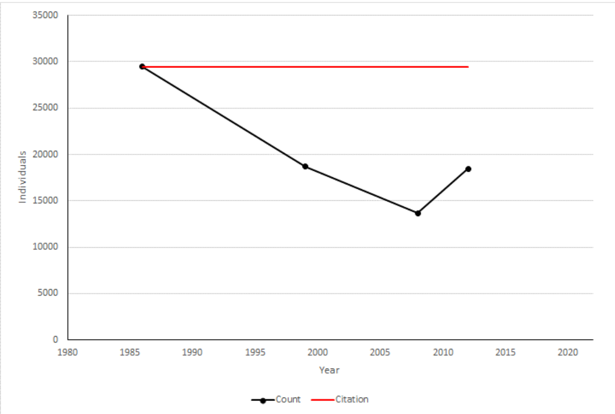
For each qualifying feature requiring assessment (except the breeding seabird assemblage) count data was extracted from the SMP database. These counts were plotted and compared with the citation population size, where data allowed (Figure 6-8).



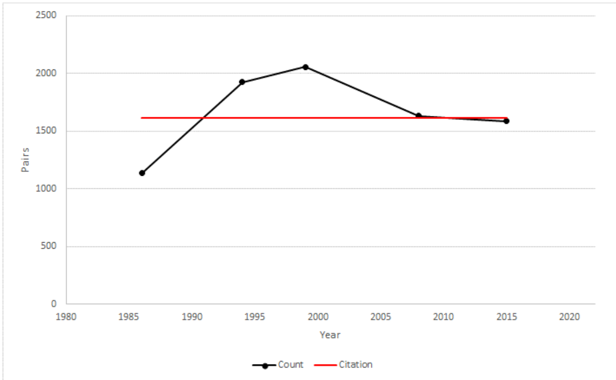
Kittiwake



Great black-backed gull



Guillemot



Fulmar

Figure 6-8 Copinsay SPA qualifying feature population trends from 1990 - 2015 (citation population size shown by red line).

Population counts were only available from 1986 to 2015. Great black-backed gull, guillemot and kittiwake have declined across the period. Fulmar numbers increased to the seabird 2000 count and have since declined by about 400 pairs. While fulmar numbers have fluctuated the population has been above or about the same as the citation population size. Great black-backed gull has declined markedly during the period shown and the population size is now very small and well below the citation population size. Guillemot numbers declined since citation to a low in 2008 but showed a small increase between 2008 and 2012. However, the population remains well below the citation value. Kittiwake numbers declined a lot from 1986 to 2005, but there may now be a slow increase in numbers occurring. Despite this the population remains well below the citation level.

6.10.2 Conservation objectives

The conservation objectives of the Copinsay SPA are to:

To avoid deterioration of the habitats of the qualifying species or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained; and

To ensure for the qualifying species that the following are maintained in the long term:

- Population of the species as a viable component of the site;
- Distribution of the species within site;
- Distribution and extent of habitats supporting the species;
- Structure, function and supporting processes of habitats supporting the species; and
- No significant disturbance of the species.

6.10.3 Assessment of predicted impacts alone and in-combination

The predicted impacts from the Project alone on the qualifying features of the Copinsay SPA are summarised in the tables in Appendix C, Section C.1. The predicted effect on adult survival from these impacts are summarised in Appendix C, Section C.1.9. The predicted impacts from the Project in-combination with other reasonably foreseeable plans and projects are summarised in Appendix C, Section C.2. The predicted effect on adult survival from these impacts are summarised in Appendix C, Section C.2.8.

6.10.3.1 Kittiwake

The predicted impacts from the Project alone on the breeding kittiwake population was 0.09 – 0.12 birds per annum in the breeding season (Appendix C, Section C.1, Table C1-1). In the non-breeding season, the predicted impacts were dependent on the BDMPS region used and the seasonal BDMPS population sizes. The largest non-breeding season predicted impact was 0.05 – 0.06 birds per annum based on the UK North Sea waters population during Spring migration (January to April) (Appendix C, Section C.1, Table C1-1). This predicted a change in adult survival of 0.008% - 0.010% points (Appendix C, Section C.1, Table C1-15) and so a PVA was not completed based on this BDMPS region and season with the largest predicted impact.

The predicted impacts from the Project in-combination on the breeding kittiwake population was dependent on the BDMPS region used and the seasonal BDMPS population sizes. The largest predicted impact was 3.63 – 3.67 birds per annum based on the UK North Sea waters population during Spring migration (Appendix C, Section C.2, Table C2-1). This predicted a change in adult survival of 0.190% - 0.192% points (Appendix C, Section C.2, Table C2-14). However, due to the very small absolute impact from the Project alone, and the very small contribution of the Project alone to the in-combination total a PVA was not used in the assessment. With such small, predicted impacts from the Project alone, the PVA would show no difference in population projection metrics between the baseline and Project alone and the in-combination impacts alone and the in-combination impacts with the Project.

Impacts from the construction stage of the Project, including all cable installation, are short term, temporary and reversible. Following completion of the construction stage the disturbance effects will be removed. Therefore, this impact source will not have an impact on the conservation objectives to maintain the population in the long term.

The predicted impacts, based on the guidance and advice of NatureScot, on the breeding kittiwake population from the Copinsay SPA from the Project alone and in combination would therefore not adversely affect the integrity of the site.

6.10.3.2 Great black-backed gull

The predicted impacts from the Project alone on the breeding great black-backed gull population was 0.01 birds per annum in the breeding season (Appendix C, Section C.1, Table C1-3). In the non-breeding season, the predicted impacts were dependent on the BDMPS region used and the seasonal BDMPS population sizes. The largest non-breeding season predicted impact was 0.06 birds per annum based on the UK North Sea waters non-breeding season (September to March). This predicted a change in adult survival of 0.05% points (Appendix C, Section C.1, Table C1-16) and so a PVA was completed based on this BDMPS region and season with the largest predicted impact.

The predicted impacts from the Project in-combination on the breeding great black-backed gull population was dependent on the BDMPS region used and the seasonal BDMPS population sizes. The largest predicted impact was 0.08 birds per annum based on the UK North Sea waters non-breeding season (Appendix C, Section C.2, Table C2-3). This predicted a change in adult survival of 0.05% points (Appendix C, Section C.2, Table C2-15) and so a PVA was completed based on this BDMPS region and season with the largest predicted impact.

The PVA provided projected change in population size of the baseline population, the population impacted by the Project alone, impacted by in-combination impacts without the Project and impacted by the in-combination impacts with the Project. The PVA projected that population would increase exponentially in all scenarios based on the input demographic values and the assumptions of the model (Figure 6-9).

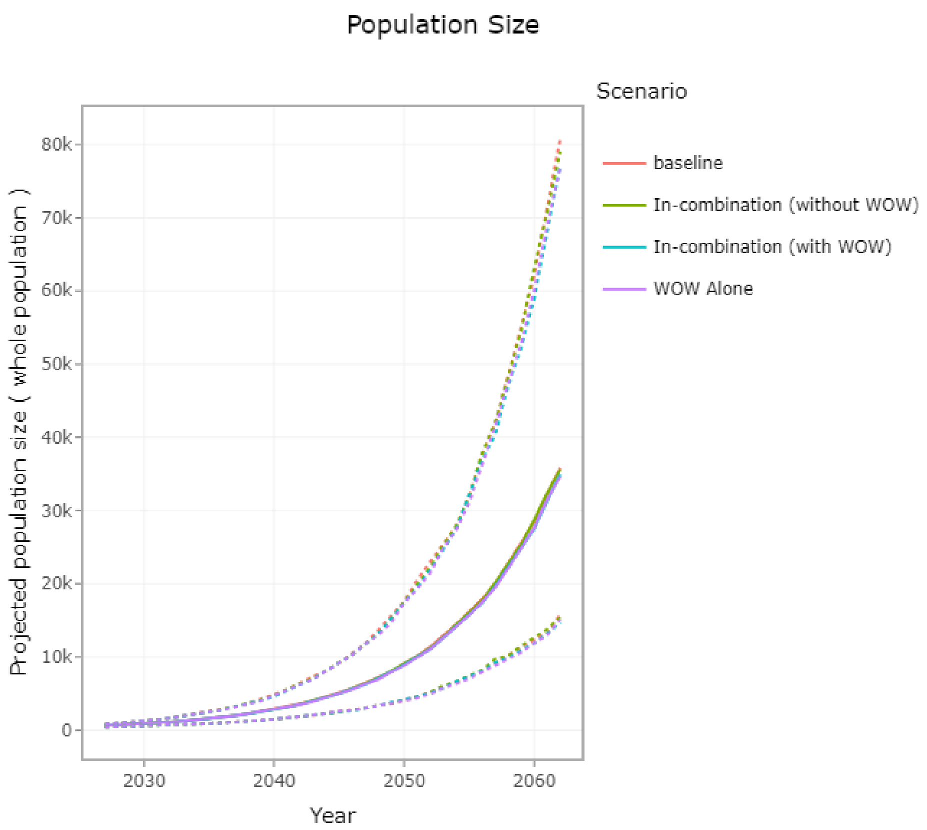


Figure 6-9 Projected population size of the breeding great black-backed gull feature of the Copinsay SPA for the baseline (unimpacted), Project alone, in-combination impacts without the Project and in-combination with the Project from 2027 to 2062. Solid line = mean, dashed line = SD

The PVA metrics (Table 6-26) showed that the mean and median CGR was very close to one across the projected 35 years used in the model. This suggests that the growth rate of the Copinsay SPA great black-backed gull population would not be adversely affected by the Project alone or in-combination.

The mean and median CPS increase with the duration of the PVA projection (Table 6-26). The CPS values at 35 years of the Project alone, the in-combination values without the Project and the in-combination values with and without the Project show that all of the predicted impacts on the SPA are from the Project alone. However, the CPS for both the Project alone and the Project in-combination are high (about 0.972). Thus, the PVA predicts that the population would only be about 2.8% smaller than the baseline population size. The population projection based on the model inputs creates an unrealistic population increase. The population model is not constrained by density dependent processes which results in this unrealistic projected growth. In reality the population of great black-backed gulls at this SPA has been declining. As such, the CPS metrics are unlikely to provide a reliable means for assessing the effects of predicted impacts on this population.

The quantile metrics vary across years and the values at 35 years are not notably different from the values at 10 years. These metrics suggest the distributions of the impacted to not impacted populations projected by the PVA will be very similar at 35 years.

Table 6-26 Summary of PVA metrics for the kittiwake population from Cape Wrath SPA for the Project alone, in-combination without the Project and in-combination including the Project. Based on the assessment of in-combination impacts and population sizes for the BDMPS UK North Sea waters non-breeding season (September to March) SD = standard deviation, LCI = lower confidence interval, UCI = upper confidence interval.

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project Alone	10	0.9992	0.9992	0.0056	0.9890	1.0101	0.9911	0.9917	0.0701	0.8626	1.1334	49.5	51.0
In-combination (without Project)	10	0.9999	0.9997	0.0058	0.9881	1.0111	0.9966	0.9987	0.0731	0.8631	1.1472	49.0	50.7
In-combination (with Project)	10	0.9990	0.9990	0.0058	0.9878	1.0106	0.9871	0.9902	0.0717	0.8533	1.1392	48.6	51.9
Project Alone	20	0.9991	0.9992	0.0033	0.9931	1.0055	0.9809	0.9839	0.0744	0.8440	1.1331	47.8	52.3
In-combination (without Project)	20	0.9999	0.9998	0.0032	0.9933	1.0062	0.9968	0.9977	0.0762	0.8610	1.1496	50.1	49.9

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination (with Project)	20	0.9989	0.9992	0.0033	0.9927	1.0057	0.9807	0.9836	0.0743	0.8484	1.1395	47.8	52.0
Project Alone	30	0.9991	0.9992	0.0023	0.9950	1.0037	0.9746	0.9780	0.0759	0.8305	1.1337	46.2	53.1
In-combination (without Project)	30	0.9999	0.9999	0.0023	0.9954	1.0044	0.9955	0.9986	0.0782	0.8546	1.1585	49.8	50.0
In-combination (with Project)	30	0.9991	0.9992	0.0023	0.9949	1.0040	0.9773	0.9775	0.0752	0.8405	1.1468	46.8	52.6
Project Alone	35	0.9992	0.9992	0.0020	0.9955	1.0029	0.9716	0.9741	0.0757	0.8291	1.1234	48.3	52.2
In-combination (without Project)	35	1.0000	0.9999	0.0019	0.9959	1.0038	0.9950	0.9983	0.0783	0.8495	1.1591	49.7	50.0
In-combination (with Project)	35	0.9992	0.9992	0.0020	0.9956	1.0034	0.9723	0.9738	0.0754	0.8397	1.1386	48.7	52.5

Impacts from the construction stage of the Project, including all cable installation, are short term, temporary and reversible. Following completion of the construction stage the disturbance effects will be removed. Therefore, this impact source will not have an impact on the conservation objectives to maintain the population in the long term.

The predicted impacts, based on the guidance and advice of NatureScot, on the breeding great black-backed gull population from the Copinsay SPA from the Project alone and in combination would therefore not adversely affect the integrity of the site.

6.10.3.3 Guillemot

The impacts from the Project alone in the breeding and non-breeding seasons on the breeding guillemot population of the SPA were predicted to be 0.09 - 0.17 birds killed per annum (Appendix C, Section C.1, Table C1-6). This was a predicted change in adult survival of 0.0004% - 0.0007% points (Appendix C, Section C.1, Table C1-18). The predicted impacts from other plans and projects was a further 0.28 birds killed per annum, resulting in a total predicted impact from the Project alone and in-combination of 0.37 – 0.45 birds killed per annum, with 25.1% - 38.6% of this total from the Project alone (Appendix C, Section C.2, Table C2-4). This resulted in a predicted change in adult survival of 0.0012% - 0.0019% points (Appendix C, Section C.2, Table C2-16). This was a sufficiently small impact on the breeding population of guillemots from the Copinsay SPA that no PVA was necessary.

Impacts from the construction stage of the Project, including all cable installation, are short term, temporary and reversible. Following completion of the construction stage the disturbance effects will be removed. Therefore, this impact source will not have an impact on the conservation objectives to maintain the population in the long term.

The predicted impacts, based on the guidance and advice of NatureScot, on the breeding guillemot population from the Copinsay SPA from the Project alone and in combination would therefore not adversely affect the integrity of the site.

6.10.3.4 Fulmar

The impacts from the Project alone in the breeding and non-breeding seasons on the breeding fulmar population of the SPA were predicted to be 0.02 – 0.06 birds killed per annum (Appendix C, Section C.1, Table C1-11). This was a predicted change in adult survival of 0.0006% - 0.0052 points (Appendix C, Section C.1, Table C1-22). The predicted impacts from other plans and projects was not possible to estimate as previous projects have screened out impacts on fulmar populations from SPAs. The predicted impact from the Project alone was a sufficiently small impact on the breeding population of fulmars from the Copinsay SPA that no PVA was necessary.

Impacts from the construction stage of the Project, including all cable installation, are short term, temporary and reversible. Following completion of the construction stage the disturbance effects will be removed. Therefore, this impact source will not have an impact on the conservation objectives to maintain the population in the long term.

The predicted impacts, based on the guidance and advice of NatureScot, on the breeding fulmar population from the Copinsay SPA from the Project alone and in combination would therefore not adversely affect the integrity of the site.

6.10.4 Assessment summary and conclusions

The assessment can conclude that there is no adverse effect on site integrity of the Copinsay SPA as outlined in Table 6-27.

Table 6-27 Summary of assessment of Copinsay SPA

QUALIFYING FEATURE	POTENTIAL EFFECT	CONCLUSION
Breeding kittiwake	Collisions and, displacement and barrier effects	No adverse effects on site integrity from the Project alone and in-combination with other reasonably foreseeable plans and projects
Breeding great black-backed gull	Collisions	No adverse effects on site integrity from the Project alone and in-combination with other reasonably foreseeable plans and projects
Breeding guillemot	Displacement and barrier effects	No adverse effects on site integrity from the Project alone and in-combination with other reasonably foreseeable plans and projects
Breeding fulmar	Displacement and barrier effects	No adverse effects on site integrity from the Project alone and in-combination with other reasonably foreseeable plans and projects
Seabird assemblage	Collisions and, displacement and barrier effects	No adverse effects on site integrity from the Project alone and in-combination with other reasonably foreseeable plans and projects

6.11 East Caithness Cliffs SPA

The East Caithness Cliffs SPA was Classified on 27th March 1996, with marine extension classified on 25th September 2009 due to its populations of breeding seabirds. The site is on the east coast of Caithness and Sutherland on the Moray Firth and is approximately 70 km south-east of the Project on the opposite coast of the northern Scottish mainland.

6.11.1 Site details and qualifying interests

East Caithness Cliffs SPA is of special nature conservation and scientific importance within Britain and the European Community for supporting very large populations of breeding seabirds. It includes most of the sea-cliff areas between Wick and Helmsdale on the north-east coast of the Scottish mainland.

The boundary of the SPA overlaps either partly or wholly with the following Sites of Special Scientific Interest (SSSI): Castle of Old Wick to Craig Hammel SSSI, Craig Hammel to Sgaps Geo SSSI, Dunbeath to Sgaps Geo SSSI, Berriedale Cliffs SSSI, Ousdale Burn SSSI and Helmsdale Coast SSSI. The seaward extension extends approximately 2km into the marine environment to include the seabed, water column and surface.

Table 6-28 Qualifying interests and condition for the East Caithness Cliffs SPA

QUALIFYING INTERESTS	FEATURE CONDITION	ASSESSMENT DATE	BROADER CONSERVATION STATUS
Kittiwake	Favourable Maintained	17 Jun 2015	Red
Great black-backed gull	Unfavourable No change	30 Jun 2015	Amber
Herring gull	Unfavourable No change	30 Jun 2015	Red
Guillemot	Favourable Maintained	30 Jun 2015	Amber
Razorbill	Favourable Maintained	30 Jun 2015	Amber
Cormorant	Unfavourable Declining	30 Jun 2015	Green
Shag	Unfavourable No change	30 Jun 2015	Red
Fulmar	Favourable Maintained	30 Jun 2015	Amber
Peregrine	Favourable Maintained	4 Jun 2014	Green
Seabird assemblage	Favourable Maintained	30 Jun 2015	n/a

For each qualifying feature requiring assessment (except the breeding seabird assemblage) count data between 1999 and 2015 (the most recent count) was extracted from Swann (2016). These counts were plotted and compared with the citation population size, where data allowed (Figure 6-10).

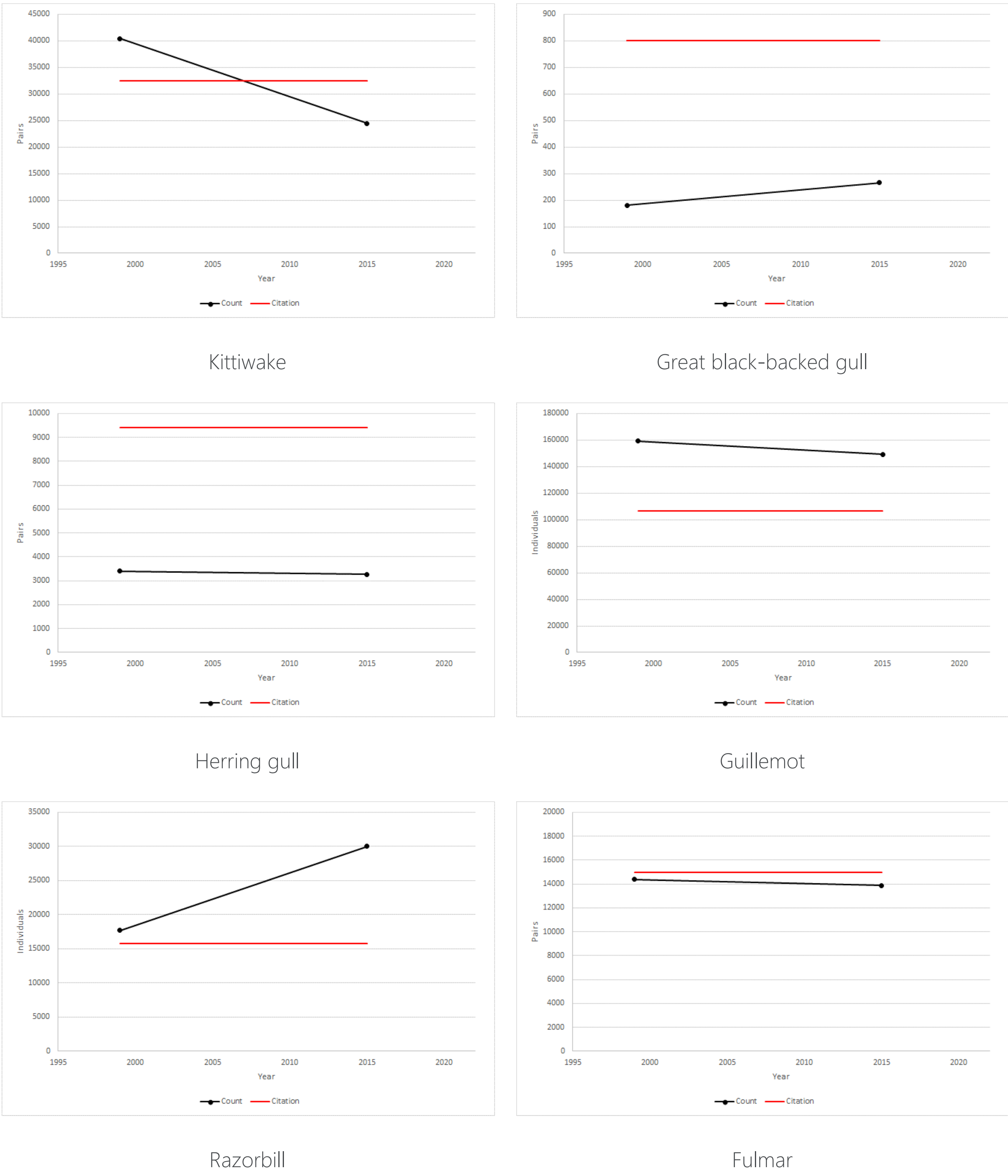


Figure 6-10 East Caithness Cliffs SPA qualifying feature population trends from 1990 - 2022 (citation population size shown by red line).

Population counts were only available from 1999 and 2015. Small declines occurred for fulmar, guillemot and herring gull. A larger decline was apparent in the kittiwake population. A small increase occurred in the great black-backed gull population and a much larger increase in the razorbill population. Fulmar remained slightly below the citation population size across the period of data available. Great black-backed gull and herring gull numbers remained well below the citation population size. The guillemot population was above the citation value in both years, as did the razorbill population. The kittiwake population was above the citation level in 1999 but had declined below this by 2015.

6.11.2 Conservation objectives

The conservation objectives of the East Caithness Cliffs SPA are:

To avoid deterioration of the habitats of the qualifying species or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained; and

To ensure for the qualifying species that the following are maintained in the long term:

- Population of the species as a viable component of the site;
- Distribution of the species within site;
- Distribution and extent of habitats supporting the species;
- Structure, function and supporting processes of habitats supporting the species; and
- No significant disturbance of the species.

6.11.3 Assessment of predicted impacts alone and in-combination

Several qualifying features of the East Caithness Cliffs SPA were screened out of the assessment as there was no connectivity between the Project and the SPA:

- Herring gull;
- Cormorant;
- Shag; and
- Peregrine

The predicted impacts from the Project alone on the qualifying features of the East Caithness Cliffs SPA are summarised in the tables in Appendix C, Section C.1. The predicted effect on adult survival from these impacts are summarised in Appendix C, Section C.1.9. The predicted impacts from the Project in-combination with other reasonably foreseeable plans and projects are summarised in Appendix C, Section C.2. The predicted effect on adult survival from these impacts are summarised in Appendix C, Section C.2.8.

6.11.3.1 Kittiwake

The predicted impacts from the Project alone on the breeding kittiwake population was 2.9 - 3.8 birds per annum in the breeding season (Appendix C, Section C.1, Table C1-1). In the non-breeding season, the predicted impacts were dependent on the BDMPS region used and the seasonal BDMPS population sizes. The largest non-breeding season predicted impact was 3.2 – 3.7 birds per annum based on the UK North Sea waters Spring migration (January to April) (Appendix C, Section C.1, Table C1-1). This predicted a change in adult survival of 0.013% - 0.016% points (Appendix C, Section C.1, Table C1-15) and so a PVA was not required.

The predicted impacts from the Project in-combination on the breeding kittiwake population was dependent on the BDMPS region used and the seasonal BDMPS population sizes. The largest predicted impact was 343.8 – 345.3 birds per annum based on the UK North Sea waters population during Spring migration (Appendix C, Section C.2, Table C2-1). This predicted a change in adult survival of 0.70% - 0.71% points (Appendix C, Section C.2, Table C2-14), and so a PVA was completed based on this BDMPS region and season with the largest predicted impact.

The PVA provided projected change in population size of the baseline population, the population impacted by the Project alone (with low, medium and high displacement scenarios), impacted by in-combination impacts without the Project and impacted by the in-combination impacts with the Project (with low, medium and high displacement scenarios). The PVA projected that the population would decline in all scenarios based on the input demographic values and the assumptions of the model (Figure 6-11).

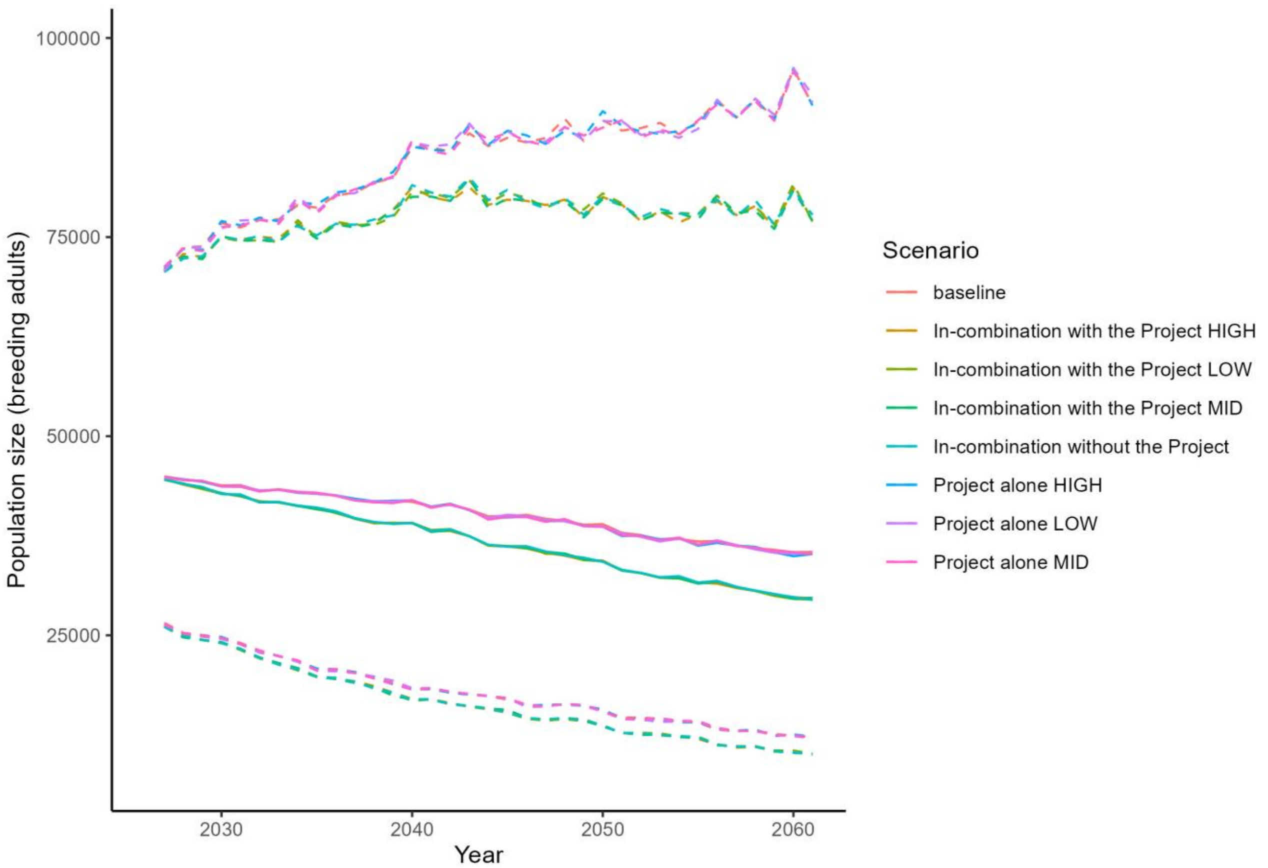


Figure 6-11 Projected population size of the breeding kittiwake feature of the East Caithness Cliffs SPA for the baseline (unimpacted), Project alone, in-combination impacts without the Project and in-combination with the Project from 2027 to 2062. Solid line = mean, dashed line = SD

The PVA metrics (Table 6-29) showed that the mean and median CGR was very close to one across the projected 35 years used in the model. The CGR value for the project alone after 35 years was 0.9999 – 0.9999, or a 0.001 decline in growth rate. The CGR value for the in-combination impacts was 0.9950, or a 0.5% decline in growth rate. Adding the Project alone to the in-combination impact made an extremely small difference to the predicted change in growth rate. This suggests that the growth rate of the East Caithness Cliffs SPA kittiwake population would certainly not be adversely affected by the Project alone. Since the predicted impacts from the Project alone is beneath any threshold of significance and *de minimis* and as such would not materially alter the significance or the likelihood of an adverse effect on the integrity.

The mean and median CPS values decreased with the duration of the PVA projection (Table 6-29). The CPS values at 35 years of the Project alone, the in-combination values without the Project and the in-combination values with and without the Project show that the majority of the predicted impacts on the SPA are from the in-combination impacts with very little effect from the Project alone. The CPS for the Project alone was relatively high (0.9967 - 0.9983), suggesting that the PVA predicts that the population would only be about 0.19% - 0.34% smaller than the baseline population size. The in-combination impacts without the Project CPS value was relatively low (0.8775). Thus, the PVA predicts that the population would be about 16.3% smaller than the baseline population size. Adding the predicted impacts from the Project to the existing in-combination impacts made a small difference to the CPS value baseline population suggesting only an additional decrease of 0.32 – 0.39% in the end population size.

The quantile metrics showed that across the projected years from the PVA that the overlap in the distribution of the projected end population size reduced for the scenarios that included predicted in-combination impacts. However, the quantile metrics also showed that these distributions remained almost unchanged between the baseline and the predicted impacts from the Project alone.

Impacts from the construction stage of the Project, including all cable installation, are short term, temporary and reversible. Following completion of the construction stage the disturbance effects will be removed. Therefore, this impact source will not have an impact on the conservation objectives to maintain the population in the long term.

The predicted impacts on the breeding kittiwake population from the East Caithness SPA from the Project alone would not adversely affect the integrity of the site. When applying the significant levels of precaution advised it may not be possible to discount AESI arising from the list of in-combination projects, the predicted impacts from the Project alone is beneath any threshold of significance and *de minimis* and as such would not materially alter the significance or the likelihood of an adverse effect on the integrity of the SPA.

Table 6-29 Summary of PVA metrics for the kittiwake population from East Caithness Cliffs SPA for the Project alone, in-combination without the Project and in-combination including the Project. Based on the assessment of in-combination impacts and population sizes for the BDMPS UK North Sea waters Spring migration (January to April) SD = standard deviation, LCI = lower confidence interval, UCI = upper confidence interval.

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone LOW	10	1.0000	0.9999	0.0008	0.9985	1.0014	0.9999	0.9997	0.0109	0.9782	1.0208	50.0	50.0
Project alone MID	10	0.9999	0.9999	0.0008	0.9983	1.0014	0.9993	0.9990	0.0113	0.9771	1.0200	49.7	50.2
Project alone HIGH	10	0.9999	0.9999	0.0007	0.9984	1.0014	0.9991	0.9990	0.0106	0.9789	1.0197	50.4	49.6
In-combination without the Project	10	0.9949	0.9948	0.0008	0.9931	0.9964	0.9447	0.9450	0.0107	0.9228	0.9656	44.1	56.3
In-combination with the Project LOW	10	0.9948	0.9948	0.0009	0.9931	0.9965	0.9436	0.9440	0.0109	0.9234	0.9652	44.0	56.3

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project MID	10	0.9948	0.9947	0.0008	0.9929	0.9964	0.9437	0.9436	0.0113	0.9208	0.9666	44.0	56.2
In-combination with the Project HIGH	10	0.9947	0.9947	0.0008	0.9931	0.9963	0.9437	0.9437	0.0109	0.9222	0.9657	44.0	56.0
Project alone LOW	20	0.9999	0.9999	0.0006	0.9987	1.0011	0.9998	0.9991	0.0120	0.9752	1.0223	50.0	50.1
Project alone MID	20	0.9999	0.9999	0.0006	0.9987	1.0010	0.9988	0.9984	0.0125	0.9726	1.0233	50.0	49.9
Project alone HIGH	20	0.9999	0.9999	0.0006	0.9987	1.0011	0.9982	0.9985	0.0117	0.9760	1.0206	50.1	49.7
In-combination without the Project	20	0.9949	0.9949	0.0007	0.9936	0.9962	0.9216	0.9221	0.0116	0.9009	0.9446	42.1	57.5

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project LOW	20	0.9949	0.9949	0.0007	0.9934	0.9962	0.9207	0.9207	0.0121	0.8978	0.9439	42.1	57.9
In-combination with the Project MID	20	0.9949	0.9948	0.0007	0.9934	0.9961	0.9201	0.9204	0.0126	0.8957	0.9446	41.7	58.2
In-combination with the Project HIGH	20	0.9948	0.9948	0.0007	0.9935	0.9961	0.9207	0.9206	0.0118	0.8977	0.9433	41.5	57.8
Project alone LOW	30	0.9999	0.9999	0.0005	0.9989	1.0009	0.9994	0.9990	0.0133	0.9731	1.0238	49.9	50.5
Project alone MID	30	0.9999	0.9999	0.0005	0.9988	1.0010	0.9986	0.9982	0.0138	0.9714	1.0250	49.4	50.8
Project alone HIGH	30	0.9999	0.9999	0.0005	0.9988	1.0010	0.9987	0.9982	0.0132	0.9711	1.0230	49.6	50.6

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination without the Project	30	0.9950	0.9950	0.0006	0.9938	0.9962	0.8999	0.9002	0.0131	0.8763	0.9254	41.7	58.9
In-combination with the Project LOW	30	0.9949	0.9949	0.0006	0.9937	0.9961	0.8982	0.8981	0.0131	0.8735	0.9239	40.7	58.8
In-combination with the Project MID	30	0.9949	0.9949	0.0006	0.9937	0.9960	0.8979	0.8981	0.0135	0.8725	0.9237	41.5	58.9
In-combination with the Project HIGH	30	0.9948	0.9949	0.0006	0.9938	0.9960	0.8980	0.8978	0.0128	0.8718	0.9229	41.0	59.2
Project alone LOW	35	0.9999	0.9999	0.0005	0.9990	1.0009	0.9983	0.9982	0.0143	0.9709	1.0268	49.4	50.7
Project alone MID	35	0.9999	0.9999	0.0005	0.9988	1.0009	0.9978	0.9976	0.0153	0.9676	1.0275	49.6	50.2

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone HIGH	35	0.9999	0.9999	0.0005	0.9990	1.0009	0.9976	0.9977	0.0144	0.9701	1.0255	49.7	50.1
In-combination without the Project	35	0.9950	0.9950	0.0005	0.9939	0.9961	0.8775	0.8781	0.0138	0.8508	0.9052	39.1	61.8
In-combination with the Project LOW	35	0.9949	0.9949	0.0006	0.9937	0.9960	0.8754	0.8755	0.0139	0.8478	0.9023	39.0	62.1
In-combination with the Project MID	35	0.9949	0.9949	0.0006	0.9938	0.9959	0.8754	0.8755	0.0144	0.8467	0.9022	39.1	62.0
In-combination with the Project HIGH	35	0.9949	0.9949	0.0005	0.9938	0.9959	0.8749	0.8750	0.0136	0.8492	0.9012	39.1	61.8

6.11.3.2 Great black-backed gull

The predicted impacts from the Project alone on the breeding great black-backed gull population was 0.12 birds per annum in the breeding season (Appendix C, Section C.1, Table C1-3). In the non-breeding season, the predicted impacts were dependent on the BDMPS region used and the seasonal BDMPS population sizes. The largest non-breeding season predicted impact was 0.05 birds per annum based on the UK North Sea waters non-breeding season (September to March). This predicted a change in adult survival of 0.03% points (Appendix C, Section C.1, Table C1-16) and so a PVA was completed based on this BDMPS region and season with the largest predicted impact.

The predicted impacts from the Project in-combination on the breeding great black-backed gull population was dependent on the BDMPS region used and the seasonal BDMPS population sizes. The largest predicted impact was 10.6 birds per annum based on the UK North Sea waters non-breeding season (Appendix C, Section C.2, Table C2-3). This predicted a change in adult survival of 3.9% points (Appendix C, Section C.2, Table C2-15) and so a PVA was completed based on this BDMPS region and season with the largest predicted impact.

The PVA provided projected change in population size of the baseline population, the population impacted by the Project alone, impacted by in-combination impacts without the Project and impacted by the in-combination impacts with the Project. The PVA projected that the population would increase exponentially in all scenarios based on the input demographic values and the assumptions of the model (Figure 6-12).

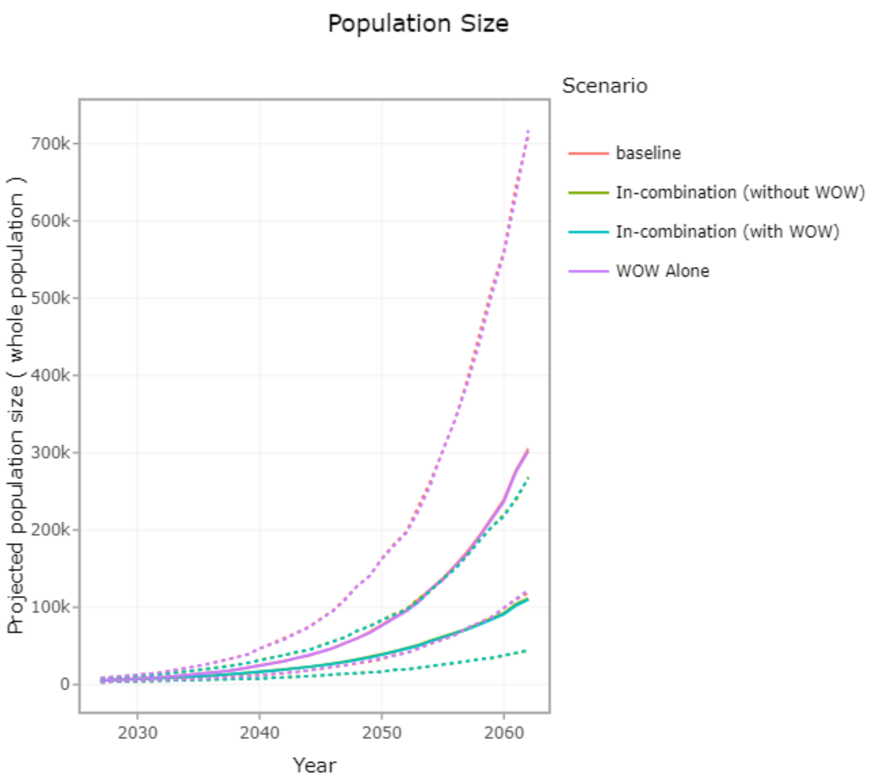


Figure 6-12 Projected population size of the breeding great black-backed gull feature of the East Caithness Cliffs SPA for the baseline (unimpacted), Project alone, in-combination impacts without the Project and in-combination with the Project from 2027 to 2062. Solid line = mean, dashed line = SD

The PVA metrics (Table 6-30) showed that the mean and median CGR was very close to one for the Project alone across the projected 35 years used in the model. This suggests that the growth rate of the East Caithness Cliffs SPA great black-backed gull population would not be adversely affected by the Project alone. However, the CGR values for the in-combination predicted impacts declined slightly across the projected timescale. The CGR values for the in-combination impacts without the Project was 0.9726, or a 2.7% decline in population growth rate. Adding the predicted Project alone impacts to the in-combination predicted impacts only reduced the CGR value to 0.9721, or a 2.8% decline in growth rate.

The mean and median CPS increase with the duration of the PVA projection (Table 6-30). The CPS values at 35 years of the Project alone, the in-combination values without the Project and the in-combination values with and without the Project show that majority of the predicted impacts on the SPA are from the existing in-combination impacts. However, the CPS for the Project alone was high (about 0.9834). Thus, the PVA predicts that the population would only be about 1.7% smaller than the baseline population size. The in-combination predicted impacts were projected to result in a CPS value of 0.3682 without the project and adding the Project alone would only increase this to 0.3612.

The population projection based on the model inputs creates an unrealistic population increase. The population model is not constrained by density dependent processes which results in this unrealistic projected growth. In reality the while the population of great black-backed gulls at this SPA has been increasing in the last 10 years, this increase has been relatively small. As such, the CPS metrics are unlikely to provide a reliable means for assessing the effects of predicted impacts on this population.

The quantile metrics showed that across the projected years from the PVA that the overlap in the distribution of the projected end population size reduced for the scenarios that included predicted in-combination impacts. However, the quantile metrics also showed that these distributions remained almost unchanged between the baseline and the predicted impacts from the Project alone.

Impacts from the construction stage of the Project, including all cable installation, are short term, temporary and reversible. Following completion of the construction stage the disturbance effects will be removed. Therefore, this impact source will not have an impact on the conservation objectives to maintain the population in the long term.

The predicted impacts on the breeding great black-backed gull population from the East Caithness Cliffs SPA from the Project alone would therefore not adversely affect the integrity of the site. Based on the CGR values it is reasonable to conclude that the in-combination impacts are not causing an adverse effect on site integrity and adding the Project alone to these values makes very little difference. While the CPS and Quantile metrics suggest that the impacts would results in large differences in population size between the baseline and in-combination impacts, these are likely to be a consequence of the model assumptions, particularly the absence of density dependence preventing the projected population from growing exponentially. When applying the significant levels of precaution advised it may not be possible to discount AESI arising from the list of in-combination projects, the predicted impacts from the Project alone is beneath any threshold of significance and *de minimis* and as such would not materially alter the significance or the likelihood of an adverse effect on the integrity of the SPA.

Table 6-30 Summary of PVA metrics for the great black-backed gull population from East Caithness Cliffs SPA for the Project alone, in-combination without the Project and in-combination including the Project. Based on the assessment of in-combination impacts and population sizes for the BDMPS UK North Sea waters non-breeding season (September to March) SD = standard deviation, LCI = lower confidence interval, UCI = upper confidence interval.

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project Alone	10	0.9996	0.9996	0.0021	0.9996	0.9996	0.9944	0.9963	0.0381	0.9944	0.9963	49.0	51.3
In-combination (without Project)	10	0.9730	0.9730	0.0024	0.9730	0.9730	0.7398	0.7410	0.0305	0.7398	0.7410	15.9	84.4
In-combination (with Project)	10	0.9726	0.9725	0.0024	0.9726	0.9725	0.7349	0.7356	0.0311	0.7349	0.7356	15.9	84.9
Project Alone	20	0.9996	0.9996	0.0012	0.9996	0.9996	0.9912	0.9914	0.0386	0.9912	0.9914	49.9	50.2
In-combination (without Project)	20	0.9726	0.9727	0.0014	0.9726	0.9727	0.5587	0.5596	0.0245	0.5587	0.5596	7.2	93.3

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination (with Project)	20	0.9722	0.9722	0.0014	0.9722	0.9722	0.5532	0.5534	0.0239	0.5532	0.5534	6.5	94.0
Project Alone	30	0.9995	0.9995	0.0008	0.9995	0.9995	0.9859	0.9868	0.0387	0.9859	0.9868	48.4	51.0
In-combination (without Project)	30	0.9727	0.9726	0.0010	0.9727	0.9726	0.4235	0.4236	0.0188	0.4235	0.4236	2.5	97.8
In-combination (with Project)	30	0.9722	0.9722	0.0010	0.9722	0.9722	0.4166	0.4168	0.0185	0.4166	0.4168	2.2	98.0
Project Alone	35	0.9996	0.9995	0.0007	0.9996	0.9995	0.9834	0.9844	0.0387	0.9834	0.9844	48.3	50.9
In-combination (without Project)	35	0.9726	0.9726	0.0009	0.9726	0.9726	0.3682	0.3682	0.0165	0.3682	0.3682	1.9	98.7
In-combination (with Project)	35	0.9721	0.9721	0.0008	0.9721	0.9721	0.3612	0.3615	0.0159	0.3612	0.3615	1.6	98.8

6.11.3.3 Guillemot

The impacts from the Project alone in the breeding and non-breeding seasons on the breeding guillemot population of the SPA were predicted to be 1.8 – 3.3 birds killed per annum (Appendix C, Section C.1, Table C1-6). This was a predicted change in adult survival of 0.0009% - 0.0017% points (Appendix C, Section C.1, Table C1-18). The predicted impacts from other plans and projects was a further 264.0 birds killed per annum, resulting in a total predicted impact from the Project alone an in-combination of 265.8 – 267.3 birds killed per annum, with 0.7% - 1.2% of this total from the Project alone (Appendix C, Section C.2, Table C2-4). This resulted in a predicted change in adult survival of 0.137% - 0.138% points (Appendix C, Section C.2, Table C2-16) and so a PVA was completed based on predicted impact.

The PVA provided projected change in population size of the baseline population, the population impacted by the Project alone (with low, medium and high displacement scenarios), impacted by in-combination impacts without the Project and impacted by the in-combination impacts with the Project (with low, medium and high displacement scenarios). The PVA projected that the population would increase in all scenarios based on the input demographic values and the assumptions of the model (Figure 6-13).

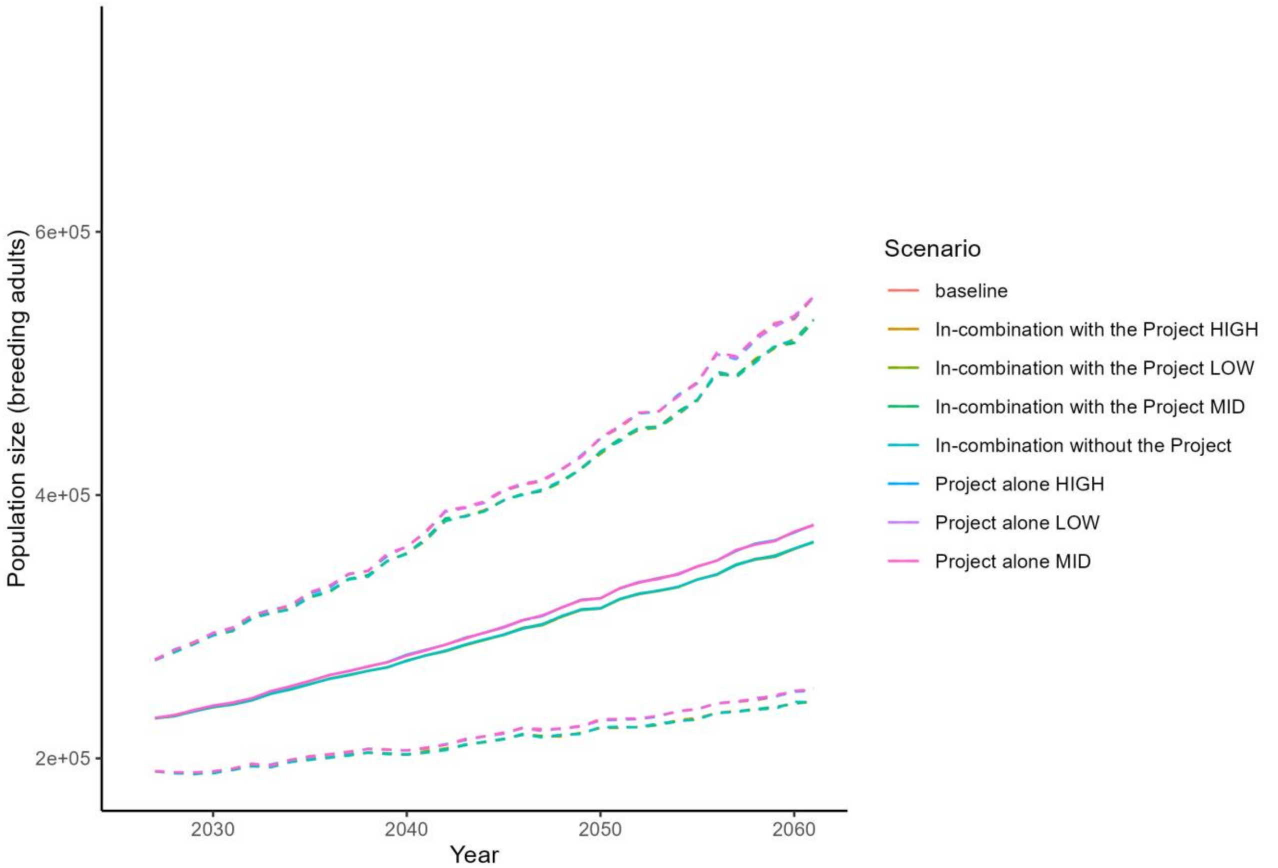


Figure 6-13 Projected population size of the breeding guilemot feature of the East Caithness Cliffs SPA for the baseline (unimpacted), Project alone, in-combination impacts without the Project and in-combination with the Project from 2027 to 2062. Solid line = mean, dashed line = SD

The PVA metrics (Table 6-31) showed that the mean and median CGR was very high across the projected 35 years used in the model for the Project alone (1.0000). The CGR value for the in-combination impacts was 0.9990, or a 0.01% decline in growth rate across all years. Adding the Project alone to the in-combination impact made an extremely small difference to the predicted change in growth rate. This suggests that the growth rate of the East Caithness Cliffs SPA guillemot population would not be adversely affected by the Project alone and in-combination.

The mean and median CPS values increased with the duration of the PVA projection (Table 6-31). The CPS values at 35 years of the Project alone, the in-combination values without the Project and the in-combination values with and without the Project show that the majority of the predicted impacts on the SPA are from the in-combination impacts with very little effect from the Project alone. The CPS for the Project alone was high (0.9994 – 0.9997), suggesting that the PVA predicts that the population would only be about 0.03% - 0.05% smaller than the baseline population size. The in-combination CPS value was also relatively high (0.9649). Thus, the PVA predicted that the population would be about 3.5% smaller than the baseline population size. Adding the predicted impacts from the Project to the existing in-combination impacts made a very small difference to the CPS value (0.9639 – 0.9644), and thus the PVA predicted that the population would be about 3.5% - 3.6% smaller than the baseline population size.

The quantile metrics showed that across the projected years from the PVA that the overlap in the distribution of the projected end population size reduced for the scenarios that included predicted in-combination impacts. However, the quantile metrics also showed that these distributions remained almost unchanged between the baseline and the predicted impacts from the Project alone.

Impacts from the construction stage of the Project, including all cable installation, are short term, temporary and reversible. Following completion of the construction stage the disturbance effects will be removed. Therefore, this impact source will not have an impact on the conservation objectives to maintain the population in the long term.

The predicted impacts, based on guidance and advice from NatureScot, on the breeding guillemot population from the East Caithness SPA from the Project alone and in-combination would not adversely affect the integrity of the site.

Table 6-31 Summary of PVA metrics for the guillemot population from East Caithness Cliffs SPA for the Project alone, in-combination without the Project and in-combination including the Project. Based on the assessment of in-combination impacts and population sizes. SD = standard deviation, LCI = lower confidence interval, UCI = upper confidence interval.

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone LOW	10	1.0000	1.0000	0.0002	0.9995	1.0005	1.0001	1.0000	0.0034	0.9935	1.0068	49.9	50.0
Project alone MID	10	1.0000	1.0000	0.0002	0.9995	1.0004	1.0000	0.9999	0.0034	0.9932	1.0064	49.5	50.3
Project alone HIGH	10	1.0000	1.0000	0.0002	0.9996	1.0004	0.9999	0.9999	0.0034	0.9933	1.0068	49.5	50.4
In-combination without the Project	10	0.9990	0.9990	0.0002	0.9985	0.9994	0.9887	0.9886	0.0032	0.9822	0.9948	47.5	54.1
In-combination with the Project LOW	10	0.9989	0.9989	0.0002	0.9985	0.9994	0.9883	0.9884	0.0034	0.9820	0.9952	47.3	53.9

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project MID	10	0.9990	0.9989	0.0002	0.9985	0.9994	0.9884	0.9884	0.0033	0.9819	0.9949	47.2	54.2
In-combination with the Project HIGH	10	0.9989	0.9989	0.0002	0.9985	0.9994	0.9882	0.9882	0.0034	0.9819	0.9950	47.5	53.6
Project alone LOW	20	1.0000	1.0000	0.0002	0.9997	1.0003	0.9999	0.9999	0.0040	0.9928	1.0073	50.1	49.8
Project alone MID	20	1.0000	1.0000	0.0002	0.9997	1.0003	0.9999	0.9998	0.0040	0.9917	1.0077	50.6	49.6
Project alone HIGH	20	1.0000	1.0000	0.0001	0.9997	1.0003	0.9998	0.9998	0.0039	0.9922	1.0075	50.0	50.1
In-combination without the Project	20	0.9990	0.9990	0.0002	0.9987	0.9993	0.9791	0.9790	0.0038	0.9713	0.9865	45.0	54.4

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project LOW	20	0.9990	0.9990	0.0002	0.9987	0.9993	0.9788	0.9788	0.0040	0.9711	0.9865	44.9	54.7
In-combination with the Project MID	20	0.9990	0.9990	0.0002	0.9987	0.9993	0.9788	0.9788	0.0039	0.9713	0.9866	45.3	54.8
In-combination with the Project HIGH	20	0.9990	0.9990	0.0002	0.9987	0.9993	0.9784	0.9785	0.0040	0.9708	0.9866	44.7	54.8
Project alone LOW	30	1.0000	1.0000	0.0001	0.9998	1.0002	1.0000	0.9999	0.0044	0.9916	1.0083	50.6	49.7
Project alone MID	30	1.0000	1.0000	0.0001	0.9997	1.0002	0.9999	0.9997	0.0045	0.9904	1.0086	50.7	49.3
Project alone HIGH	30	1.0000	1.0000	0.0001	0.9998	1.0002	0.9996	0.9996	0.0044	0.9910	1.0084	50.2	49.6

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination without the Project	30	0.9990	0.9990	0.0001	0.9988	0.9992	0.9695	0.9695	0.0042	0.9607	0.9778	44.0	56.5
In-combination with the Project LOW	30	0.9990	0.9990	0.0001	0.9987	0.9992	0.9692	0.9692	0.0044	0.9606	0.9777	44.0	56.7
In-combination with the Project MID	30	0.9990	0.9990	0.0001	0.9987	0.9992	0.9693	0.9692	0.0043	0.9611	0.9773	44.5	56.9
In-combination with the Project HIGH	30	0.9990	0.9990	0.0001	0.9987	0.9992	0.9688	0.9688	0.0043	0.9602	0.9778	44.2	57.2
Project alone LOW	35	1.0000	1.0000	0.0001	0.9998	1.0002	0.9997	0.9998	0.0045	0.9911	1.0086	50.2	49.9
Project alone MID	35	1.0000	1.0000	0.0001	0.9998	1.0002	0.9999	0.9997	0.0046	0.9900	1.0088	50.2	49.8

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone HIGH	35	1.0000	1.0000	0.0001	0.9998	1.0002	0.9994	0.9996	0.0046	0.9908	1.0093	49.8	50.0
In-combination without the Project	35	0.9990	0.9990	0.0001	0.9988	0.9992	0.9649	0.9649	0.0044	0.9561	0.9735	43.5	56.6
In-combination with the Project LOW	35	0.9990	0.9990	0.0001	0.9988	0.9992	0.9644	0.9645	0.0046	0.9556	0.9735	43.4	56.5
In-combination with the Project MID	35	0.9990	0.9990	0.0001	0.9988	0.9992	0.9645	0.9645	0.0045	0.9560	0.9730	42.9	56.8
In-combination with the Project HIGH	35	0.9990	0.9990	0.0001	0.9988	0.9992	0.9639	0.9640	0.0045	0.9549	0.9730	43.3	56.8

6.11.3.4 Fulmar

The impacts from the Project alone in the breeding and non-breeding seasons on the breeding fulmar population of the SPA were predicted to be 0.20 – 0.59 birds killed per annum (Appendix C, Section C.1) for the largest predicted impact to a BDMPS region and season (UK North Sea during migration). This was a predicted change in adult survival of 0.0007% - 0.0021% points (Appendix C, Section C.1). The predicted impacts from other plans and projects was not possible to estimate as previous projects have screened out impacts on fulmar populations from SPAs. The predicted impact from the Project alone was a sufficiently small impact on the breeding population of fulmars from the East Caithness Cliffs SPA that no PVA was necessary.

Impacts from the construction stage of the Project, including all cable installation, are short term, temporary and reversible. Following completion of the construction stage the disturbance effects will be removed. Therefore, this impact source will not have an impact on the conservation objectives to maintain the population in the long term.

The predicted impacts, based on guidance and advice from NatureScot, on the breeding fulmar population from the East Caithness Cliffs SPA from the Project alone and in combination would therefore not adversely affect the integrity of the site.

6.11.4 Assessment summary and conclusions

The assessment can conclude that there is no adverse effect on site integrity of the East Caithness Cliffs SPA from the Project alone. However, it may not be possible to conclude that there is no adverse effects on site integrity from existing in-combination impacts on the breeding kittiwake population. The predicted impacts from the Project alone is beneath any threshold of significance and de minimis and as such would not materially alter the significance or the likelihood of an adverse effect on the integrity. These conclusions are summarised in Table 6-32.

Table 6-32 Summary of assessment of East Caithness Cliffs SPA

QUALIFYING FEATURE	POTENTIAL EFFECT	CONCLUSION
Breeding kittiwake	Collisions and, displacement and barrier effects	No adverse effects on site integrity from the Project alone. Cannot conclude no adverse effect on site integrity from the Project alone and in-combination with other reasonably foreseeable plans and projects..
Breeding great black-backed gull	Collisions	No adverse effects on site integrity from the Project alone and in-combination with other reasonably foreseeable plans and projects

QUALIFYING FEATURE	POTENTIAL EFFECT	CONCLUSION
Breeding herring gull	No likely significant effect	
Breeding guillemot	Displacement and barrier effects	No adverse effects on site integrity from the Project alone and in-combination with other reasonably foreseeable plans and projects
Breeding razorbill	Displacement and barrier effects	No adverse effects on site integrity from the Project alone and in-combination with other reasonably foreseeable plans and projects
Breeding cormorant	No likely significant effect	
Breeding shag	No likely significant effect	
Breeding fulmar	Displacement and barrier effects	No adverse effects on site integrity from the Project alone and in-combination with other reasonably foreseeable plans and projects
Breeding peregrine	No likely significant effect	
Breeding seabird assemblage	Collisions and, displacement and barrier effects	No adverse effects on site integrity from the Project alone and in-combination with other reasonably foreseeable plans and projects

6.12 Handa SPA

The Handa SPA was classified on 25th April 1990, with marine extension classified on 25th September 2009, due to its populations of breeding seabirds. The site is on the west coast of Sutherland on the Minch and is approximately 56 km south-west of the Project.

6.12.1 Site details and qualifying interests

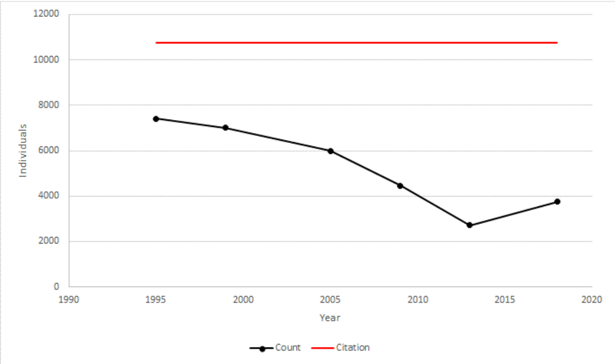
Handa SPA consists of an island surrounded by high sea-cliffs and adjacent coastal waters lying a short distance from the west coast of Sutherland in Scotland. It provides a strategic nesting locality for seabirds that feed in the productive waters of the northern Minch, outside the SPA. Most of the island is vegetated with sub-maritime grasslands and heaths. The SPA's principal ornithological importance is for its breeding seabirds.

The boundary of the SPA overlaps with the boundary of Handa Island SSSI, and the seaward extension extends approximately 2 km into the marine environment to include the seabed, water column and surface.

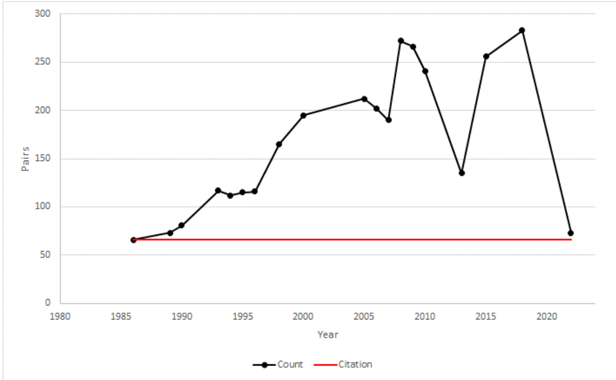
Table 6-33 Qualifying interests and condition for the Handa SPA

QUALIFYING INTERESTS	FEATURE CONDITION	ASSESSMENT DATE	BROADER CONSERVATION STATUS
Kittiwake	Unfavourable Declining	10 Jul 2013	Red
Great skua	Favourable Maintained	28 Jun 2013	Amber
Guillemot	Unfavourable No change	1 Apr 2012	Amber
Razorbill	Unfavourable Declining	9 Jun 2014	Amber
Fulmar	Unfavourable No change	20 Jun 2012	Amber
Seabird assemblage	Unfavourable Declining	6 Apr 2017	n/a

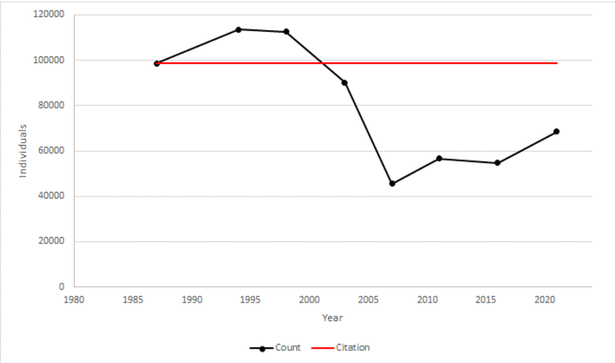
For each qualifying feature requiring assessment (except the breeding seabird assemblage) count data was extracted from the SMP database. These counts were plotted and compared with the citation population size, where data allowed (Figure 6-14).



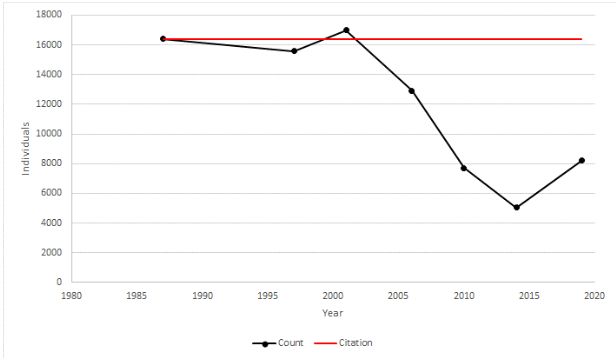
Kittiwake



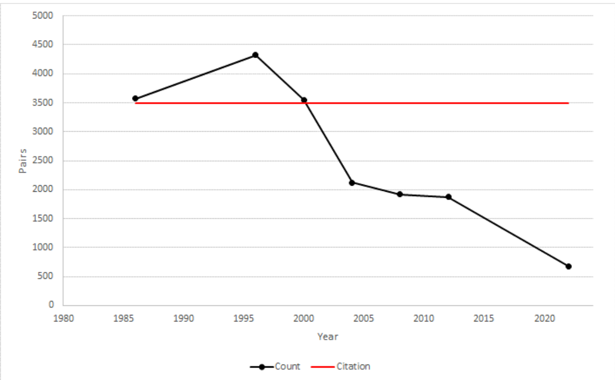
Great skua



Guillemot



Razorbill



Fulmar

Figure 6-14 Handa SPA qualifying feature population trends from 1987 – 2021 (citation population size shown by red line).

Population counts were only available from 1987 to 2021. Fulmar, guillemot, kittiwake and razorbill have declined across the period. Fulmar numbers increased between 1986 and 1996 but have steadily declined since 1986. Great skua numbers increased quickly from 1986 to 2008, after which the population has shown large fluctuations with a large decline in 2022 to almost the population size in 1986. Kittiwake declined steadily from 1995 to 2013 but has shown a small increase to 2018. The razorbill population initially fluctuated around the citation population size from 1987 to 2001 and then declined steadily to 2014. However, the population increase a little between 2014 and 2019, though it remains below the citation population size.

6.12.2 Conservation objectives

The conservation objectives of the Handa SPA are to:

To avoid deterioration of the habitats of the qualifying species or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained; and

To ensure for the qualifying species that the following are maintained in the long term:

- Population of the species as a viable component of the site;
- Distribution of the species within site;
- Distribution and extent of habitats supporting the species;
- Structure, function and supporting processes of habitats supporting the species; and
- No significant disturbance of the species.

6.12.3 Assessment of predicted impacts alone and in-combination

The predicted impacts from the Project alone on the qualifying features of the Handa SPA are summarised in the tables in Appendix C, Section C.1. The predicted effect on adult survival from these impacts are summarised in Appendix C, Section C.1.9. The predicted impacts from the Project in-combination with other reasonably foreseeable plans and projects are summarised in Appendix C, Section C.2. The predicted effect on adult survival from these impacts are summarised in Appendix C, Section C.2.8.

6.12.3.1 Kittiwake

The predicted impacts from the Project alone on the breeding kittiwake population was 0.7 – 0.9 birds per annum in the breeding season (Appendix C, Section C.1, Table C1-1). In the non-breeding season, the predicted impacts were dependent on the BDMPS region used and the seasonal BDMPS population sizes. The largest non-breeding season predicted impact was 0.7 – 0.9 birds per annum based on the UK Western waters Spring migration (January to April). This predicted a change in adult survival of 0.011% - 0.015% points (Appendix C, Section C.1, Table C1-15) and so a PVA was not required.

The predicted impacts from the Project in-combination on the breeding kittiwake population was dependent on the BDMPS region used and the seasonal BDMPS population sizes. The largest predicted impact was 0.9 – 1.1 birds per annum based on the UK Western Waters & Channel Spring migration population (Appendix C, Section C.2, Table C2-2). This predicted a change in adult survival of 0.012% - 0.016% points (Appendix C, Section C.1, Table C2-14) and so a PVA was not required.

Impacts from the construction stage of the Project, including all cable installation, are short term, temporary and reversible. Following completion of the construction stage the disturbance effects will be removed. Therefore, this impact source will not have an impact on the conservation objectives to maintain the population in the long term.

The predicted impacts, based on guidance and advice from NatureScot, on the breeding kittiwake population from the Handa SPA from the Project alone and in-combination would not adversely affect the integrity of the site.

6.12.3.2 Great skua

The predicted impacts from the Project alone on the breeding great skua population was 0.006 birds per annum in the breeding season (Appendix C, Section C.1, Table C1-4). In the non-breeding season, there were no predicted impacts from the Project alone. This predicted a change in adult survival of 0.004% points (Appendix C, Section C.2, Table C1-17) and so a PVA was not required.

The predicted impact from the Project alone was a sufficiently small impact on the breeding population of great skuas from the Handa SPA that no PVA was necessary.

The predicted impacts from the Project alone is beneath any threshold of significance and *de minimis* and as such would not materially alter the significance or the likelihood of an adverse effect on the integrity of the SPA. In the absence of an existing predicted adverse effect on site integrity of the Handa SPA it can be concluded that there is no adverse effect on site integrity.

6.12.3.3 Guillemot

The impacts from the Project alone in the breeding and non-breeding seasons on the breeding guillemot population of the SPA were predicted to be 1.2 – 2.2 birds killed per annum (Appendix C, Section C.1, Table C1-6). This was a predicted change in adult survival of 0.001% - 0.003% points (Appendix C, Section C.1, Table C1-18). The predicted impacts from other plans and projects was a further 2.95 birds killed per annum (Appendix C, Section C.2, Table C2-4), resulting in a total predicted impact from the Project alone an in-combination of 4.1 – 5.2 birds killed per annum, with 28.6% - 42.9% of this total from the Project alone. This resulted in a predicted change in adult survival of 0.004% - 0.006% points (Appendix C, Section C.2, Table C2-16) and so a PVA was not required.

Impacts from the construction stage of the Project, including all cable installation, are short term, temporary and reversible. Following completion of the construction stage the disturbance effects will be removed. Therefore, this impact source will not have an impact on the conservation objectives to maintain the population in the long term.

The predicted impacts, based on guidance and advice from NatureScot, on the breeding guillemot population from the Handa SPA from the Project alone and in-combination would not adversely affect the integrity of the site.

6.12.3.4 Razorbill

The predicted impacts from the Project alone on the breeding razorbill population was 0.3 - 0.4 birds per annum in the breeding season (Appendix C, Section C.1, Table C1-7). In the non-breeding season, the predicted impacts were dependent on the BDMPS region used and the seasonal BDMPS population sizes. The largest non-breeding season predicted impact was 0.01 - 0.04 birds per annum based on the Western waters during migration seasons (August to October, and January to March) giving a total predicted impact of 0.3 - 0.4. This predicted a change in adult survival of 0.003% - 0.004% points and so a PVA was not required (Appendix C, Section C.1, Table C1-19).

The predicted impacts from the Project in-combination on the breeding razorbill population was dependent on the BDMPS region used and the seasonal BDMPS population sizes. The largest total predicted impact was 3.4 - 3.6 birds per annum (Appendix C, Section C.2, Table C2-7) based on the UK Western waters migration seasons (August to October, and January to March). However, this predicted a change in adult survival of 0.006% - 0.007% points (Appendix C, Section C.2, Table C2-17). This was less than the relative predicted impact on UK North Sea & Channel waters. The total predicted impact from this BDMPS region was 3.4 - 3.6, which predicted a change in adult survival of 0.032% - 0.034% and so a PVA was completed based on this BDMPS region and season with the largest predicted impact.

The PVA projected change in population size of the baseline population, the population impacted by the Project alone (with low, medium and high displacement scenarios), impacted by in-combination impacts without the Project and impacted by the in-combination impacts with the Project (with low, medium and high displacement scenarios). The PVA projected that population would decline in all scenarios based on the input demographic values and the assumptions of the model (Figure 6-15).

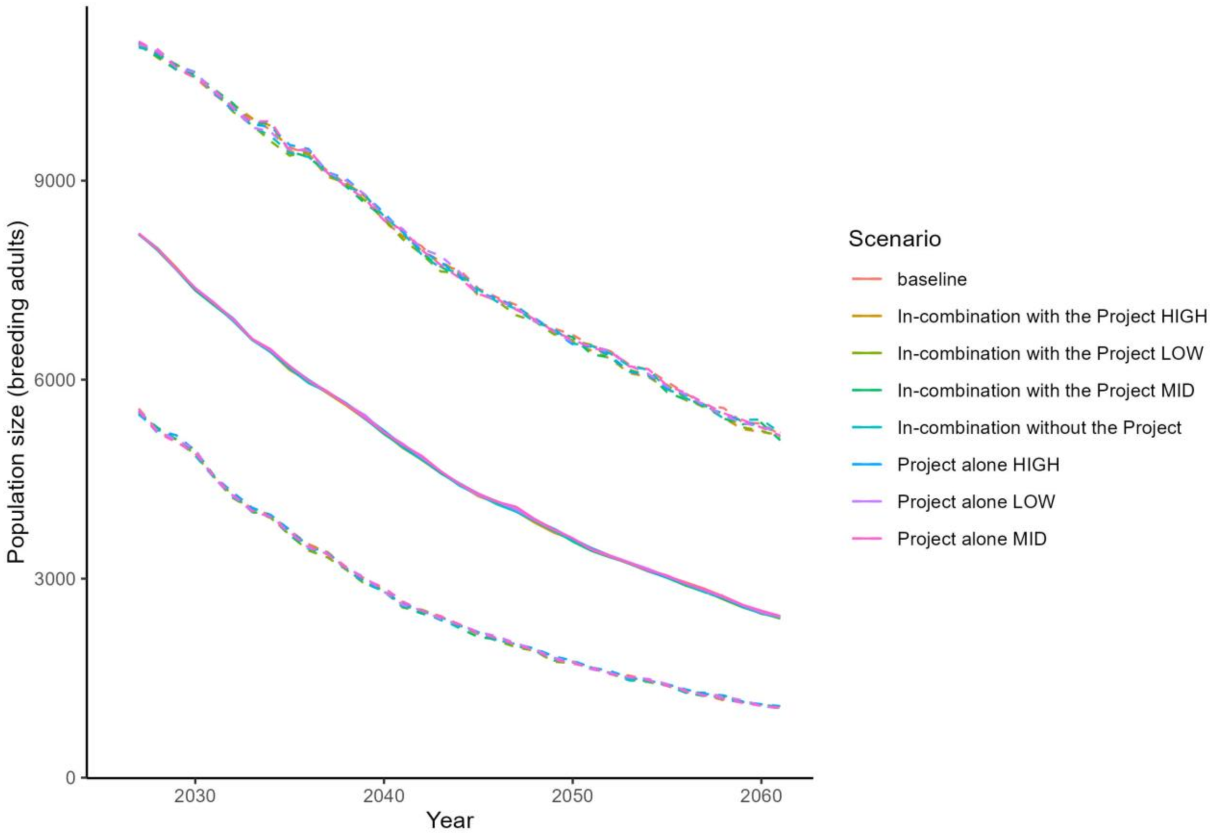


Figure 6-15 Projected population size of the breeding razorbill feature of the Handa SPA for the baseline (unimpacted), Project alone, in-combination impacts without the Project and in-combination with the Project from 2027 to 2062. Solid line = mean, dashed line = SD

The PVA metrics (Table 6-34) showed that the mean and median CGR was very close to one across the projected 35 years used in the model. This suggests that the growth rate of the Handa SPA razorbill population would not be adversely affected by the Project alone or in-combination.

The mean and median CPS increase with the duration of the PVA projection (Table 6-34). The CPS for both the Project alone (0.9976 – 1.005) and the Project in-combination (0.9903 - 0.9920) are relatively high. Thus, the PVA predicts that the population would only be about 0.8 - 1.1% smaller than the baseline population size. This is well within the error of margin to count the population size of the SPA.

The quantile metrics vary across years and the values at 35 years are not notably different from the values at 10 years. These metrics suggest the distributions of the impacted to not impacted populations projected by the PVA will be very similar at 35 years.

Impacts from the construction stage of the Project, including all cable installation, are short term, temporary and reversible. Following completion of the construction stage the disturbance effects will be removed. Therefore, this impact source will not have an impact on the conservation objectives to maintain the population in the long term.

The predicted impacts, based on guidance and advice from NatureScot, on the breeding razorbill population from the Handa SPA from the Project alone and in combination would therefore not adversely affect the integrity of the site.

Table 6-34 Summary of PVA metrics for the razorbill population from Handa SPA for the Project alone, in-combination without the Project and in-combination including the Project. Based on the assessment of in-combination impacts and population sizes for the BDMPS UK North Sea waters & Channel waters during migration season (August to October, and January to March) SD = standard deviation, LCI = lower confidence interval, UCI = upper confidence interval.

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone LOW	10	0.9999	1.0000	0.0017	0.9967	1.0031	0.9997	0.9997	0.0213	0.9567	1.0407	49.5	50.2
Project alone MID	10	0.9999	0.9999	0.0017	0.9967	1.0032	0.9992	0.9992	0.0214	0.9586	1.0433	49.7	50.2
Project alone HIGH	10	1.0000	1.0000	0.0017	0.9966	1.0034	0.9992	0.9997	0.0220	0.9571	1.0441	50.1	49.8
In-combination without the Project	10	0.9998	0.9998	0.0018	0.9962	1.0032	0.9974	0.9975	0.0225	0.9520	1.0432	49.5	50.1
In-combination with the Project LOW	10	0.9997	0.9997	0.0018	0.9963	1.0030	0.9973	0.9974	0.0225	0.9524	1.0416	49.5	50.6

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project MID	10	0.9997	0.9997	0.0017	0.9964	1.0030	0.9958	0.9971	0.0215	0.9556	1.0401	49.0	50.9
In-combination with the Project HIGH	10	0.9996	0.9997	0.0017	0.9965	1.0032	0.9956	0.9965	0.0224	0.9546	1.0402	48.5	51.1
Project alone LOW	20	1.0000	1.0000	0.0013	0.9974	1.0027	1.0005	1.0003	0.0297	0.9445	1.0609	50.4	49.9
Project alone MID	20	0.9999	1.0000	0.0014	0.9975	1.0027	0.9983	0.9998	0.0302	0.9466	1.0612	50.4	49.8
Project alone HIGH	20	1.0000	1.0000	0.0014	0.9971	1.0027	0.9987	1.0001	0.0316	0.9359	1.0638	50.9	49.7
In-combination without the Project	20	0.9998	0.9998	0.0014	0.9971	1.0026	0.9935	0.9958	0.0315	0.9351	1.0630	49.0	50.3

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project LOW	20	0.9997	0.9998	0.0014	0.9970	1.0026	0.9948	0.9955	0.0317	0.9352	1.0574	49.8	50.6
In-combination with the Project MID	20	0.9997	0.9997	0.0014	0.9970	1.0025	0.9932	0.9947	0.0304	0.9395	1.0583	49.0	50.6
In-combination with the Project HIGH	20	0.9997	0.9997	0.0014	0.9969	1.0025	0.9934	0.9945	0.0314	0.9341	1.0615	49.2	51.0
Project alone LOW	30	1.0000	1.0000	0.0012	0.9976	1.0024	0.9994	1.0004	0.0398	0.9206	1.0760	49.1	51.0
Project alone MID	30	1.0000	1.0000	0.0012	0.9977	1.0026	0.9991	1.0005	0.0396	0.9288	1.0859	49.3	50.7
Project alone HIGH	30	1.0000	1.0000	0.0013	0.9975	1.0024	0.9988	0.9996	0.0405	0.9202	1.0803	49.3	50.8

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination without the Project	30	0.9998	0.9998	0.0012	0.9974	1.0023	0.9928	0.9934	0.0393	0.9165	1.0749	49.3	50.7
In-combination with the Project LOW	30	0.9997	0.9997	0.0013	0.9971	1.0022	0.9914	0.9920	0.0415	0.9154	1.0724	47.9	52.0
In-combination with the Project MID	30	0.9997	0.9997	0.0012	0.9974	1.0021	0.9912	0.9919	0.0387	0.9203	1.0696	48.2	52.0
In-combination with the Project HIGH	30	0.9997	0.9997	0.0012	0.9974	1.0022	0.9908	0.9921	0.0392	0.9217	1.0750	48.8	51.3
Project alone LOW	35	1.0000	1.0000	0.0012	0.9977	1.0024	0.9987	1.0014	0.0448	0.9165	1.0905	49.7	50.3
Project alone MID	35	1.0000	1.0000	0.0012	0.9977	1.0024	0.9976	1.0000	0.0439	0.9207	1.0931	49.7	50.2

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone HIGH	35	1.0000	1.0000	0.0012	0.9975	1.0024	1.0005	1.0010	0.0458	0.9124	1.0939	49.7	50.4
In-combination without the Project	35	0.9998	0.9998	0.0012	0.9976	1.0021	0.9925	0.9933	0.0432	0.9056	1.0873	48.6	51.8
In-combination with the Project LOW	35	0.9998	0.9997	0.0013	0.9972	1.0022	0.9920	0.9920	0.0463	0.8995	1.0889	48.9	51.3
In-combination with the Project MID	35	0.9997	0.9998	0.0012	0.9974	1.0020	0.9893	0.9919	0.0437	0.9123	1.0833	49.0	51.2
In-combination with the Project HIGH	35	0.9997	0.9997	0.0012	0.9975	1.0020	0.9903	0.9919	0.0434	0.9126	1.0809	48.9	51.9

6.12.3.5 Fulmar

The impacts from the Project alone in the breeding and non-breeding seasons on the breeding fulmar population of the SPA were predicted to be 0.02 – 0.14 birds killed per annum (Appendix C, Section C.1, Table C1-11) based on the Western waters and channel BDMPS during the migration season. This was a predicted change in adult survival of 0.007% - 0.0037% points (Appendix C, Section C.1, Table C1-22). The predicted impacts from other plans and projects were not possible to estimate as previous projects have screened out impacts on fulmar populations from SPAs. The predicted impact from the Project alone was a sufficiently small impact on the breeding population of fulmars from the Handa SPA that no PVA was necessary.

Impacts from the construction stage of the Project, including all cable installation, are short term, temporary and reversible. Following completion of the construction stage the disturbance effects will be removed. Therefore, this impact source will not have an impact on the conservation objectives to maintain the population in the long term.

The predicted impacts, based on guidance and advice from NatureScot, on the breeding fulmar population from the Handa SPA from the Project alone and in combination would therefore not adversely affect the integrity of the site.

6.12.4 Assessment summary and conclusions

The assessment can conclude that there is no adverse effect on site integrity of the Handa SPA as outlined in Table 6-35.

Table 6-35 Summary of assessment of Handa SPA

QUALIFYING FEATURE	POTENTIAL EFFECT	CONCLUSION
Breeding kittiwake	Collisions and, displacement and barrier effects	No adverse effects on site integrity from the Project alone and in-combination with other reasonably foreseeable plans and projects
Breeding great skua	Collisions	No adverse effects on site integrity from the Project alone and in-combination with other reasonably foreseeable plans and projects
Breeding guillemot	Displacement and barrier effects	No adverse effects on site integrity from the Project alone and in-combination with other reasonably foreseeable plans and projects
Breeding razorbill	Displacement and barrier effects	No adverse effects on site integrity from the Project alone and in-combination

		with other reasonably foreseeable plans and projects
Breeding fulmar	Displacement and barrier effects	No adverse effects on site integrity from the Project alone and in-combination with other reasonably foreseeable plans and projects
Breeding seabird assemblage	Collisions and, displacement and barrier effects	No adverse effects on site integrity from the Project alone and in-combination with other reasonably foreseeable plans and projects

6.13 Hermaness, Saxa Vord and Valla Field SPA

The Hermaness, Saxa Vord and Valla Field SPA was classified on 31st December 2001, including marine extension classified on 25th September 2009, due to its populations of breeding seabirds. The site is on the islands of Unst in Shetland and is approximately 258 km north-east of the Project.

6.13.1 Site details and qualifying interests

Hermaness, Saxa Vord and Valla Field Special Protection Area lies in the north-west corner of the island of Unst, Shetland, at the northernmost tip of Britain. It consists of 100-200 m high sea cliffs and adjoining areas of grassland, heath and blanket bog.

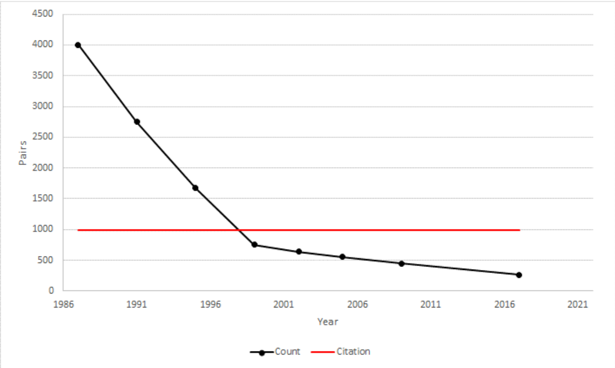
The boundary of the SPA is coincident with that of the Hermaness SSSI, Saxa Vord SSSI, and Valla Field SSSI. The seaward extension extends approximately 2 km into the marine environment to include the seabed, water column and surface.

Part of the site (Hermaness SSSI and Saxa Vord SSSI) was previously classified as Hermaness and Saxa Vord SPA on 29 March 1994 for fulmar, gannet, great skua, guillemot and puffin.

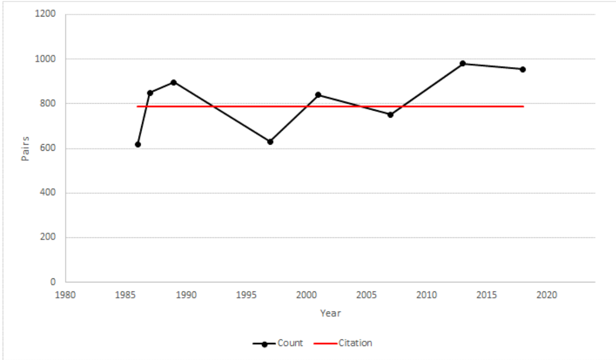
Table 6-36 Qualifying interests and condition for the Hermaness, Saxa Vord and Valla Field SPA

QUALIFYING INTERESTS	FEATURE CONDITION	ASSESSMENT DATE	BROADER CONSERVATION STATUS
Kittiwake	Unfavourable Declining	11 Jun 2017	Red
Great skua	Favourable Maintained	25 Jun 2013	Amber
Guillemot	Unfavourable Declining	11 Jun 2017	Amber
Puffin	Unfavourable Declining	28 Jun 2017	Red
Fulmar	Favourable Recovered	20 Jul 2016	Amber
Gannet	Favourable Maintained	24 Oct 2014	Amber
Red-throated diver	Unfavourable Declining	2 Jul 2013	Green
Shag	Unfavourable No change	11 Jun 2017	Red
Seabird assemblage	Unfavourable Declining	28 Jun 2017	n/a

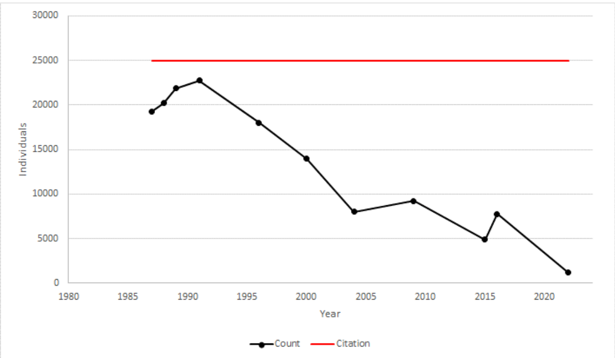
For each qualifying feature requiring assessment (except the breeding seabird assemblage) count data was extracted from the SMP database. These counts were plotted and compared with the citation population size, where data allowed (Figure 6-16).



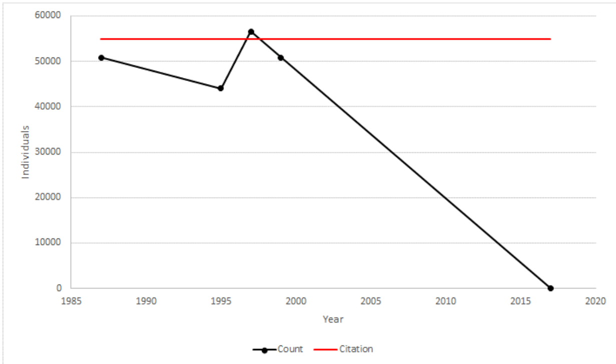
Kittiwake



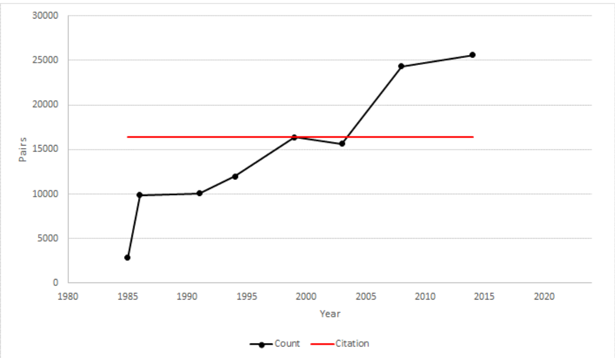
Great skua



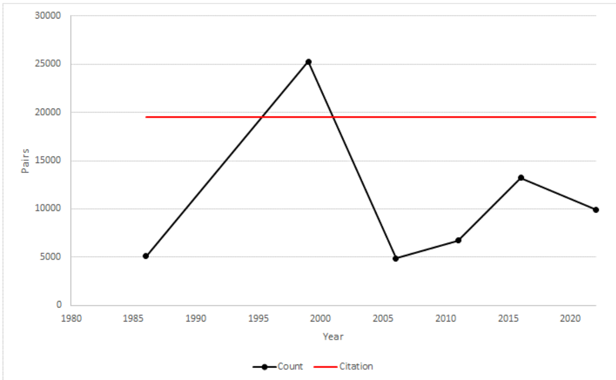
Guillemot



Puffin



Gannet



Fulmar

Figure 6-16 Hermaness, Saxa Vord and Valla Field SPA qualifying feature population trends from 1981 - 2022 (citation population size shown by red line).

Population counts were only available from 1986 to 2022. Guillemot, kittiwake and puffin have apparently declined across the period. Fulmar and great skua numbers appear to have fluctuated across the period and gannet numbers have increased steadily. Fulmar numbers increased between 1986 and 1999 and then declined sharply to 2006. Since 2006 the population has increased. The fulmar population has been below the citation level for every year for which there are data, except 1999. The great skua population has fluctuated around the citation population size between 1986 and 2018. Kittiwakes declined sharply from 1987 to 1999 and has continued to decline below the citation population size, albeit at a slower rate, to 2017. The guillemot population increased from 1987 to 1991 and has declined since. Other than small increases recorded in 2009 and 2016, the decline has been steady. The guillemot population has remained below the citation population across the whole period.

6.13.2 Conservation objectives

The conservation objectives of the Hermaness, Saxa Vord and Valla Field SPA are to:

To avoid deterioration of the habitats of the qualifying species or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained; and

To ensure for the qualifying species that the following are maintained in the long term:

- Population of the species as a viable component of the site;
- Distribution of the species within site;
- Distribution and extent of habitats supporting the species;
- Structure, function and supporting processes of habitats supporting the species; and
- No significant disturbance of the species.

6.13.3 Assessment of predicted impacts alone and in-combination

Several qualifying features of the Hermaness, Saxa Vord and Valla Field SPA were screened out of the assessment as there was no connectivity between the Project and the SPA:

- Great skua;
- Guillemot;
- Red-throated diver; and
- Shag

For all of these features the Project was beyond the mean of the maximum foraging range (+1 SD) and they Did not occur in the Project area in the non-breeding season. The predicted impacts from the Project alone on the qualifying features of the Hermaness, Saxa Vord and Valla Field SPA are summarised in the tables in Appendix C, Section C.1. The predicted effect on adult survival from these impacts are summarised in Appendix C, Section C.1.9. The predicted impacts from the Project in-combination with other reasonably foreseeable plans and projects are summarised in Appendix C, Section C.2. The predicted effect on adult survival from these impacts are summarised in Appendix C, Section C.2.8.

6.13.3.1 Kittiwake

The predicted impacts from the Project alone on the breeding kittiwake population was 0.0001 - 0.0002 birds per annum in the breeding season (Appendix C, Section C.1, Table C1-1). In the non-breeding season, the predicted impacts were dependent on the BDMPS region used and the seasonal BDMPS population sizes. The largest non-breeding season predicted impact was 0.031 - 0.036 birds per annum based on the UK North Sea waters Spring migration (January to April). This predicted a change in adult survival of 0.006% - 0.007% points (Appendix C, Section C.1, Table C1-15) and so a PVA was not required.

The predicted impacts from the Project in-combination on the breeding kittiwake population was dependent on the BDMPS region used and the seasonal BDMPS population sizes. The largest predicted impact was 1.641 - 1.647 birds per annum based on the UK North Sea waters Spring migration population (Appendix C, Section C.2, Table C2-1). This predicted a change in adult survival of 0.3097% - 0.3107% points (Appendix C, Section C.2, Table C2-14) and so a PVA was completed based on this BDMPS region and season with the largest predicted impact.

The PVA provided projected change in population size of the baseline population, the population impacted by the Project alone (with low, medium and high displacement scenarios), impacted by in-combination impacts without the Project and impacted by the in-combination impacts with the Project (with low, medium and high displacement scenarios). The PVA projected that population would decline in all scenarios based on the input demographic values and the assumptions of the model (Figure 6-17).

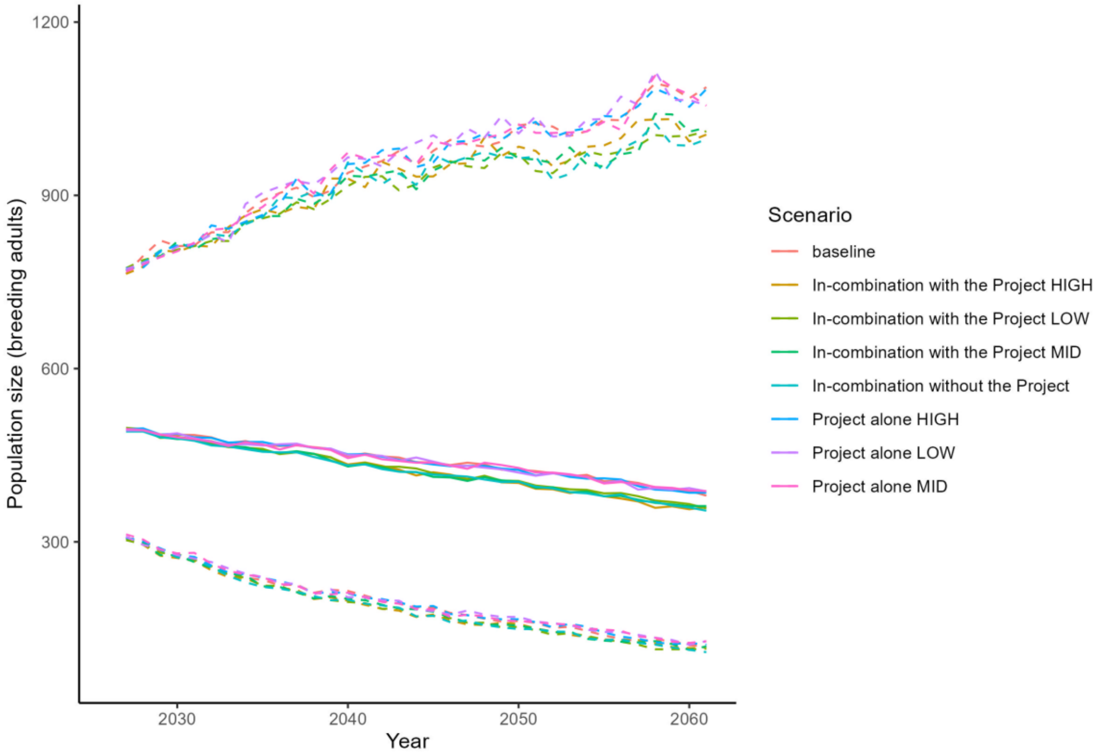


Figure 6-17 Projected population size of the breeding kittiwake feature of the Hermaness, Saxa Vord and Valla Field SPA for the baseline (unimpacted), Project alone, in-combination impacts without the Project and in-combination with the Project from 2027 to 2062. Solid line = mean, dashed line = SD

The PVA metrics (Table 6-37) showed that the mean and median CGR was very close to one across the projected 35 years used in the model for the Project alone (with low, medium and high displacement scenarios). The CGR value for the project alone after 35 years was 0.9997 – 0.9999, or a 0.01 – 0.03% decline in growth rate. The CGR value for the in-combination impacts was 0.9975, or a 0.25% decline in growth rate. Adding the Project alone to the in-combination impact made an extremely small difference to the predicted change in growth rate (0.9976 - 0.9977). This suggests that the growth rate of the Hermaness, Saxa Vord and Valla Field SPA kittiwake population would not be adversely affected by the Project alone or in-combination impact.

The mean and median CPS values decreased with the duration of the PVA projection (Table 6-37). The CPS values at 35 years of the Project alone, the in-combination values without the Project and the in-combination values with and without the Project show that the majority of the predicted impacts on the SPA are from the in-combination impacts with very little effect from the Project alone. The CPS for the Project alone was very high (0.9930 - 1.0000), suggesting that the PVA predicts that the population would be no smaller than the baseline population size. The in-combination CPS value was also low (0.9101). Thus, the PVA predicts that the population would be about 9.0% smaller than the baseline population size. Adding the predicted impacts from the Project to the existing in-combination impacts made a small difference to the CPS value (0.9194 – 0.9245), and thus the PVA predicted that the population would be about 7.5% to 8.1% smaller than the baseline population size.

The quantile metrics showed that across the projected years from the PVA that the overlap in the distribution of the projected end population size reduced for the scenarios that included predicted in-combination impacts. However, the quantile metrics also showed that these distributions remained essentially unchanged between the baseline and the predicted impacts from the Project alone.

Impacts from the construction stage of the Project, including all cable installation, are short term, temporary and reversible. Following completion of the construction stage the disturbance effects will be removed. Therefore, this impact source will not have an impact on the conservation objectives to maintain the population in the long term.

The predicted impacts, based on guidance and advice from NatureScot, on the breeding kittiwake population from the Hermaness, Saxa Vord and Valla Field SPA from the Project alone would not adversely affect the integrity of the site. When applying the significant levels of precaution advised it may not be possible to discount AESI arising from the list of in-combination projects, the predicted impacts from the Project alone is beneath any threshold of significance and *de minimis* and as such would not materially alter the significance or the likelihood of an adverse effect on the integrity of the Hermaness, Saxa Vord and Valla Field SPA.

Table 6-37 Summary of PVA metrics for the kittiwake population from Hermaness, Saxa Vord and Valla Field SPA for the Project alone, in-combination without the Project and in-combination including the Project. Based on the assessment of in-combination impacts and population sizes for the BDMPS UK North Sea waters Spring migration (January to April) SD = standard deviation, LCI = lower confidence interval, UCI = upper confidence interval.

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone LOW	10	0.9998	0.9999	0.0074	0.9856	1.0147	0.9971	1.0021	0.0963	0.8259	1.2028	50.7	49.4
Project alone MID	10	0.9999	1.0000	0.0073	0.9860	1.0142	1.0008	1.0054	0.1001	0.8240	1.2173	50.1	50.0
Project alone HIGH	10	0.9997	1.0000	0.0074	0.9857	1.0153	0.9986	1.0038	0.0999	0.8258	1.2139	50.5	49.8
In-combination without the Project	10	0.9974	0.9973	0.0075	0.9829	1.0115	0.9751	0.9752	0.0996	0.7828	1.1710	46.2	52.8
In-combination with the Project LOW	10	0.9978	0.9976	0.0072	0.9840	1.0118	0.9761	0.9782	0.0959	0.7878	1.1717	46.2	52.3

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project MID	10	0.9976	0.9976	0.0075	0.9830	1.0129	0.9795	0.9801	0.0995	0.7956	1.1905	46.8	52.5
In-combination with the Project HIGH	10	0.9977	0.9977	0.0069	0.9844	1.0113	0.9763	0.9797	0.0960	0.7979	1.1743	46.2	53.4
Project alone LOW	20	0.9998	0.9999	0.0054	0.9896	1.0104	0.9933	1.0050	0.1292	0.7813	1.2809	49.1	51.1
Project alone MID	20	0.9995	0.9998	0.0053	0.9895	1.0105	0.9943	1.0034	0.1280	0.7742	1.2730	48.2	52.0
Project alone HIGH	20	0.9996	0.9998	0.0056	0.9892	1.0110	0.9981	1.0036	0.1304	0.7680	1.2827	49.1	50.9
In-combination without the Project	20	0.9974	0.9975	0.0054	0.9864	1.0086	0.9486	0.9554	0.1259	0.7327	1.2379	45.5	55.2

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project LOW	20	0.9977	0.9977	0.0054	0.9867	1.0079	0.9532	0.9595	0.1241	0.7292	1.2229	44.8	55.5
In-combination with the Project MID	20	0.9977	0.9976	0.0056	0.9861	1.0089	0.9514	0.9605	0.1276	0.7288	1.2275	44.0	56.5
In-combination with the Project HIGH	20	0.9976	0.9975	0.0052	0.9866	1.0073	0.9530	0.9566	0.1204	0.7410	1.2074	45.0	55.9
Project alone LOW	30	1.0000	1.0000	0.0046	0.9914	1.0090	0.9935	1.0109	0.1569	0.7314	1.3823	48.1	51.6
Project alone MID	30	0.9999	1.0000	0.0046	0.9912	1.0099	0.9967	1.0120	0.1595	0.7294	1.3894	49.6	50.9
Project alone HIGH	30	0.9999	0.9999	0.0046	0.9911	1.0093	1.0000	1.0068	0.1556	0.7459	1.3577	49.2	51.3

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination without the Project	30	0.9977	0.9975	0.0046	0.9885	1.0062	0.9279	0.9368	0.1513	0.6729	1.2718	44.0	56.2
In-combination with the Project LOW	30	0.9977	0.9978	0.0048	0.9877	1.0077	0.9340	0.9443	0.1556	0.6590	1.2814	46.1	55.6
In-combination with the Project MID	30	0.9978	0.9978	0.0046	0.9884	1.0075	0.9377	0.9451	0.1489	0.6880	1.2761	44.4	56.2
In-combination with the Project HIGH	30	0.9976	0.9975	0.0043	0.9881	1.0061	0.9293	0.9360	0.1397	0.6865	1.2564	43.8	56.0
Project alone LOW	35	0.9999	1.0000	0.0042	0.9918	1.0084	1.0000	1.0108	0.1639	0.7241	1.3683	49.1	51.0
Project alone MID	35	0.9998	0.9999	0.0042	0.9916	1.0083	0.9930	1.0099	0.1692	0.7334	1.3854	49.7	50.7

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone HIGH	35	0.9997	0.9999	0.0042	0.9919	1.0082	0.9975	1.0083	0.1645	0.7240	1.3963	49.7	50.2
In-combination without the Project	35	0.9975	0.9975	0.0042	0.9894	1.0057	0.9101	0.9242	0.1545	0.6488	1.2575	45.1	55.7
In-combination with the Project LOW	35	0.9977	0.9977	0.0044	0.9892	1.0061	0.9217	0.9327	0.1593	0.6481	1.2858	44.8	54.4
In-combination with the Project MID	35	0.9977	0.9978	0.0043	0.9894	1.0063	0.9245	0.9377	0.1579	0.6611	1.2610	45.8	55.6
In-combination with the Project HIGH	35	0.9976	0.9975	0.0040	0.9888	1.0053	0.9194	0.9246	0.1458	0.6546	1.2170	43.3	56.8

6.13.3.2 Puffin

The impacts from the Project alone in the breeding and non-breeding seasons on the breeding puffin population of the SPA were predicted to be 0.3 – 0.9 birds killed per annum (Appendix C, Section C.1, Table C1-9). This was a predicted change in adult survival of 0.0006% - 0.0019% points (Appendix C, Section C.1, Table C1-20). There were no predicted impacts from other plans and project on the Hermaness, Saxa Vord and Valla Field SPA breeding puffin population (Appendix C, Section C.2, Table C2-8) The predicted impacts on the breeding population of puffins from the Hermaness, Saxa Vord and Valla Field SPA from the Project alone were sufficiently small that no PVA was necessary.

Impacts from the construction stage of the Project, including all cable installation, are short term, temporary and reversible. Following completion of the construction stage the disturbance effects will be removed. Therefore, this impact source will not have an impact on the conservation objectives to maintain the population in the long term.

The predicted impacts, based on guidance and advice from NatureScot, on the breeding puffin population from the Hermaness, Saxa Vord and Valla Field SPA from the Project alone and in combination would therefore not adversely affect the integrity of the site.

6.13.3.3 Fulmar

The impacts from the Project alone in the breeding and non-breeding seasons on the breeding fulmar population of the SPA were predicted to be 0.07 – 0.21 birds killed per annum (Appendix C, Section C.1, Table C1-11). This was a predicted change in adult survival of 0.0003% - 0.0008% points (Appendix C, Section C.1, Table C1-22). The predicted impacts from other plans and projects was not possible to estimate as previous projects have screened out impacts on fulmar populations from SPAs. The predicted impact from the Project alone was a sufficiently small impact on the breeding population of fulmars from the Hermaness, Saxa Vord and Valla Field SPA that no PVA was necessary.

Impacts from the construction stage of the Project, including all cable installation, are short term, temporary and reversible. Following completion of the construction stage the disturbance effects will be removed. Therefore, this impact source will not have an impact on the conservation objectives to maintain the population in the long term.

The predicted impacts, based on guidance and advice from NatureScot, on the breeding fulmar population from the Hermaness, Saxa Vord and Valla Field SPA from the Project alone and in combination would therefore not adversely affect the integrity of the site.

6.13.3.4 Gannet

The impacts from the Project alone in the breeding and non-breeding seasons on the breeding gannet population of the SPA were predicted to be 3.3– 4.5 birds killed per annum (Appendix C, Section C.1, Table C1-13). This was a predicted change in adult survival of 0.005% - 0.009% points (Appendix C, Section C.1, Table C1-23).

The predicted impacts from other plans and projects was a further 291.2 birds killed per annum in the UK North Sea and Channel, resulting in a total predicted impact from the Project alone and in-combination of 293.5 – 297.5 birds killed per annum during the spring migration, with 0.8% - 1.5% of this total from the Project alone (Appendix C, Section C.2, Table C2-12). This resulted in a predicted change in adult survival of 0.57% - 0.58% points (Appendix C, Section C.2, Table C2-21) and so a PVA was completed based on this BDMPS region and season with the largest predicted impact.

The PVA provided projected change in population size of the baseline population, the population impacted by the Project alone (with low, medium and high displacement scenarios), impacted by in-combination impacts without the Project and impacted by the in-combination impacts with the Project (with low, medium and high displacement scenarios). The PVA projected that population would increase in the baseline scenario and Project alone (with low, mid and high displacement scenarios) based on the input demographic values and the assumptions of the model (Figure 6-18). However, for the in-combination impact scenario without the Project and the in-combination impact scenario with the Project were projected to decline.

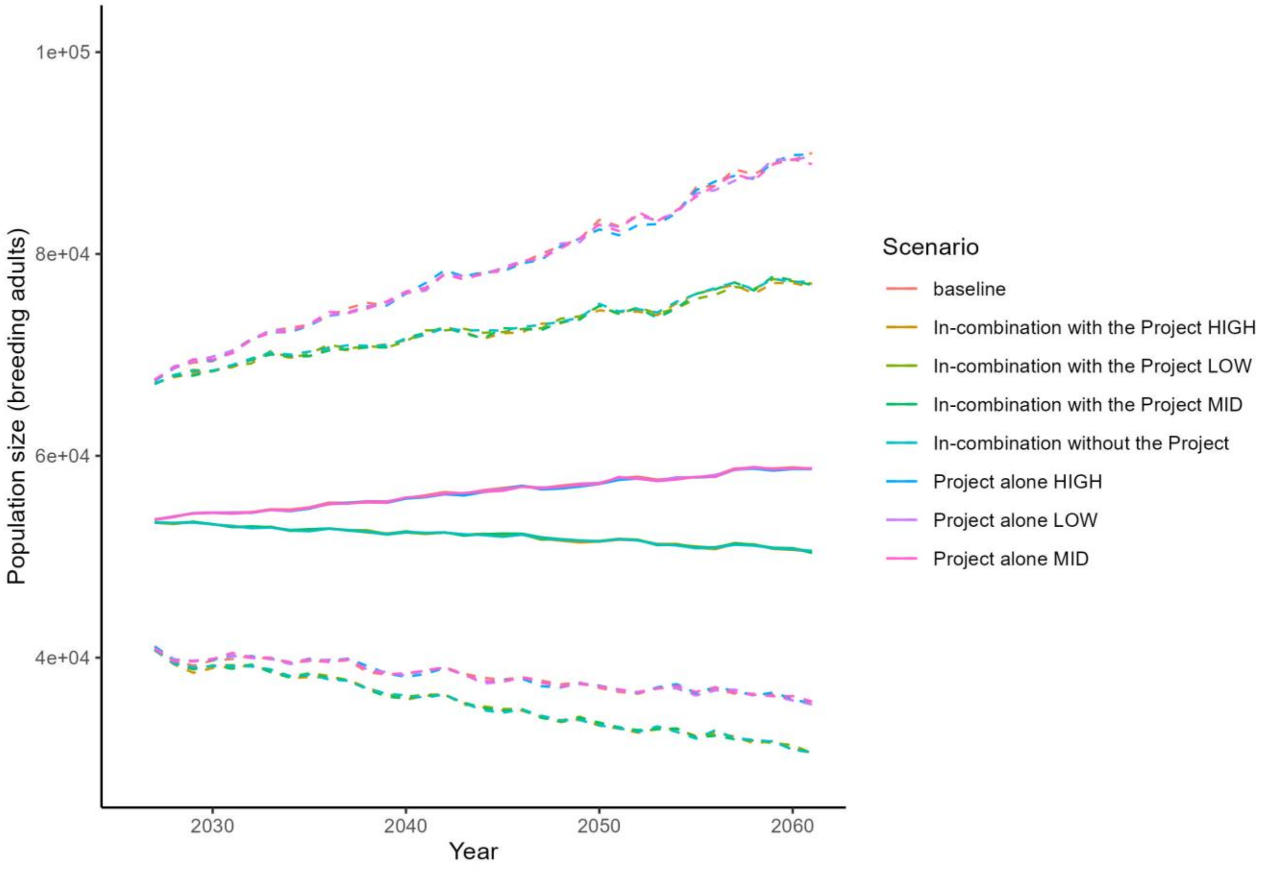


Figure 6-18 Projected population size of the breeding gannet feature of the Hermaness, Saxa Vord and Valla Field SPA for the baseline (unimpacted), Project alone, in-combination impacts without the Project and in-combination with the Project from 2027 to 2062. Solid line = mean, dashed line = SD

The PVA metrics (Table 6-38) showed that the mean and median CGR was very close to one across the projected 35 years used in the model for the Project alone (with low, medium and high displacement scenarios). The CGR value for the project alone after 35 years was 0.9999 – 1.0000, or a 0.0 – 0.0001% decline in growth rate. The CGR value for the in-combination impacts was 0.9957, or a 0.431% decline in growth rate. Adding the Project alone to the in-combination impact made an extremely small difference to the predicted change in growth rate (0.9956 - 0.9957).

This suggests that the growth rate of the Hermaness, Saxa Vord and Valla Field SPA kittiwake population would not be adversely affected by the Project alone or in-combination impact.

The mean and median CPS values decreased with the duration of the PVA projection (Table 6-38). The CPS values at 35 years of the Project alone, the in-combination values without the Project and the in-combination values with and without the Project show that the majority of the predicted impacts on the SPA are from the in-combination impacts with very little effect from the Project alone. The CPS for the Project alone was very high (0.9975- 0.9989), suggesting that the PVA predicts that the population would be smaller 0.11% - 0.25% than the baseline population size. The in-combination CPS value was 0.8557. Thus, the PVA predicts that the population would be about 14.4% smaller than the baseline population size. Adding the predicted impacts from the Project to the existing in-combination impacts made a small difference to the CPS value (0.8543 - 0.8554), and thus the PVA predicted that the population would be about 14.5% to 14.6% smaller than the baseline population size.

The quantile metrics showed that across the projected years from the PVA that the overlap in the distribution of the projected end population size reduced for the scenarios that included predicted in-combination impacts. However, the quantile metrics also showed that these distributions remained essentially unchanged between the baseline and the predicted impacts from the Project alone.

Impacts from the construction stage of the Project, including all cable installation, are short term, temporary and reversible. Following completion of the construction stage the disturbance effects will be removed. Therefore, this impact source will not have an impact on the conservation objectives to maintain the population in the long term.

The predicted impacts, based on guidance and advice from NatureScot, on the breeding gannet population from the Hermaness, Saxa Vord and Valla Field SPA from the Project alone and in combination would therefore not adversely affect the integrity of the site.

Table 6-38 Summary of PVA metrics for the gannet population from Hermaness, Saxa Vord and Valla Field SPA for the Project alone, in-combination without the Project and in-combination including the Project. Based on the assessment of in-combination impacts and population sizes for the BDMPS UK North Sea & Channel. SD = standard deviation, LCI = lower confidence interval, UCI = upper confidence interval.

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone LOW	10	1.0000	1.0000	0.0006	0.9989	1.0010	1.0005	1.0001	0.0086	0.9836	1.0174	49.7	50.5
Project alone MID	10	1.0000	1.0000	0.0006	0.9989	1.0011	0.9997	0.9996	0.0085	0.9841	1.0176	49.7	50.2
Project alone HIGH	10	0.9999	0.9999	0.0006	0.9988	1.0011	0.9993	0.9993	0.0089	0.9816	1.0168	50.1	49.9
In-combination without the Project	10	0.9955	0.9955	0.0006	0.9944	0.9966	0.9519	0.9518	0.0084	0.9357	0.9682	38.5	63.0
In-combination with the Project LOW	10	0.9955	0.9955	0.0006	0.9944	0.9966	0.9513	0.9517	0.0082	0.9361	0.9683	38.5	63.0

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project MID	10	0.9955	0.9955	0.0006	0.9944	0.9966	0.9510	0.9514	0.0083	0.9353	0.9683	38.3	63.2
In-combination with the Project HIGH	10	0.9955	0.9955	0.0006	0.9943	0.9966	0.9513	0.9512	0.0083	0.9347	0.9672	38.5	63.2
Project alone LOW	20	1.0000	1.0000	0.0004	0.9992	1.0007	0.9995	0.9996	0.0103	0.9798	1.0196	50.6	49.5
Project alone MID	20	0.9999	1.0000	0.0004	0.9992	1.0007	0.9992	0.9993	0.0102	0.9806	1.0198	49.7	50.1
Project alone HIGH	20	0.9999	0.9999	0.0004	0.9991	1.0007	0.9984	0.9984	0.0103	0.9778	1.0170	49.3	50.4
In-combination without the Project	20	0.9956	0.9956	0.0004	0.9948	0.9964	0.9119	0.9119	0.0098	0.8938	0.9309	32.3	68.0

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project LOW	20	0.9956	0.9956	0.0004	0.9948	0.9964	0.9118	0.9118	0.0095	0.8940	0.9308	32.0	68.0
In-combination with the Project MID	20	0.9956	0.9956	0.0004	0.9948	0.9964	0.9117	0.9115	0.0095	0.8939	0.9304	32.6	68.2
In-combination with the Project HIGH	20	0.9956	0.9956	0.0004	0.9948	0.9963	0.9109	0.9110	0.0096	0.8914	0.9290	32.1	68.7
Project alone LOW	30	1.0000	1.0000	0.0003	0.9993	1.0006	0.9993	0.9993	0.0117	0.9764	1.0215	49.4	50.3
Project alone MID	30	1.0000	1.0000	0.0003	0.9993	1.0006	0.9990	0.9992	0.0117	0.9769	1.0225	49.6	50.1
Project alone HIGH	30	0.9999	0.9999	0.0003	0.9993	1.0005	0.9980	0.9980	0.0118	0.9748	1.0211	49.5	50.5

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination without the Project	30	0.9957	0.9957	0.0003	0.9950	0.9963	0.8741	0.8742	0.0110	0.8522	0.8966	28.1	73.1
In-combination with the Project LOW	30	0.9957	0.9957	0.0003	0.9950	0.9963	0.8741	0.8738	0.0104	0.8530	0.8946	28.6	73.2
In-combination with the Project MID	30	0.9957	0.9956	0.0003	0.9950	0.9962	0.8737	0.8735	0.0103	0.8530	0.8938	28.5	73.4
In-combination with the Project HIGH	30	0.9956	0.9956	0.0003	0.9950	0.9963	0.8728	0.8728	0.0105	0.8529	0.8939	28.5	74.3
Project alone LOW	35	1.0000	1.0000	0.0003	0.9994	1.0005	0.9987	0.9989	0.0122	0.9750	1.0218	49.9	50.1
Project alone MID	35	1.0000	1.0000	0.0003	0.9994	1.0006	0.9989	0.9989	0.0124	0.9759	1.0234	49.5	50.6

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone HIGH	35	0.9999	0.9999	0.0003	0.9993	1.0005	0.9975	0.9975	0.0127	0.9732	1.0213	49.1	50.5
In-combination without the Project	35	0.9957	0.9957	0.0003	0.9951	0.9963	0.8557	0.8558	0.0113	0.8337	0.8779	25.5	73.8
In-combination with the Project LOW	35	0.9957	0.9957	0.0003	0.9951	0.9963	0.8554	0.8552	0.0107	0.8329	0.8772	24.4	73.7
In-combination with the Project MID	35	0.9957	0.9957	0.0003	0.9951	0.9962	0.8551	0.8549	0.0105	0.8341	0.8759	25.0	74.1
In-combination with the Project HIGH	35	0.9956	0.9956	0.0003	0.9951	0.9962	0.8543	0.8542	0.0107	0.8332	0.8752	25.1	73.9

6.13.4 Assessment summary and conclusions

The assessment can conclude that there is no adverse effect on site integrity of the Hermaness, Saxa Vord and Valla Field SPA as outlined in as outlined in Table 6-39.

Table 6-39 Summary of assessment of Hermaness, Saxa Vord and Valla Field SPA.

QUALIFYING FEATURE	POTENTIAL EFFECT	CONCLUSION
Breeding kittiwake	Collisions and, displacement and barrier effects	No adverse effects on site integrity from the Project alone and in-combination with other reasonably foreseeable plans and projects
Breeding great skua	None	No likely significant effect
Breeding guillemot	None	No likely significant effect
Breeding puffin	Displacement and barrier effects	No adverse effects on site integrity from the Project alone and in-combination with other reasonably foreseeable plans and projects
Breeding fulmar	Displacement and barrier effects	No adverse effects on site integrity from the Project alone and in-combination with other reasonably foreseeable plans and projects
Breeding gannet	Collisions and, displacement and barrier effects	No adverse effects on site integrity from the Project alone and in-combination with other reasonably foreseeable plans and projects
Breeding red-throated diver	None	No likely significant effect
Breeding shag	None	No likely significant effect
Breeding seabird assemblage	Collisions and, displacement and barrier effects	No adverse effects on site integrity from the Project alone and in-combination with other reasonably foreseeable plans and projects

6.14 Hoy SPA

The Hoy SPA was classified on 7th December 2000, with marine extension classified on 25th September 2009, due to its populations of breeding seabirds. The site is on the island of Hoy in Orkney and is approximately 25 km east of the Project.

6.14.1 Site details and qualifying interests

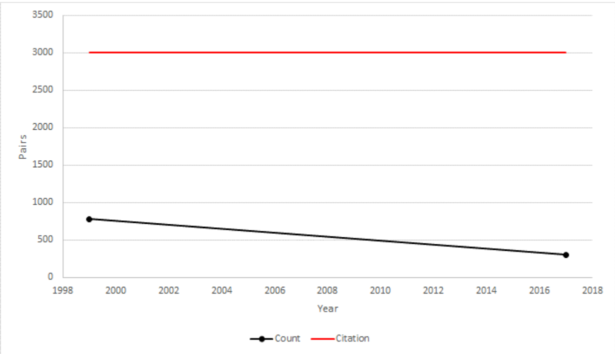
Hoy is a mountainous island at the south-western end of the Orkney archipelago. Hoy SPA covers the northern and western two-thirds of Hoy Island, which is formed of Old Red Sandstone and contains Orkney's highest hills, and adjacent coastal waters. The SPA supports an extremely diverse mixture of mire, heath and alpine vegetation and Britain's most northerly native woodland. These upland areas and the high sea cliffs at the coast support an important assemblage of moorland breeding birds and breeding seabirds.

The boundary of Hoy SPA overlaps with that of Hoy SSSI, and the seaward extension extends approximately 2 km into the marine environment to include the seabed, water column and surface.

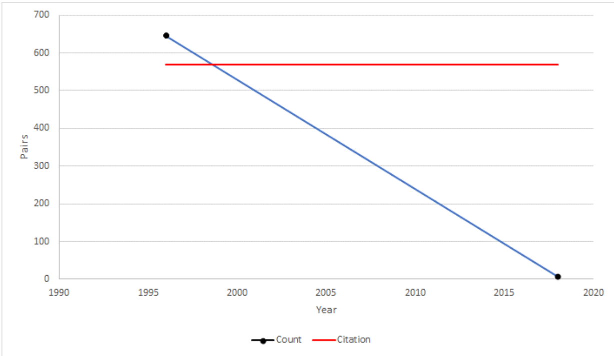
Table 6-40 Qualifying interests and condition for the Hoy SPA

QUALIFYING INTERESTS	FEATURE CONDITION	ASSESSMENT DATE	BROADER CONSERVATION STATUS
Kittiwake	Unfavourable Declining	10 Jun 2017	Red
Great black-backed gull	Unfavourable Declining	8 Jul 2019	Amber
Great skua	Unfavourable Declining	8 Jul 2019	Amber
Arctic skua	Unfavourable Declining	8 Jul 2019	Red
Guillemot	Unfavourable No change	10 Jun 2017	Amber
Puffin	Unfavourable Declining	29 Jun 2004	Red
Fulmar	Unfavourable No change	10 Jun 2017	Amber
Red-throated diver	Favourable Maintained	30 Aug 2007	Green
Peregrine	Favourable Maintained	29 May 2013	Green
Seabird assemblage	Unfavourable Declining	8 Jul 2019	n/a

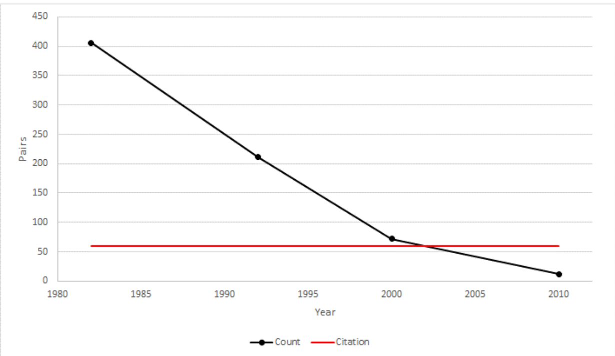
For each qualifying feature requiring assessment (except the breeding seabird assemblage) count data was extracted from the SMP database. These counts were plotted and compared with the citation population size, where data allowed (Figure 6-19).



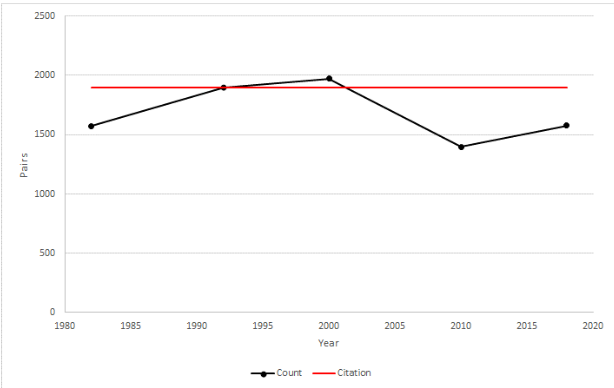
Kittiwake



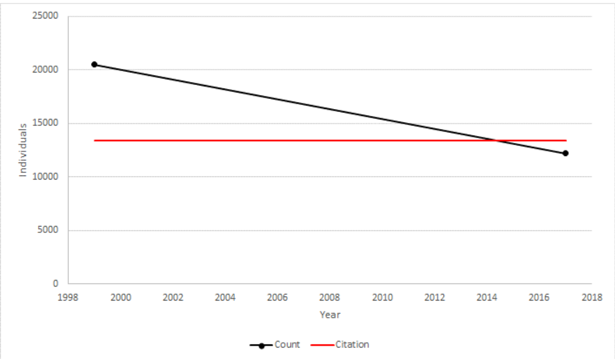
Great black-backed gull



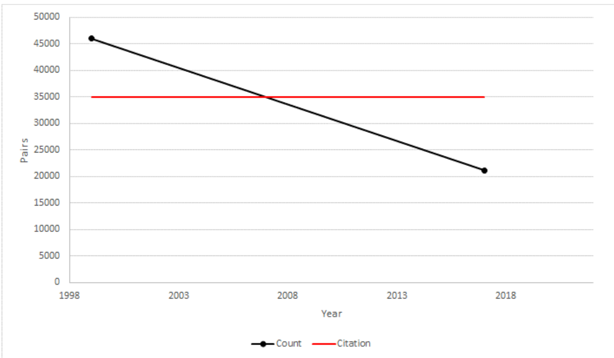
Arctic skua



Great skua



Guillemot



Fulmar

Figure 6-19 Hoy SPA qualifying feature population trends from 1981 - 2022 (citation population size shown by red line).

Population counts were only available from 1982 to 2022. All species requiring assessment, except great skua, have apparently declined across the period where data are available. Arctic skua numbers have declined markedly since 1982, with the most recent count below the citation population size. The only fulmar counts are from 1999/2000 and 2016 – 2019, which shows a decline to a level below the citation population size. There were few complete censuses of breeding great black-backed gull on Hoy in the SMP database, so the only data used were the 1996 count of the whole island and the census counts from 2017 to 2022. It is clear that the population on Hoy has declined dramatically, with a very small population remaining. The population is well below the citation population size. The great skua population has fluctuated around the citation population size between 1982 and 2018. Kittiwakes have declined from 1999 to the most recent count in 2016/2017 and has been below the citation population size for this whole period. Similarly, guillemot counts were only available from the census in 1999 and 2016/2017, which showed a decline in numbers, to level now slightly below the citation population size. Puffin counts in the SMP database are only available from 2016/2017. Puffin on Hoy nest in cliffs and are therefore very hard to survey and there is considerable uncertainty in the current, and previous, population sizes. Hughes et al. (2018) noted counts of individual puffins around Hoy were 6,726 in 1985-88, only 417 in 1998 – 2002 and about 3,000 in 2016. The citation population size is 3,500 pairs.

6.14.2 Conservation objectives

The conservation objectives of the Hoy SPA are:

To avoid deterioration of the habitats of the qualifying species or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained; and

To ensure for the qualifying species that the following are maintained in the long term:

- Population of the species as a viable component of the site;
- Distribution of the species within site;
- Distribution and extent of habitats supporting the species;
- Structure, function and supporting processes of habitats supporting the species; and
- No significant disturbance of the species.

6.14.3 Assessment of predicted impacts alone and in-combination

Several qualifying features of the Hoy SPA were screened out of the assessment as there was no connectivity between the Project and the SPA:

- Arctic skua;
- Red-throated diver; and
- Peregrine

For all of these features the Project was either beyond the mean of the maximum foraging range (+1 SD) and they Did not occur in the Project area in the non-breeding season, or, for Arctic skua, occurred in insignificant numbers. The predicted impacts from the Project alone on the qualifying features of the Hoy SPA are summarised in the tables in Appendix C, Section C.1. The predicted effect on adult survival from these impacts are summarised in Appendix C, Section C.1.9. The predicted impacts from the Project in-combination with other reasonably foreseeable plans and projects are summarised in Appendix C, Section C.2. The predicted effect on adult survival from these impacts are summarised in Appendix C, Section C.2.8.

6.14.3.1 Kittiwake

The predicted impacts from the Project alone on the breeding kittiwake population was 0.2 – 0.3 birds per annum in the breeding season (Appendix C, Section C.1, Table C1-1). In the non-breeding season, the predicted impacts were dependent on the BDMPS region used and the seasonal BDMPS population sizes. The largest non-breeding season predicted impact was 0.03 – 0.04 birds per annum based on the UK North Sea waters Spring migration (January to April). This predicted a change in adult survival of 0.04% - 0.06% points (Appendix C, Section C.1, Table C1-15) and so a PVA was required.

The predicted impacts from the Project in-combination on the breeding kittiwake population was dependent on the BDMPS region used and the seasonal BDMPS population sizes. The largest predicted impact was 2.5 – 2.6 birds per annum based on the UK North Sea waters Spring migration population (Appendix C, Section C.2, Table C2-1). This predicted a change in adult survival of 0.41% - 0.42% points (Appendix C, Section C.2, Table C2-14) and so a PVA was completed based on this BDMPS region and season with the largest predicted impact.

The PVA provided projected change in population size of the baseline population, the population impacted by the Project alone, impacted by in-combination impacts without the Project and impacted by the in-combination impacts with the Project. Due to the small current population size of kittiwakes at the Hoy SPA it was not possible to run a stochastic population model. Consequently, the PVA is based on a population model without demographic stochasticity, but with environmental stochasticity retained. The PVA projected that population would decline in all scenarios based on the input demographic values and the assumptions of the model (Figure 6-20).

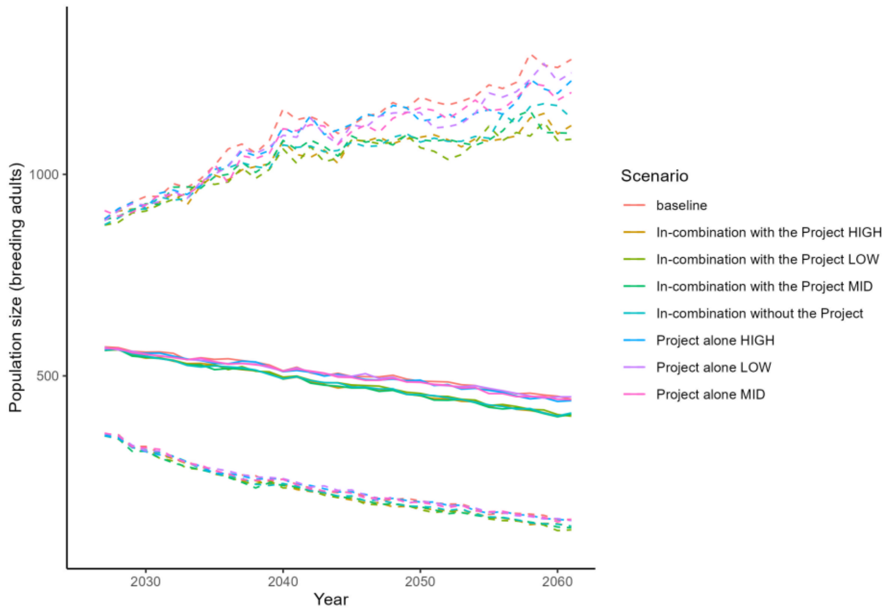


Figure 6-20 Projected population size of the breeding kittiwake feature of the Hoy SPA for the baseline (unimpacted), Project alone, in-combination impacts without the Project and in-combination with the Project from 2027 to 2062. Solid line = mean, dashed line = SD

The PVA metrics (Table 6-41) showed that the mean and median CGR was very close to one across the projected 35 years used in the model for the Project alone. The CGR value for the project alone after 35 years was 0.9996 – 0.9998, or a 0.02% - 0.04% decline in growth rate. The CGR value for the in-combination impacts was 0.9973, or a 0.27% decline in growth rate. Adding the Project alone to the in-combination impact made very little difference to the predicted change in growth rate. The pattern of CGR and CPS values across the three levels of predicted impact varied in-consistently. This was due to the combination of a very small baseline population size and the stochastic nature of the PVA model. This suggests that the growth rate of the Hoy SPA kittiwake population would not be adversely affected by the predicted impacts from Project alone or in-combination.

The mean and median CPS values decreased with the duration of the PVA projection (Table 6-41). The CPS values at 35 years of the Project alone, the in-combination values without the Project and the in-combination values with and without the Project show that the majority of the predicted impacts on the SPA are from the in-combination impacts with very little effect from the Project alone. The CPS for the Project alone was high (0.9814 - 0.9918), suggesting that the PVA predicts that the population would be only 0.8 – 1.9% smaller than the baseline population size. The in-combination only CPS value was relatively low (0.8996). Thus, the PVA predicts that the population would be about 10.0% smaller than the baseline population size from the in-combination impact without the Project. Adding the predicted impacts from the Project to the existing in-combination impacts made a small difference to the CPS value (0.8897 - 0.8937), and thus the PVA predicted that the population would be about 10.6 – 11.0% smaller than the baseline population size.

The quantile metrics showed that across the projected years from the PVA that the overlap in the distribution of the projected end population size reduced for the scenarios that included predicted in-combination impacts. However, the quantile metrics also showed that these distributions remained essentially unchanged between the baseline and the predicted impacts from the Project alone.

Impacts from the construction stage of the Project, including all cable installation, are short term, temporary and reversible. Following completion of the construction stage the disturbance effects will be removed. Therefore, this impact source will not have an impact on the conservation objectives to maintain the population in the long term.

The predicted impacts, based on guidance and advice from NatureScot, on the breeding kittiwake population from the Hoy SPA from the Project alone would not adversely affect the integrity of the site. When applying the significant levels of precaution advised it may not be possible to discount AESI arising from the list of in-combination projects, the predicted impacts from the Project alone is beneath any threshold of significance and *de minimis* and as such would not materially alter the significance or the likelihood of an adverse effect on the integrity of the Hoy SPA.

Table 6-41 Summary of PVA metrics for the kittiwake population from Hoy SPA for the Project alone, in-combination without the Project and in-combination including the Project. Based on the assessment of in-combination impacts and population sizes for the BDMPS UK North Sea waters Spring migration (January to April) SD = standard deviation, LCI = lower confidence interval, UCI = upper confidence interval.

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone LOW	10	1.0001	0.9999	0.0072	0.9859	1.0131	1.0000	0.9990	0.0956	0.8177	1.2007	48.1	50.9
Project alone MID	10	0.9995	0.9995	0.0069	0.9860	1.0128	0.9881	0.9947	0.0939	0.8109	1.1896	48.3	51.5
Project alone HIGH	10	0.9996	0.9998	0.0068	0.9871	1.0133	0.9945	0.9981	0.0895	0.8379	1.1735	49.5	50.8
In-combination without the Project	10	0.9971	0.9972	0.0067	0.9847	1.0103	0.9646	0.9697	0.0892	0.8188	1.1544	45.7	53.9
In-combination with the Project LOW	10	0.9964	0.9968	0.0069	0.9845	1.0116	0.9587	0.9652	0.0937	0.7853	1.1600	46.5	52.9

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project MID	10	0.9968	0.9969	0.0071	0.9827	1.0107	0.9650	0.9678	0.0920	0.7990	1.1565	45.4	54.6
In-combination with the Project HIGH	10	0.9969	0.9969	0.0069	0.9834	1.0105	0.9620	0.9661	0.0902	0.7993	1.1571	44.9	54.5
Project alone LOW	20	0.9999	0.9998	0.0051	0.9903	1.0098	0.9979	0.9999	0.1220	0.7854	1.2501	49.6	51.2
Project alone MID	20	0.9996	0.9996	0.0051	0.9898	1.0101	0.9916	0.9958	0.1192	0.7766	1.2567	48.7	51.8
Project alone HIGH	20	0.9997	0.9997	0.0050	0.9902	1.0092	0.9920	0.9959	0.1167	0.7967	1.2332	48.7	51.6
In-combination without the Project	20	0.9974	0.9973	0.0050	0.9868	1.0071	0.9425	0.9473	0.1121	0.7473	1.1725	44.9	56.1

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project LOW	20	0.9968	0.9969	0.0051	0.9869	1.0075	0.9307	0.9399	0.1161	0.7269	1.1833	46.4	55.1
In-combination with the Project MID	20	0.9970	0.9969	0.0051	0.9862	1.0065	0.9389	0.9404	0.1130	0.7278	1.1779	43.9	57.0
In-combination with the Project HIGH	20	0.9971	0.9969	0.0048	0.9866	1.0063	0.9362	0.9379	0.1075	0.7355	1.1543	44.8	54.9
Project alone LOW	30	0.9999	0.9998	0.0042	0.9914	1.0080	0.9944	0.9998	0.1429	0.7555	1.3153	50.2	49.9
Project alone MID	30	0.9997	0.9997	0.0043	0.9909	1.0079	0.9882	0.9960	0.1440	0.7403	1.2938	48.8	51.3
Project alone HIGH	30	0.9997	0.9996	0.0042	0.9913	1.0079	0.9904	0.9945	0.1435	0.7379	1.3049	49.1	50.8

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination without the Project	30	0.9974	0.9972	0.0043	0.9884	1.0054	0.9153	0.9231	0.1356	0.6810	1.2114	43.3	56.0
In-combination with the Project LOW	30	0.9969	0.9969	0.0043	0.9881	1.0054	0.9036	0.9135	0.1337	0.6730	1.1913	44.6	54.9
In-combination with the Project MID	30	0.9968	0.9969	0.0042	0.9884	1.0054	0.9064	0.9142	0.1304	0.7019	1.1755	43.6	56.0
In-combination with the Project HIGH	30	0.9969	0.9970	0.0041	0.9891	1.0048	0.9114	0.9141	0.1256	0.6883	1.1636	43.3	55.2
Project alone LOW	35	0.9998	0.9998	0.0040	0.9916	1.0074	0.9918	0.9989	0.1542	0.7398	1.3054	49.1	50.6
Project alone MID	35	0.9996	0.9996	0.0039	0.9916	1.0069	0.9899	0.9949	0.1518	0.7280	1.3161	48.9	51.9

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone HIGH	35	0.9996	0.9996	0.0039	0.9920	1.0074	0.9814	0.9921	0.1520	0.7339	1.3315	47.8	52.3
In-combination without the Project	35	0.9973	0.9972	0.0040	0.9891	1.0048	0.8996	0.9120	0.1433	0.6618	1.2125	43.0	57.3
In-combination with the Project LOW	35	0.9970	0.9969	0.0040	0.9888	1.0049	0.8937	0.9015	0.1407	0.6452	1.2087	42.7	56.4
In-combination with the Project MID	35	0.9971	0.9969	0.0040	0.9885	1.0047	0.8897	0.9024	0.1383	0.6440	1.1833	42.7	57.8
In-combination with the Project HIGH	35	0.9969	0.9969	0.0039	0.9891	1.0046	0.8902	0.9006	0.1339	0.6625	1.1848	43.1	57.0

6.14.3.2 Great black-backed gull

The predicted impacts from the Project alone on the breeding great black-backed gull population was 0.009 birds per annum in the breeding season (Appendix C, Section C.1, Table C1-3). In the non-breeding season, the predicted impacts from the Project alone were 0.02 birds per annum based on the UK North Sea non-breeding population. This predicted a change in adult survival of 0.097% points (Appendix C, Section C.1, Table C1-16) and so a PVA was required. However, the current population size in the Hoy SPA is now so small (less than 10 pairs) that a population model could not be run.

No predicted in-combination impacts on the breeding great black-backed gull population at the Hoy SPA could be found (Appendix C, Section C.2, Table C2-3).

The absolute predicted impact, based on guidance and advice from NatureScot, on the breeding great black-backed gull population from the Hoy SPA was so small (equivalent to two adult birds every ten years, or seven birds for the duration of the Project) that no adverse effect on site integrity can be concluded.

6.14.3.3 Great skua

The predicted impacts from the Project alone on the breeding great skua population was 0.2 birds per annum in the breeding season (Appendix C, Section C.1, Table C1-4). In the non-breeding season, there were no predicted impacts from the Project alone. This predicted a change in adult survival of 0.02% points (Appendix C, Section C.1, Table C1-17) and so a PVA was required.

The predicted impacts from other plans and project were not possible to estimate as previous projects have screened out impacts on great skua populations from SPAs.

The PVA provided projected change in population size of the baseline population, the population impacted by the Project alone only. The PVA projected that population would increase in all scenarios based on the input demographic values and the assumptions of the model (Figure 6-21).

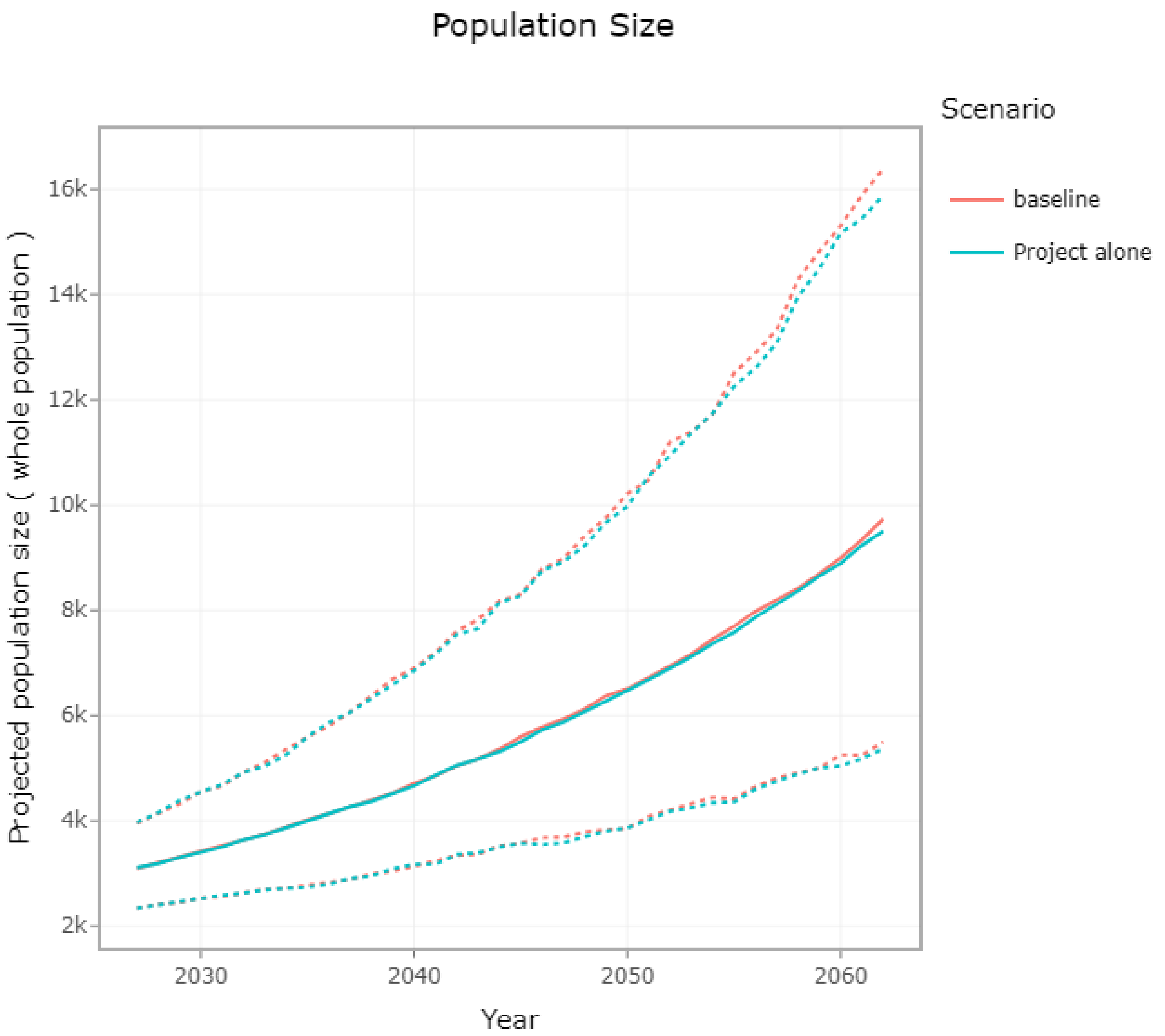


Figure 6-21 Projected population size of the breeding great skua feature of the Hoy SPA for the baseline (unimpacted), Project alone, in-combination impacts without the Project and in-combination with the Project from 2027 to 2062. Solid line = mean, dashed line = SD

The PVA metrics (Table 6-42) showed that the mean and median CGR was very close to one across the projected 35 years used in the model for the Project alone. The CGR value for the project alone after 35 years was 0.9996, or a 0.04% decline in growth rate. This suggests that the growth rate of the Hoy SPA kittiwake population would not be adversely affected by the predicted impacts from Project alone.

The mean and median CPS values decreased with the duration of the PVA projection (Table 6-42). The CPS values at 35 years of the Project alone was high (0.9859), or a 1.4% decline in population size. This would be an unmeasurably small change in the population size of the Hoy SPA.

The quantile metrics showed that across the projected years from the PVA that the overlap in the distribution of the projected end population size changed very little. The quantile metrics also showed that these distributions remained essentially unchanged between the baseline and the predicted impacts from the Project alone.

Table 6-42 Summary of PVA metrics for the great skua population from Hoy SPA for the Project alone, in-combination without the Project and in-combination including the Project. SD = standard deviation, LCI = lower confidence interval, UCI = upper confidence interval.

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project Alone	10	0.9999	0.9998	0.0035	0.9928	1.0067	0.9970	0.9983	0.0439	0.9160	1.0920	49.4	50.3
Project Alone	20	0.9996	0.9996	0.0022	0.9953	1.0040	0.9910	0.9932	0.0504	0.8976	1.0996	48.6	51.5
Project Alone	30	0.9996	0.9996	0.0016	0.9967	1.0027	0.9897	0.9898	0.0539	0.8925	1.1045	48.5	51.9
Project Alone	35	0.9996	0.9996	0.0014	0.9968	1.0024	0.9859	0.9874	0.0553	0.8855	1.1042	47.3	52.0

Impacts from the construction stage of the Project, including all cable installation, are short term, temporary and reversible. Following completion of the construction stage the disturbance effects will be removed. Therefore, this impact source will not have an impact on the conservation objectives to maintain the population in the long term.

The predicted impacts, based on guidance and advice from NatureScot, on the breeding great skua population from the Hoy SPA from the Project alone would not adversely affect the integrity of the site.

6.14.3.4 Guillemot

The impacts from the Project alone in the breeding and non-breeding seasons on the breeding guillemot population of the SPA were predicted to be 0.6 – 1.1 birds killed per annum (Appendix C, Section C.1, Table C1-6). This was a predicted change in adult survival of 0.004% - 0.007% points (Appendix C, Section C.1, Table C1-18). The predicted impacts from other plans and projects was a further 1.6 birds killed per annum from the UK North Sea BDMPS region (Appendix C, Section C.2, Table C2-4), resulting in a total predicted impact from the Project alone and in-combination of 2.2 – 2.7 birds killed per annum, with 41.1% - 41.3% of this total from the Project alone. This resulted in a predicted change in adult survival of 0.004% - 0.007% points (Appendix C, Section C.2) and so a PVA was not required.

Impacts from the construction stage of the Project, including all cable installation, are short term, temporary and reversible. Following completion of the construction stage the disturbance effects will be removed. Therefore, this impact source will not have an impact on the conservation objectives to maintain the population in the long term.

The predicted impacts, based on guidance and advice from NatureScot, on the breeding guillemot population from the Hoy SPA from the Project alone and in-combination would not adversely affect the integrity of the site.

6.14.3.5 Puffin

The impacts from the Project alone in the breeding and non-breeding seasons on the breeding puffin population of the SPA were predicted to be 0.06 – 0.15 birds killed per annum (Appendix C, Section C.1, Table C1-9) based on the UK North Sea & Channel. This was a predicted change in adult survival of 0.001% - 0.005% points (Appendix C, Section C.1, Table C1-20). The predicted impacts from other plans and projects was a further 0.02 birds killed per annum (Appendix C, Section C.2, Table C2-8) The predicted impacts on the breeding population of puffins from the Hoy SPA from the Project alone were sufficiently small (0.003% - 0.006%) that no PVA was necessary.

Impacts from the construction stage of the Project, including all cable installation, are short term, temporary and reversible. Following completion of the construction stage the disturbance effects will be removed. Therefore, this impact source will not have an impact on the conservation objectives to maintain the population in the long term.

The predicted impacts, based on guidance and advice from NatureScot, on the breeding puffin population from the Hoy SPA from the Project alone and in combination would therefore not adversely affect the integrity of the site.

6.14.3.6 Fulmar

The impacts from the Project alone in the breeding and non-breeding seasons on the breeding fulmar population of the SPA were predicted to be 0.8 – 2.3 birds killed per annum (Appendix C, Section C.1, Table C1-11) based on the

UK North Sea. This was a predicted change in adult survival of 0.002% - 0.006% points (Appendix C, Section C.1, Table C1-22). The predicted impacts from other plans and projects was not possible to estimate as previous projects have screened out impacts on fulmar populations from SPAs. The predicted impact from the Project alone was a sufficiently small impact on the breeding population of fulmars from the Hoy SPA that no PVA was necessary.

Impacts from the construction stage of the Project, including all cable installation, are short term, temporary and reversible. Following completion of the construction stage the disturbance effects will be removed. Therefore, this impact source will not have an impact on the conservation objectives to maintain the population in the long term.

The predicted impacts, based on guidance and advice from NatureScot, on the breeding fulmar population from the Hoy SPA from the Project alone and in combination would therefore not adversely affect the integrity of the site.

6.14.4 Assessment summary and conclusions

The assessment can conclude that there is no adverse effect on site integrity of the Hoy SPA as outlined in Table 6-43.

Table 6-43 Summary of assessment of Hoy SPA

QUALIFYING FEATURE	POTENTIAL EFFECT	CONCLUSION
Breeding kittiwake	Collisions and, displacement and barrier effects	No adverse effects on site integrity from the Project alone and in-combination with other reasonably foreseeable plans and projects
Breeding great black-backed gull	Collisions	No adverse effects on site integrity from the Project alone and in-combination with other reasonably foreseeable plans and projects
Breeding great skua	Collisions	No adverse effects on site integrity from the Project alone and in-combination with other reasonably foreseeable plans and projects
Breeding Arctic skua	None	No likely significant effect
Breeding guillemot	Displacement and barrier effects	No adverse effects on site integrity from the Project alone and in-combination with other reasonably foreseeable plans and projects

QUALIFYING FEATURE	POTENTIAL EFFECT	CONCLUSION
Breeding puffin	Displacement and barrier effects	No adverse effects on site integrity from the Project alone and in-combination with other reasonably foreseeable plans and projects
Breeding fulmar	Displacement and barrier effects	No adverse effects on site integrity from the Project alone and in-combination with other reasonably foreseeable plans and projects
Breeding red-throated diver	None	No likely significant effect
Breeding peregrine	None	No likely significant effect
Breeding seabird assemblage	Collisions and, displacement and barrier effects	No adverse effects on site integrity from the Project alone and in-combination with other reasonably foreseeable plans and projects

6.15 Marwick Head SPA

The Marwick Head SPA was classified on 16th December 1994, with marine extension classified on 25th September 2009, due to its populations of breeding seabirds. The site is on Mainland Orkney and is approximately 35 km east of the Project.

6.15.1 Site details and qualifying interests

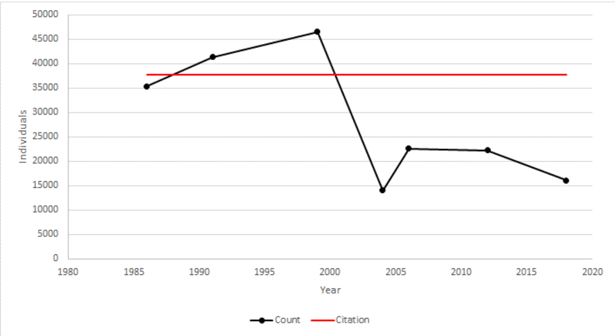
The Marwick Head Special Protection Area is a 2 km stretch of sea cliffs, and adjacent coastal waters, along the west coast of Orkney Mainland. The cliffs support large colonies of breeding seabirds.

The boundary of the Special Protection Area overlaps the boundary of Marwick Head SSSI, and the seaward extension extends approximately 1 km into the marine environment to include the seabed, water column and surface.

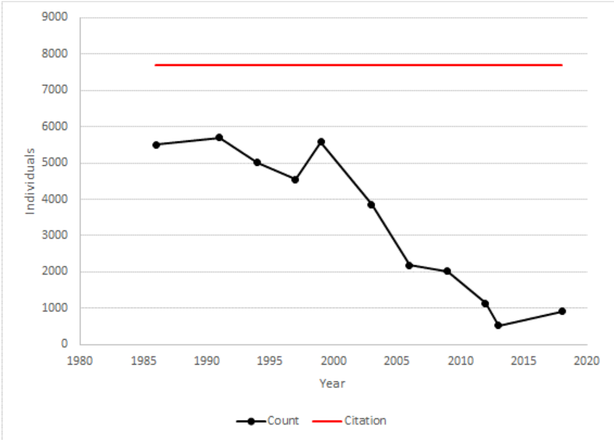
Table 6-44 Qualifying interests and condition for the Marwick Head SPA

QUALIFYING INTERESTS	FEATURE CONDITION	ASSESSMENT DATE	BROADER CONSERVATION STATUS
Kittiwake	Unfavourable Declining	15 Jun 2015	Red
Guillemot	Unfavourable Declining	22 Jun 2017	Amber
Seabird assemblage	Unfavourable Declining	15 Jun 2015	n/a

For each qualifying feature requiring assessment (except the breeding seabird assemblage) count data was extracted from the SMP database. These counts were plotted and compared with the citation population size, where data allowed (Figure 6-22).



Guillemot



Kittiwake

Figure 6-22 Marwick Head SPA qualifying feature population trends from 1981 - 2022 (citation population size shown by red line).

Both species, guillemot and kittiwake, have declined across the period where data are available. Kittiwakes have largely declined from 1986 to 2018, though there were small increase recorded in 1991 and 1999 and most recently in 2018. Across the whole period the population has been below the citation population size and is considerably below this level now. Guillemots increased from 1986 to 1999 and have largely declined since then (there was a small increase in 2016). The guillemot population was above the citation level in 1991 and 1999 and is currently well below this level.

6.15.2 Conservation objectives

The conservation objectives of the Marwick Head SPA are:

To avoid deterioration of the habitats of the qualifying species or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained; and

To ensure for the qualifying species that the following are maintained in the long term:

- Population of the species as a viable component of the site;
- Distribution of the species within site;
- Distribution and extent of habitats supporting the species;
- Structure, function and supporting processes of habitats supporting the species; and
- No significant disturbance of the species.

6.15.3 Assessment of predicted impacts alone and in-combination

The predicted impacts from the Project alone on the qualifying features of the Marwick Head SPA are summarised in the tables in Appendix C, Section C.1. The predicted effect on adult survival from these impacts are summarised in Appendix C, Section C.1.9. The predicted impacts from the Project in-combination with other reasonably foreseeable plans and projects are summarised in Appendix C, Section C.2. The predicted effect on adult survival from these impacts are summarised in Appendix C, Section C.2.8.

6.15.3.1 Kittiwake

The predicted impacts from the Project alone on the breeding kittiwake population was 0.3 – 0.4 birds per annum in the breeding season (Appendix C, Section C.1, Table C1-1). In the non-breeding season, the predicted impacts were dependent on the BDMPS region used and the seasonal BDMPS population sizes. The largest non-breeding season predicted impacts was 0.04 - 0.05 birds per annum based on the UK North Sea waters Spring migration (January to April). This predicted a change in adult survival of 0.02% - 0.03% points (Appendix C, Section C.1, Table C1-15) and so a PVA was required.

The predicted impacts from the Project in-combination on the breeding kittiwake population was dependent on the BDMPS region used and the seasonal BDMPS population sizes. The largest predicted impacts were 2.8 – 2.9 birds per annum based on the UK North Sea waters Spring migration population (Appendix C, Section C.2, Table C2-1). This predicted a change in adult survival of 0.15% - 0.16% points (Appendix C, Section C.2, Table C2-14) and so a PVA was completed based on this BDMPS region and season and the worst case scenario.

The PVA provided projected change in population size of the baseline population, the population impacted by the Project alone, impacted by in-combination impacts without the Project and impacted by the in-combination impacts with the Project. Due to the small current population size of kittiwakes at the Marwick Head SPA it was not possible to run a stochastic population model. Consequently, the PVA is based on a population model without demographic stochasticity, but with environmental stochasticity retained. The PVA projected that population would decline in all scenarios based on the input demographic values and the assumptions of the model (Figure 6-23).

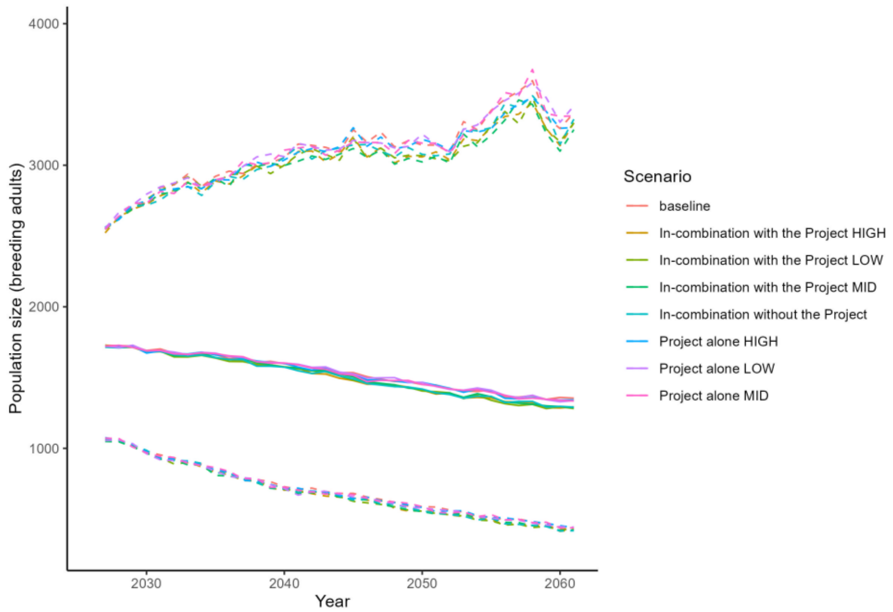


Figure 6-23 Projected population size of the breeding kittiwake feature of the Marwick Head SPA for the baseline (unimpacted), Project alone, in-combination impacts without the Project and in-combination with the Project from 2027 to 2062. Solid line = mean, dashed line = SD

The PVA metrics (Table 6-45) showed that the mean and median CGR was very close to one across the projected 35 years used in the model for the Project alone. The CGR value for the project alone after 35 years was 0.9998 – 0.9999, or a 0.01% - 0.02% decline in growth rate. The CGR value for the in-combination impacts was 0.9990, or a 0.10% decline in growth rate. Adding the Project alone to the in-combination impact made an extremely small difference to the predicted change in growth rate. This suggests that the growth rate of the Marwick Head SPA kittiwake population would not be adversely affected by the predicted impacts from Project alone or in-combination.

The mean and median CPS values decreased with the duration of the PVA projection (Table 6-41). The CPS values at 35 years of the Project alone, the in-combination values without the Project and the in-combination values with and without the Project show that the majority of the predicted impacts on the SPA are from the in-combination impacts with very little effect from the Project alone. The CPS for the Project alone was high (0.9974 – 0.9987), suggesting that the PVA predicts that the population would be 0.13% - 0.26% smaller than the baseline population size. The in-combination only CPS value was relatively high (0.9667). Thus, the PVA predicts that the population would be about 3.3% smaller than the baseline population size. Adding the predicted impacts from the Project to the existing in-combination impacts made a small difference to the CPS value (0.9593 – 0.9648), and thus the PVA predicted that the population would be about 3.5% - 4.1% smaller than the baseline population size.

The quantile metrics showed that across the projected years from the PVA that the overlap in the distribution of the projected end population size reduced for the scenarios that included predicted in-combination impacts. However, the quantile metrics also showed that these distributions remained essentially unchanged between the baseline and the predicted impacts from the Project alone.

Impacts from the construction stage of the Project, including all cable installation, are short term, temporary and reversible. Following completion of the construction stage the disturbance effects will be removed. Therefore, this impact source will not have an impact on the conservation objectives to maintain the population in the long term.

The predicted impacts, based on guidance and advice from NatureScot, on the breeding kittiwake population from the Marwick SPA from the Project alone and in-combination would not adversely affect the integrity of the site.

Table 6-45 Summary of PVA metrics for the kittiwake population from Marwick Head SPA for the Project alone, in-combination without the Project and in-combination including the Project. Based on the assessment of in-combination impacts and population sizes for the BDMPS UK North Sea waters Spring migration (January to April). SD = standard deviation, LCI = lower confidence interval, UCI = upper confidence interval.

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone LOW	10	0.9996	0.9996	0.0040	0.9918	1.0071	0.9943	0.9962	0.0528	0.8976	1.0986	50.3	49.7
Project alone MID	10	0.9996	0.9997	0.0041	0.9920	1.0075	0.9934	0.9977	0.0532	0.9009	1.1048	50.4	49.1
Project alone HIGH	10	0.9998	0.9997	0.0039	0.9925	1.0072	0.9954	0.9977	0.0549	0.8945	1.1118	49.8	50.2
In-combination without the Project	10	0.9987	0.9987	0.0039	0.9908	1.0063	0.9882	0.9868	0.0514	0.8864	1.0891	48.8	51.6
In-combination with the Project LOW	10	0.9987	0.9985	0.0040	0.9904	1.0062	0.9863	0.9844	0.0528	0.8787	1.0866	47.6	52.2

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project MID	10	0.9986	0.9986	0.0039	0.9911	1.0066	0.9848	0.9865	0.0539	0.8841	1.1007	49.1	50.9
In-combination with the Project HIGH	10	0.9987	0.9987	0.0038	0.9910	1.0060	0.9861	0.9853	0.0505	0.8899	1.0876	47.8	51.9
Project alone LOW	20	0.9999	0.9999	0.0028	0.9941	1.0054	1.0014	1.0000	0.0659	0.8690	1.1312	51.1	49.5
Project alone MID	20	0.9996	0.9997	0.0029	0.9938	1.0057	0.9956	0.9968	0.0674	0.8748	1.1298	49.5	51.1
Project alone HIGH	20	0.9998	0.9998	0.0028	0.9945	1.0053	0.9975	0.9985	0.0678	0.8675	1.1300	49.6	50.3
In-combination without the Project	20	0.9990	0.9989	0.0029	0.9929	1.0039	0.9791	0.9789	0.0654	0.8546	1.1025	47.7	52.6

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project LOW	20	0.9987	0.9987	0.0029	0.9932	1.0045	0.9733	0.9752	0.0660	0.8467	1.1088	48.0	53.3
In-combination with the Project MID	20	0.9989	0.9988	0.0029	0.9935	1.0045	0.9753	0.9785	0.0666	0.8552	1.1078	48.2	52.7
In-combination with the Project HIGH	20	0.9987	0.9988	0.0027	0.9937	1.0042	0.9745	0.9761	0.0627	0.8610	1.1049	47.9	53.0
Project alone LOW	30	0.9999	0.9999	0.0024	0.9949	1.0044	1.0000	0.9995	0.0788	0.8513	1.1453	49.7	50.4
Project alone MID	30	0.9997	0.9998	0.0024	0.9953	1.0048	0.9944	0.9978	0.0800	0.8512	1.1591	49.2	50.7
Project alone HIGH	30	0.9999	0.9999	0.0023	0.9953	1.0043	0.9990	0.9990	0.0793	0.8412	1.1661	49.2	50.7

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination without the Project	30	0.9990	0.9989	0.0024	0.9940	1.0035	0.9683	0.9704	0.0775	0.8173	1.1229	48.2	51.9
In-combination with the Project LOW	30	0.9988	0.9988	0.0024	0.9940	1.0036	0.9609	0.9647	0.0781	0.8171	1.1298	46.2	53.4
In-combination with the Project MID	30	0.9989	0.9989	0.0023	0.9941	1.0033	0.9653	0.9683	0.0759	0.8241	1.1318	47.1	53.3
In-combination with the Project HIGH	30	0.9988	0.9988	0.0024	0.9942	1.0036	0.9628	0.9663	0.0758	0.8209	1.1312	47.7	53.4
Project alone LOW	35	0.9999	0.9999	0.0022	0.9953	1.0042	0.9987	0.9997	0.0842	0.8340	1.1683	48.9	51.0
Project alone MID	35	0.9998	0.9999	0.0022	0.9952	1.0045	0.9974	0.9982	0.0846	0.8408	1.1803	49.1	51.1

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone HIGH	35	0.9999	0.9999	0.0022	0.9955	1.0040	0.9982	0.9994	0.0847	0.8370	1.1679	48.9	50.6
In-combination without the Project	35	0.9990	0.9990	0.0022	0.9941	1.0032	0.9667	0.9674	0.0818	0.8003	1.1266	47.3	53.3
In-combination with the Project LOW	35	0.9988	0.9988	0.0023	0.9940	1.0031	0.9618	0.9598	0.0841	0.7986	1.1170	46.0	54.3
In-combination with the Project MID	35	0.9990	0.9989	0.0022	0.9946	1.0030	0.9648	0.9652	0.0817	0.8137	1.1403	46.8	54.5
In-combination with the Project HIGH	35	0.9988	0.9988	0.0022	0.9946	1.0035	0.9593	0.9611	0.0795	0.8122	1.1407	46.5	53.8

6.15.3.2 Guillemot

The impacts from the Project alone in the breeding and non-breeding seasons on the breeding guillemot population of the SPA were predicted to be 0.2 – 0.4 birds killed per annum (Appendix C, Section C.1, Table C1-6). This was a predicted change in adult survival of 0.001% - 0.002% points (Appendix C, Section C.1, Table C1-18). The predicted impacts from other plans and projects was a further 0.8 birds killed per annum (Appendix C, Section C.2, Table C2-4), resulting in a total predicted impact from the Project alone an in-combination of 1.0 - 1.2 birds killed per annum, with 18.9% - 30.4% of this total from the Project alone. This resulted in a predicted change in adult survival of 0.006% - 0.008% points (Appendix C, Section C.2, Table C2-16) and so a PVA was not required.

Impacts from the construction stage of the Project, including all cable installation, are short term, temporary and reversible. Following completion of the construction stage the disturbance effects will be removed. Therefore, this impact source will not have an impact on the conservation objectives to maintain the population in the long term.

Results from the seabORD model suggested an additional mortality of 13 – 18 birds per annum as a result of displacement and barrier effects and a percentage point reduction in survival of 0.08% to 0.116%. This is much larger than the predicted impact from the matrix approach applied above (0.0012% - 0.0023% points). In addition to predicting adult mortality, seabORD also predicted the chick mortality as a result of the effects on the adult population from displacement and barrier effects. The increase in chick mortality was predicted to be 31 birds per annum, which is a 2% increase over the baseline chick mortality.

The predicted impacts, based on guidance and advice from NatureScot, on the breeding guillemot population from the Marwick Head SPA from the Project alone and in-combination would not adversely affect the integrity of the site.

6.15.4 Assessment summary and conclusions

The assessment can conclude that there is no adverse effect on site integrity of the Marwick SPA as outlined in Table 6-46.

Table 6-46 Summary of assessment of Marwick Head SPA.

QUALIFYING FEATURE	POTENTIAL EFFECT	CONCLUSION
Breeding kittiwake	Collisions and, displacement and barrier effects	No adverse effects on site integrity from the Project alone and in-combination with other reasonably foreseeable plans and projects
Breeding guillemot	Displacement and barrier effects	No adverse effects on site integrity from the Project alone and in-combination with other reasonably foreseeable plans and projects
Breeding seabird assemblage	Collisions and, displacement and barrier effects	No adverse effects on site integrity from the Project alone and in-combination with other reasonably foreseeable plans and projects

6.16 North Caithness Cliffs SPA

The North Caithness Cliffs SPA was classified on 16th August 1996, with marine extension classified on 25th September 2009, due to its populations of breeding seabirds. The site is a combination of four cliffs on the north coast of Scotland and one island, Stroma, in the Pentland Firth. It is approximately 27 km south of the Project.

6.16.1 Site details and qualifying interests

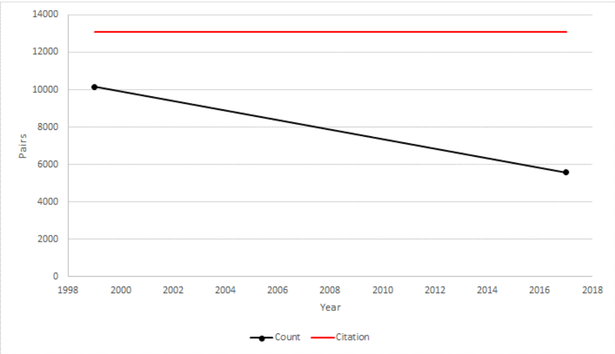
North Caithness Cliffs SPA is of special nature conservation and scientific importance within Britain and the European Community for supporting very large populations of breeding seabirds.

The site overlaps either partly or wholly with Duncansby Head Site of Special Scientific Interest (SSSI), Stroma SSSI, Dunnet Head SSSI, Holborn Head SSSI, and Red Point Coast SSSI. The seaward extension extends approximately 2 km into the marine environment to include the seabed, water column and surface.

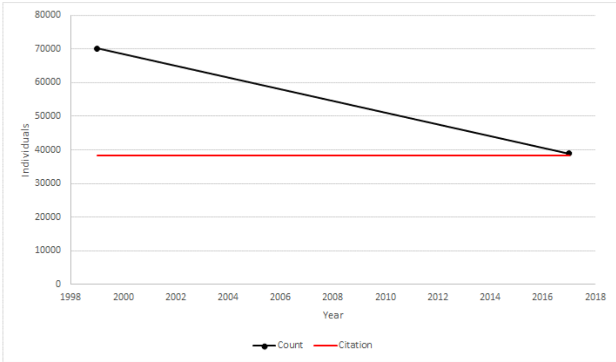
Table 6-47 Qualifying interests and condition for the North Caithness Cliffs SPA

QUALIFYING INTERESTS	FEATURE CONDITION	ASSESSMENT DATE	BROADER CONSERVATION STATUS
Kittiwake	Unfavourable Declining	13 Jun 2016	Red
Guillemot	Favourable Maintained	13 Jun 2016	Amber
Razorbill	Favourable Recovered	13 Jun 2016	Amber
Puffin	Favourable Maintained	13 Jun 2016	Red
Fulmar	Favourable Maintained	13 Jun 2016	Amber
Peregrine	Unfavourable Declining	24 Jun 2014	Green
Seabird assemblage	Favourable Maintained	13 Jun 2016	n/a

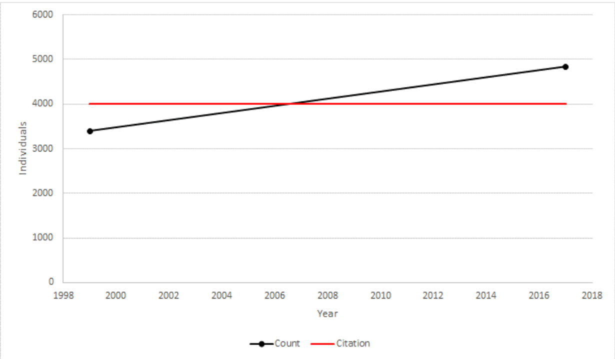
For each qualifying feature requiring assessment (except the breeding seabird assemblage) count data was extracted from the SMP database. These counts were plotted and compared with the citation population size, where data allowed (Figure 6-24).



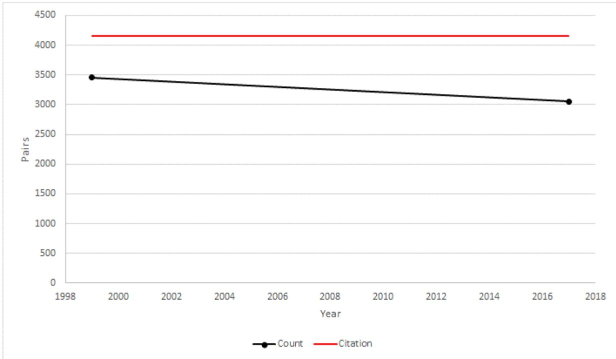
Kittiwake



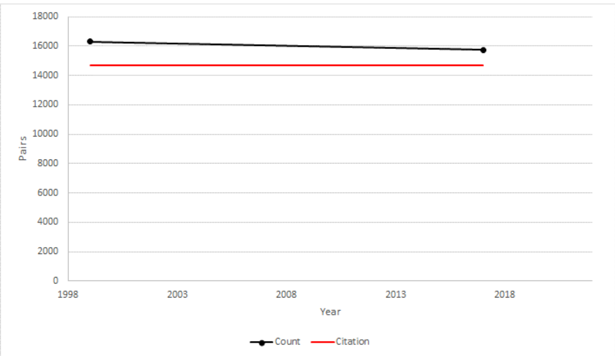
Guillemot



Razorbill



Puffin



Fulmar

Figure 6-24 North Caithness Cliffs SPA qualifying feature population trends from 1981–- 2022 (citation population size shown by red line).

Population counts were only available from the national census counts for Seabird 2000 (1999/2000) and Seabirds Count (2015 - 2021. Kittiwake, guillemot, razorbill, puffin and fulmar numbers have apparently declined across the period where data are available. However, razorbill number have apparently increased in the SPA.

6.16.2 Conservation objectives

The conservation objectives of the North Caithness Cliffs SPA are:

To avoid deterioration of the habitats of the qualifying species or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained; and

To ensure for the qualifying species that the following are maintained in the long term:

- Population of the species as a viable component of the site;
- Distribution of the species within site;
- Distribution and extent of habitats supporting the species;
- Structure, function and supporting processes of habitats supporting the species; and
- No significant disturbance of the species.

6.16.3 Assessment of predicted impacts alone and in-combination

One qualifying feature, peregrine, of the North Caithness Cliffs SPA was screened out of the assessment as there was no connectivity between the Project and the SPA.

The predicted impacts from the Project alone on the qualifying features of the North Caithness Cliffs SPA are summarised in the tables in Appendix C, Section C.1. The predicted effect on adult survival from these impacts are summarised in Appendix C, Section C.1.9. The predicted impacts from the Project in-combination with other reasonably foreseeable plans and projects are summarised in Appendix C, Section C.2. The predicted effect on adult survival from these impacts are summarised in Appendix C, Section C.2.8.

6.16.3.1 Kittiwake

The predicted impacts from the Project alone on the breeding kittiwake population was 3.6 – 4.9 birds per annum in the breeding season (Appendix C, Section C.1, Table C1-1). In the non-breeding season, the predicted impacts were dependent on the BDMPS region used and the seasonal BDMPS population sizes. The largest breeding and non-breeding season predicted impact was 4.4 – 5.8 birds per annum based on the UK North Sea waters Spring migration (January to April). This predicted a change in adult survival of 0.04% - 0.05% points (Appendix C, Section C.1, Table C1-15) and so a PVA was required.

The predicted impacts from the Project in-combination on the breeding kittiwake population was dependent on the BDMPS region used and the seasonal BDMPS population sizes. The largest predicted impact was 70.1 - 71.4 birds per annum based on the UK North Sea waters Spring migration population (Appendix C, Section C.2, Table C2-1). This predicted a change in adult survival of 0.63% - 0.64% points (Appendix C, Section C.2, Table C2-14) and so a PVA was completed based on this BDMPS region and season and the worst case scenario.

The PVA provided projected change in population size of the baseline population, the population impacted by the Project alone, impacted by in-combination impacts without the Project and impacted by the in-combination impacts with the Project. The PVA projected that population would decline in all scenarios based on the input demographic values and the assumptions of the model (Figure 6-25).

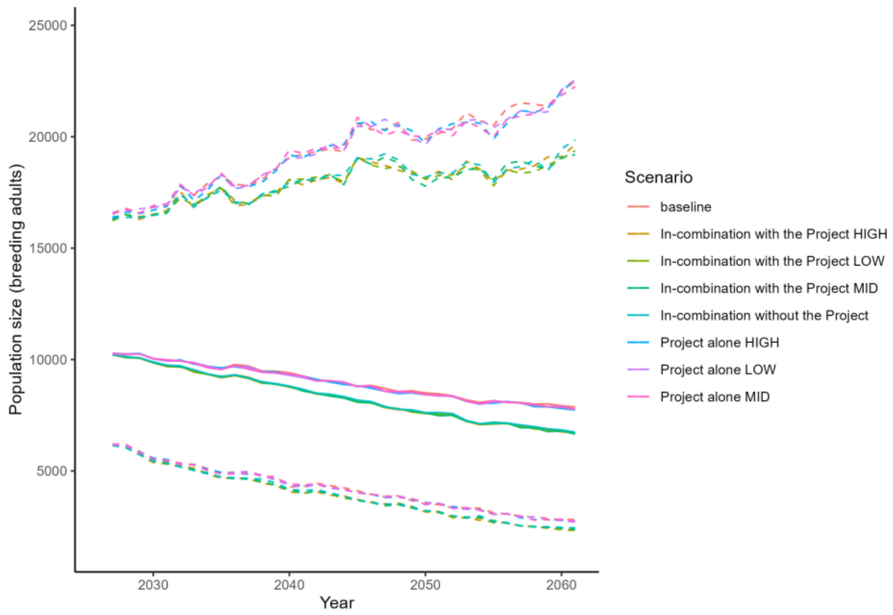


Figure 6-25 Projected population size of the breeding kittiwake feature of the North Caithness Cliffs SPA for the baseline (unimpacted), Project alone, in-combination impacts without the Project and in-combination with the Project from 2027 to 2062. Solid line = mean, dashed line = SD

The PVA metrics (Table 6-48) showed that the mean and median CGR was very close to one across the projected 35 years used in the model for the Project alone. The CGR value for the project alone after 35 years was 0.9997–- 0.9997, or a 0.02% decline in growth rate. The CGR value for the in-combination impacts was 0.9958, or a 0.42% decline in growth rate. Adding the Project alone to the in-combination impact made an extremely small difference to the predicted change in growth rate. This suggests that the growth rate of the North Caithness Cliffs SPA kittiwake population would not be adversely affected by the predicted impacts from Project alone or in-combination.

The mean and median CPS values decreased with the duration of the PVA projection (Table 6-48). The CPS values at 35 years of the Project alone, the in-combination values without the Project and the in-combination values with and without the Project show that the majority of the predicted impacts on the SPA are from the in-combination impacts with very little effect from the Project alone. The CPS for the Project alone was high (0.9888–- 0.9916), suggesting that the PVA predicts that the population would be 0.84% - 1.1% smaller than the baseline population size. The in-combination only CPS value was relatively low (0.8588). Thus, the PVA predicts that the population would be about 14.1% smaller than the baseline population size. Adding the predicted impacts from the Project to the existing in-combination impacts made a small difference to the CPS value (0.8478–- 0.8491), and thus the PVA predicted that the population would be about 15.1% - 15.2% smaller than the baseline population size.

The quantile metrics showed that across the projected years from the PVA that the overlap in the distribution of the projected end population size reduced for the scenarios that included predicted in-combination impacts. However, the quantile metrics also showed that these distributions remained essentially unchanged between the baseline and the predicted impacts from the Project alone.

Table 6-48 Summary of PVA metrics for the kittiwake population from North Caithness Cliffs SPA for the Project alone, in-combination without the Project and in-combination including the Project. Based on the assessment of in-combination impacts and population sizes for the BDMPS UK North Sea waters Spring migration (January to April). SD = standard deviation, LCI = lower confidence interval, UCI = upper confidence interval.

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone LOW	10	0.9997	0.9997	0.0016	0.9966	1.0031	0.9964	0.9972	0.0223	0.9573	1.0411	49.8	50.5
Project alone MID	10	0.9997	0.9997	0.0016	0.9966	1.0030	0.9970	0.9976	0.0231	0.9541	1.0437	49.0	51.2
Project alone HIGH	10	0.9996	0.9997	0.0017	0.9963	1.0030	0.9978	0.9974	0.0226	0.9520	1.0426	49.2	51.5
In-combination without the Project	10	0.9955	0.9956	0.0016	0.9924	0.9987	0.9529	0.9531	0.0214	0.9139	0.9943	44.8	56.8
In-combination with the Project LOW	10	0.9953	0.9953	0.0017	0.9919	0.9989	0.9496	0.9498	0.0226	0.9073	0.9963	44.3	57.5

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project MID	10	0.9954	0.9953	0.0017	0.9919	0.9985	0.9516	0.9505	0.0214	0.9081	0.9901	44.8	56.8
In-combination with the Project HIGH	10	0.9952	0.9952	0.0017	0.9917	0.9986	0.9504	0.9496	0.0219	0.9073	0.9924	45.3	57.6
Project alone LOW	20	0.9997	0.9997	0.0012	0.9973	1.0019	0.9928	0.9940	0.0282	0.9401	1.0515	48.6	50.8
Project alone MID	20	0.9997	0.9997	0.0011	0.9974	1.0020	0.9937	0.9943	0.0278	0.9443	1.0518	48.9	50.8
Project alone HIGH	20	0.9996	0.9996	0.0012	0.9972	1.0020	0.9931	0.9931	0.0278	0.9348	1.0490	48.8	51.3
In-combination without the Project	20	0.9957	0.9957	0.0012	0.9933	0.9979	0.9131	0.9133	0.0258	0.8621	0.9658	40.9	57.5

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project LOW	20	0.9953	0.9953	0.0012	0.9929	0.9977	0.9069	0.9071	0.0261	0.8567	0.9574	40.7	58.1
In-combination with the Project MID	20	0.9954	0.9954	0.0012	0.9928	0.9976	0.9083	0.9081	0.0259	0.8559	0.9576	40.5	58.2
In-combination with the Project HIGH	20	0.9953	0.9953	0.0012	0.9929	0.9978	0.9077	0.9075	0.0265	0.8574	0.9602	40.2	58.4
Project alone LOW	30	0.9997	0.9997	0.0010	0.9977	1.0017	0.9914	0.9918	0.0331	0.9249	1.0562	49.6	50.5
Project alone MID	30	0.9997	0.9997	0.0010	0.9977	1.0016	0.9904	0.9909	0.0328	0.9300	1.0552	49.9	50.3
Project alone HIGH	30	0.9997	0.9996	0.0010	0.9976	1.0014	0.9900	0.9896	0.0326	0.9219	1.0527	49.9	50.1

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination without the Project	30	0.9957	0.9957	0.0010	0.9938	0.9978	0.8761	0.8762	0.0297	0.8190	0.9330	38.9	59.3
In-combination with the Project LOW	30	0.9954	0.9954	0.0010	0.9934	0.9973	0.8691	0.8675	0.0289	0.8107	0.9237	38.5	60.0
In-combination with the Project MID	30	0.9955	0.9954	0.0010	0.9934	0.9974	0.8688	0.8680	0.0297	0.8112	0.9249	37.6	60.0
In-combination with the Project HIGH	30	0.9954	0.9954	0.0010	0.9934	0.9973	0.8673	0.8670	0.0297	0.8122	0.9229	38.3	59.6
Project alone LOW	35	0.9997	0.9997	0.0009	0.9979	1.0015	0.9916	0.9910	0.0348	0.9222	1.0626	49.4	50.6
Project alone MID	35	0.9997	0.9997	0.0009	0.9979	1.0015	0.9888	0.9899	0.0354	0.9251	1.0631	49.1	50.8

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone HIGH	35	0.9997	0.9996	0.0009	0.9978	1.0014	0.9893	0.9883	0.0348	0.9199	1.0590	49.9	50.2
In-combination without the Project	35	0.9958	0.9957	0.0009	0.9940	0.9976	0.8588	0.8585	0.0309	0.7998	0.9203	37.2	60.8
In-combination with the Project LOW	35	0.9954	0.9954	0.0010	0.9936	0.9973	0.8478	0.8480	0.0310	0.7893	0.9107	36.9	62.9
In-combination with the Project MID	35	0.9955	0.9954	0.0009	0.9935	0.9972	0.8491	0.8489	0.0309	0.7861	0.9086	36.5	62.3
In-combination with the Project HIGH	35	0.9954	0.9954	0.0010	0.9933	0.9972	0.8479	0.8473	0.0312	0.7852	0.9061	36.6	62.1

Impacts from the construction stage of the Project, including all cable installation, are short term, temporary and reversible. Following completion of the construction stage the disturbance effects will be removed. Therefore, this impact source will not have an impact on the conservation objectives to maintain the population in the long term.

The predicted impacts, based on guidance and advice from NatureScot, on the breeding kittiwake population from the North Caithness Cliffs SPA from the Project alone would not adversely affect the integrity of the site. When applying the significant levels of precaution advised it may not be possible to discount AESI arising from the list of in-combination projects, the predicted impacts from the Project alone is beneath any threshold of significance and *de minimis* and as such would not materially alter the significance or the likelihood of an adverse effect on the integrity of the North Caithness Cliffs SPA.

6.16.3.2 Guillemot

The impacts from the Project alone in the breeding and non-breeding seasons on the breeding guillemot population of the SPA were predicted to be 2.1 – 3.9 birds killed per annum (Appendix C, Section C.1, Table C1-6). This was a predicted change in adult survival of 0.004% - 0.008% points (Appendix C, Section C.1, Table C1 18). The predicted impacts from other plans and projects was a further 46.5 birds killed per annum based on the UK North Sea BDMPS region, resulting in a total predicted impact from the Project alone an in-combination of 48.6 - 50.4 birds killed per annum, with 4.3% - 7.8% of this total from the Project alone (Appendix C, Section C.2, Table C2-4). This resulted in a predicted change in adult survival of 0.09% - 0.10% points (Appendix C, Section C.2, Table C2-16) and so a PVA was completed based on this BDMPS region and season with the largest predicted impact.

The PVA provided projected change in population size of the baseline population, the population impacted by the Project alone, impacted by in-combination impacts without the Project and impacted by the in-combination impacts with the Project. The PVA projected that population would increase in all scenarios based on the input demographic values and the assumptions of the model (Figure 6-26).

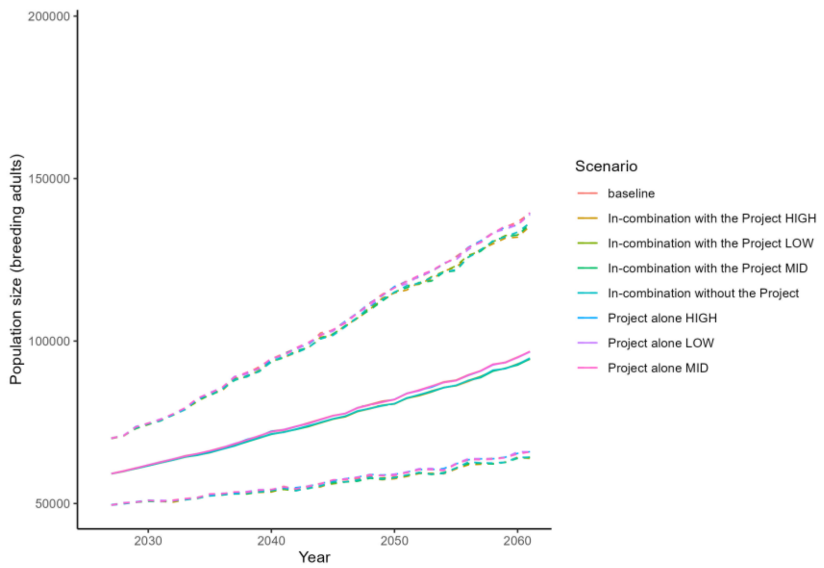


Figure 6-26 Projected population size of the breeding guilemot feature of the North Caithness Cliffs SPA for the baseline (unimpacted), Project alone, in-combination impacts without the Project and in-combination with the Project from 2027 to 2062. Solid line = mean, dashed line = SD

The PVA metrics (Table 6-49) showed that the mean and median CGR was close to one across the projected 35 years used in the model for the Project alone. The CGR value for the in-combination only impacts was 0.9993, or a 0.07% decline in growth rate across all years. Adding the Project alone to the in-combination impact made an extremely small difference to the predicted change in growth rate. This suggests that the growth rate of the North Caithness Cliffs SPA guillemot population would not be adversely affected by the Project alone and in-combination.

The mean and median CPS values increased with the duration of the PVA projection (Table 6-49). The CPS values at 35 years of the Project alone, the in-combination values without the Project and the in-combination values with and without the Project show that the majority of the predicted impacts on the SPA are from the in-combination impacts with very little effect from the Project alone. The CPS for the Project alone was high (0.9984 - 0.9992), suggesting that the PVA predicts that the population would only be about 0.08% - 0.16% smaller than the baseline population size. The in-combination only CPS value was also relatively high (0.9761). Thus, the PVA predicted that the population would be about 2.4% smaller than the baseline population size. Adding the predicted impacts from the Project to the existing in-combination impacts made a very small difference to the CPS value (0.9744 - 0.9760), and thus the PVA predicted that the population would be about 2.4% - 2.5% smaller than the baseline population size.

The quantile metrics showed that across the projected years from the PVA that the overlap in the distribution of the projected end population size reduced for the scenarios that included predicted in-combination impacts. However, the quantile metrics also showed that these distributions remained almost unchanged between the baseline and the predicted impacts from the Project alone.

Impacts from the construction stage of the Project, including all cable installation, are short term, temporary and reversible. Following completion of the construction stage the disturbance effects will be removed. Therefore, this impact source will not have an impact on the conservation objectives to maintain the population in the long term.

The predicted impacts, based on guidance and advice from NatureScot, on the breeding guillemot population from the North Caithness Cliffs SPA from the Project alone and in-combination would not adversely affect the integrity of the site.

Table 6-49 Summary of PVA metrics for the guillemot population from North Caithness Cliffs SPA for the Project alone, in-combination without the Project and in-combination including the Project. Based on the assessment of in-combination impacts and population sizes for the BDMPS UK North Sea. SD = standard deviation, LCI = lower confidence interval, UCI = upper confidence interval.

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone LOW	10	1.0000	1.0000	0.0005	0.9991	1.0009	0.9997	0.9996	0.0069	0.9864	1.0137	51.2	49.0
Project alone MID	10	1.0000	1.0000	0.0004	0.9991	1.0008	0.9993	0.9995	0.0064	0.9868	1.0123	50.7	49.5
Project alone HIGH	10	0.9999	1.0000	0.0005	0.9991	1.0009	0.9997	0.9995	0.0065	0.9864	1.0124	50.6	49.2
In-combination without the Project	10	0.9993	0.9993	0.0005	0.9984	1.0001	0.9922	0.9923	0.0065	0.9802	1.0054	47.3	52.1
In-combination with the Project LOW	10	0.9993	0.9993	0.0005	0.9984	1.0002	0.9918	0.9922	0.0064	0.9805	1.0052	47.3	51.6
In-combination with the Project MID	10	0.9993	0.9993	0.0005	0.9984	1.0002	0.9923	0.9921	0.0066	0.9789	1.0048	47.7	51.9

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project HIGH	10	0.9992	0.9992	0.0005	0.9983	1.0001	0.9916	0.9917	0.0064	0.9802	1.0046	47.7	51.4
Project alone LOW	20	1.0000	1.0000	0.0003	0.9994	1.0006	0.9993	0.9994	0.0080	0.9839	1.0160	50.0	50.1
Project alone MID	20	1.0000	1.0000	0.0003	0.9994	1.0006	0.9993	0.9991	0.0076	0.9849	1.0151	49.9	50.4
Project alone HIGH	20	1.0000	1.0000	0.0003	0.9994	1.0006	0.9990	0.9990	0.0078	0.9842	1.0143	49.9	50.3
In-combination without the Project	20	0.9993	0.9993	0.0003	0.9987	0.9999	0.9857	0.9858	0.0074	0.9713	1.0007	47.4	54.1
In-combination with the Project LOW	20	0.9993	0.9993	0.0003	0.9987	0.9999	0.9854	0.9855	0.0076	0.9713	1.0005	47.0	53.9
In-combination with the Project MID	20	0.9993	0.9993	0.0003	0.9987	0.9999	0.9851	0.9851	0.0079	0.9698	1.0000	47.1	53.9

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project HIGH	20	0.9993	0.9993	0.0003	0.9987	0.9998	0.9847	0.9846	0.0075	0.9701	0.9995	47.0	54.0
Project alone LOW	30	1.0000	1.0000	0.0002	0.9995	1.0004	0.9990	0.9991	0.0088	0.9824	1.0161	49.7	50.1
Project alone MID	30	1.0000	1.0000	0.0002	0.9995	1.0004	0.9986	0.9987	0.0084	0.9821	1.0150	50.1	49.9
Project alone HIGH	30	1.0000	1.0000	0.0002	0.9995	1.0004	0.9987	0.9987	0.0085	0.9817	1.0151	49.8	50.2
In-combination without the Project	30	0.9993	0.9993	0.0002	0.9988	0.9998	0.9795	0.9793	0.0084	0.9627	0.9956	44.9	54.2
In-combination with the Project LOW	30	0.9993	0.9993	0.0002	0.9989	0.9998	0.9793	0.9792	0.0083	0.9633	0.9945	45.7	54.1
In-combination with the Project MID	30	0.9993	0.9993	0.0002	0.9988	0.9998	0.9784	0.9784	0.0086	0.9614	0.9947	44.7	54.5

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project HIGH	30	0.9993	0.9993	0.0002	0.9988	0.9998	0.9781	0.9778	0.0083	0.9616	0.9937	45.5	54.9
Project alone LOW	35	1.0000	1.0000	0.0002	0.9995	1.0004	0.9992	0.9989	0.0092	0.9815	1.0169	49.8	50.5
Project alone MID	35	1.0000	1.0000	0.0002	0.9995	1.0004	0.9985	0.9985	0.0089	0.9806	1.0157	49.9	50.3
Project alone HIGH	35	1.0000	0.9999	0.0002	0.9995	1.0004	0.9984	0.9983	0.0089	0.9803	1.0157	49.9	50.6
In-combination without the Project	35	0.9993	0.9993	0.0002	0.9989	0.9997	0.9761	0.9761	0.0087	0.9585	0.9933	44.6	53.4
In-combination with the Project LOW	35	0.9993	0.9993	0.0002	0.9989	0.9997	0.9760	0.9758	0.0087	0.9588	0.9927	44.7	54.9
In-combination with the Project MID	35	0.9993	0.9993	0.0002	0.9989	0.9997	0.9752	0.9750	0.0091	0.9570	0.9920	44.4	54.8

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project HIGH	35	0.9993	0.9993	0.0002	0.9988	0.9997	0.9744	0.9742	0.0087	0.9576	0.9914	44.4	54.6

6.16.3.3 Razorbill

The predicted impacts from the Project alone on the breeding razorbill population was 0.4 - 0.6 birds per annum in the breeding season (Appendix C, Section C.1, Table C1-7). In the non-breeding season, the predicted impacts were dependent on the BDMPS region used and the seasonal BDMPS population sizes. The largest non-breeding season predicted impact was 0.005 - 0.017 birds per annum based on the UK North Sea & Channel waters during migration seasons (August to October, and January to March). This predicted a change in adult survival of 0.008% - 0.013% points and so a PVA was not required (Appendix C, Section C.1, Table C1-19).

The predicted impacts from the Project in-combination on the breeding razorbill population was dependent on the BDMPS region used and the seasonal BDMPS population sizes. The largest predicted impact was 9.4 – 9.6 birds per annum (Appendix C, Section C.2, Table C2-6) based on the UK North Sea & Channel waters migration seasons (August to October, and January to March). This predicted a change in adult survival of 0.20% - 0.21% points (Appendix C, Section C.2, Table C2-17) And so a PVA was completed based on this BDMPS region and season with the largest predicted impact.

The PVA provided projected change in population size of the baseline population, the population impacted by the Project alone, impacted by in-combination impacts without the Project and impacted by the in-combination impacts with the Project. The PVA projected that population would decrease in all scenarios based on the input demographic values and the assumptions of the model (Figure 6-27).

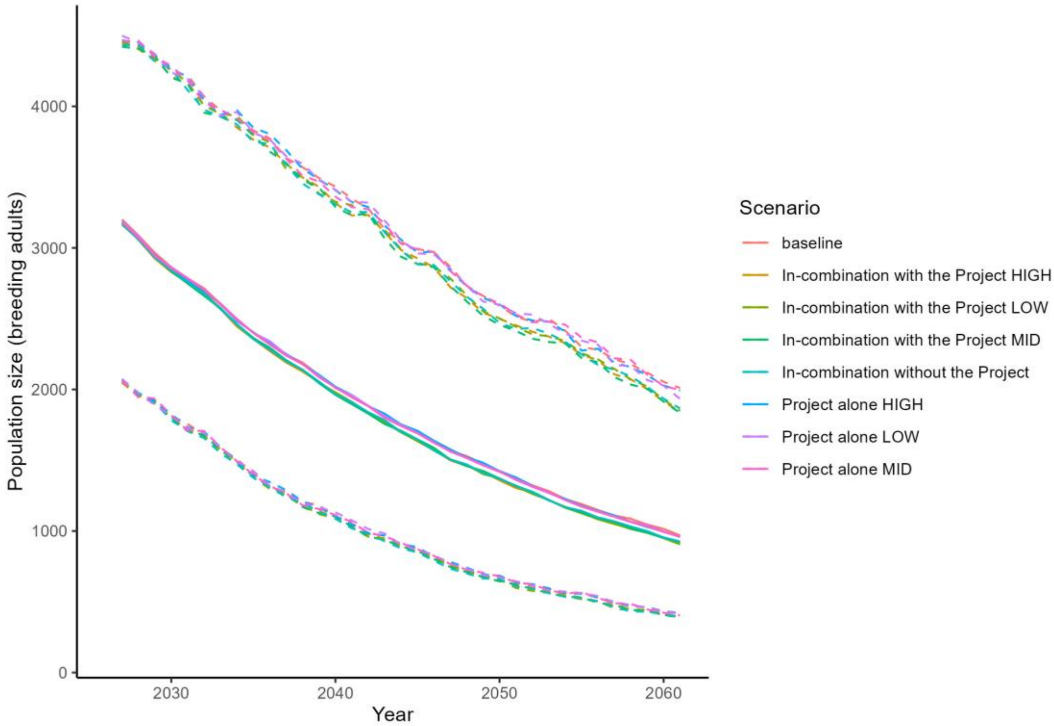


Figure 6-27 Projected population size of the breeding razorbill feature of the North Caithness Cliffs SPA for the baseline (unimpacted), Project alone, in-combination impacts without the Project and in-combination with the Project from 2027 to 2062. Solid line = mean, dashed line = SD

The PVA metrics (Table 6-50) showed that the mean and median CGR was close to one across the projected 35 years used in the model for the Project alone (0.9998 – 1.0000). The CGR value for the in-combination only impacts was 0.9985, or a 0.15% decline in growth rate across all years. Adding the Project alone to the in-combination impact made an extremely small difference to the predicted change in growth rate (0.9983 – 0.9983). This suggests that the growth rate of the North Caithness Cliffs SPA razorbill population would not be adversely affected by the Project alone and in-combination.

The mean and median CPS values increased with the duration of the PVA projection (Table 6-50). The CPS values at 35 years of the Project alone, the in-combination values without the Project and the in-combination values with and without the Project show that the majority of the predicted impacts on the SPA are from the in-combination impacts with very little effect from the Project alone. The CPS for the Project alone was high (0.9910 – 0.9984), suggesting that the PVA predicts that the population would only be about 0.16% - 0.90% smaller than the baseline population size. The in-combination only CPS value was also relatively high (0.9461). Thus, the PVA predicted that the population would be about 5.4% smaller than the baseline population size. Adding the predicted impacts from the Project to the existing in-combination impacts made a very small difference to the CPS value (0.9367 – 0.9411), and thus the PVA predicted that the population would be about 5.8% - 6.3% smaller than the baseline population size.

The quantile metrics showed that across the projected years from the PVA that the overlap in the distribution of the projected end population size reduced for the scenarios that included predicted in-combination impacts. However, the quantile metrics also showed that these distributions remained almost unchanged between the baseline and the predicted impacts from the Project alone.

Impacts from the construction stage of the Project, including all cable installation, are short term, temporary and reversible. Following completion of the construction stage the disturbance effects will be removed. Therefore, this impact source will not have an impact on the conservation objectives to maintain the population in the long term.

The predicted impacts, based on guidance and advice from NatureScot, on the breeding razorbill population from the North Caithness Cliffs SPA from the Project alone would not adversely affect the integrity of the site. When applying the significant levels of precaution advised it may not be possible to discount AESI arising from the list of in-combination projects, the predicted impacts from the Project alone is beneath any threshold of significance and *de minimis* and as such would not materially alter the significance or the likelihood of an adverse effect on the integrity of the North Caithness Cliffs SPA.

Table 6-50 Summary of PVA metrics for the razorbill population from North Caithness Cliffs SPA for the Project alone, in-combination without the Project and in-combination including the Project. Based on the assessment of in-combination impacts and population sizes for the BDMPS UK North Sea & Channel waters during migration seasons (August to October, and January to March). SD = standard deviation, LCI = lower confidence interval, UCI = upper confidence interval.

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone LOW	10	1.0000	1.0000	0.0030	0.9944	1.0056	0.9991	0.9993	0.0385	0.9283	1.0805	50.1	49.8
Project alone MID	10	0.9998	1.0000	0.0028	0.9945	1.0058	0.9973	0.9986	0.0369	0.9289	1.0724	49.4	50.3
Project alone HIGH	10	1.0000	1.0000	0.0028	0.9946	1.0056	0.9992	0.9996	0.0378	0.9290	1.0735	50.3	49.7
In-combination without the Project	10	0.9984	0.9984	0.0028	0.9931	1.0039	0.9805	0.9813	0.0378	0.9115	1.0593	47.2	53.0
In-combination with the Project LOW	10	0.9983	0.9982	0.0028	0.9928	1.0036	0.9797	0.9804	0.0368	0.9143	1.0593	47.2	52.2

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project MID	10	0.9985	0.9985	0.0028	0.9927	1.0043	0.9830	0.9828	0.0377	0.9130	1.0593	47.6	52.6
In-combination with the Project HIGH	10	0.9982	0.9983	0.0029	0.9928	1.0043	0.9790	0.9804	0.0374	0.9100	1.0585	46.5	52.9
Project alone LOW	20	0.9999	0.9999	0.0023	0.9953	1.0044	0.9967	0.9986	0.0522	0.9042	1.1081	49.7	50.2
Project alone MID	20	0.9999	0.9999	0.0022	0.9958	1.0044	0.9966	0.9972	0.0500	0.9044	1.1011	50.1	49.9
Project alone HIGH	20	0.9999	1.0000	0.0022	0.9958	1.0041	0.9976	0.9998	0.0510	0.9059	1.1002	51.2	49.2
In-combination without the Project	20	0.9985	0.9984	0.0022	0.9939	1.0025	0.9662	0.9671	0.0495	0.8746	1.0625	46.3	53.4

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project LOW	20	0.9983	0.9983	0.0022	0.9942	1.0026	0.9634	0.9644	0.0493	0.8734	1.0613	46.3	53.2
In-combination with the Project MID	20	0.9983	0.9984	0.0023	0.9939	1.0031	0.9660	0.9665	0.0506	0.8731	1.0729	46.3	54.0
In-combination with the Project HIGH	20	0.9984	0.9983	0.0022	0.9938	1.0025	0.9626	0.9645	0.0486	0.8722	1.0650	45.7	53.9
Project alone LOW	30	0.9998	0.9999	0.0020	0.9958	1.0041	0.9970	0.9971	0.0660	0.8772	1.1362	49.5	51.0
Project alone MID	30	0.9998	0.9998	0.0020	0.9958	1.0040	0.9918	0.9951	0.0664	0.8804	1.1362	49.2	51.0
Project alone HIGH	30	0.9999	0.9999	0.0019	0.9961	1.0039	0.9958	0.9989	0.0646	0.8788	1.1372	50.0	50.1

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination without the Project	30	0.9984	0.9984	0.0020	0.9942	1.0021	0.9485	0.9528	0.0628	0.8369	1.0775	46.0	53.9
In-combination with the Project LOW	30	0.9983	0.9983	0.0020	0.9943	1.0024	0.9489	0.9499	0.0635	0.8222	1.0839	43.8	56.3
In-combination with the Project MID	30	0.9983	0.9983	0.0021	0.9943	1.0022	0.9495	0.9495	0.0646	0.8319	1.0801	45.4	55.4
In-combination with the Project HIGH	30	0.9983	0.9983	0.0020	0.9940	1.0022	0.9461	0.9476	0.0628	0.8326	1.0804	43.7	55.8
Project alone LOW	35	1.0000	0.9999	0.0020	0.9958	1.0039	0.9984	0.9988	0.0761	0.8571	1.1583	49.6	50.1
Project alone MID	35	0.9998	0.9998	0.0020	0.9957	1.0038	0.9910	0.9945	0.0764	0.8493	1.1536	49.1	50.6

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone HIGH	35	0.9999	0.9999	0.0020	0.9961	1.0038	0.9968	0.9993	0.0742	0.8589	1.1547	50.3	49.8
In-combination without the Project	35	0.9985	0.9985	0.0020	0.9946	1.0025	0.9461	0.9476	0.0722	0.8135	1.0913	44.2	55.1
In-combination with the Project LOW	35	0.9983	0.9983	0.0021	0.9944	1.0025	0.9402	0.9436	0.0729	0.8145	1.0984	42.5	55.7
In-combination with the Project MID	35	0.9983	0.9983	0.0021	0.9943	1.0021	0.9411	0.9422	0.0740	0.8046	1.0940	43.7	55.7
In-combination with the Project HIGH	35	0.9983	0.9983	0.0021	0.9940	1.0022	0.9367	0.9408	0.0722	0.8080	1.0953	42.2	55.1

6.16.3.4 Puffin

The impacts from the Project alone in the breeding and non-breeding seasons on the breeding puffin population of the SPA were predicted to be 0.02 - 0.05 birds killed per annum (Appendix C, Section C.1, Table C1-9). This was a predicted change in adult survival of 0.0007% - 0.0017% points (Appendix C, Section C.1, Table C1-20). The predicted impacts from other plans and projects was 41.8 birds killed per annum, resulting in a total impact of 41.82 - 41.85 birds killed per annum from the UK North Sea & Channel waters non-breeding season (mid-August to March) (Appendix C, Section C.2, Table C2-8). This was a predicted change in adult survival of 1.3697% - 1.3709% points (Appendix C, Section C.2, Table C2-18) so a PVA was completed based on this BDMPS region and season and the worst case scenario.

The PVA provided projected change in population size of the baseline population, the population impacted by the Project alone, impacted by in-combination impacts without the Project and impacted by the in-combination impacts with the Project. The PVA projected that population would decrease in all scenarios based on the input demographic values and the assumptions of the model (Figure 6-28).

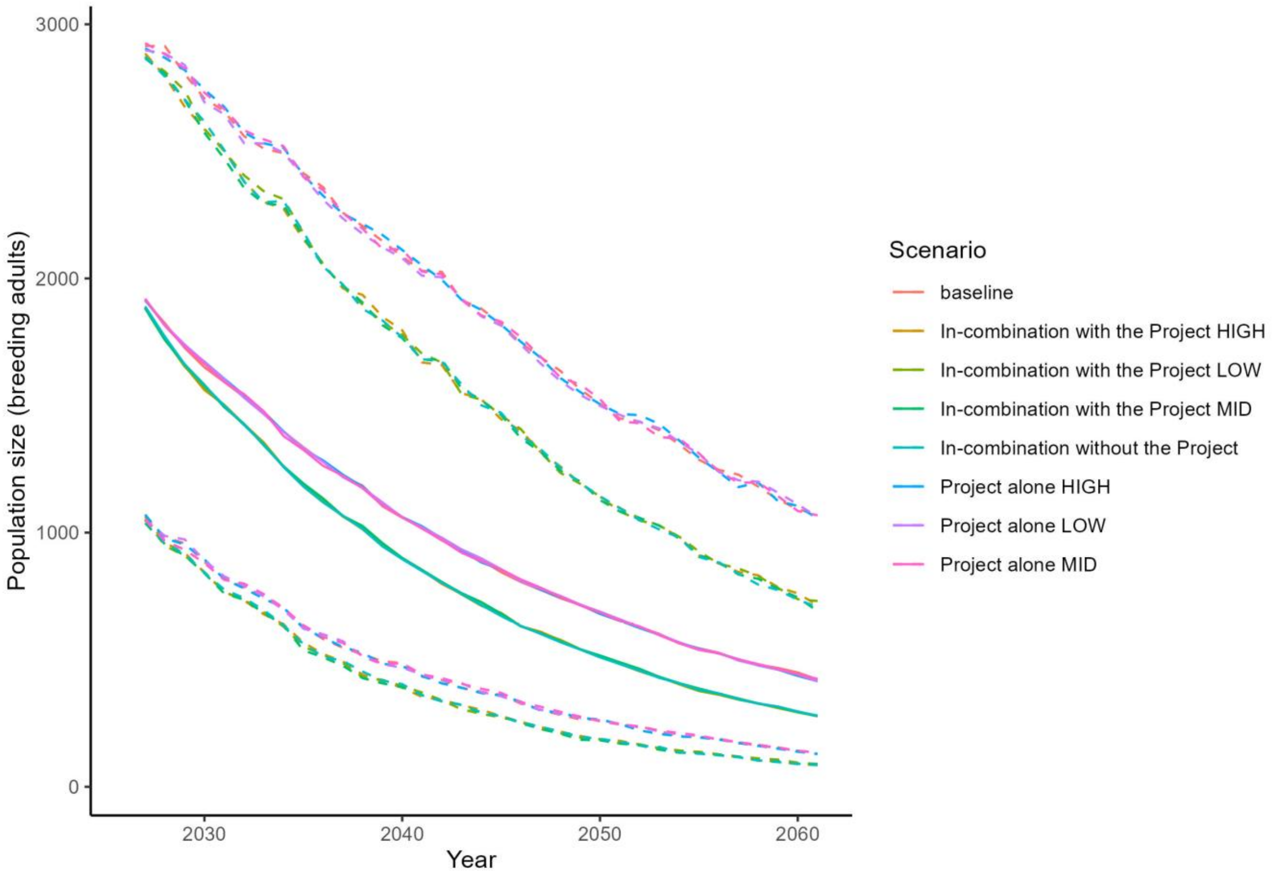


Figure 6-28 Projected population size of the breeding puffin feature of the North Caithness Cliffs SPA for the baseline (unimpacted), Project alone, in-combination impacts without the Project and in-combination with the Project from 2027 to 2062. Solid line = mean, dashed line = SD

The PVA metrics (Table 6-51) showed that the mean and median CGR was close to one across the projected 35 years used in the model for the Project alone. The CGR value for the in-combination only impacts was 0.9880, or a 1.2% decline in growth rate across all years. Adding the Project alone to the in-combination impact made an extremely small difference to the predicted change in growth rate. This suggests that the growth rate of the North Caithness Cliffs SPA puffin population would not be adversely affected by the Project alone and in-combination.

The mean and median CPS values increased with the duration of the PVA projection (Table 6-51). The CPS values at 35 years of the Project alone, the in-combination values without the Project and the in-combination values with and without the Project show that the majority of the predicted impacts on the SPA are from the in-combination impacts with very little effect from the Project alone. The CPS for the Project alone was very high (0.9921 - 0.9991), suggesting that the PVA predicts that the population would be 0.09% - 0.79% smaller than the baseline population size. The in-combination only CPS value was low (0.6468). Thus, the PVA predicted that the population would be about 35.3% smaller than the baseline population size. Adding the predicted impacts from the Project to the existing in-combination impacts made a very small difference to the CPS value (0.6414 - 0.6464), and thus the PVA predicted that the population would be about 35.3% - 35.9% smaller than the baseline population size.

The quantile metrics showed that across the projected years from the PVA that the overlap in the distribution of the projected end population size reduced for the scenarios that included predicted in-combination impacts. However, the quantile metrics also showed that these distributions remained almost unchanged between the baseline and the predicted impacts from the Project alone.

Impacts from the construction stage of the Project, including all cable installation, are short term, temporary and reversible. Following completion of the construction stage the disturbance effects will be removed. Therefore, this impact source will not have an impact on the conservation objectives to maintain the population in the long term.

The predicted impacts, based on guidance and advice from NatureScot, on the breeding puffin population from the North Caithness Cliffs SPA from the Project alone would not adversely affect the integrity of the site. When applying the significant levels of precaution advised it may not be possible to discount AESI arising from the list of in-combination projects, the predicted impacts from the Project alone is beneath any threshold of significance and *de minimis* and as such would not materially alter the significance or the likelihood of an adverse effect on the integrity of the North Caithness Cliffs SPA.

Table 6-51 Summary of PVA metrics for the puffin population from North Caithness Cliffs SPA for the Project alone, in-combination without the Project and in-combination including the Project. Based on the assessment of in-combination impacts and population sizes for the BDMPS UK North Sea & Channel waters non-breeding season (mid-August to March). SD = standard deviation, LCI = lower confidence interval, UCI = upper confidence interval.

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone LOW	10	0.9999	1.0001	0.0037	0.9928	1.0080	1.0010	1.0025	0.0491	0.9112	1.1047	49.5	50.1
Project alone MID	10	0.9999	1.0000	0.0038	0.9927	1.0073	0.9970	1.0002	0.0504	0.9110	1.1087	50.4	49.9
Project alone HIGH	10	0.9998	0.9999	0.0037	0.9928	1.0071	0.9985	1.0002	0.0497	0.9048	1.1065	50.7	49.6
In-combination without the Project	10	0.9877	0.9876	0.0038	0.9799	0.9954	0.8716	0.8730	0.0441	0.7873	0.9721	35.9	63.9
In-combination with the Project LOW	10	0.9876	0.9877	0.0040	0.9801	0.9959	0.8728	0.8733	0.0446	0.7920	0.9664	35.2	64.6

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project MID	10	0.9877	0.9877	0.0039	0.9799	0.9954	0.8721	0.8735	0.0443	0.7912	0.9651	35.8	63.9
In-combination with the Project HIGH	10	0.9877	0.9876	0.0038	0.9800	0.9947	0.8727	0.8733	0.0443	0.7892	0.9633	35.7	64.6
Project alone LOW	20	1.0000	1.0000	0.0031	0.9943	1.0064	0.9980	1.0035	0.0724	0.8661	1.1671	50.4	48.9
Project alone MID	20	1.0000	0.9999	0.0030	0.9940	1.0058	0.9963	1.0003	0.0691	0.8670	1.1502	50.4	49.1
Project alone HIGH	20	0.9998	0.9998	0.0031	0.9932	1.0060	0.9965	0.9985	0.0707	0.8577	1.1476	50.1	49.9
In-combination without the Project	20	0.9879	0.9879	0.0032	0.9817	0.9947	0.7747	0.7761	0.0562	0.6710	0.8940	28.7	71.0

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project LOW	20	0.9880	0.9879	0.0034	0.9810	0.9943	0.7756	0.7760	0.0577	0.6651	0.8896	28.9	71.1
In-combination with the Project MID	20	0.9880	0.9879	0.0032	0.9812	0.9941	0.7750	0.7751	0.0571	0.6656	0.8962	29.1	71.9
In-combination with the Project HIGH	20	0.9878	0.9879	0.0033	0.9812	0.9942	0.7732	0.7771	0.0596	0.6648	0.9028	30.0	71.3
Project alone LOW	30	0.9999	0.9999	0.0029	0.9944	1.0057	0.9993	1.0031	0.0940	0.8388	1.2086	49.8	50.5
Project alone MID	30	0.9998	0.9999	0.0029	0.9940	1.0057	0.9936	1.0003	0.0936	0.8218	1.1945	50.5	49.4
Project alone HIGH	30	0.9999	0.9998	0.0029	0.9940	1.0053	0.9950	0.9994	0.0950	0.8267	1.1891	50.7	49.6

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination without the Project	30	0.9880	0.9879	0.0032	0.9811	0.9941	0.6854	0.6896	0.0694	0.5552	0.8391	24.4	77.0
In-combination with the Project LOW	30	0.9879	0.9879	0.0031	0.9816	0.9940	0.6879	0.6891	0.0688	0.5631	0.8348	24.4	77.4
In-combination with the Project MID	30	0.9879	0.9879	0.0031	0.9820	0.9941	0.6862	0.6880	0.0679	0.5607	0.8272	25.1	78.3
In-combination with the Project HIGH	30	0.9881	0.9879	0.0032	0.9816	0.9941	0.6896	0.6909	0.0718	0.5616	0.8460	25.1	77.6
Project alone LOW	35	0.9999	0.9999	0.0029	0.9944	1.0055	0.9991	1.0033	0.1068	0.8101	1.2422	48.6	51.9
Project alone MID	35	0.9999	0.9999	0.0028	0.9942	1.0054	0.9971	1.0025	0.1060	0.8135	1.2272	49.6	50.6

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone HIGH	35	0.9998	0.9998	0.0029	0.9940	1.0056	0.9921	0.9983	0.1079	0.7965	1.2269	48.0	52.1
In-combination without the Project	35	0.9880	0.9879	0.0031	0.9817	0.9937	0.6468	0.6493	0.0738	0.5120	0.7942	23.9	81.0
In-combination with the Project LOW	35	0.9880	0.9879	0.0031	0.9816	0.9943	0.6464	0.6494	0.0756	0.5171	0.8140	23.5	80.2
In-combination with the Project MID	35	0.9878	0.9878	0.0030	0.9817	0.9939	0.6414	0.6471	0.0738	0.5076	0.8088	22.7	80.8
In-combination with the Project HIGH	35	0.9881	0.9879	0.0032	0.9817	0.9938	0.6460	0.6500	0.0764	0.5118	0.8150	23.6	80.8

6.16.3.5 Fulmar

The predicted impacts from the Project alone on the breeding fulmar population was 0.35 – 1.08 birds per annum in the breeding season (Appendix C, Section C.1). In the non-breeding season, the predicted impacts were dependent on the BDMPS region used and the seasonal BDMPS population sizes. The largest non-breeding season predicted impact was 0.13 – 0.40 birds per annum based on the UK North Sea & Channel waters during migration seasons (September & October, December to March), resulting in a total impact of 0.49 - 1.48 birds killed per annum. This predicted a change in adult survival of 0.0016% - 0.0048% points and so a PVA was not required (Table 17).

The predicted impacts from other plans and project was not possible to estimate as previous projects have screened out impacts on fulmar populations from SPAs. The predicted impact from the Project alone was a sufficiently small impact on the breeding population of fulmars from the North Caithness Cliffs SPA that no PVA was necessary.

Impacts from the construction stage of the Project, including all cable installation, are short term, temporary and reversible. Following completion of the construction stage the disturbance effects will be removed. Therefore, this impact source will not have an impact on the conservation objectives to maintain the population in the long term.

The predicted impacts, based on guidance and advice from NatureScot, on the breeding fulmar population from the North Caithness Cliffs SPA from the Project alone and in combination would therefore not adversely affect the integrity of the site.

6.16.4 Assessment summary and conclusions

The assessment can conclude that there is no adverse effect on site integrity of the North Caithness Cliffs SPA from the Project alone. However, it may not be possible to conclude that there is no adverse effects on site integrity from existing in-combination impacts on the breeding kittiwake and puffin population. The predicted impacts from the Project alone is beneath any threshold of significance and *de minimis* and as such would not materially alter the significance or the likelihood of an adverse effect on the integrity.. These conclusions are summarised in Table 6-52.

Table 6-52 Summary of assessment of North Caithness Cliffs SPA

QUALIFYING FEATURE	POTENTIAL EFFECT	CONCLUSION
Breeding kittiwake	Collisions and, displacement and barrier effects	The predicted impacts from the Project alone is beneath any threshold of significance and *de minimis* and as such would not materially alter the significance or the likelihood of an adverse effect on site integrity.
Breeding guillemot	Displacement and barrier effects	No adverse effects on site integrity from the Project alone and in-combination with other reasonably foreseeable plans and projects

QUALIFYING FEATURE	POTENTIAL EFFECT	CONCLUSION
Breeding razorbill	Displacement and barrier effects	The predicted impacts from the Project alone is beneath any threshold of significance and de minimis and as such would not materially alter the significance or the likelihood of an adverse effect on site integrity
Breeding puffin	Displacement and barrier effects	The predicted impacts from the Project alone is beneath any threshold of significance and *de minimis* and as such would not materially alter the significance or the likelihood of an adverse effect on site integrity
Breeding fulmar	Displacement and barrier effects	No adverse effects on site integrity from the Project alone and in-combination with other reasonably foreseeable plans and projects
Breeding peregrine	No likely significant effect	
Breeding seabird assemblage	Collisions and, displacement and barrier effects	The predicted impacts from the Project alone is beneath any threshold of significance and *de minimis* and as such would not materially alter the significance or the likelihood of an adverse effect on the site integrity

6.17 North Rona and Sula Sgeir SPA

The North Rona and Sula Sgeir SPA was classified on 30th October 2001, with marine extension classified on 25th September 2009, due to its populations of breeding seabirds. The site consists of two, small, uninhabited islands in the North Atlantic Ocean. It is approximately 80 km west of the Project.

6.17.1 Site details and qualifying interests

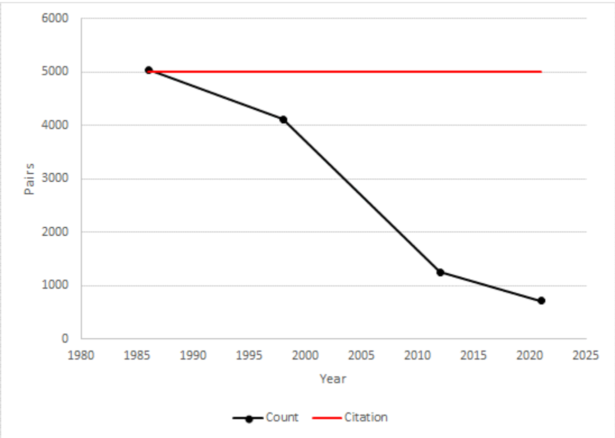
The uninhabited islands of North Rona and Sula Sgeir, together with several outlying rocky islets and adjacent waters, lie 65 km north of Lewis. The coastlines of both islands consist mainly of cliffs except for two low-lying peninsulas on North Rona. North Rona is well covered by peat or soil and vegetated by submaritime grassland. Sula Sgeir lies about 15 km west of North Rona. It is much the smaller of the two islands and has little soil or vegetation.

The boundary of the Special Protection Area overlaps with the boundary of North Rona & Sula Sgeir SSSI, and the seaward extension extends approximately 2 km into the marine environment to include the seabed, water column and surface.

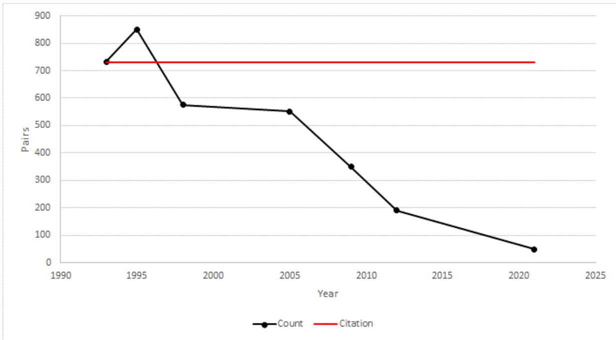
Table 6-53 Qualifying interests and condition for the North Rona and Sula Sgeir SPA

QUALIFYING INTERESTS	FEATURE CONDITION	ASSESSMENT DATE	BROADER CONSERVATION STATUS
Breeding kittiwake	Unfavourable Declining	19 Jun 2012	Red
Breeding great black-backed gull	Unfavourable Declining	19 Jun 2012	Amber
Breeding guillemot	Unfavourable Declining	19 Jun 2012	Amber
Breeding razorbill	Unfavourable Declining	19 Jun 2012	Amber
Breeding puffin	Unfavourable No change	19 Jun 2012	Red
Breeding European storm petrel	Favourable Maintained	29 Jun 2009	Amber
Breeding Leach's petrel	Unfavourable Declining	18 Jun 2012	Red
Breeding fulmar	Unfavourable Declining	19 Jun 2012	Amber
Breeding gannet	Favourable Maintained	18 Jun 2013	Amber
Breeding seabird assemblage	Favourable Maintained	7 Jul 1999	n/a

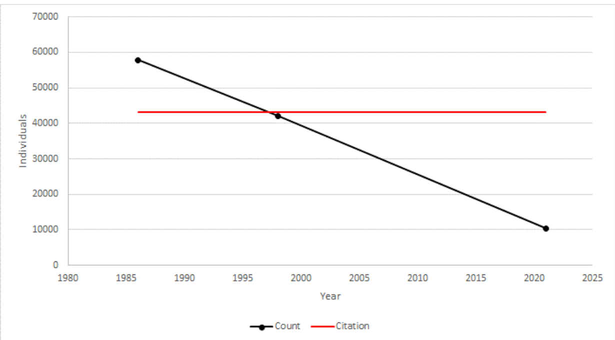
For each qualifying feature requiring assessment (except the breeding seabird assemblage) count data was extracted from the SMP database. These counts were plotted and compared with the citation population size, where data allowed (Figure 6-29).



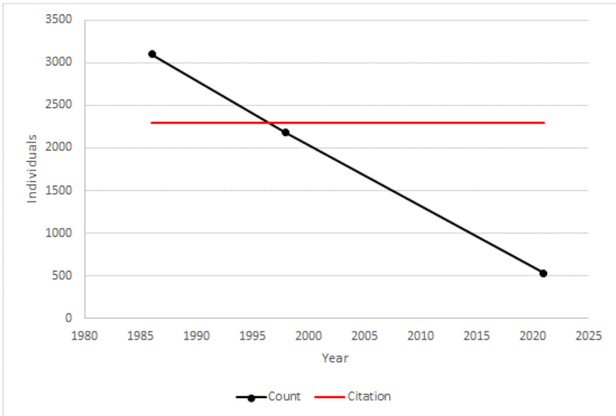
Kittiwake



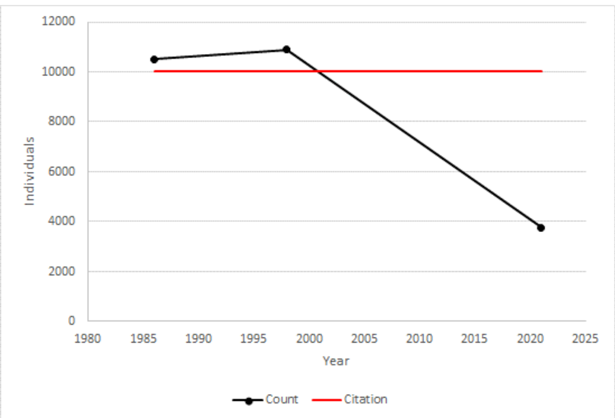
Great black-backed gull



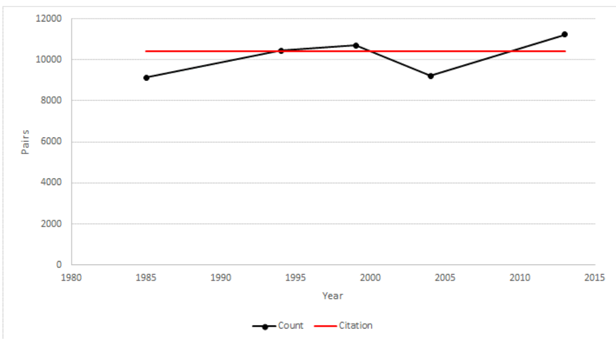
Guillemot



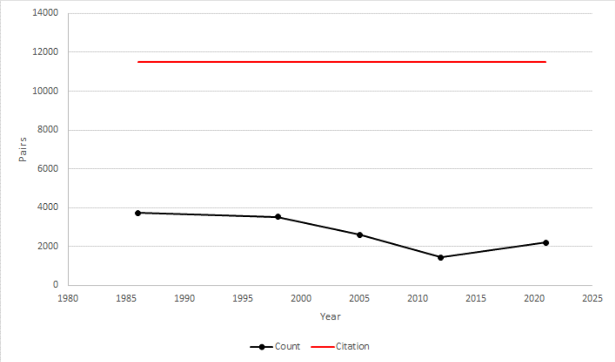
Razorbill



Puffin



Gannet



Fulmar

Figure 6-29 North Rona and Sula Sgeir SPA qualifying feature population trends from 1981 - 2022 (citation population size shown by red line).

All species requiring assessment, except gannet, have apparently declined across the period where data are available. Fulmars have declined slightly over the last 40 years, however, the available data in the SMP database shows the population well below the citation population size across the whole period. The gannet population has fluctuated only slightly around the citation population size and is currently a little above the citation level. Unlike other gannet colonies, the population in this SPA has not shown continual growth over the last 40 years, which is likely due to the ongoing harvest of chicks for food (Guga). Great black-backed gull number peak in the mid-1990's but have declined dramatically since then, with a relatively small population remaining. The population is well below the citation population size. While there were only three counts of guillemots available, it is apparent that the population has declined substantially since the 1990's, with the population currently well below the citation level. Similarly, kittiwake numbers have declined considerably across the same period and are also well below their citation population size. Puffin numbers remained essentially static between the early 1990's and the Seabird 2000 counts but have declined considerably since the Seabird 2000 count. The population is also now well below the citation population size. As with the other auks, razorbill has shown a similar decline and is also well below the citation population size.

6.17.2 Conservation objectives

The conservation objectives of the North Rona and Sula Sgeir SPA are:

To avoid deterioration of the habitats of the qualifying species or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained; and

To ensure for the qualifying species that the following are maintained in the long term:

- Population of the species as a viable component of the site;
- Distribution of the species within site;
- Distribution and extent of habitats supporting the species;
- Structure, function and supporting processes of habitats supporting the species; and

- No significant disturbance of the species.

6.17.3 Assessment of predicted impacts alone and in-combination

Two qualifying features of the North Rona and Sula Sgeir SPA were screened out of the assessment:

- European storm petrel; and
- Leach's petrel.

European storm petrel was found within the offshore Project area and buffer during DAS. However, NatureScot advised that this species was not likely to be subject to displacement effects, and the potential for collisions seems an unlikely source of impact to a species that is likely to have a very low flight height distribution. The main concerns expressed by stakeholders is the effect of artificial lighting on birds, which is discussed in Table 5-2. Leach's petrel was not recorded in the offshore survey area from DAS.

In a recently published review by Furness (2018) it was found that "The lighting on turbines is orders of magnitude lower light intensities than produced by ports, towns, lighthouses, oil and gas platforms or ships". Therefore, phototaxis effects on petrels, including the qualifying features of this SPA, are highly unlikely to occur. Furness (2018) found that phototaxis of seabirds only "occurs over short distances (hundreds of metres) in response to bright white light close to colonies of these species. It is not seen over large distances or with the moderate light levels used in obstruction or navigation lighting". In addition, the author found "no evidence to suggest that obstruction or navigation lights affect ability of marine birds to feed at night, or attract marine prey animals to aggregate, or that they could affect predation risk for nocturnal migrant birds. There might be a slight reduction in collision risk for birds where turbines are illuminated, but the evidence suggests that any such effect is likely to be very small. There is no evidence to suggest that obstruction or navigation lights cause displacement of marine birds due to avoidance of light." It was therefore concluded that, "the evidence indicates that obstruction or navigation lights on turbines will have no significant effects on marine birds or on migrant terrestrial birds passing nearby".

The predicted impacts on the breeding European storm petrel and Leach's petrel population from the North Rona and Sula Sgeir SPA from the Project alone and in-combination would not adversely affect the integrity of the site.

The predicted impacts from the Project alone on the qualifying features of the North Rona and Sula Sgeir SPA are summarised in the tables in Appendix C, Section C.1. The predicted effect on adult survival from these impacts are summarised in Appendix C, Section C.1.9. The predicted impacts from the Project in-combination with other reasonably foreseeable plans and projects are summarised in Appendix C, Section C.2. The predicted effect on adult survival from these impacts are summarised in Appendix C, Section C.2.8.

6.17.3.1 Kittiwake

The predicted impacts from the Project alone on the breeding kittiwake population was 0.04 - 0.06 birds per annum in the breeding season (Appendix C, Section C.1, Table C1-1). In the non-breeding season, the predicted impacts were dependent on the BDMPS region used and the seasonal BDMPS population sizes. The largest non-breeding season predicted impact was 0.13 - 0.15 birds per annum based on the UK Western Waters & Channel Spring migration

(January to April). This predicted a change in adult survival of 0.012% - 0.015% points (Appendix C, Section C.1, Table C1-15) and so a PVA was not required.

The predicted impacts from the Project in-combination on the breeding kittiwake population was dependent on the BDMPS region used and the seasonal BDMPS population sizes. The largest predicted impact was 0.17 – 0.21 birds per annum based on the UK western waters & Channel Spring migration population (Appendix C, Section C.2, Table C2-2). This predicted a change in adult survival of 0.012% - 0.015% points (Appendix C, Section C.2, Table C2-14) and so a PVA was not required.

Impacts from the construction stage of the Project, including all cable installation, are short term, temporary and reversible. Following completion of the construction stage the disturbance effects will be removed. Therefore, this impact source will not have an impact on the conservation objectives to maintain the population in the long term.

The predicted impacts, based on guidance and advice from NatureScot, on the breeding kittiwake population from the North Rona and Sula Sgeir SPA from the Project alone and in-combination would not adversely affect the integrity of the site.

6.17.3.2 Great black-backed gull

The predicted impacts from the Project alone on the breeding great black-backed gull population was zero birds per annum in the breeding season (Appendix C, Section C.1, Table C1-3). In the non-breeding season, the predicted impacts from the Project alone were 0.13 birds per annum based on the West of Scotland non-breeding population. This predicted a change in adult survival of 0.03% points (Appendix C, Section C.1, Table C1-16) and so a PVA was required.

No predicted in-combination impacts on the breeding great black-backed gull population at the North Rona and Sula Sgeir SPA could be found (Appendix C, Section C.2).

The PVA provided projected change in population size of the baseline population, the population impacted by the Project alone, impacted by in-combination impacts without the Project and impacted by the in-combination impacts with the Project. The PVA projected that population would increase exponentially in all scenarios based on the input demographic values and the assumptions of the model (Figure 6-30).

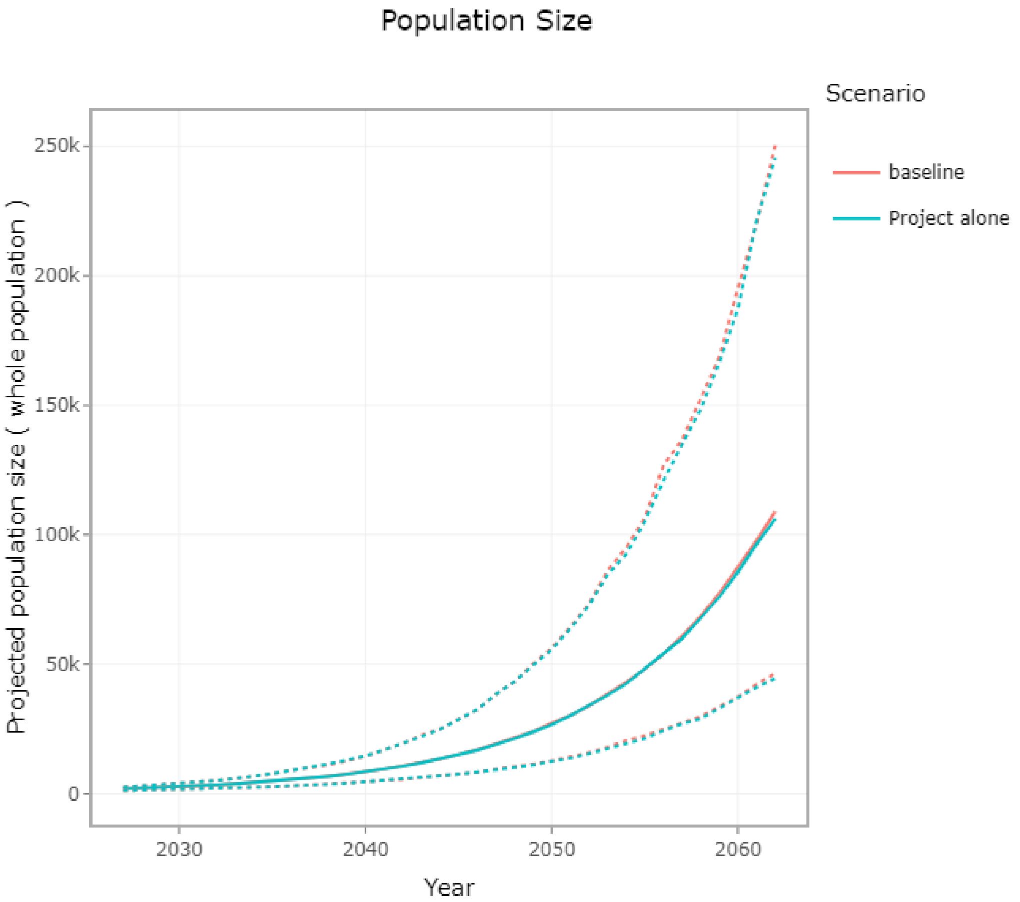


Figure 6-30 Projected population size of the breeding great black-backed gull feature of the North Rona and Sula Sgeir SPA for the baseline (unimpacted), Project alone, in-combination impacts without the Project and in-combination with the Project from 2027 to 2062. Solid line = mean, dashed line = SD

The PVA metrics (Table 6-54) showed that the mean and median CGR was very close to one for the Project alone across the projected 35 years used in the model. This suggests that the growth rate of the North Rona and Sula Sgeir SPA great black-backed gull population would not be adversely affected by the Project alone.

The mean and median CPS increase with the duration of the PVA projection (Table 6-54). The CPS values at 35 years of the Project alone was high (about 0.9838). Thus, the PVA predicts that the population would only be about 1.6% smaller than the baseline population size.

The population projection based on the model inputs creates an unrealistic population increase. The population model is not constrained by density dependent processes which results in this unrealistic projected growth. In reality the population of great black-backed gulls at this SPA has been decreasing over the last 10 years. As such, the CPS metrics are unlikely to provide a reliable means for assessing the effects of predicted impacts on this population.

The quantile metrics showed that across the projected years from the PVA that the overlap in the distribution of the projected end population size remained almost unchanged between the baseline and the predicted impacts from the Project alone.

Table 6-54 Summary of PVA metrics for the great black-backed gull population from North Rona and Sula Sgeir SPA for the Project alone, in-combination without the Project and in-combination including the Project. Based on the assessment of in-combination impacts and population sizes for the BDMPS UK Western Waters & Channel Spring migration (January to April). SD = standard deviation, LCI = lower confidence interval, UCI = upper confidence interval.

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project Alone	10	0.9996	0.9996	0.0036	0.9928	1.0072	0.9949	0.9959	0.0453	0.9098	1.0872	48.0	51.6
Project Alone	20	0.9995	0.9996	0.0020	0.9958	1.0036	0.9892	0.9911	0.0465	0.9015	1.0903	47.6	51.5
Project Alone	30	0.9995	0.9996	0.0014	0.9970	1.0023	0.9853	0.9868	0.0467	0.8982	1.0834	49.4	50.5
Project Alone	35	0.9996	0.9996	0.0012	0.9973	1.0019	0.9838	0.9846	0.0464	0.8982	1.0772	48.1	51.3

Impacts from the construction stage of the Project, including all cable installation, are short term, temporary and reversible. Following completion of the construction stage the disturbance effects will be removed. Therefore, this impact source will not have an impact on the conservation objectives to maintain the population in the long term.

The predicted impacts, based on guidance and advice from NatureScot, on the breeding great black-backed gull population from the North Rona and Sula Sgeir SPA from the Project alone and in-combination would therefore not adversely affect the integrity of the site.

6.17.3.3 Guillemot

The impacts from the Project alone in the breeding and non-breeding seasons on the breeding guillemot population of the SPA were predicted to be 0.02 - 0.05 birds killed per annum (Appendix C, Section C.1, Table C1-6). This was a predicted change in adult survival of 0.0002% - 0.0005% points (Appendix C, Section C.1, Table C1-18). The predicted impacts from other plans and projects was a further 0.05 birds killed per annum, resulting in a total predicted impact from the Project alone an in-combination of 0.07 – 0.09 birds killed per annum, with 27.4% - 50.0% of this total from the Project alone (Appendix C, Section C.2, Table C2-4). This resulted in a predicted change in adult survival of 0.0005% - 0.0009% points (Appendix C, Section C.2, Table C2-16) and so a PVA was not required.

Impacts from the construction stage of the Project, including all cable installation, are short term, temporary and reversible. Following completion of the construction stage the disturbance effects will be removed. Therefore, this impact source will not have an impact on the conservation objectives to maintain the population in the long term.

The predicted impacts, based on guidance and advice from NatureScot, on the breeding guillemot population from the North Rona and Sula Sgeir SPA from the Project alone and in-combination would not adversely affect the integrity of the site.

6.17.3.4 Razorbill

The predicted impacts from the Project alone on the breeding razorbill population was 0.002 - 0.004 birds per annum in the breeding season (Appendix C, Section C.1, Table C1-7). In the non-breeding season, the predicted impacts were dependent on the BDMPS region used and the seasonal BDMPS population sizes. The largest non-breeding season predicted impact was 0.003 - 0.008 birds per annum resulting in a total impact of 0.006 - 0.015 birds per annum based on the UK western waters during migration seasons (August to October, and January to March) (Appendix C, Section C.1, Table C1-7). This predicted a change in adult survival of 0.001% - 0.003% points (Appendix C, Section C.1, Table C1-19) and so a PVA was not required.

The predicted impacts from the Project in-combination on the breeding razorbill population was dependent on the BDMPS region used and the seasonal BDMPS population sizes. The largest predicted impact was 0.607 - 0.611 birds per annum (Appendix C, Section C.2, Table C2-6) based on the UK North Sea & Channel waters non-breeding season (August to October, and January to March). This predicted a change in adult survival of 0.118% - 0.119% points (Appendix C, Section C.2, Table C2-17), and so a PVA was completed based on this BDMPS region and season with the largest predicted impact.

The PVA provided projected change in population size of the baseline population, the population impacted by the Project alone, impacted by in-combination impacts without the Project and impacted by the in-combination impacts with the Project. The PVA projected that population would increase in all scenarios based on the input demographic values and the assumptions of the model (Figure 6-31).

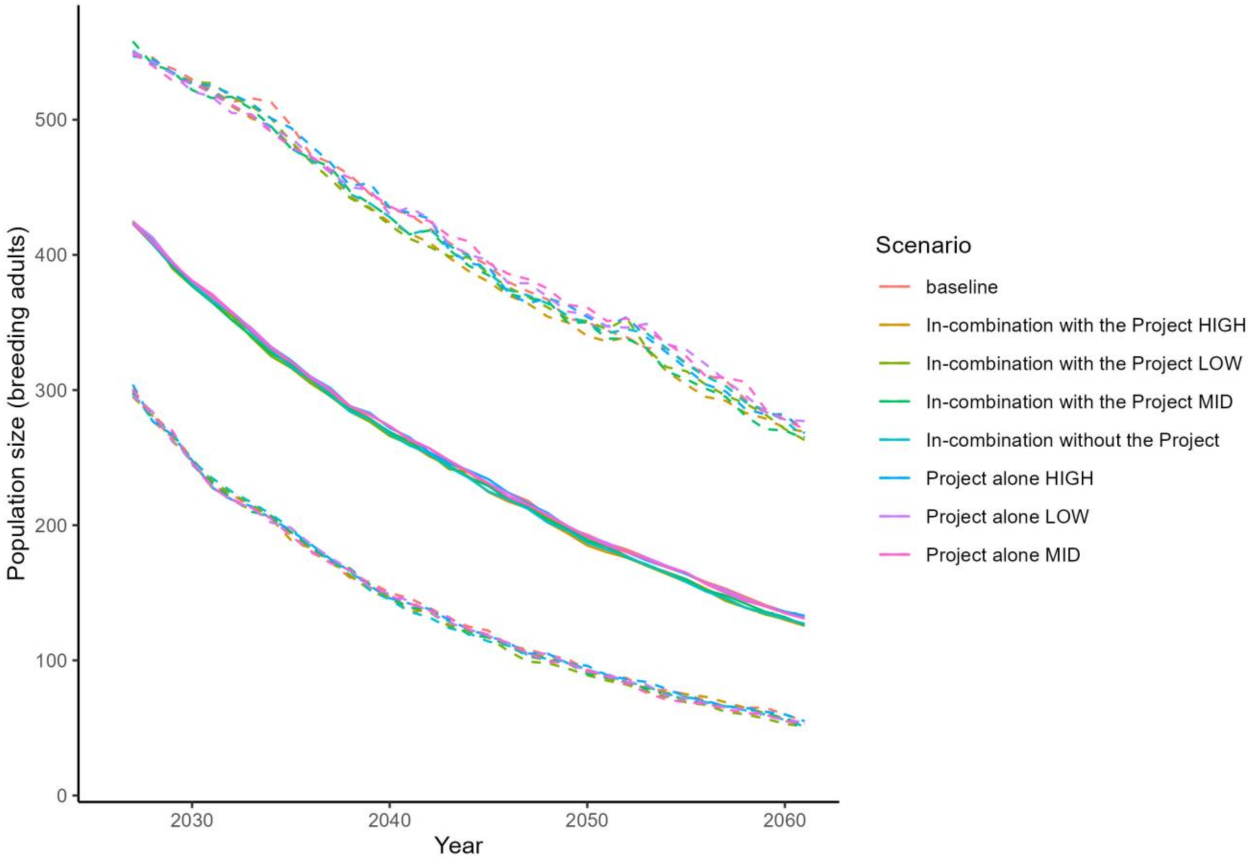


Figure 6-31 Projected population size of the breeding razorbill feature of the North Rona & Sula Sgier SPA for the baseline (unimpacted), Project alone, in-combination impacts without the Project and in-combination with the Project from 2027 to 2062. Solid line = mean, dashed line = SD

The PVA metrics (Table 6-55) showed that the mean and median CGR was close to one across the projected 35 years used in the model for the Project alone (0.9997 – 0.9998). The CGR value for the in-combination only impacts was 0.9990, or a 0.11% decline in growth rate across all years. Adding the Project alone to the in-combination impact made an extremely small difference to the predicted change in growth rate (0.9985 – 0.9988). This suggests that the growth rate of the North Caithness Cliffs SPA guillemot population would not be adversely affected by the Project alone and in-combination.

The mean and median CPS values increased with the duration of the PVA projection (Table 6-55). The CPS values at 35 years of the Project alone, the in-combination values without the Project and the in-combination values with and without the Project show that the majority of the predicted impacts on the SPA are from the in-combination impacts with very little effect from the Project alone. The CPS for the Project alone was high (0.9935 - 1.0000), suggesting that the PVA predicts that the population would not be smaller than the baseline population size. The in-combination only CPS value was also relatively high (0.9624). Thus, the PVA predicted that the population would be about 3.8% smaller than the baseline population size. Adding the predicted impacts from the Project to the existing in-combination impacts made a very small difference to the CPS value (0.9513 - 0.9600), and thus the PVA predicted that the population would be about 4.0% - 4.9% smaller than the baseline population size.

The quantile metrics showed that across the projected years from the PVA that the overlap in the distribution of the projected end population size reduced for the scenarios that included predicted in-combination impacts. However, the quantile metrics also showed that these distributions remained almost unchanged between the baseline and the predicted impacts from the Project alone.

Impacts from the construction stage of the Project, including all cable installation, are short term, temporary and reversible. Following completion of the construction stage the disturbance effects will be removed. Therefore, this impact source will not have an impact on the conservation objectives to maintain the population in the long term.

The predicted impacts, based on guidance and advice from NatureScot, on the breeding razorbill population from the North Rona and Sula Sgeir SPA from the Project alone and in-combination would **not adversely affect the integrity of the site**.

Table 6-55 Summary of PVA metrics for the razorbill population from North Rona & Sula Sgeir SPA for the Project alone, in-combination without the Project and in-combination including the Project. Based on the assessment of in-combination impacts and population sizes for the BDMPS UK North Sea & Channel waters non-breeding season (August to October, and January to March). SD = standard deviation, LCI = lower confidence interval, UCI = upper confidence interval.

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone LOW	10	1.0002	1.0003	0.0080	0.9851	1.0158	1.0034	1.0075	0.0961	0.8355	1.1984	50.6	48.8
Project alone MID	10	1.0003	1.0002	0.0076	0.9865	1.0152	1.0027	1.0076	0.0933	0.8411	1.2000	50.6	49.6
Project alone HIGH	10	1.0002	1.0004	0.0078	0.9855	1.0156	1.0043	1.0106	0.0969	0.8328	1.2182	50.9	47.5
In-combination without the Project	10	0.9993	0.9992	0.0077	0.9835	1.0141	0.9901	0.9973	0.0946	0.8337	1.1916	49.8	51.0
In-combination with the Project LOW	10	0.9991	0.9990	0.0077	0.9830	1.0136	0.9926	0.9943	0.0944	0.8290	1.1932	48.3	50.9
In-combination with the Project MID	10	0.9993	0.9993	0.0075	0.9853	1.0139	0.9919	0.9972	0.0929	0.8286	1.1887	48.3	51.0

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project HIGH	10	0.9994	0.9994	0.0077	0.9838	1.0139	0.9932	0.9982	0.0963	0.8164	1.1833	49.8	50.8
Project alone LOW	20	0.9998	0.9999	0.0059	0.9886	1.0116	0.9957	1.0060	0.1303	0.7831	1.2767	48.9	51.8
Project alone MID	20	0.9999	1.0000	0.0062	0.9874	1.0124	1.0000	1.0099	0.1386	0.7592	1.3149	48.9	52.5
Project alone HIGH	20	1.0000	0.9999	0.0060	0.9882	1.0117	1.0044	1.0081	0.1330	0.7754	1.2765	49.4	51.6
In-combination without the Project	20	0.9991	0.9992	0.0060	0.9871	1.0114	0.9868	0.9928	0.1333	0.7565	1.2850	47.4	53.8
In-combination with the Project LOW	20	0.9986	0.9988	0.0062	0.9865	1.0110	0.9710	0.9842	0.1376	0.7566	1.2970	48.1	53.6
In-combination with the Project MID	20	0.9989	0.9990	0.0061	0.9868	1.0107	0.9794	0.9888	0.1350	0.7509	1.2778	47.7	54.4
In-combination with the Project HIGH	20	0.9991	0.9990	0.0061	0.9873	1.0109	0.9808	0.9891	0.1340	0.7545	1.2610	47.4	54.1

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone LOW	30	0.9999	1.0000	0.0054	0.9899	1.0106	1.0000	1.0136	0.1787	0.7128	1.4086	49.6	50.9
Project alone MID	30	1.0000	0.9998	0.0056	0.9880	1.0109	1.0056	1.0120	0.1804	0.6866	1.4089	47.9	52.5
Project alone HIGH	30	1.0001	1.0000	0.0055	0.9893	1.0106	1.0058	1.0176	0.1811	0.7171	1.4232	49.6	51.6
In-combination without the Project	30	0.9991	0.9989	0.0055	0.9882	1.0099	0.9715	0.9849	0.1783	0.6914	1.3880	45.4	54.8
In-combination with the Project LOW	30	0.9986	0.9986	0.0056	0.9879	1.0095	0.9569	0.9740	0.1793	0.6824	1.3722	44.0	55.8
In-combination with the Project MID	30	0.9989	0.9989	0.0056	0.9873	1.0098	0.9638	0.9828	0.1795	0.6719	1.3705	46.6	53.9
In-combination with the Project HIGH	30	0.9989	0.9989	0.0055	0.9885	1.0098	0.9704	0.9815	0.1719	0.6831	1.3680	45.4	55.5
Project alone LOW	35	0.9997	0.9998	0.0055	0.9896	1.0106	0.9935	1.0151	0.2140	0.6743	1.4872	50.3	50.4

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone MID	35	0.9998	0.9997	0.0054	0.9885	1.0102	1.0000	1.0116	0.2035	0.6521	1.4301	49.2	52.0
Project alone HIGH	35	0.9998	0.9999	0.0055	0.9893	1.0109	0.9958	1.0186	0.2129	0.6665	1.5169	50.8	49.6
In-combination without the Project	35	0.9990	0.9988	0.0054	0.9881	1.0097	0.9624	0.9801	0.2028	0.6393	1.4219	46.2	54.8
In-combination with the Project LOW	35	0.9985	0.9986	0.0054	0.9881	1.0093	0.9513	0.9701	0.2035	0.6427	1.3950	46.2	54.7
In-combination with the Project MID	35	0.9988	0.9988	0.0055	0.9881	1.0099	0.9600	0.9798	0.2071	0.6323	1.4468	46.2	53.7
In-combination with the Project HIGH	35	0.9988	0.9988	0.0054	0.9877	1.0089	0.9593	0.9787	0.1963	0.6316	1.3981	46.2	54.3

6.17.3.5 Puffin

The impacts from the Project alone in the breeding and non-breeding seasons on the breeding puffin population of the SPA were predicted to be 0.07 - 0.20 birds killed per annum (Appendix C, Section C.1, Table C1-10) based on UK Western Waters. This was a predicted change in adult survival of 0.002% - 0.007% points (Appendix C, Section C.1, Table C1-21). The predicted impacts from other plans and projects was zero birds killed per annum (Appendix C, Section C.2, Table C2-8). This was a predicted change in adult survival of 0.002% - 0.007% points (Appendix C, Section C.2, Table C2-18) so a PVA was not required.

Impacts from the construction stage of the Project, including all cable installation, are short term, temporary and reversible. Following completion of the construction stage the disturbance effects will be removed. Therefore, this impact source will not have an impact on the conservation objectives to maintain the population in the long term.

The predicted impacts, based on guidance and advice from NatureScot, on the breeding puffin population from the North Rona and Sula Sgeir SPA from the Project alone and in-combination would not adversely affect the integrity of the site.

6.17.3.6 Fulmar

The predicted impacts from the Project alone on the breeding fulmar population was 0.005 - 0.014 birds per annum in the breeding season (Appendix C, Section C.1, Table C1-11). In the non-breeding season, the predicted impacts were dependent on the BDMPS region used and the seasonal BDMPS population sizes. The largest non-breeding season predicted impact was 0.06 - 0.34 birds per annum based on the UK western waters and Channel during migration seasons (September & October, December to March). This predicted a change in adult survival of 0.0006% - 0.0035% points and so a PVA was not required (Appendix C, Section C.1, Table C1-22).

The predicted impacts from other plans and projects was not possible to estimate as previous projects have screened out impacts on fulmar populations from SPAs. The predicted impact from the Project alone was a sufficiently small impact on the breeding population of fulmars from the North Rona and Sula Sgeir SPA that no PVA was necessary.

Impacts from the construction stage of the Project, including all cable installation, are short term, temporary and reversible. Following completion of the construction stage the disturbance effects will be removed. Therefore, this impact source will not have an impact on the conservation objectives to maintain the population in the long term.

The predicted impacts, based on guidance and advice from NatureScot, on the breeding fulmar population from the North Rona and Sula Sgeir SPA from the Project alone and in combination would therefore not adversely affect the integrity of the site.

6.17.3.7 Gannet

The predicted impacts from the Project alone on the breeding gannet population was 0.019 - 0.024 birds per annum in the breeding season (Appendix C, Section C.1, Table C1-13). In the non-breeding season, the predicted impacts from the Project alone were 0.5 – 1.0 birds per annum based on the UK Western waters in autumn (September to

November) population. This predicted a change in adult survival of 0.002% - 0.004% points (Appendix C, Section C.1, Table C1-23).

The predicted impacts from the Project in-combination on the breeding gannet population was dependent on the BDMPS region used and the seasonal BDMPS population sizes. The largest predicted impact was 10.8 - 10.9 birds per annum (Appendix C, Section C.2, Table C2-12) based on the UK North Sea & Channel waters in autumn (September to November). This predicted a change in adult survival of 0.0482% - 0.0486% points (Appendix C, Section C.2, Table C2-21) and so a PVA was required.

The PVA provided projected change in population size of the baseline population, the population impacted by the Project alone, impacted by in-combination impacts without the Project and impacted by the in-combination impacts with the Project. The PVA projected that population would increase in all scenarios based on the input demographic values and the assumptions of the model (Figure 6-32).

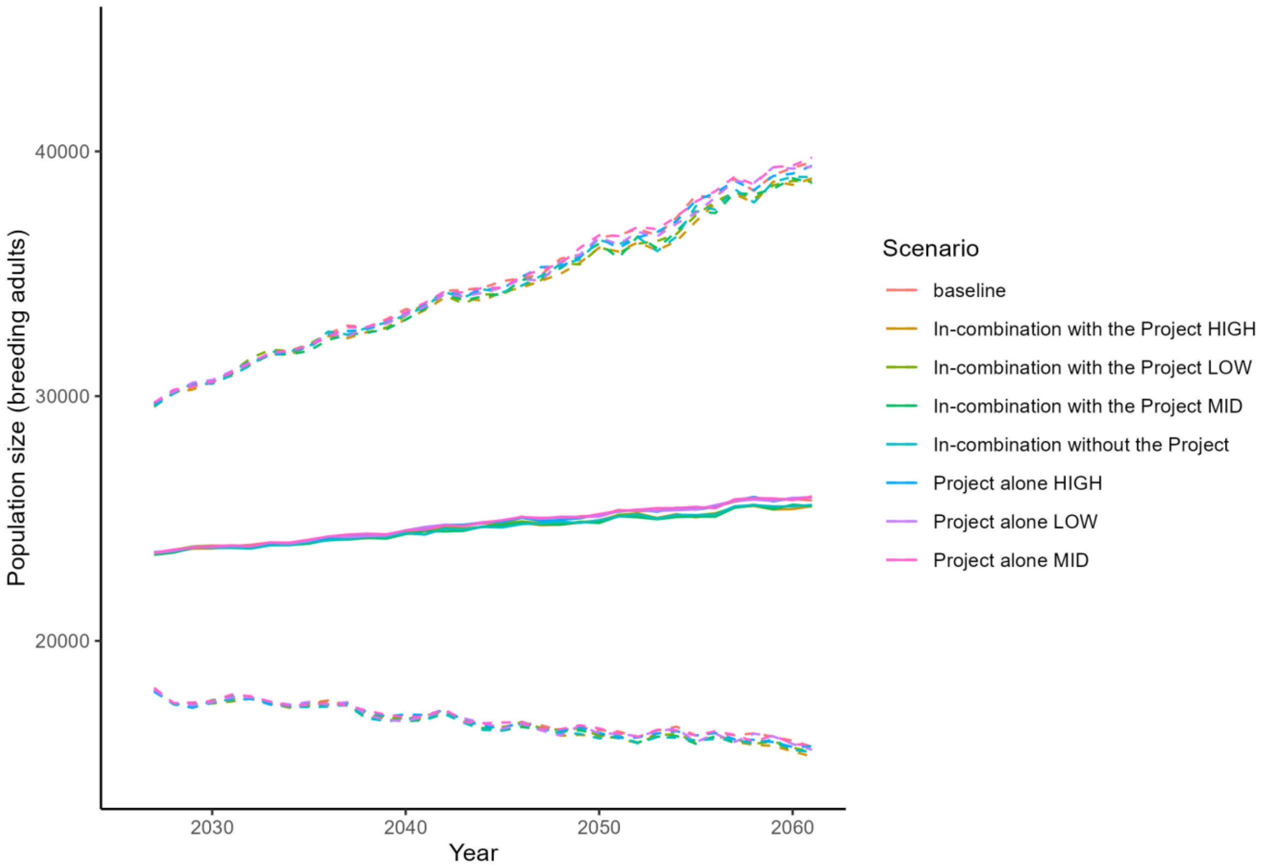


Figure 6-32 Projected population size of the breeding gannet feature of the North Rona and Sula Sgeir SPA for the baseline (unimpacted), Project alone, in-combination impacts without the Project and in-combination with the Project from 2027 to 2062. Solid line = mean, dashed line = SD

The PVA metrics (Table 6-56) showed that the mean and median CGR was very close to one for the Project alone across the projected 35 years used in the model. This suggests that the growth rate of the North Rona and Sula Sgeir SPA gannet population would not be adversely affected by the Project alone.

The mean and median CPS increase with the duration of the PVA projection (Table 6-56). The CPS values at 35 years of the Project alone, the in-combination values without the Project and the in-combination values with and without the Project show that the majority of the predicted impacts on the SPA are from the in-combination impacts with very little effect from the Project alone. The CPS values at 35 years of the Project alone was high (0.9991 - 1.0007) suggesting the PVA predicts that the population would be no smaller than the baseline population size. The in-combination only CPS value was also high (0.9867). Thus, the PVA predicts that the population would be about 1.3% smaller than the baseline population size. Adding the predicted impacts from the Project to the existing in-combination impacts made a small difference to the CPS value (0.9853 - 0.9879), and thus the PVA predicted that the population would be about 1.2% - 1.4% smaller than the baseline population size.

The population projection based on the model inputs creates an unrealistic population increase. The population model is not constrained by density dependent processes which results in this unrealistic projected growth. The empirical evidence shows that the population of gannets at this SPA has been stable over the last 10 years, likely due to the harvest of gannet chicks from Sula Sgeir. As such, the CPS metrics are unlikely to provide a reliable means for assessing the effects of predicted impacts on this population.

The quantile metrics showed that across the projected years from the PVA that the overlap in the distribution of the projected end population size reduced only very slightly for the scenarios that included predicted in-combination impacts. However, the quantile metrics also showed that these distributions remained essentially unchanged between the baseline and the predicted impacts from the Project alone.

Impacts from the construction stage of the Project, including all cable installation, are short term, temporary and reversible. Following completion of the construction stage the disturbance effects will be removed. Therefore, this impact source will not have an impact on the conservation objectives to maintain the population in the long term.

The predicted impacts, based on guidance and advice from NatureScot, on the breeding gannet population from the North Rona and Sula Sgeir SPA from the Project alone and in-combination would therefore not adversely affect the integrity of the site.

Table 6-56 Summary of PVA metrics for the gannet population from North Rona and Sula Sgeir SPA for the Project alone, in-combination without the Project and in-combination including the Project. Based on the assessment of in-combination impacts and population sizes for the BDMPS UK North Sea & Channel waters in autumn (September to November). SD = standard deviation, LCI = lower confidence interval, UCI = upper confidence interval.

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone LOW	10	1.0000	1.0000	0.0009	0.9984	1.0017	1.0004	1.0002	0.0131	0.9758	1.0266	50.3	49.9
Project alone MID	10	1.0000	1.0001	0.0009	0.9985	1.0018	1.0004	1.0009	0.0132	0.9747	1.0280	50.7	49.2
Project alone HIGH	10	1.0000	1.0000	0.0009	0.9982	1.0017	0.9998	1.0001	0.0130	0.9762	1.0254	50.3	49.9
In-combination without the Project	10	0.9997	0.9996	0.0009	0.9980	1.0015	0.9960	0.9960	0.0131	0.9704	1.0212	48.8	50.9
In-combination with the Project LOW	10	0.9997	0.9997	0.0009	0.9980	1.0014	0.9964	0.9963	0.0128	0.9724	1.0207	49.0	50.9

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project MID	10	0.9997	0.9997	0.0008	0.9981	1.0013	0.9956	0.9956	0.0132	0.9700	1.0219	48.6	50.3
In-combination with the Project HIGH	10	0.9996	0.9996	0.0009	0.9979	1.0014	0.9960	0.9959	0.0127	0.9702	1.0201	49.2	50.3
Project alone LOW	20	1.0000	1.0000	0.0006	0.9989	1.0013	0.9996	1.0001	0.0155	0.9711	1.0328	51.2	48.6
Project alone MID	20	1.0000	1.0000	0.0006	0.9989	1.0012	1.0009	1.0005	0.0157	0.9714	1.0312	51.6	48.8
Project alone HIGH	20	1.0000	1.0000	0.0006	0.9988	1.0012	0.9994	0.9999	0.0153	0.9698	1.0305	50.3	49.9
In-combination without the Project	20	0.9996	0.9996	0.0006	0.9984	1.0008	0.9925	0.9921	0.0153	0.9616	1.0218	49.6	50.6

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project LOW	20	0.9996	0.9996	0.0006	0.9985	1.0009	0.9926	0.9925	0.0151	0.9633	1.0233	49.7	50.4
In-combination with the Project MID	20	0.9996	0.9996	0.0006	0.9985	1.0008	0.9913	0.9916	0.0152	0.9620	1.0222	49.3	51.0
In-combination with the Project HIGH	20	0.9996	0.9996	0.0006	0.9985	1.0008	0.9917	0.9920	0.0148	0.9638	1.0212	48.8	51.5
Project alone LOW	30	1.0000	1.0000	0.0005	0.9992	1.0009	0.9993	1.0000	0.0176	0.9677	1.0359	50.5	49.8
Project alone MID	30	1.0000	1.0000	0.0005	0.9991	1.0010	1.0001	1.0004	0.0175	0.9665	1.0343	51.1	49.6
Project alone HIGH	30	1.0000	1.0000	0.0005	0.9991	1.0010	0.9992	0.9996	0.0171	0.9665	1.0343	50.6	49.9

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination without the Project	30	0.9996	0.9996	0.0005	0.9987	1.0005	0.9894	0.9889	0.0172	0.9539	1.0238	48.5	51.0
In-combination with the Project LOW	30	0.9996	0.9997	0.0005	0.9988	1.0006	0.9896	0.9893	0.0167	0.9591	1.0235	48.4	51.5
In-combination with the Project MID	30	0.9996	0.9996	0.0005	0.9987	1.0006	0.9878	0.9879	0.0169	0.9562	1.0211	48.2	51.7
In-combination with the Project HIGH	30	0.9996	0.9996	0.0005	0.9987	1.0005	0.9874	0.9877	0.0165	0.9559	1.0202	48.4	51.2
Project alone LOW	35	1.0000	1.0000	0.0004	0.9992	1.0009	0.9998	1.0001	0.0186	0.9658	1.0402	50.1	49.8
Project alone MID	35	1.0000	1.0000	0.0004	0.9992	1.0009	1.0007	1.0003	0.0183	0.9634	1.0383	50.1	49.7

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone HIGH	35	1.0000	1.0000	0.0004	0.9991	1.0008	0.9991	0.9993	0.0181	0.9639	1.0367	49.1	51.2
In-combination without the Project	35	0.9996	0.9996	0.0004	0.9988	1.0005	0.9867	0.9870	0.0178	0.9519	1.0224	47.9	52.5
In-combination with the Project LOW	35	0.9997	0.9997	0.0004	0.9989	1.0005	0.9879	0.9877	0.0178	0.9543	1.0230	48.1	52.2
In-combination with the Project MID	35	0.9996	0.9996	0.0004	0.9988	1.0005	0.9857	0.9861	0.0179	0.9525	1.0216	48.1	52.4
In-combination with the Project HIGH	35	0.9996	0.9996	0.0004	0.9988	1.0005	0.9853	0.9859	0.0174	0.9525	1.0210	48.2	51.9

6.17.4 Assessment summary and conclusions

The assessment can conclude that there is no adverse effect on site integrity of the North Rona and Sula Sgeir SPA as outlined in Table 6-57.

Table 6-57 Summary of assessment of North Rona and Sula Sgeir SPA.

QUALIFYING FEATURE	POTENTIAL EFFECT	CONCLUSION
Breeding kittiwake	Collisions and, displacement and barrier effects	No adverse effects on site integrity from the Project alone and in-combination with other reasonably foreseeable plans and projects
Breeding great black-backed gull	Collisions	No adverse effects on site integrity from the Project alone and in-combination with other reasonably foreseeable plans and projects
Breeding guillemot	Displacement and barrier effects	No adverse effects on site integrity from the Project alone and in-combination with other reasonably foreseeable plans and projects
Breeding razorbill	Displacement and barrier effects	No adverse effects on site integrity from the Project alone and in-combination with other reasonably foreseeable plans and projects
Breeding puffin	Displacement and barrier effects	No adverse effects on site integrity from the Project alone and in-combination with other reasonably foreseeable plans and projects
Breeding European storm petrel	No likely significant effect	
Breeding Leach's petrel	No likely significant effect	
Breeding fulmar	Displacement and barrier effects	No adverse effects on site integrity from the Project alone and in-combination with other reasonably foreseeable plans and projects

QUALIFYING FEATURE	POTENTIAL EFFECT	CONCLUSION
Breeding gannet	Collisions and, displacement and barrier effects	No adverse effects on site integrity from the Project alone and in-combination with other reasonably foreseeable plans and projects
Breeding seabird assemblage	Collisions and, displacement and barrier effects	No adverse effects on site integrity from the Project alone and in-combination with other reasonably foreseeable plans and projects

6.18 Rousay SPA

The Rousay SPA was classified on 2nd February 2000, with marine extension classified on 25th September 2009, due to its populations of breeding seabirds. The site is in the northern half of the island of Rousay in the Orkney archipelago. It is approximately 50 km east of the Project.

6.18.1 Site details and qualifying interests

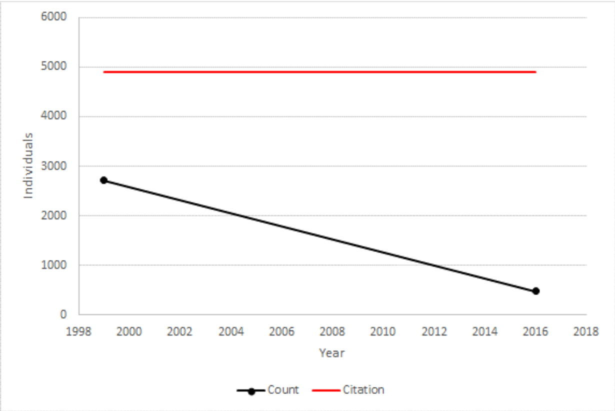
Rousay is an island off the north-east coast of Mainland, Orkney. The SPA consists of sea cliffs and areas of maritime heath and grassland in the northwest and north-east of the island.

The boundary of the Special Protection Area overlaps with the boundary of Rousay SSSI, and the seaward extension extends approximately 2 km into the marine environment to include the seabed, water column and surface.

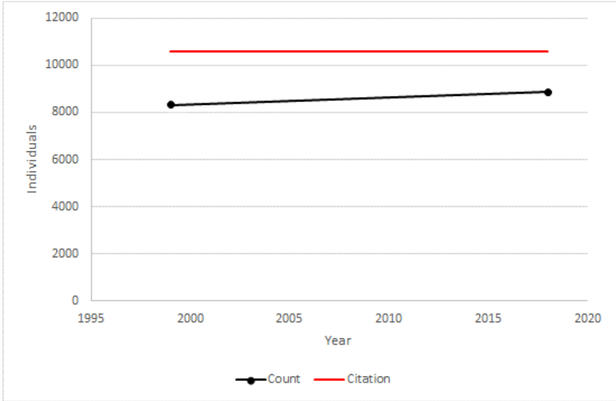
Table 6-58 Qualifying interests and condition for the Rousay SPA

QUALIFYING INTERESTS	FEATURE CONDITION	ASSESSMENT DATE	BROADER CONSERVATION STATUS
Kittiwake	Unfavourable Declining	24 Jun 2016	Red
Arctic tern	Unfavourable No change	9 Jun 2018	Amber
Arctic skua	Unfavourable No change	24 Jun 2015	Red
Guillemot	Unfavourable Declining	24 Jun 2016	Amber
Fulmar	Favourable Maintained	24 Jun 2016	Amber
Seabird assemblage	Unfavourable Declining	24 Jun 2016	n/a

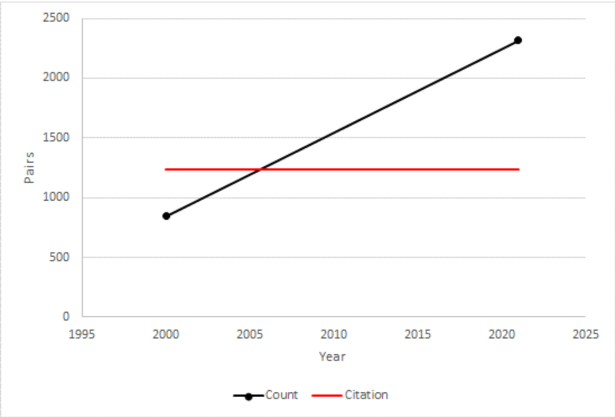
For each qualifying feature requiring assessment (except the breeding seabird assemblage) count data was extracted from the SMP database. These counts were plotted and compared with the citation population size, where data allowed (Figure 6-33).



Kittiwake



Guillemot



Fulmar

Figure 6-33 Rousay SPA qualifying feature population trends from 1981 - 2022 (citation population size shown by red line).

Population counts were only available from national census counts in 1999/2000 and 2016 - 2020. Kittiwake numbers appear to have reduced considerably since the Seabird 2000 counts, with both counts being well below the citation population size. Guillemot numbers appear to have changed little between Seabird 2000 and the most recent, SMP, counts but have stayed well below the citation population size. Fulmar numbers appear to have increase considerable between the Seabird 2000 and SMP counts and are now well above the citation population size.

6.18.2 Conservation objectives

The conservation objectives of the Rousay SPA are:

To avoid deterioration of the habitats of the qualifying species or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained; and

To ensure for the qualifying species that the following are maintained in the long term:

- Population of the species as a viable component of the site;
- Distribution of the species within site;
- Distribution and extent of habitats supporting the species;
- Structure, function and supporting processes of habitats supporting the species; and
- No significant disturbance of the species.

6.18.3 Assessment of predicted impacts alone and in-combination

The breeding Arctic skua feature of the Rousay SPA was screened out of the assessment as there was no connectivity between the Project and the SPA. Arctic skua occurred in insignificant numbers in the Project, so there was no likely significant effect on the Rousay SPA from impacts on this feature. Rousay SPA was beyond the mean of the maximum foraging range (+ 1 SD) of Arctic tern in the breeding season and was not recorded from the Project in the non-breeding season, so there was no likely significant effect on the Rousay SPA.

6.18.3.1 Kittiwake

The predicted impacts from the Project alone on the breeding kittiwake population was 0.05 - 0.07 birds per annum in the breeding season (Appendix C, Section C.1, Table C1-1). In the non-breeding season, the predicted impacts were dependent on the BDMPS region used and the seasonal BDMPS population sizes. The largest non-breeding season predicted impact was 0.14 - 0.16 birds per annum based on the UK North Sea waters Spring migration (January to April). This predicted a total annual impact of 0.19 – 0.23 birds per annum resulting in a change in adult survival of 0.029% - 0.036% points (Appendix C, Section C.1, Table C1-15) and so a PVA was required.

The predicted impacts from the Project in-combination (7.3 birds per annum) on the breeding kittiwake population was dependent on the BDMPS region used and the seasonal BDMPS population sizes. The largest predicted impact was 7.5 - 7.6 birds per annum based on the UK North Sea waters Spring migration population (Appendix C, Section C.2, Table C2-1). This predicted a change in adult survival of 1.139% - 1.144% points (Appendix C, Section C.2, Table C2-14) and so a PVA was required.

The PVA provided projected change in population size of the baseline population, the population impacted by the Project alone, impacted by in-combination impacts without the Project and impacted by the in-combination impacts with the Project. Due to the small current population size of kittiwakes at the Rousay SPA it was not possible to run a stochastic population model. Consequently, the PVA is based on a population model without demographic stochasticity, but with environmental stochasticity retained. The PVA projected that population would decline in all scenarios based on the input demographic values and the assumptions of the model (Figure 6-34).

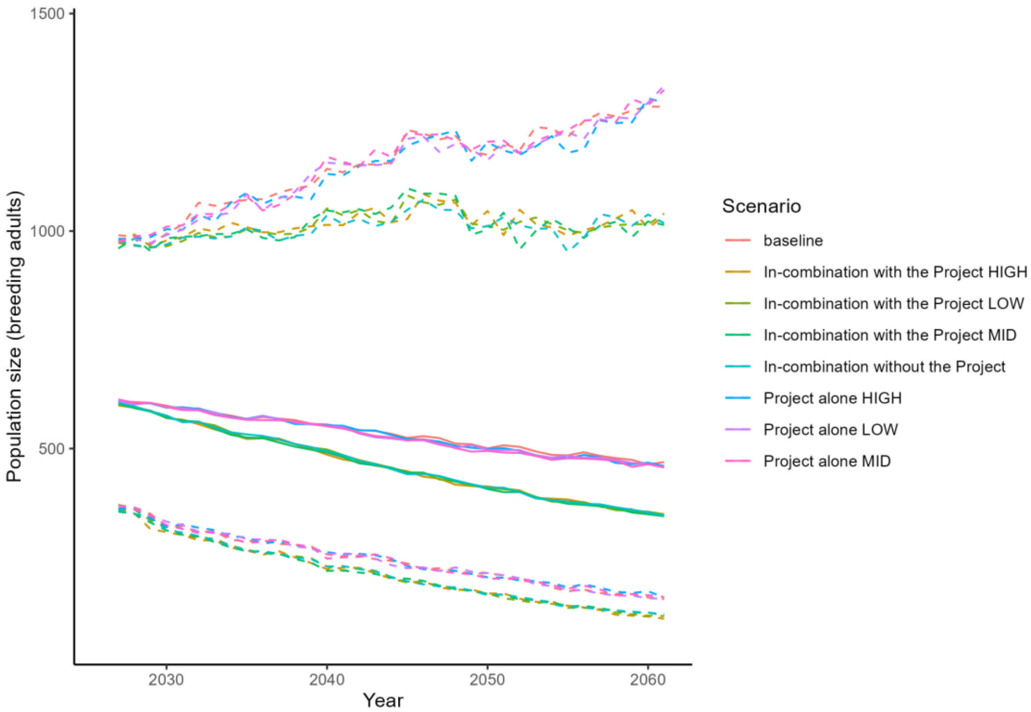


Figure 6-34 Projected population size of the breeding kittiwake feature of the Rousay SPA for the baseline (unimpacted), Project alone, in-combination impacts without the Project and in-combination with the Project from 2027 to 2062. Solid line = mean, dashed line = SD

The PVA metrics (Table 6-59) showed that the mean and median CGR was very close to one across the projected 35 years used in the model for the Project alone. The CGR value for the project alone after 35 years was 0.9997 - 0.9998, or a 0.0155% - 0.0272% decline in growth rate. The CGR value for the in-combination only impacts was 0.9918, or a 0.8% decline in growth rate. Adding the Project alone to the in-combination impact made an extremely small difference to the predicted change in growth rate. This suggests that the growth rate of the Rousay SPA kittiwake population would not be adversely affected by the predicted impacts from Project alone or in-combination.

The mean and median CPS values decreased with the duration of the PVA projection (Table 6-59). The CPS values at 35 years of the Project alone, the in-combination values without the Project and the in-combination values with and without the Project show that the majority of the predicted impacts on the SPA are from the in-combination impacts with very little effect from the Project alone. The CPS for the Project alone was high (0.9930 - 0.9943), suggesting that the PVA predicts that the population would be 0.57% - 0.70% smaller than the baseline population size. The in-combination only CPS value was relatively low (0.7422). Thus, the PVA predicts that the population would be about 25.8% smaller than the baseline population size. Adding the predicted impacts from the Project to the existing in-combination impacts made a small difference to the CPS value (0.7384 - 0.7455), and thus the PVA predicted that the population would be about 25.4% - 26.2% smaller than the baseline population size.

The quantile metrics showed that across the projected years from the PVA that the overlap in the distribution of the projected end population size reduced for the scenarios that included predicted in-combination impacts. However, the quantile metrics also showed that these distributions remained essentially unchanged between the baseline and the predicted impacts from the Project alone.

Table 6-59 Summary of PVA metrics for the kittiwake population from Rousay SPA for the Project alone, in-combination without the Project and in-combination including the Project. Based on the assessment of in-combination impacts and population sizes for the BDMPS UK North Sea waters Spring migration (January to April). SD = standard deviation, LCI = lower confidence interval, UCI = upper confidence interval.

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone LOW	10	0.9997	0.9996	0.0069	0.9852	1.0127	0.9993	1.0030	0.0948	0.8235	1.1883	49.9	50.3
Project alone MID	10	0.9995	0.9996	0.0070	0.9857	1.0136	0.9976	1.0002	0.0968	0.8194	1.2074	49.2	51.0
Project alone HIGH	10	0.9998	0.9996	0.0071	0.9857	1.0130	1.0000	1.0000	0.0933	0.8179	1.1890	49.6	50.6
In-combination without the Project	10	0.9916	0.9915	0.0068	0.9780	1.0050	0.9167	0.9153	0.0877	0.7506	1.1056	41.1	60.3
In-combination with the Project LOW	10	0.9915	0.9913	0.0071	0.9773	1.0045	0.9103	0.9149	0.0888	0.7506	1.0979	41.7	62.2

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project MID	10	0.9915	0.9914	0.0069	0.9771	1.0045	0.9095	0.9124	0.0848	0.7500	1.0810	39.4	59.9
In-combination with the Project HIGH	10	0.9917	0.9916	0.0070	0.9774	1.0050	0.9093	0.9138	0.0868	0.7456	1.0992	40.8	59.6
Project alone LOW	20	0.9993	0.9995	0.0049	0.9901	1.0092	0.9914	0.9990	0.1154	0.7995	1.2544	47.8	52.4
Project alone MID	20	0.9996	0.9996	0.0049	0.9896	1.0100	0.9898	0.9994	0.1188	0.7966	1.2501	48.5	52.5
Project alone HIGH	20	0.9996	0.9997	0.0049	0.9903	1.0094	1.0000	1.0010	0.1159	0.7903	1.2611	49.0	51.1
In-combination without the Project	20	0.9918	0.9916	0.0050	0.9814	1.0013	0.8385	0.8445	0.1019	0.6603	1.0658	34.9	65.9

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project LOW	20	0.9916	0.9915	0.0051	0.9812	1.0017	0.8390	0.8453	0.1037	0.6673	1.0729	33.6	66.2
In-combination with the Project MID	20	0.9917	0.9915	0.0052	0.9805	1.0018	0.8388	0.8415	0.1037	0.6446	1.0659	34.9	65.4
In-combination with the Project HIGH	20	0.9916	0.9916	0.0051	0.9812	1.0009	0.8430	0.8416	0.1018	0.6537	1.0362	34.0	66.4
Project alone LOW	30	0.9997	0.9996	0.0043	0.9914	1.0078	0.9906	1.0014	0.1419	0.7500	1.3109	49.6	50.6
Project alone MID	30	0.9996	0.9997	0.0041	0.9919	1.0081	0.9907	1.0016	0.1437	0.7519	1.3322	48.8	51.4
Project alone HIGH	30	0.9997	0.9997	0.0041	0.9918	1.0081	0.9877	1.0014	0.1419	0.7539	1.3104	49.8	50.4

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination without the Project	30	0.9916	0.9917	0.0043	0.9831	1.0004	0.7744	0.7809	0.1142	0.5760	1.0413	30.3	68.7
In-combination with the Project LOW	30	0.9918	0.9917	0.0045	0.9827	1.0007	0.7761	0.7837	0.1199	0.5769	1.0538	29.7	68.6
In-combination with the Project MID	30	0.9917	0.9916	0.0044	0.9823	0.9999	0.7744	0.7784	0.1159	0.5639	1.0323	29.7	69.4
In-combination with the Project HIGH	30	0.9916	0.9916	0.0043	0.9834	1.0001	0.7707	0.7773	0.1115	0.5830	1.0096	29.7	67.6
Project alone LOW	35	0.9997	0.9997	0.0040	0.9920	1.0075	0.9930	1.0043	0.1526	0.7366	1.3415	48.4	51.5
Project alone MID	35	0.9998	0.9998	0.0039	0.9921	1.0074	0.9939	1.0056	0.1549	0.7372	1.3379	49.4	50.9

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone HIGH	35	0.9998	0.9999	0.0038	0.9921	1.0076	0.9943	1.0074	0.1495	0.7458	1.3286	49.7	50.7
In-combination without the Project	35	0.9918	0.9918	0.0040	0.9835	0.9997	0.7422	0.7534	0.1164	0.5419	1.0081	27.7	72.3
In-combination with the Project LOW	35	0.9920	0.9918	0.0042	0.9834	1.0000	0.7455	0.7549	0.1234	0.5241	1.0194	28.4	72.0
In-combination with the Project MID	35	0.9918	0.9917	0.0042	0.9828	0.9993	0.7384	0.7496	0.1220	0.5267	1.0035	28.0	71.3
In-combination with the Project HIGH	35	0.9919	0.9918	0.0040	0.9832	0.9996	0.7452	0.7516	0.1154	0.5388	0.9907	28.6	70.2

Impacts from the construction stage of the Project, including all cable installation, are short term, temporary and reversible. Following completion of the construction stage the disturbance effects will be removed. Therefore, this impact source will not have an impact on the conservation objectives to maintain the population in the long term.

The predicted impacts, based on guidance and advice from NatureScot, on the breeding kittiwake population from the Rousay SPA from the Project alone would not adversely affect the integrity of the site. When applying the significant levels of precaution advised it may not be possible to discount AESI arising from the list of in-combination projects, the predicted impacts from the Project alone is beneath any threshold of significance and *de minimis* and as such would not materially alter the significance or the likelihood of an adverse effect on the integrity of the Rousay SPA. .

6.18.3.2 Guillemot

The impacts from the Project alone in the breeding and non-breeding seasons on the breeding guillemot population of the SPA were predicted to be 0.04 - 0.08 birds killed per annum (Appendix C, Section C.1, Table C1-6). This was a predicted change in adult survival of 0.0005% - 0.0010% points (Appendix C, Section C.1, Table C1-18). The predicted impacts from other plans and projects was a further 0.2 birds killed per annum, resulting in a total predicted impact from the Project alone and in-combination of 0.2 - 0.3 birds killed per annum, with 19.2% - 30.9% of this total from the Project alone (Appendix C, Section C.2, Table C2-4). This resulted in a predicted change in adult survival of 0.002% - 0.003% points (Appendix C, Section C.2, Table C2-16) and so a PVA was not required.

Impacts from the construction stage of the Project, including all cable installation, are short term, temporary and reversible. Following completion of the construction stage the disturbance effects will be removed. Therefore, this impact source will not have an impact on the conservation objectives to maintain the population in the long term.

The predicted impacts, based on guidance and advice from NatureScot, on the breeding guillemot population from the Rousay SPA from the Project alone and in-combination would not adversely affect the integrity of the site.

6.18.3.3 Fulmar

The predicted impacts from the Project alone on the breeding fulmar population was 0.02 - 0.05 birds per annum in the breeding season (Appendix C, Section C.1, Table C1-11). In the non-breeding season, the predicted impacts were dependent on the BDMPS region used and the seasonal BDMPS population sizes. The largest non-breeding season predicted impact was 0.01 - 0.03 birds per annum based on the UK North Sea during migration seasons (September & October, December to March). This predicted a change in adult survival of 0.0006% - 0.0017% points and so a PVA was not required (Appendix C, Section C.1, Table C1-22).

The predicted impacts from other plans and projects was not possible to estimate as previous projects have screened out impacts on fulmar populations from SPAs. The predicted impact from the Project alone was a sufficiently small impact on the breeding population of fulmars from the Rousay SPA that no PVA was necessary.

Impacts from the construction stage of the Project, including all cable installation, are short term, temporary and reversible. Following completion of the construction stage the disturbance effects will be removed. Therefore, this impact source will not have an impact on the conservation objectives to maintain the population in the long term.

The predicted impacts, based on guidance and advice from NatureScot, on the breeding fulmar population from the Rousay SPA from the Project alone and in combination would therefore not adversely affect the integrity of the site.

6.18.4 Assessment summary and conclusions

The assessment can conclude that there is no adverse effect on site integrity of the Rousay SPA as outlined in Table 6-60.

Table 6-60 Summary of assessment of Rousay SPA

QUALIFYING FEATURE	POTENTIAL EFFECT	CONCLUSION
Breeding kittiwake	Collisions and, displacement and barrier effects	The predicted impacts from the Project alone is beneath any threshold of significance and de minimis and as such would not materially alter the significance or the likelihood of an adverse effect on the integrity of the SPA.
Breeding Arctic tern	No likely significant effect	
Breeding Arctic skua	No likely significant effect	
Breeding guillemot	Displacement and barrier effects	No adverse effects on site integrity from the Project alone and in-combination with other reasonably foreseeable plans and projects
Breeding fulmar	Displacement and barrier effects	No adverse effects on site integrity from the Project alone and in-combination with other reasonably foreseeable plans and projects
Breeding seabird assemblage	Collisions and, displacement and barrier effects	No adverse effects on site integrity from the Project alone and in-combination with other reasonably foreseeable plans and projects

6.19 St Kilda SPA

The St Kilda SPA was classified on 31st August 1992, with marine extension classified on 25th September 2009, due to its populations of breeding seabirds. The site is a small archipelago of islands in the Atlantic Ocean west of Lewis. It is approximately 250 km south-west of the Project.

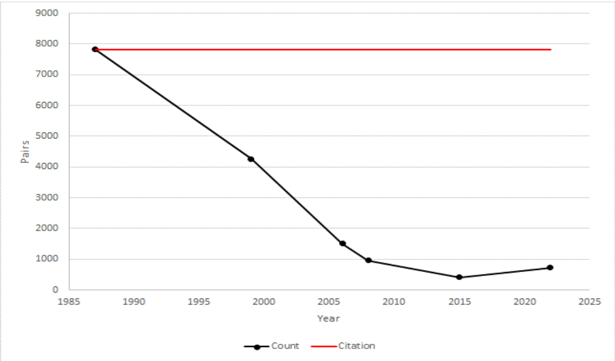
6.19.1 Site details and qualifying interests

St Kilda is a group of remote Scottish islands lying in the North Atlantic about 70 km west of North Uist in the Outer Hebrides. The islands are steep, with precipitous cliffs reaching 430 m on Hirta and 380 m on Soay and Boreray. The vegetation is strongly influenced by sea spray and the presence of seabirds and livestock. Inland on Hirta, species-poor acidic grassland and sub-maritime heaths occupy extensive areas. The islands provide a strategic nesting locality for seabirds that feed in the rich waters to the west of Scotland. The total population of seabirds exceeds 600,000 individuals, making this one of the largest concentrations in the North Atlantic and the largest in the UK. The boundary of the SPA overlaps with the boundary of St. Kilda SSSI, and the seaward extension extends approximately 4 km into the marine environment to include the seabed, water column and surface.

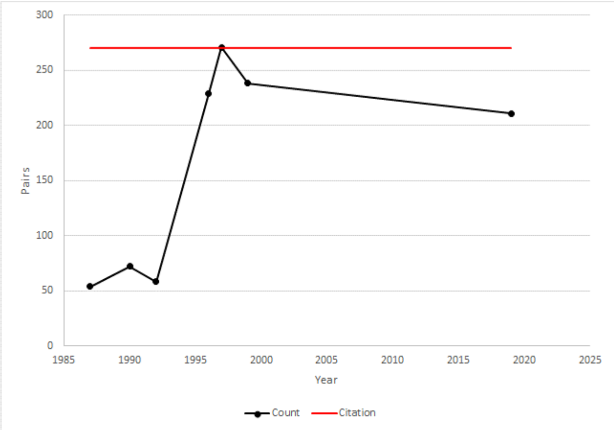
Table 6-61 Qualifying interests and condition for the St Kilda SPA

QUALIFYING INTERESTS	FEATURE CONDITION	ASSESSMENT DATE	BROADER CONSERVATION STATUS
Kittiwake	Unfavourable Declining	8 Jun 2016	Red
Great skua	Favourable Maintained	31 Jul 2016	Amber
Guillemot	Unfavourable Declining	11 Jun 2016	Amber
Razorbill	Unfavourable Declining	11 Jun 2016	Amber
Puffin	Favourable Maintained	31 Jul 2000	Red
Fulmar	Unfavourable Declining	8 Jun 2016	Amber
European storm petrel	Favourable Maintained	31 Jul 2000	Amber
Leach's petrel	Favourable Maintained	31 Jul 2000	Red
Manx shearwater	Favourable Maintained	31 Jul 2000	Amber
Gannet	Favourable Maintained	19 Jun 2013	Amber
Seabird assemblage	Favourable Maintained	25 May 2003	n/a

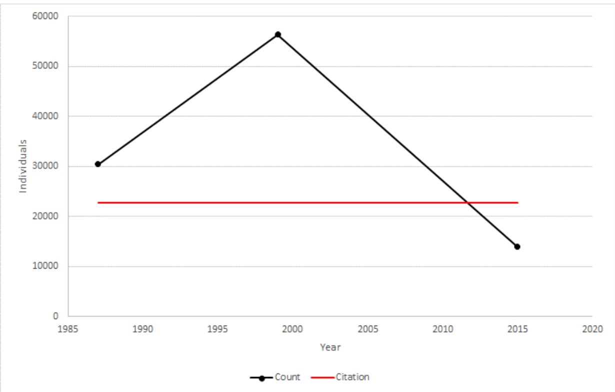
For each qualifying feature requiring assessment (except the breeding seabird assemblage) count data was extracted from the SMP database. These counts were plotted and compared with the citation population size, where data allowed (Figure 6-35).



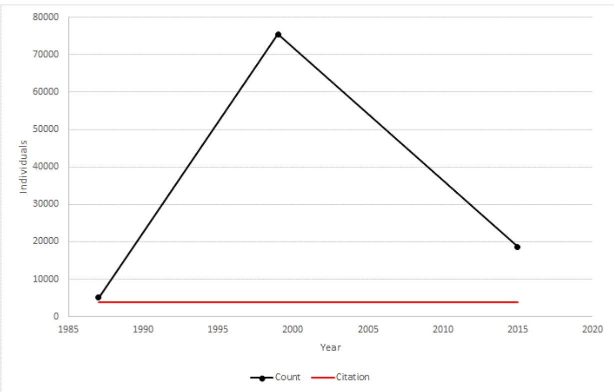
Kittiwake



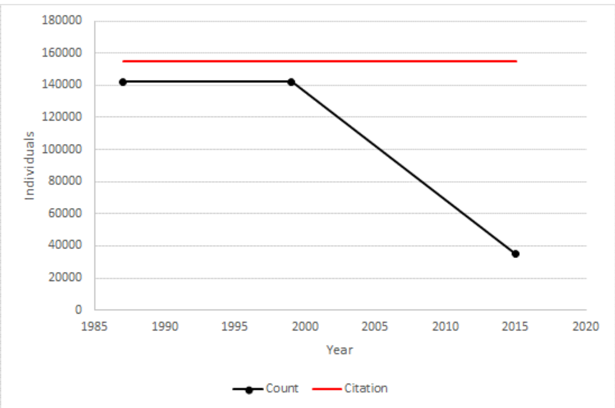
Great skua



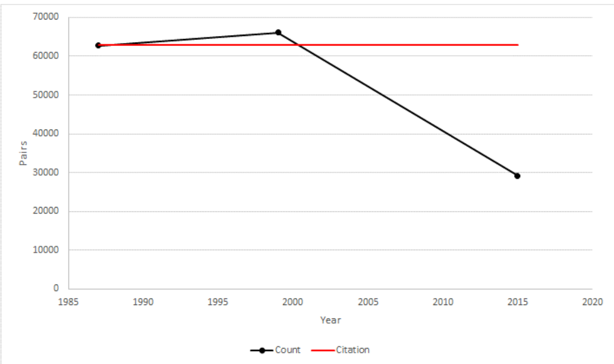
Guillemot



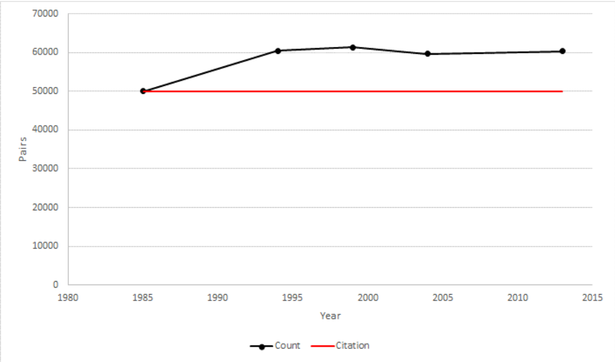
Razorbill



Puffin



Fulmar



Gannet

Figure 6-35 St Kilda SPA qualifying feature population trends from 1981 - 2022 (citation population size shown by red line).

All species requiring assessment, except gannet, have shown large changes in population size across the period assessed. Kittiwake numbers have decline substantially and are currently well below the citation population level, though the most recent count perhaps shows signs of recovery. Great skua numbers increase substantially in the 1990's but have decline slightly since then and are not a little below their citation population size. Guillemot numbers also increased substantially in the 1990s but have declined most recently to below their abundance in the mid-1980's and are below their citation population size. Razorbills have shown a similar pattern to guillemot but have remained above their citation population size. Puffin and fulmar numbers changed little in the 1990's but have both declined over recent decades. Both are now well below their citation population size. Gannets also increased in the 1990s but have not changed much in recent decades. They remain above their citation population size.

6.19.2 Conservation objectives

The draft conservation objectives of the St Kilda SPA are to:

- To ensure that the qualifying features of St Kilda SPA and the Seas off St Kilda SPA are in favourable condition and make an appropriate contribution to achieving Favourable Conservation Status.
- To ensure that the integrity of St Kilda SPA and the Seas off St Kilda SPA is restored in the context of environmental changes by meeting objectives 2a, 2b and 2c for each qualifying feature:
  - The populations of qualifying features are viable components of St Kilda SPA and Seas off St Kilda SPA.
  - The distributions of the qualifying features throughout St Kilda SPA and Seas off St Kilda SPA are maintained by avoiding significant disturbance of the species.
  - The supporting habitats and processes relevant to qualifying features and their prey/food resources are maintained, or where appropriate restored, at St Kilda SPA and/or Seas off St Kilda SPA.

6.19.3 Assessment of predicted impacts alone and in-combination

6.19.3.1 Kittiwake

The predicted impacts from the Project alone on the breeding kittiwake population was 0.0010 - 0.0014 birds per annum in the breeding season (Appendix C, Section C.1, Table C1-1). In the non-breeding season, the predicted impacts were dependent on the BDMPS region used and the seasonal BDMPS population sizes. The largest non-breeding season predicted impact was 0.01 - 0.12 birds per annum based on the UK western waters & Channel Spring migration (January to April). This predicted a change in adult survival of 0.012% - 0.014% points (Appendix C, Section C.1, Table C1-15) and so a PVA was not required.

The predicted impacts from the Project in-combination on the breeding kittiwake population (0.07 birds per annum) was dependent on the BDMPS region used and the seasonal BDMPS population sizes. The largest predicted impact was 0.10 - 0.12 birds per annum based on the UK western waters & Channel Spring migration population (Appendix C, Section C.2, Table C2-2). This predicted a change in adult survival of 0.012% - 0.014% points (Appendix C, Section C.2, Table C2-14) and so a PVA was not required.

Impacts from the construction stage of the Project, including all cable installation, are short term, temporary and reversible. Following completion of the construction stage the disturbance effects will be removed. Therefore, this impact source will not have an impact on the conservation objectives to maintain the population in the long term.

The predicted impacts, based on guidance and advice from NatureScot, on the breeding kittiwake population from the St Kilda SPA from the Project alone and in-combination would not adversely affect the integrity of the site.

6.19.3.2 Great skua

The predicted impacts from the Project alone on the breeding great skua population was 0.0004 birds per annum in the breeding season (Appendix C, Section C.1, Table C1-4). In the non-breeding season, there were no predicted impacts from the Project alone. This predicted a change in adult survival of 0.00001% points (Appendix C, Section C.1, Table C1-17) and so a PVA was not required.

The predicted impacts from other plans and project were not possible to estimate as previous projects have screened out impacts on great skua populations from SPAs. The predicted impact from the Project alone was a sufficiently small impact on the breeding population of great skuas from the St Kilda SPA that no PVA was necessary.

The predicted impacts, based on guidance and advice from NatureScot, on the breeding great skua population from the St Kilda SPA from the Project alone and in-combination would not adversely affect the integrity of the site.

6.19.3.3 Razorbill

The predicted impacts from the Project alone on the breeding razorbill population was zero birds per annum in the breeding season (Appendix C, Section C.1, Table C1-7). In the non-breeding season, the predicted impacts were dependent on the BDMPS region used and the seasonal BDMPS population sizes. The largest non-breeding season predicted impact was 0.006 - 0.017 birds per annum based on the UK western waters during migration seasons

(August to October, and January to March) (Appendix C, Section C.1, Table C1-8). This predicted a change in adult survival of 0.0002% - 0.0005% points and so a PVA was not required (Appendix C, Section C.1, Table C1-19).

The predicted impacts from the Project in-combination on the breeding razorbill population (0.9 birds per annum) was dependent on the BDMPS region used and the seasonal BDMPS population sizes. The largest predicted impact was 0.95 - 0.96 birds per annum (Appendix C, Section C.2, Table C2-7) based on the UK Western waters migration seasons (August to October, and January to March). This predicted a change in adult survival of 0.0277% - 0.0278% points (Appendix C, Section C.2, Table C2-17) and so a PVA was required.

The PVA provided projected change in population size of the baseline population, the population impacted by the Project alone, impacted by in-combination impacts without the Project and impacted by the in-combination impacts with the Project. The PVA projected that population would increase in all scenarios based on the input demographic values and the assumptions of the model (Figure 6-31).

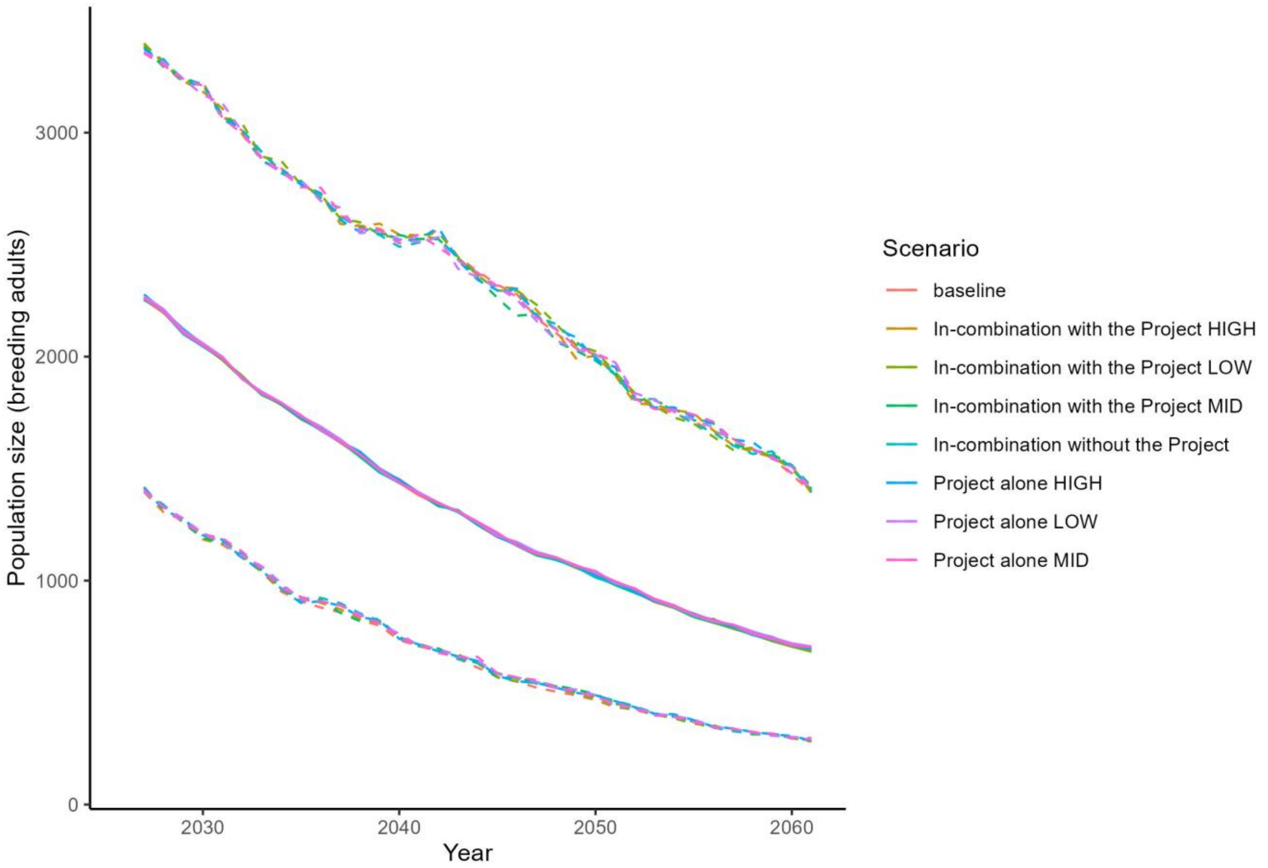


Figure 6-36 Projected population size of the breeding razorbill feature of the St Kilda SPA for the baseline (unimpacted), Project alone, in-combination impacts without the Project and in-combination with the Project from 2027 to 2062. Solid line = mean, dashed line = SD

The PVA metrics (Table 6-55) showed that the mean and median CGR was close to one across the projected 35 years used in the model for the Project alone (1.0000 – 1.0001). The CGR value for the in-combination only impacts was 0.9999, or a 0.01% decline in growth rate across all years. Adding the Project alone to the in-combination impact made an extremely small difference to the predicted change in growth rate (0.9998 – 0.9999). This suggests that the growth rate of the St Kilda SPA razorbill population would not be adversely affected by the Project alone and in-combination.

The mean and median CPS values increased with the duration of the PVA projection (Table 6-55). The CPS values at 35 years of the Project alone, the in-combination values without the Project and the in-combination values with and without the Project show that the majority of the predicted impacts on the SPA are from the in-combination impacts with very little effect from the Project alone. The CPS for the Project alone was high (1.0000 – 1.0070), suggesting that the PVA predicts that the population would not be smaller than the baseline population size. The in-combination only CPS value was also relatively high (0.9968). Thus, the PVA predicted that the population would be about 0.32% smaller than the baseline population size. Adding the predicted impacts from the Project to the existing in-combination impacts made a very small difference to the CPS value (0.9944 - 0.9972), and thus the PVA predicted that the population would be about 0.3% - 0.6% smaller than the baseline population size.

The quantile metrics showed that across the projected years from the PVA that the overlap in the distribution of the projected end population size reduced for the scenarios that included predicted in-combination impacts. However, the quantile metrics also showed that these distributions remained almost unchanged between the baseline and the predicted impacts from the Project alone.

Table 6-62 Summary of PVA metrics for the razorbill population from St Kilda SPA for the Project alone, in-combination without the Project and in-combination including the Project. Based on the assessment of in-combination impacts and population sizes for the BDMPS UK Western waters migration seasons (August to October, and January to March). SD = standard deviation, LCI = lower confidence interval, UCI = upper confidence interval.

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone LOW	10	1.0003	1.0003	0.0034	0.9941	1.0072	1.0019	1.0047	0.0470	0.9134	1.1022	50.4	49.5
Project alone MID	10	1.0001	1.0001	0.0032	0.9938	1.0064	1.0031	1.0041	0.0443	0.9218	1.0941	49.9	50.1
Project alone HIGH	10	1.0001	1.0001	0.0033	0.9934	1.0067	1.0037	1.0040	0.0450	0.9170	1.0943	50.2	49.6
In-combination without the Project	10	0.9999	1.0000	0.0032	0.9940	1.0061	0.9993	1.0017	0.0429	0.9242	1.0894	49.9	50.1
In-combination with the Project LOW	10	0.9999	0.9999	0.0033	0.9934	1.0068	1.0007	1.0014	0.0451	0.9146	1.0940	50.1	50.0

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project MID	10	0.9999	0.9999	0.0033	0.9934	1.0066	1.0010	1.0012	0.0456	0.9159	1.0948	50.1	50.0
In-combination with the Project HIGH	10	0.9998	0.9998	0.0033	0.9936	1.0063	0.9989	1.0001	0.0440	0.9169	1.0880	49.5	50.5
Project alone LOW	20	1.0001	1.0002	0.0027	0.9952	1.0052	1.0018	1.0064	0.0635	0.8881	1.1336	50.8	49.2
Project alone MID	20	1.0001	1.0002	0.0026	0.9950	1.0053	1.0053	1.0068	0.0608	0.8933	1.1339	50.1	49.8
Project alone HIGH	20	1.0001	1.0000	0.0027	0.9947	1.0052	1.0016	1.0041	0.0615	0.8840	1.1261	50.6	49.3
In-combination without the Project	20	0.9999	0.9999	0.0026	0.9948	1.0050	0.9989	1.0010	0.0613	0.8844	1.1304	50.3	49.8

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project LOW	20	0.9999	0.9998	0.0027	0.9946	1.0048	0.9991	0.9990	0.0612	0.8837	1.1238	50.1	49.9
In-combination with the Project MID	20	0.9998	0.9999	0.0026	0.9949	1.0052	0.9989	1.0002	0.0618	0.8893	1.1328	49.6	50.2
In-combination with the Project HIGH	20	0.9998	0.9998	0.0027	0.9944	1.0047	0.9985	0.9990	0.0615	0.8836	1.1195	50.3	49.6
Project alone LOW	30	1.0000	1.0001	0.0024	0.9954	1.0048	1.0000	1.0071	0.0805	0.8595	1.1770	50.9	49.1
Project alone MID	30	1.0002	1.0002	0.0023	0.9958	1.0047	1.0060	1.0095	0.0775	0.8665	1.1617	50.4	48.7
Project alone HIGH	30	1.0001	1.0001	0.0024	0.9952	1.0048	1.0063	1.0078	0.0813	0.8621	1.1776	50.1	49.7

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination without the Project	30	0.9999	0.9999	0.0024	0.9954	1.0050	0.9989	1.0018	0.0792	0.8580	1.1754	49.9	50.2
In-combination with the Project LOW	30	1.0000	0.9999	0.0024	0.9952	1.0042	0.9985	1.0004	0.0779	0.8509	1.1510	49.3	51.3
In-combination with the Project MID	30	0.9999	0.9999	0.0024	0.9950	1.0047	0.9992	1.0011	0.0801	0.8521	1.1695	50.1	49.8
In-combination with the Project HIGH	30	0.9999	0.9998	0.0024	0.9949	1.0044	0.9960	0.9992	0.0780	0.8575	1.1500	49.9	50.1
Project alone LOW	35	1.0000	1.0001	0.0023	0.9956	1.0049	1.0000	1.0080	0.0896	0.8486	1.1941	49.7	50.6
Project alone MID	35	1.0001	1.0001	0.0023	0.9957	1.0045	1.0070	1.0090	0.0875	0.8499	1.1896	49.7	50.3

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone HIGH	35	1.0000	1.0001	0.0023	0.9951	1.0047	1.0063	1.0084	0.0889	0.8410	1.1868	49.6	51.0
In-combination without the Project	35	0.9999	0.9999	0.0023	0.9951	1.0044	0.9968	1.0002	0.0881	0.8287	1.1867	48.7	51.4
In-combination with the Project LOW	35	0.9999	0.9998	0.0023	0.9953	1.0043	0.9959	0.9991	0.0876	0.8335	1.1746	49.0	50.8
In-combination with the Project MID	35	0.9999	0.9999	0.0024	0.9952	1.0047	0.9972	0.9996	0.0905	0.8374	1.1963	49.6	50.9
In-combination with the Project HIGH	35	0.9998	0.9998	0.0023	0.9951	1.0044	0.9944	0.9987	0.0865	0.8381	1.1738	48.9	51.6

Impacts from the construction stage of the Project, including all cable installation, are short term, temporary and reversible. Following completion of the construction stage the disturbance effects will be removed. Therefore, this impact source will not have an impact on the conservation objectives to maintain the population in the long term.

The predicted impacts, based on guidance and advice from NatureScot, on the breeding razorbill population from the St Kilda SPA from the Project alone and in-combination would not adversely affect the integrity of the site.

6.19.3.4 Puffin

The impacts from the Project alone in the breeding season on the breeding puffin population of the SPA was predicted to be 0.001 - 0.002 birds killed per annum (Appendix C, Section C.1, Table C1-9). In the non-breeding season, the predicted impacts were dependent on the BDMPS region used and the seasonal BDMPS population sizes. The largest non-breeding season predicted impact was 1.8 - 5.3 birds per annum based on the UK western waters during the non-breeding season. This predicted a change in adult survival of 0.003% - 0.008% points (Appendix C, Section C.1, Table C1-21) and so a PVA was not required.

Impacts from the construction stage of the Project, including all cable installation, are short term, temporary and reversible. Following completion of the construction stage the disturbance effects will be removed. Therefore, this impact source will not have an impact on the conservation objectives to maintain the population in the long term.

The predicted impacts, based on guidance and advice from NatureScot, on the breeding puffin population from the St Kilda SPA from the Project alone and in-combination would not adversely affect the integrity of the site.

6.19.3.5 Fulmar

The predicted impacts from the Project alone on the breeding fulmar population was 0.02 - 0.05 birds per annum in the breeding season (Appendix C, Section C.1, Table C1-11). In the non-breeding season, the predicted impacts were dependent on the BDMPS region used and the seasonal BDMPS population sizes. The largest non-breeding season predicted impact was 0.8 - 4.5 birds per annum based on the UK Western waters and Channel during migration seasons (September & October, December to March). This predicted a change in adult survival of 0.0006% - 0.0034% points and so a PVA was not required (Appendix C, Section C.1, Table C1-22).

The predicted impacts from other plans and projects was not possible to estimate as previous projects have screened out impacts on fulmar populations from SPAs. The predicted impact from the Project alone was a sufficiently small impact on the breeding population of fulmars from the St Kilda SPA that no PVA was necessary.

Impacts from the construction stage of the Project, including all cable installation, are short term, temporary and reversible. Following completion of the construction stage the disturbance effects will be removed. Therefore, this impact source will not have an impact on the conservation objectives to maintain the population in the long term.

The predicted impacts, based on guidance and advice from NatureScot, on the breeding fulmar population from the St Kilda SPA from the Project alone and in combination would therefore not adversely affect the integrity of the site.

6.19.3.6 Gannet

The predicted impacts from the Project alone on the breeding gannet population was 0.01 - 0.02 birds per annum in the breeding season (Appendix C, Section C.1, Table C1-13). In the non-breeding season, the predicted impacts from the Project alone were 3.4 - 6.3 birds per annum based on the UK Western waters in autumn (September to November) population. This predicted a change in adult survival of 0.0002% - 0.0052% points (Appendix C, Section C.1, Table C1-23) and so a PVA was not required.

The predicted impacts from the Project in-combination on the breeding gannet population was dependent on the BDMPS region used and the seasonal BDMPS population sizes. The largest predicted impact was 64.4 - 64.9 birds per annum (Appendix C, Section C.2, Table C2-12) based on the UK North Sea & Channel waters in autumn (September to November). This predicted a change in adult survival of 0.0534% - 0.0538% points (Appendix C, Section C.2, Table C2-21) and so a PVA was required.

The PVA provided projected change in population size of the baseline population, the population impacted by the Project alone, impacted by in-combination impacts without the Project and impacted by the in-combination impacts with the Project. The PVA projected that population would increase in the baseline and in-combination impacts without the Project scenarios and in the Project alone and the in-combination with the Project scenarios, albeit at a slightly slower rate, based on the input demographic values and the assumptions of the model (Figure 6-37).

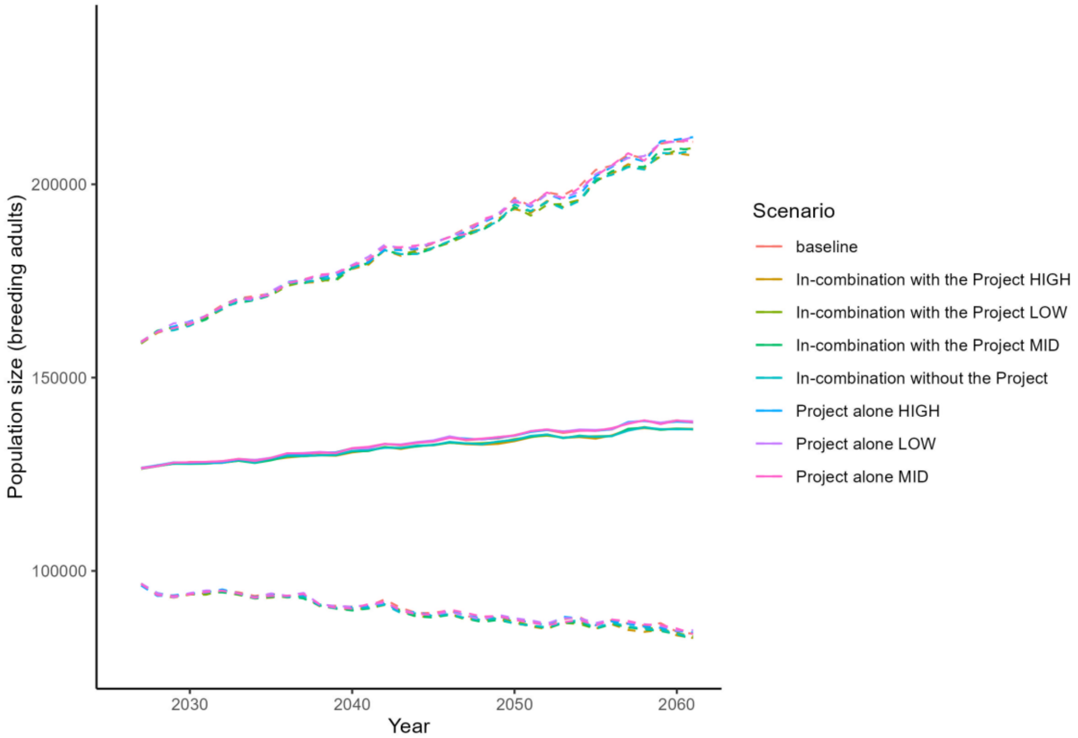


Figure 6-37 Projected population size of the breeding gannet feature of the St Kilda SPA for the baseline (unimpacted), Project alone, in-combination impacts without the Project and in-combination with the Project from 2027 to 2062. Solid line = mean, dashed line = SD

The PVA metrics (Table 6-63) showed that the mean and median CGR was very close to one for the Project alone across the projected 35 years used in the model. This suggests that the growth rate of the St Kilda SPA gannet population would not be adversely affected by the Project alone.

The mean and median CPS increase with the duration of the PVA projection (Table 6-56). The CPS values at 35 years of the Project alone, the in-combination values without the Project and the in-combination values with and without the Project show that the majority of the predicted impacts on the SPA are from the in-combination impacts with very little effect from the Project alone. The CPS values at 35 years of the Project alone was high (0.9985 - 1.0005) suggesting the PVA predicts that the population would be effectively no smaller than the baseline population size. The in-combination CPS value was also high (0.9853). Thus, the PVA predicts that the population would be about 1.5% smaller than the baseline population size. Adding the predicted impacts from the Project to the existing in-combination impacts made a small difference to the CPS value (0.9844 - 0.9858), and thus the PVA predicted that the population would be about 1.42% - 1.56% smaller than the baseline population size.

The quantile metrics showed that across the projected years from the PVA that the overlap in the distribution of the projected end population size reduced only very slightly for the scenarios that included predicted in-combination impacts. However, the quantile metrics also showed that these distributions remained essentially unchanged between the baseline and the predicted impacts from the Project alone.

Impacts from the construction stage of the Project, including all cable installation, are short term, temporary and reversible. Following completion of the construction stage the disturbance effects will be removed. Therefore, this impact source will not have an impact on the conservation objectives to maintain the population in the long term.

The predicted impacts, based on guidance and advice from NatureScot, on the breeding gannet population from the St Kilda SPA from the Project alone and in-combination would therefore not adversely affect the integrity of the site.

Table 6-63 Summary of PVA metrics for the gannet population from St Kilda SPA for the Project alone, in-combination without the Project and in-combination including the Project. Based on the assessment of in-combination impacts and population sizes for the BDMPS UK North Sea & Channel waters in autumn (September to November). SD = standard deviation, LCI = lower confidence interval, UCI = upper confidence interval.

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone LOW	10	1.0000	1.0000	0.0004	0.9993	1.0007	1.0002	1.0001	0.0056	0.9892	1.0118	50.6	49.3
Project alone MID	10	1.0000	1.0000	0.0004	0.9993	1.0007	1.0001	1.0001	0.0055	0.9891	1.0103	50.3	49.3
Project alone HIGH	10	1.0000	1.0000	0.0004	0.9993	1.0007	0.9996	0.9995	0.0056	0.9887	1.0102	50.0	50.0
In-combination without the Project	10	0.9996	0.9996	0.0004	0.9989	1.0003	0.9955	0.9956	0.0054	0.9851	1.0060	48.9	50.8
In-combination with the Project LOW	10	0.9996	0.9996	0.0003	0.9989	1.0003	0.9955	0.9955	0.0055	0.9851	1.0071	48.7	51.1

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project MID	10	0.9996	0.9996	0.0004	0.9988	1.0003	0.9955	0.9954	0.0056	0.9838	1.0059	48.8	51.1
In-combination with the Project HIGH	10	0.9996	0.9996	0.0004	0.9989	1.0002	0.9953	0.9952	0.0055	0.9843	1.0057	48.8	51.1
Project alone LOW	20	1.0000	1.0000	0.0003	0.9995	1.0005	1.0004	1.0003	0.0066	0.9875	1.0135	50.4	49.9
Project alone MID	20	1.0000	1.0000	0.0003	0.9995	1.0005	1.0000	1.0002	0.0066	0.9871	1.0131	50.3	49.5
Project alone HIGH	20	1.0000	1.0000	0.0003	0.9994	1.0005	0.9991	0.9992	0.0066	0.9860	1.0121	50.9	49.7
In-combination without the Project	20	0.9996	0.9996	0.0003	0.9991	1.0001	0.9918	0.9918	0.0064	0.9790	1.0044	48.7	51.1

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project LOW	20	0.9996	0.9996	0.0002	0.9991	1.0001	0.9918	0.9919	0.0064	0.9798	1.0057	48.6	51.2
In-combination with the Project MID	20	0.9996	0.9996	0.0003	0.9991	1.0001	0.9916	0.9915	0.0066	0.9783	1.0039	48.7	50.8
In-combination with the Project HIGH	20	0.9996	0.9996	0.0003	0.9990	1.0000	0.9909	0.9909	0.0064	0.9784	1.0030	48.5	51.8
Project alone LOW	30	1.0000	1.0000	0.0002	0.9996	1.0004	1.0004	1.0004	0.0076	0.9854	1.0158	49.9	50.0
Project alone MID	30	1.0000	1.0000	0.0002	0.9996	1.0004	1.0002	1.0001	0.0076	0.9846	1.0144	49.7	50.1
Project alone HIGH	30	1.0000	1.0000	0.0002	0.9995	1.0004	0.9989	0.9988	0.0075	0.9841	1.0138	50.4	49.7

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination without the Project	30	0.9996	0.9996	0.0002	0.9992	1.0000	0.9876	0.9878	0.0073	0.9743	1.0018	47.8	52.2
In-combination with the Project LOW	30	0.9996	0.9996	0.0002	0.9992	1.0000	0.9880	0.9878	0.0073	0.9733	1.0022	47.9	52.0
In-combination with the Project MID	30	0.9996	0.9996	0.0002	0.9992	1.0000	0.9880	0.9877	0.0075	0.9729	1.0022	48.0	52.4
In-combination with the Project HIGH	30	0.9996	0.9996	0.0002	0.9992	1.0000	0.9868	0.9867	0.0073	0.9724	1.0013	47.9	51.8
Project alone LOW	35	1.0000	1.0000	0.0002	0.9996	1.0004	1.0004	1.0003	0.0080	0.9850	1.0166	50.0	50.0
Project alone MID	35	1.0000	1.0000	0.0002	0.9996	1.0004	1.0005	1.0001	0.0080	0.9848	1.0151	50.0	50.0

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone HIGH	35	1.0000	1.0000	0.0002	0.9996	1.0003	0.9985	0.9986	0.0079	0.9831	1.0145	49.9	50.3
In-combination without the Project	35	0.9996	0.9996	0.0002	0.9992	1.0000	0.9853	0.9858	0.0075	0.9716	1.0003	47.0	52.2
In-combination with the Project LOW	35	0.9996	0.9996	0.0002	0.9992	1.0000	0.9858	0.9859	0.0078	0.9708	1.0018	47.0	52.2
In-combination with the Project MID	35	0.9996	0.9996	0.0002	0.9992	1.0000	0.9856	0.9857	0.0077	0.9705	1.0005	47.0	51.8
In-combination with the Project HIGH	35	0.9996	0.9996	0.0002	0.9992	0.9999	0.9844	0.9846	0.0075	0.9698	0.9997	46.7	52.9

6.19.4 Assessment summary and conclusions

The assessment can conclude that there is no adverse effect on site integrity of the St Kilda SPA as outlined in Table 6-64.

Table 6-64 Summary of assessment of St Kilda SPA

QUALIFYING FEATURE	POTENTIAL EFFECT	CONCLUSION
Breeding kittiwake	Collisions and, displacement and barrier effects	No adverse effects on site integrity from the Project alone and in-combination with other reasonably foreseeable plans and projects
Breeding great skua	No likely significant effect	
Breeding guillemot	Displacement and barrier effects	No adverse effects on site integrity from the Project alone and in-combination with other reasonably foreseeable plans and projects
Breeding razorbill	Displacement and barrier effects	No adverse effects on site integrity from the Project alone and in-combination with other reasonably foreseeable plans and projects
Breeding puffin	Displacement and barrier effects	No adverse effects on site integrity from the Project alone and in-combination with other reasonably foreseeable plans and projects
Breeding fulmar	Displacement and barrier effects	No adverse effects on site integrity from the Project alone and in-combination with other reasonably foreseeable plans and projects
Breeding European storm petrel	No likely significant effect	
Breeding Leach's petrel	No likely significant effect	
Breeding Manx shearwater	No likely significant effect	
Breeding gannet	Collisions and, displacement and barrier effects	No adverse effects on site integrity from the Project alone and in-combination with other reasonably foreseeable plans and projects
Breeding seabird assemblage	Collisions and, displacement and barrier effects	No adverse effects on site integrity from the Project alone and in-combination with other reasonably foreseeable plans and projects

6.20 Sule Skerry and Sule Stack SPA

The Sule Skerry and Sule Stack SPA was classified on 31st August 1992, with marine extension classified on 25th September 2009, due to its populations of breeding seabirds. The site is a small archipelago of islands in the Atlantic Ocean west of Orkney. It is approximately 5 km north west of the Project.

6.20.1 Site details and qualifying interests

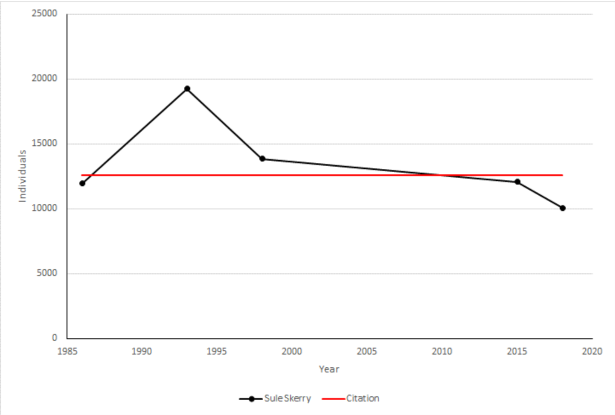
Sule Skerry and Sule Stack are isolated islets 60 km west of Mainland, Orkney. Sule Skerry is larger, low-lying and vegetated whereas Sule Stack is a higher, bare rock stack with no vascular plants.

The boundary of the SPA overlaps with those of Sule Skerry SSSI and Sule Stack SSSI and the seaward extension extends approximately 2 km into the marine environment to include the seabed, water column and surface.

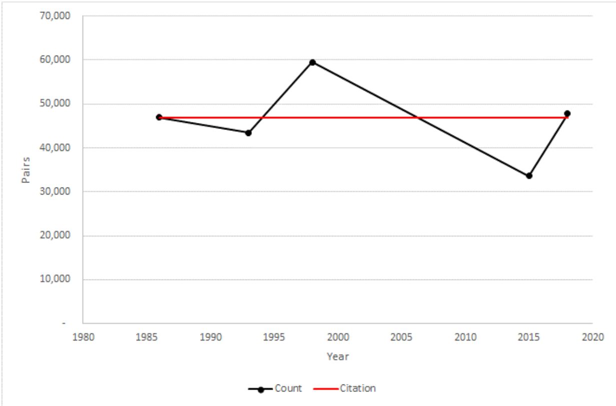
Table 6-65 Qualifying interests and condition for the Sule Skerry and Sule Stack SPA

QUALIFYING INTERESTS	FEATURE CONDITION	ASSESSMENT DATE	BROADER CONSERVATION STATUS
Guillemot	Favourable Maintained	10 Jul 2015	Amber
Puffin	Favourable Declining	10 Jul 2015	Red
Gannet	Favourable Maintained	18 Jun 2013	Amber
European storm petrel	Favourable Declining	19 Jul 2018	Amber
Leach's petrel	Unfavourable Declining	19 Jul 2018	Red
Shag	Unfavourable Declining	10 Jul 2015	Red
Seabird assemblage	Favourable Maintained	10 Jul 2015	n/a

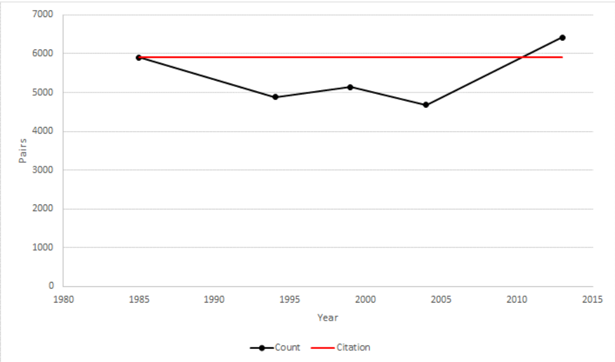
For each qualifying feature requiring assessment (except the breeding seabird assemblage) count data was extracted from the SMP database. These counts were plotted and compared with the citation population size, where data allowed (Figure 6-38).



Guillemot



Puffin



Gannet

Figure 6-38 Sule Skerry and Sule Stack SPA qualifying feature population trends from 1981 - 2022 (citation population size shown by red line).

All species requiring assessment have fluctuated slightly around their citation population size since the 1980s, with no sign of large scale changes shown in other colonies. All three species are close to their citation population sizes.

6.20.2 Conservation objectives

The conservation objectives of the Sule Skerry and Sule Stack SPA are:

To avoid deterioration of the habitats of the qualifying species or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained; and

To ensure for the qualifying species that the following are maintained in the long term:

- Population of the species as a viable component of the site;
- Distribution of the species within site;
- Distribution and extent of habitats supporting the species;

- Structure, function and supporting processes of habitats supporting the species; and
- No significant disturbance of the species.

6.20.3 Assessment of predicted impacts alone and in-combination

Three qualifying features of the Sule Skerry and Sule Stack SPA were screened out of the assessment: [Ross- should shag be scoped out]

- European storm petrel;
- Leach's petrel; and
- European shag.

European storm petrel was found within the Project and buffer during DAS. However, NatureScot advised that this species was not likely to be subject to displacement effects, and while there is some uncertainty around the potential for collisions, this seems an unlikely source of impact to a species that is likely to have a very low flight height distribution. The main concerns expressed by stakeholders is the effect of artificial lighting on birds, which is discussed in Table 5 1. Leach's petrel was not recorded in the site from DAS.

In a recently published review by Furness (2018) it was found that "The lighting on turbines is orders of magnitude lower light intensities than produced by ports, towns, lighthouses, oil and gas platforms or ships". Therefore, phototaxis effects on petrels, including the qualifying features of this SPA, are highly unlikely to occur. Furness (2018) found that phototaxis of seabirds only "occurs over short distances (hundreds of metres) in response to bright white light close to colonies of these species. It is not seen over large distances or with the moderate light levels used in obstruction or navigation lighting". In addition, the author found "no evidence to suggest that obstruction or navigation lights affect ability of marine birds to feed at night, or attract marine prey animals to aggregate, or that they could affect predation risk for nocturnal migrant birds. There might be a slight reduction in collision risk for birds where turbines are illuminated, but the evidence suggests that any such effect is likely to be very small. There is no evidence to suggest that obstruction or navigation lights cause displacement of marine birds due to avoidance of light." It was therefore concluded that, "the evidence indicates that obstruction or navigation lights on turbines will have no significant effects on marine birds or on migrant terrestrial birds passing nearby".

The predicted impacts on the breeding European storm petrel and Leach's petrel population from the North Rona and Sula Sgeir SPA from the Project alone and in-combination would not adversely affect the integrity of the site.

6.20.3.1 Guillemot

The impacts from the Project alone in the breeding and non-breeding seasons on the breeding guillemot population of the SPA were predicted to be 93.0 – 174.2 birds killed per annum (Appendix C, Section C.1, Table C1-6). This was a predicted change in adult survival of 0.71% - 1.33% points (Appendix C, Section C.1, Table C1-18). The predicted impacts from other plans and projects was a further 0.05 birds killed per annum, resulting in a total predicted impact from the Project alone an in-combination of 93.1 - 174.3 birds killed per annum, with 99.9% of this total from the Project alone (Appendix C, Section C.2, Table C2-4). This resulted in a predicted change in adult survival of 1.4% -

2.7% points (Appendix C, Section C.2, Table C2-16) and so a PVA was completed based on this BDMPS region and season with the largest predicted impact.

The PVA provided projected change in population size of the baseline population, the population impacted by the Project alone, impacted by in-combination impacts without the Project and impacted by the in-combination impacts with the Project. The PVA projected that population would increase in the baseline, Project alone and in-combination with the Project scenarios but decline in the in-combination scenario that includes the Project, based on the input demographic values and the assumptions of the model (Figure 6-39).

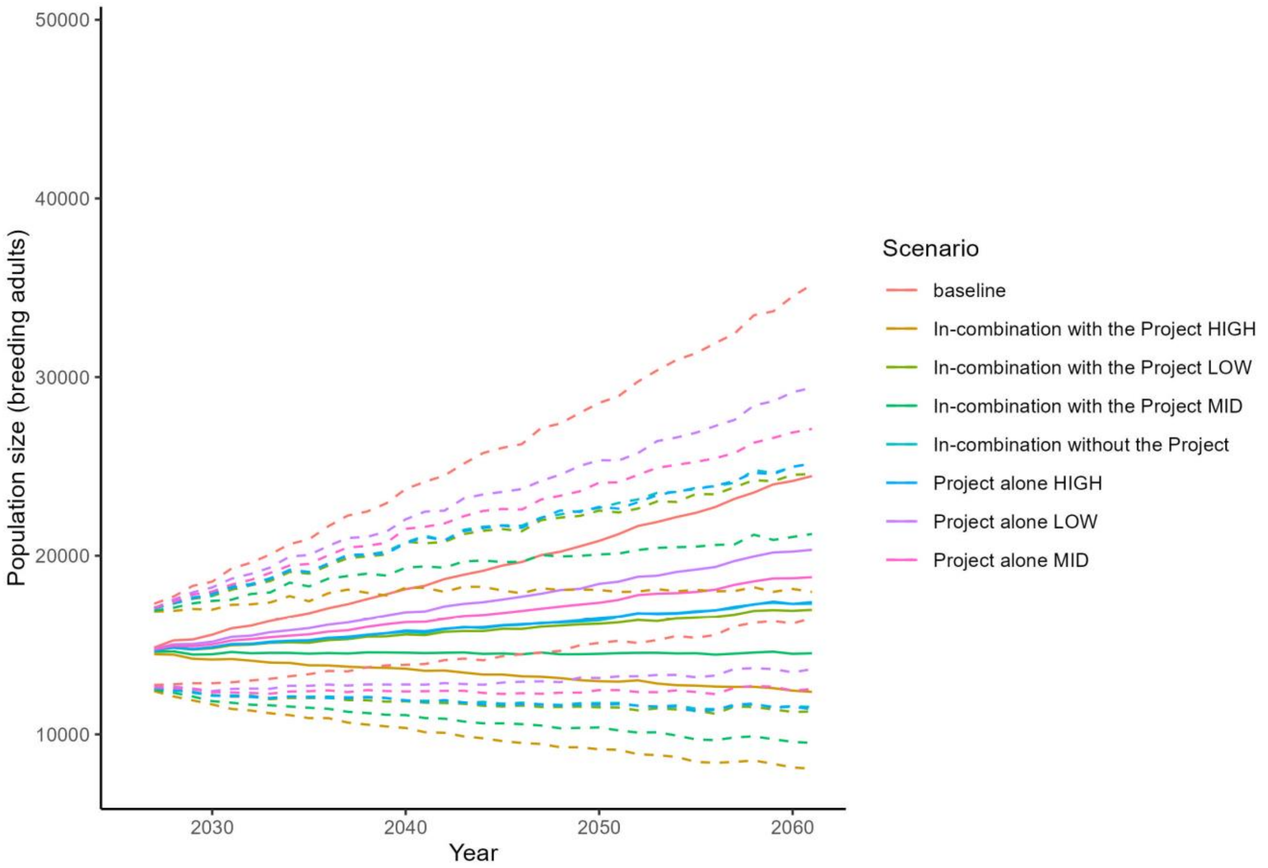


Figure 6-39 Projected population size of the breeding guilemot feature of the Sule Skerry and Sule Stack SPA for the baseline (unimpacted), Project alone, in-combination impacts without the Project and in-combination with the Project from 2027 to 2062. Solid line = mean, dashed line = SD

The PVA metrics (Table 6-66) showed that the mean and median CGR was close to one across the projected 35 years used in the model for the Project alone. The CGR value for the in-combination only impacts was 0.9903, or a 0.97% decline in growth rate across all years. Adding the Project alone to the in-combination impact changed the CGR to 0.9807 - 0.9896, or a 1.0% - 1.9% decline in growth rate across all years. This suggests that the growth rate of the Sule Skerry and Sule Stack SPA guillemot population would not be adversely affected by the Project alone and in-combination.

The mean and median CPS values decreased with the duration of the PVA projection (Table 6-66). The CPS values at 35 years of the Project alone, the in-combination values without the Project and the in-combination values with and without the Project show that about half the predicted impacts on the SPA are from the in-combination impacts. The CPS for the Project alone was relatively low (0.7034 - 0.8286), suggesting that the PVA predicts that the population would be about 17.1% - 29.6% smaller than the baseline population size. The in-combination only CPS value was also relatively low (0.7025). Thus, the PVA predicted that the population would be about 29.7% smaller than the baseline population size. Adding the predicted impacts from the Project to the existing in-combination impacts made a relatively large difference to the CPS value (0.4958 - 0.6864), and thus the PVA predicted that the population would be about 31.3% - 50.4% smaller than the baseline population size.

The quantile metrics showed that across the projected years from the PVA that the overlap in the distribution of the projected end population size reduced for all scenarios. There was little overlap in end population size distributions after 35 years.

Impacts from the construction stage of the Project, including all cable installation, are short term, temporary and reversible. Following completion of the construction stage the disturbance effects will be removed. Therefore, this impact source will not have an impact on the conservation objectives to maintain the population in the long term.

From predicted impacts, based on guidance and advice from NatureScot, on the breeding guillemot population from the Sule Skerry and Sule Stack SPA from the Project alone and in-combination it would not be possible to conclude that there was no adverse effect the integrity of the site. Due to the precaution in the approach based on NatureScot guidance and advice it is unlikely the number of impacted individuals will be as large as the values presented in the assessment. The availability of further evidence is considered further in Section 6.22.1.

Table 6-66 Summary of PVA metrics for the guillemot population from Sule Skerry and Sule Stack SPA for the Project alone, in-combination without the Project and in-combination including the Project. SD = standard deviation, LCI = lower confidence interval, UCI = upper confidence interval.

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone LOW	10	0.9945	0.9945	0.0009	0.9927	0.9963	0.9412	0.9413	0.0118	0.9193	0.9646	31.1	68.9
Project alone MID	10	0.9922	0.9921	0.0010	0.9902	0.9939	0.9169	0.9169	0.0118	0.8933	0.9400	23.0	74.9
Project alone HIGH	10	0.9898	0.9898	0.0010	0.9877	0.9918	0.8936	0.8932	0.0121	0.8693	0.9161	18.1	80.8
In-combination without the Project	10	0.9897	0.9898	0.0010	0.9877	0.9917	0.8928	0.8928	0.0120	0.8702	0.9173	17.3	81.1
In-combination with the Project LOW	10	0.9891	0.9891	0.0010	0.9871	0.9910	0.8866	0.8864	0.0119	0.8637	0.9088	16.9	82.6

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project MID	10	0.9844	0.9844	0.0011	0.9820	0.9865	0.8414	0.8408	0.0125	0.8163	0.8649	8.3	91.9
In-combination with the Project HIGH	10	0.9797	0.9797	0.0012	0.9773	0.9820	0.7975	0.7977	0.0127	0.7732	0.8230	3.6	96.1
Project alone LOW	20	0.9947	0.9947	0.0006	0.9934	0.9959	0.8948	0.8943	0.0132	0.8670	0.9200	22.9	75.9
Project alone MID	20	0.9924	0.9924	0.0007	0.9911	0.9936	0.8523	0.8521	0.0132	0.8259	0.8768	17.4	84.3
Project alone HIGH	20	0.9901	0.9901	0.0007	0.9887	0.9914	0.8116	0.8119	0.0132	0.7858	0.8374	10.7	91.7
In-combination without the Project	20	0.9901	0.9901	0.0007	0.9887	0.9914	0.8109	0.8112	0.0132	0.7861	0.8382	11.0	92.4

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project LOW	20	0.9895	0.9894	0.0007	0.9880	0.9908	0.8005	0.8003	0.0131	0.7758	0.8267	9.3	93.1
In-combination with the Project MID	20	0.9849	0.9849	0.0008	0.9833	0.9863	0.7270	0.7265	0.0134	0.6987	0.7524	2.6	97.4
In-combination with the Project HIGH	20	0.9804	0.9804	0.0008	0.9786	0.9819	0.6600	0.6597	0.0129	0.6340	0.6836	0.6	99.9
Project alone LOW	30	0.9948	0.9948	0.0005	0.9938	0.9957	0.8501	0.8501	0.0141	0.8228	0.8770	20.7	81.7
Project alone MID	30	0.9925	0.9925	0.0005	0.9915	0.9935	0.7917	0.7918	0.0138	0.7650	0.8174	10.9	89.8
Project alone HIGH	30	0.9902	0.9902	0.0005	0.9892	0.9912	0.7376	0.7379	0.0135	0.7122	0.7634	6.0	95.0

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination without the Project	30	0.9902	0.9902	0.0005	0.9892	0.9912	0.7376	0.7373	0.0131	0.7111	0.7630	5.8	95.0
In-combination with the Project LOW	30	0.9896	0.9896	0.0006	0.9885	0.9907	0.7228	0.7227	0.0134	0.6972	0.7491	4.5	96.3
In-combination with the Project MID	30	0.9851	0.9851	0.0006	0.9838	0.9862	0.6280	0.6278	0.0131	0.6016	0.6525	0.6	99.6
In-combination with the Project HIGH	30	0.9806	0.9806	0.0007	0.9792	0.9819	0.5454	0.5453	0.0125	0.5211	0.5695	0.0	100.0
Project alone LOW	35	0.9948	0.9948	0.0004	0.9940	0.9956	0.8286	0.8285	0.0145	0.8009	0.8566	18.8	82.5
Project alone MID	35	0.9925	0.9925	0.0005	0.9916	0.9934	0.7631	0.7633	0.0143	0.7365	0.7904	9.5	91.3

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone HIGH	35	0.9903	0.9903	0.0005	0.9892	0.9912	0.7034	0.7034	0.0135	0.6757	0.7287	4.1	96.1
In-combination without the Project	35	0.9903	0.9903	0.0005	0.9893	0.9912	0.7025	0.7027	0.0136	0.6763	0.7289	4.1	96.1
In-combination with the Project LOW	35	0.9896	0.9896	0.0005	0.9886	0.9905	0.6864	0.6866	0.0134	0.6596	0.7128	3.2	97.0
In-combination with the Project MID	35	0.9851	0.9851	0.0006	0.9840	0.9862	0.5832	0.5833	0.0130	0.5579	0.6086	0.2	99.9
In-combination with the Project HIGH	35	0.9807	0.9807	0.0006	0.9793	0.9818	0.4958	0.4956	0.0122	0.4706	0.5182	0.0	100.0

6.20.3.2 Puffin

The impacts from the Project alone in the breeding season on the breeding puffin population of the SPA were predicted to be 63.8 - 104.4 birds killed per annum (Appendix C, Section C.1, Table C1-9). In the non-breeding season, the predicted impacts were dependent on the BDMPS region used and the seasonal BDMPS population sizes. The largest non-breeding season predicted impact was 0.7 - 2.2 birds per annum based on the UK western waters during the non-breeding season (mid-August to March). This predicted a change in adult survival of 0.07% - 0.11% points (Appendix C, Section C.1, Table C1-21) and so a PVA was required.

The predicted impacts from other plans and projects was a further 2.0 birds killed per annum from the UK North Sea & Channel waters non-breeding season (mid-August to March) (Appendix C, Section C.2, Table C2-8). This was a predicted change in adult survival of 0.07% - 0.12% points (Appendix C, Section C.2, Table C2-18) so a PVA was completed based on this BDMPS region and season with the largest predicted impact.

The PVA provided projected change in population size of the baseline population, the population impacted by the Project alone, impacted by in-combination impacts without the Project and impacted by the in-combination impacts with the Project. The PVA projected that population would decrease in all scenarios based on the input demographic values and the assumptions of the model (Figure 6-40).

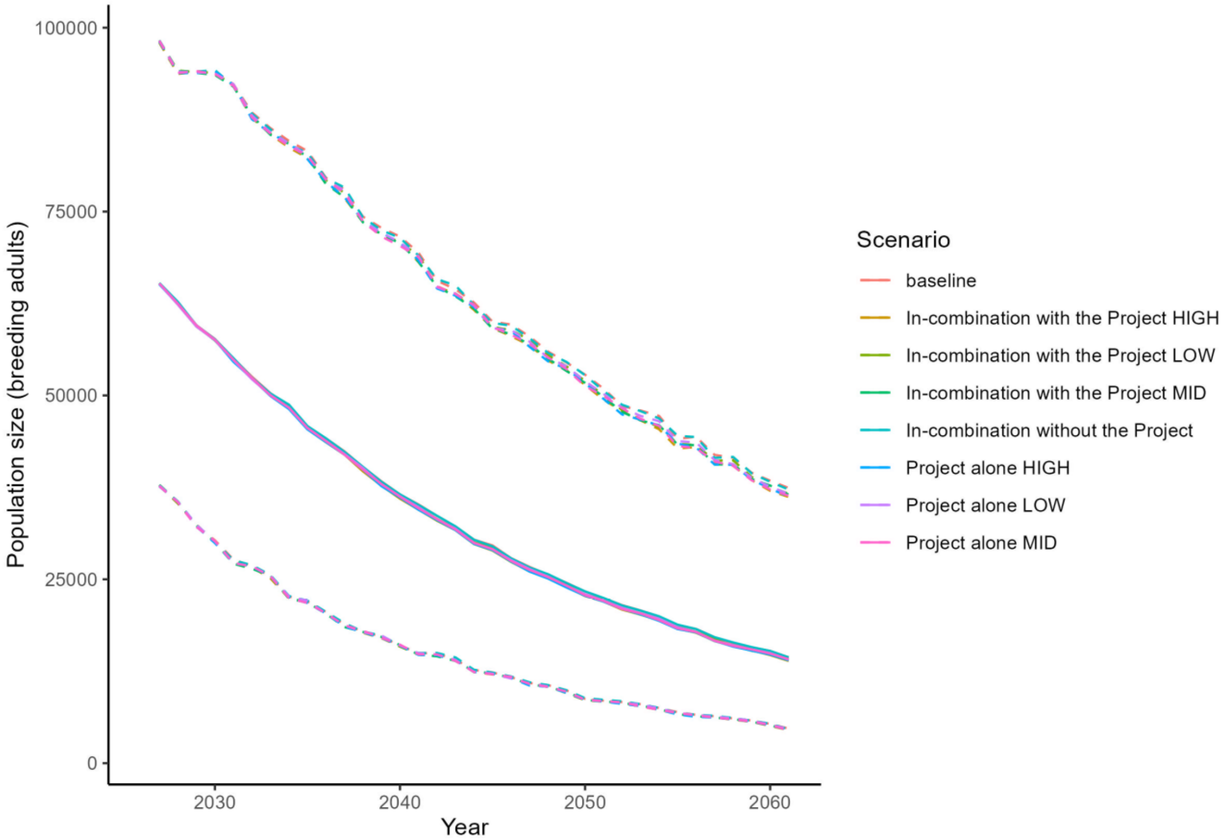


Figure 6-40 Projected population size of the breeding puffin feature of the Sule Skerry and Sule Stack SPA for the baseline (unimpacted), Project alone, in-combination impacts without the Project and in-combination with the Project from 2027 to 2062. Solid line = mean, dashed line = SD

The PVA metrics (Table 6-67) showed that the mean and median CGR was close to one across the projected 35 years used in the model for the Project alone and in-combination. The CGR value for the in-combination impacts was 0.9990 – 0.9994, or a 0.06% - 0.10% decline in growth rate across all years. Adding the Project alone to the in-combination impact made an extremely small difference to the predicted change in growth rate. This suggests that the growth rate of the Sule Skerry and Sule Stack SPA puffin population would not be adversely affected by the Project alone and in-combination.

The mean and median CPS values decreased with the duration of the PVA projection (Table 6-67). The CPS values at 35 years of the Project alone, the in-combination values without the Project and the in-combination values with and without the Project show that the majority of the predicted impacts on the SPA are from the Project alone. The CPS for the Project alone was high (0.9660 - 0.9802), suggesting that the PVA predicts that the population would be 2.0% - 3.4% smaller than the baseline population size. The in-combination CPS value without the Project was also high (1.0001). Thus, the PVA predicted that the population would be essentially no smaller than the baseline population size. Adding the predicted impacts from the Project to the existing in-combination impacts made a small difference to the CPS value (0.9637 - 0.9786), and thus the PVA predicted that the population would be about 2.1% - 3.6% smaller than the baseline population size.

The quantile metrics showed that across the projected years from the PVA that the overlap in the distribution of the projected end population size reduced only very slightly across all scenarios. However, the quantile metrics also showed that these distributions remained almost unchanged between the baseline and the predicted impacts from the Project alone.

Impacts from the construction stage of the Project, including all cable installation, are short term, temporary and reversible. Following completion of the construction stage the disturbance effects will be removed. Therefore, this impact source will not have an impact on the conservation objectives to maintain the population in the long term.

The predicted impacts, based on guidance and advice from NatureScot, on the breeding puffin population from the Sule Skerry and Sule Stack SPA from the Project alone and in-combination would not adversely affect the integrity of the site.

Table 6-67 Summary of PVA metrics for the puffin population from Sule Skerry and Sule Stack SPA for the Project alone, in-combination without the Project and in-combination including the Project. Based on the assessment of in-combination impacts and population sizes for the BDMPS UK North Sea & Channel waters non-breeding season (mid-August to March). SD = standard deviation, LCI = lower confidence interval, UCI = upper confidence interval.

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone LOW	10	0.9994	0.9994	0.0006	0.9982	1.0005	0.9935	0.9935	0.0079	0.9770	1.0091	49.0	51.0
Project alone MID	10	0.9992	0.9992	0.0006	0.9980	1.0004	0.9919	0.9916	0.0079	0.9748	1.0061	48.6	51.0
Project alone HIGH	10	0.9990	0.9990	0.0006	0.9977	1.0003	0.9892	0.9889	0.0082	0.9726	1.0051	48.7	51.5
In-combination without the Project	10	1.0000	1.0000	0.0006	0.9988	1.0013	1.0005	1.0003	0.0080	0.9849	1.0154	49.9	50.1
In-combination with the Project LOW	10	0.9994	0.9994	0.0006	0.9982	1.0007	0.9935	0.9937	0.0078	0.9780	1.0091	49.4	51.3

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project MID	10	0.9992	0.9992	0.0006	0.9979	1.0004	0.9917	0.9913	0.0080	0.9750	1.0074	49.2	51.2
In-combination with the Project HIGH	10	0.9990	0.9990	0.0006	0.9977	1.0002	0.9889	0.9890	0.0080	0.9731	1.0056	48.6	51.8
Project alone LOW	20	0.9994	0.9994	0.0005	0.9985	1.0004	0.9880	0.9883	0.0113	0.9665	1.0125	48.9	50.7
Project alone MID	20	0.9992	0.9992	0.0005	0.9983	1.0002	0.9839	0.9843	0.0112	0.9636	1.0054	48.5	51.2
Project alone HIGH	20	0.9990	0.9990	0.0005	0.9980	1.0000	0.9797	0.9798	0.0113	0.9582	1.0016	47.2	51.5
In-combination without the Project	20	1.0000	1.0000	0.0005	0.9990	1.0011	1.0009	1.0004	0.0115	0.9782	1.0238	49.6	50.3

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project LOW	20	0.9994	0.9994	0.0005	0.9984	1.0004	0.9880	0.9879	0.0110	0.9662	1.0095	48.8	51.1
In-combination with the Project MID	20	0.9992	0.9992	0.0005	0.9982	1.0002	0.9839	0.9837	0.0114	0.9603	1.0054	48.3	51.4
In-combination with the Project HIGH	20	0.9990	0.9990	0.0005	0.9980	1.0001	0.9791	0.9796	0.0111	0.9579	1.0019	47.5	51.3
Project alone LOW	30	0.9994	0.9994	0.0005	0.9985	1.0004	0.9826	0.9829	0.0151	0.9535	1.0142	48.0	51.3
Project alone MID	30	0.9992	0.9992	0.0005	0.9983	1.0002	0.9769	0.9770	0.0154	0.9463	1.0060	47.5	51.7
Project alone HIGH	30	0.9990	0.9990	0.0005	0.9980	1.0000	0.9708	0.9709	0.0155	0.9394	1.0001	47.5	51.9

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination without the Project	30	1.0000	1.0000	0.0005	0.9990	1.0011	1.0000	1.0006	0.0160	0.9704	1.0334	50.1	50.0
In-combination with the Project LOW	30	0.9994	0.9994	0.0005	0.9984	1.0005	0.9815	0.9820	0.0156	0.9505	1.0140	48.7	51.1
In-combination with the Project MID	30	0.9992	0.9992	0.0005	0.9981	1.0001	0.9760	0.9755	0.0157	0.9406	1.0034	47.2	52.0
In-combination with the Project HIGH	30	0.9990	0.9990	0.0005	0.9980	0.9999	0.9692	0.9694	0.0153	0.9398	0.9976	47.6	52.2
Project alone LOW	35	0.9994	0.9994	0.0005	0.9985	1.0004	0.9802	0.9802	0.0177	0.9457	1.0175	48.7	51.3
Project alone MID	35	0.9992	0.9992	0.0005	0.9983	1.0002	0.9722	0.9728	0.0175	0.9393	1.0080	48.2	51.9

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone HIGH	35	0.9990	0.9990	0.0005	0.9981	1.0000	0.9660	0.9660	0.0175	0.9304	1.0011	47.8	52.4
In-combination without the Project	35	1.0000	1.0000	0.0005	0.9990	1.0011	1.0001	1.0003	0.0181	0.9641	1.0374	50.0	50.1
In-combination with the Project LOW	35	0.9994	0.9994	0.0005	0.9984	1.0004	0.9786	0.9786	0.0180	0.9436	1.0149	48.1	51.5
In-combination with the Project MID	35	0.9992	0.9992	0.0005	0.9983	1.0001	0.9718	0.9719	0.0184	0.9378	1.0052	47.9	51.6
In-combination with the Project HIGH	35	0.9990	0.9990	0.0005	0.9980	0.9999	0.9637	0.9643	0.0176	0.9292	0.9980	47.5	52.3

6.20.3.3 Gannet

The predicted impacts from the Project alone on the breeding gannet population was 25.8 - 32.7 birds per annum in the breeding season (Appendix C, Section C.1, Table C1-13). In the non-breeding season, the predicted impacts from the Project alone were 0.3 - 0.5 birds per annum based on the UK Western waters in spring (December to March) population. This predicted a change in adult survival of 0.23% - 0.26% points (Appendix C, Section C.1, Table C1-23) and so a PVA was required.

The predicted impacts from the Project in-combination on the breeding gannet population was dependent on the BDMPS region used and the seasonal BDMPS population sizes. The largest predicted impact was 33.1 - 40.1 birds per annum (Appendix C, Section C.2, Table C2-12) based on the UK North Sea & Channel waters in autumn (September to November). This predicted a change in adult survival of 0.26% - 0.31% points (Appendix C, Section C.2, Table C2-21) and so a PVA was required.

The PVA provided projected change in population size of the baseline population, the population impacted by the Project alone, impacted by in-combination impacts without the Project and impacted by the in-combination impacts with the Project. The PVA projected that population would increase in the baseline and in-combination impacts without the Project scenarios but this increase would be reduced in the Project alone and the in-combination with the Project scenarios based on the input demographic values and the assumptions of the model (Figure 6-41).

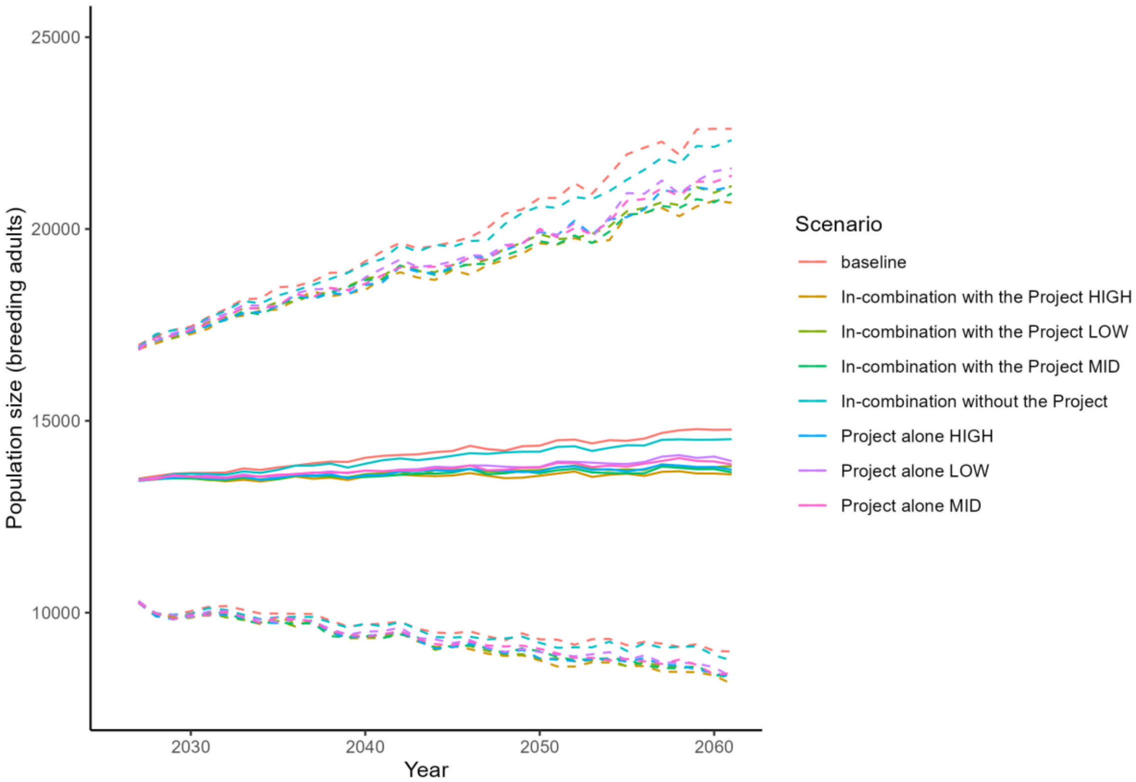


Figure 6-41 Projected population size of the breeding gannet feature of the Sule Skerry and Sule Stack SPA for the baseline (unimpacted), Project alone, in-combination impacts without the Project and in-combination with the Project from 2027 to 2062. Solid line = mean, dashed line = SD

The PVA metrics (Table 6-68) showed that the mean and median CGR was close to one across the projected 35 years used in the model for the Project alone (0.9980 – 0.9985). The CGR value for the in-combination only impacts was 0.9995, or a 0.05% decline in growth rate across all years. Adding the Project alone to the in-combination impact made an extremely small difference to the predicted change in growth rate (0.9976 – 0.9980). This suggests that the growth rate of the Sule Skerry and Sule Stack SPA gannet population would not be adversely affected by the Project alone and in-combination.

The mean and median CPS increase with the duration of the PVA projection (Table 6-68). The CPS values at 35 years of the Project alone, the in-combination values without the Project and the in-combination values with and without the Project show that the majority of the predicted impacts on the SPA are from the Project alone impacts. The CPS values at 35 years of the Project alone was fairly high (0.9314 - 0.9459) suggesting the PVA predicts that the population would be 5.4% - 6.9% smaller than the baseline population size. The in-combination CPS value was also high (0.9826). Thus, the PVA predicts that the population would be about 1.7% smaller than the baseline population size. Adding the predicted impacts from the Project to the existing in-combination impacts made a difference to the CPS value (0.9165 - 0.9302), and thus the PVA predicted that the population would be about 7.0% - 8.3% smaller than the baseline population size.

The quantile metrics showed that across the projected years from the PVA that the overlap in the distribution of the projected end population size reduced only very slightly for the scenarios that included predicted in-combination impacts. However, the quantile metrics also showed that these distributions overlapped relatively little between the baseline and the predicted impacts from the Project alone and the in-combination impacts that included the Project.

Impacts from the construction stage of the Project, including all cable installation, are short term, temporary and reversible. Following completion of the construction stage the disturbance effects will be removed. Therefore, this impact source will not have an impact on the conservation objectives to maintain the population in the long term.

From predicted impacts, based on guidance and advice from NatureScot, on the breeding gannet population from the Sule Skerry and Sule Stack SPA from the Project alone and in-combination it would not be possible to conclude that there was no adverse effect the integrity of the site. Due to the precaution in the approach based on NatureScot guidance and advice it is unlikely the number of impacted individuals will be as large as the values presented in the assessment. The availability of further evidence is considered further in Section 6.22.1.

Table 6-68 Summary of PVA metrics for the gannet population from Sule Skerry and Sule Stack SPA for the Project alone, in-combination without the Project and in-combination including the Project. Based on the assessment of in-combination impacts and population sizes for the BDMPS UK North Sea & Channel waters in autumn (September to November). SD = standard deviation, LCI = lower confidence interval, UCI = upper confidence interval.

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone LOW	10	0.9984	0.9984	0.0011	0.9962	1.0006	0.9833	0.9824	0.0171	0.9485	1.0128	46.0	54.7
Project alone MID	10	0.9982	0.9982	0.0011	0.9961	1.0005	0.9806	0.9804	0.0171	0.9481	1.0149	46.1	55.0
Project alone HIGH	10	0.9980	0.9980	0.0011	0.9958	1.0001	0.9775	0.9778	0.0166	0.9443	1.0109	44.7	55.7
In-combination without the Project	10	0.9996	0.9996	0.0011	0.9975	1.0018	0.9955	0.9952	0.0170	0.9607	1.0284	49.0	50.8
In-combination with the Project LOW	10	0.9980	0.9979	0.0011	0.9958	1.0002	0.9777	0.9773	0.0171	0.9438	1.0105	45.2	56.3

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project MID	10	0.9977	0.9978	0.0012	0.9955	1.0000	0.9756	0.9757	0.0170	0.9423	1.0098	44.4	56.1
In-combination with the Project HIGH	10	0.9975	0.9975	0.0011	0.9954	0.9997	0.9731	0.9730	0.0165	0.9434	1.0053	42.6	57.3
Project alone LOW	20	0.9984	0.9985	0.0008	0.9969	1.0000	0.9683	0.9679	0.0198	0.9272	1.0042	43.8	56.5
Project alone MID	20	0.9983	0.9983	0.0008	0.9968	0.9999	0.9645	0.9641	0.0199	0.9279	1.0039	42.1	56.7
Project alone HIGH	20	0.9980	0.9980	0.0008	0.9965	0.9995	0.9586	0.9594	0.0196	0.9207	0.9956	42.1	57.9
In-combination without the Project	20	0.9995	0.9996	0.0008	0.9980	1.0011	0.9899	0.9906	0.0202	0.9521	1.0291	48.4	52.1

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project LOW	20	0.9980	0.9980	0.0008	0.9964	0.9996	0.9587	0.9584	0.0195	0.9196	0.9958	41.8	58.5
In-combination with the Project MID	20	0.9978	0.9978	0.0008	0.9962	0.9994	0.9542	0.9551	0.0199	0.9164	0.9933	41.1	59.0
In-combination with the Project HIGH	20	0.9976	0.9976	0.0008	0.9961	0.9992	0.9507	0.9507	0.0195	0.9147	0.9892	39.8	59.6
Project alone LOW	30	0.9984	0.9985	0.0006	0.9972	0.9997	0.9530	0.9530	0.0224	0.9087	0.9951	42.0	57.6
Project alone MID	30	0.9982	0.9983	0.0007	0.9970	0.9996	0.9462	0.9474	0.0225	0.9070	0.9907	40.8	59.1
Project alone HIGH	30	0.9980	0.9980	0.0006	0.9968	0.9993	0.9400	0.9409	0.0218	0.8988	0.9842	39.5	59.8

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination without the Project	30	0.9995	0.9995	0.0007	0.9983	1.0009	0.9849	0.9855	0.0227	0.9432	1.0322	47.1	52.5
In-combination with the Project LOW	30	0.9980	0.9980	0.0006	0.9968	0.9993	0.9394	0.9398	0.0221	0.8984	0.9852	39.7	59.8
In-combination with the Project MID	30	0.9978	0.9978	0.0006	0.9966	0.9991	0.9341	0.9348	0.0219	0.8938	0.9778	38.8	60.8
In-combination with the Project HIGH	30	0.9976	0.9976	0.0007	0.9963	0.9988	0.9280	0.9283	0.0218	0.8853	0.9703	37.2	62.1
Project alone LOW	35	0.9985	0.9984	0.0006	0.9973	0.9995	0.9459	0.9455	0.0235	0.9000	0.9902	41.2	59.1
Project alone MID	35	0.9982	0.9983	0.0006	0.9972	0.9995	0.9386	0.9394	0.0234	0.8948	0.9860	39.1	60.8

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone HIGH	35	0.9980	0.9980	0.0006	0.9968	0.9991	0.9314	0.9315	0.0228	0.8867	0.9759	37.3	61.7
In-combination without the Project	35	0.9995	0.9995	0.0006	0.9984	1.0007	0.9826	0.9832	0.0238	0.9365	1.0300	45.9	53.0
In-combination with the Project LOW	35	0.9980	0.9980	0.0006	0.9969	0.9992	0.9302	0.9307	0.0232	0.8866	0.9795	37.3	62.7
In-combination with the Project MID	35	0.9978	0.9978	0.0006	0.9967	0.9990	0.9236	0.9247	0.0232	0.8818	0.9718	36.8	63.4
In-combination with the Project HIGH	35	0.9976	0.9976	0.0006	0.9964	0.9988	0.9165	0.9172	0.0227	0.8713	0.9630	35.4	65.1

6.20.4 Assessment summary and conclusions

The assessment cannot conclude that there is no adverse effect on site integrity of the Sule Skerry and Sule Stack SPA as outlined in Table 6-69.

Table 6-69 Summary of assessment of Sule Skerry & Sule Stack SPA.

QUALIFYING FEATURE	POTENTIAL EFFECT	CONCLUSION
Breeding guillemot	Displacement and barrier effects	It was not possible to conclude no adverse effect on site integrity due to predicted impacts from the Project alone and in-combination. Due to the precaution in the approach based on NatureScot guidance and advice it is unlikely the number of impacted individuals will be as large as the values presented in the assessment. The availability of further evidence is considered further in Section 6.22.1.
Breeding puffin	Displacement and barrier effects	No adverse effects on site integrity from the Project alone and in-combination with other reasonably foreseeable plans and projects
Breeding gannet	Collisions and, Displacement and barrier effects	It was not possible to conclude no adverse effect on site integrity due to predicted impacts from the Project in-combination. Due to the precaution in the approach based on NatureScot guidance and advice it is unlikely the number of impacted individuals will be as large as the values presented in the assessment. The availability of further evidence is considered further in Section 6.22.1.
Breeding European storm petrel	No likely significant effect	
Breeding Leach's petrel	No likely significant effect	
Breeding shag	No likely significant effect	
Breeding seabird assemblage		It was not possible to conclude no adverse effect on site integrity due to predicted impacts from the Project in-combination. Due to the precaution in the approach based on NatureScot guidance and advice it is unlikely the number of impacted individuals will be as large as the values presented in the assessment. The availability of further evidence is considered further in Section 6.22.1.

6.21 West Westray SPA

The West Westray SPA was classified on 16th August 1996, with marine extension classified on 25th September 2009, due to its populations of breeding seabirds. The site is on the west side of the island of Westray, Orkney. It is approximately 60 km north-east of the Project.

6.21.1 Site details and qualifying interests

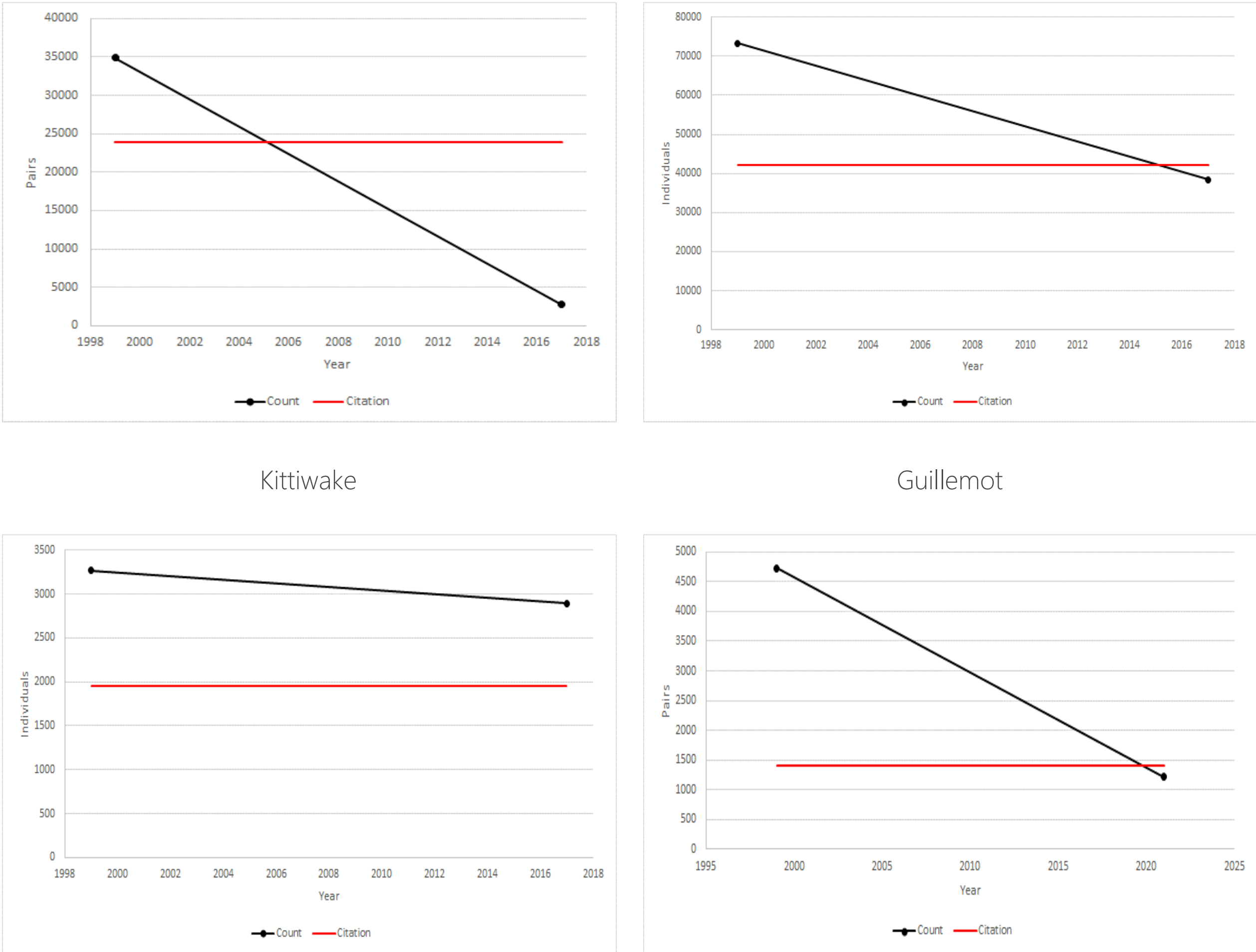
West Westray SPA is an 8 km stretch of sea cliffs, together with adjacent grassland and heathland, along the west coast of the island of Westray in Orkney. The cliffs support large colonies of breeding auks and kittiwakes while the grassland and heathland areas support breeding colonies of skuas and terns.

The boundary of the SPA overlaps with that of the West Westray SSSI, and the seaward extension extends approximately 2 km into the marine environment to include the seabed, water column and surface.

Table 6-70 Qualifying interests and condition for the West Westray SPA

QUALIFYING INTERESTS	FEATURE CONDITION	ASSESSMENT DATE	BROADER CONSERVATION STATUS
Kittiwake	Unfavourable Declining	8 Jun 2017	Red
Arctic skua	Unfavourable Declining	21 Jun 2017	Red
Arctic tern	Unfavourable No change	20 Jul 2017	Amber
Guillemot	Unfavourable Declining	8 Jun 2017	Amber
Razorbill	Favourable Recovered	8 Jun 2017	Red
Fulmar	Favourable Recovered	8 Jun 2017	Amber
Seabird assemblage	Unfavourable Declining	8 Jun 2017	n/a

For each qualifying feature requiring assessment (except the breeding seabird assemblage) count data was extracted from the SMP database. These counts were plotted and compared with the citation population size, where data allowed (Figure 6-42).



Kittiwake

Guillemot

Razorbill

Fulmar

Figure 6-42 Sule Skerry and Sule Stack SPA qualifying feature population trends from 1981 - 2022 (citation population size shown by red line).

Population counts were only available from counts in 1999/2000 and 2016/2018. All species requiring assessment have declined across the period where data are available. Kittiwake numbers have declined sharply since Seabird 2000, with numbers now well below the citation population size. While guillemot numbers have similarly declined sharply since 2000, they are currently only slightly below their citation population size. Razorbills have shown much less of a decline than the other species in the SPA and remain above their citation level. Fulmars have also declined sharply but are also now only slightly below the citation level.

6.21.2 Conservation objectives

The conservation objectives of the West Westray SPA are:

To avoid deterioration of the habitats of the qualifying species or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained; and

To ensure for the qualifying species that the following are maintained in the long term:

- Population of the species as a viable component of the site;
- Distribution of the species within site;
- Distribution and extent of habitats supporting the species;
- Structure, function and supporting processes of habitats supporting the species; and
- No significant disturbance of the species.

6.21.3 Assessment of predicted impacts alone and in-combination

The breeding Arctic skua feature of the West Westray SPA was screened out of the assessment as there was no connectivity between the Project and the SPA. Arctic skua occurred in insignificant numbers in the Project, so there was no likely significant effect on the West Westray SPA from impacts on this feature. Arctic tern was also screened out of the assessment as the SPA is beyond the mean of the maximum foraging range (plus one standard deviation). Arctic tern was not recorded from the Project in the non-breeding season.

6.21.3.1 Kittiwake

The predicted impacts from the Project alone on the breeding kittiwake population was 0.29 - 0.38 birds per annum in the breeding season (Appendix C, Section C.1, Table C1-1). In the non-breeding season, the predicted impacts were dependent on the BDMPS region used and the seasonal BDMPS population sizes. The largest non-breeding season predicted impact was 0.9 - 1.1 birds per annum based on the UK North Sea waters Spring migration (January to April). This predicted a change in adult survival of 0.02% - 0.03% points (Appendix C, Section C.1, Table C1-15) and so a PVA was required.

The predicted impacts from the Project in-combination on the breeding kittiwake population was dependent on the BDMPS region used and the seasonal BDMPS population sizes. The largest predicted impact was 65.3 - 65.6 birds per annum based on the UK North Sea waters Spring migration population (Appendix C, Section C.2, Table C2-1). This predicted a change in adult survival of 1.186% - 1.191% points (Appendix C, Section C.2, Table C2-14) and so a PVA was required.

The PVA provided projected change in population size of the baseline population, the population impacted by the Project alone, impacted by in-combination impacts without the Project and impacted by the in-combination impacts with the Project. The PVA projected that population would decline in all scenarios based on the input demographic values and the assumptions of the model (Figure 6-43).

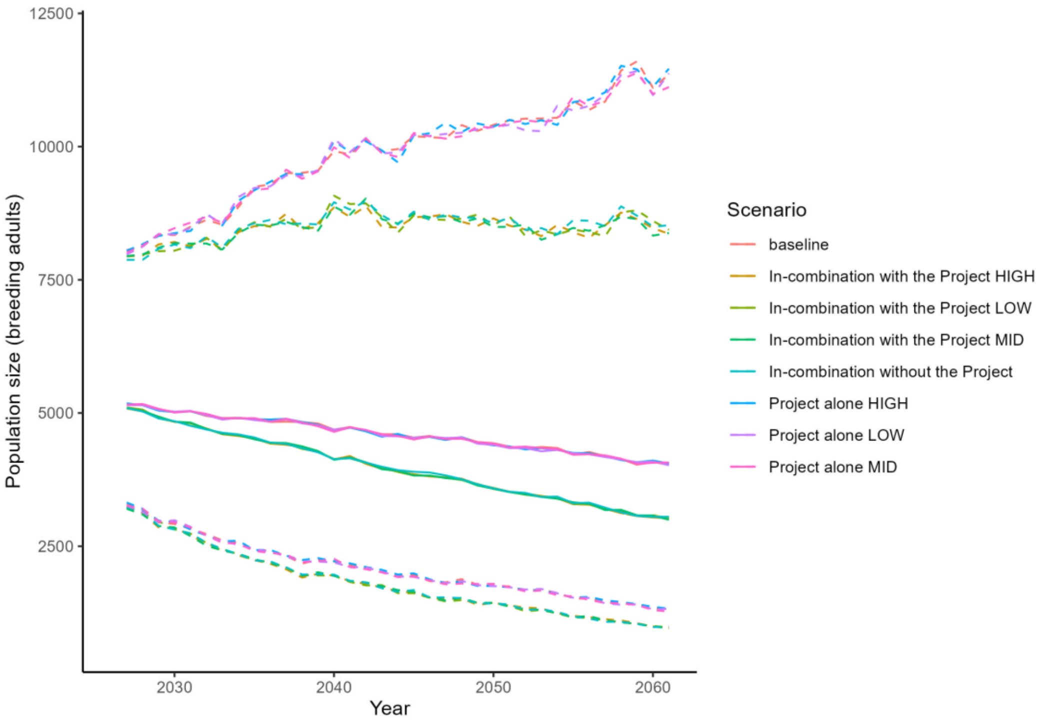


Figure 6-43 Projected population size of the breeding kittiwake feature of the West Westray SPA for the baseline (unimpacted), Project alone, in-combination impacts without the Project and in-combination with the Project from 2027 to 2062. Solid line = mean, dashed line = SD

The PVA metrics (Table 6-71) showed that the mean and median CGR was very close to one across the projected 35 years used in the model for the Project alone. The CGR value for the project alone after 35 years was 0.9998 – 0.9999, or a 0.0114% - 0.0197% decline in growth rate. The CGR value for the in-combination impacts was 0.9917, or a 0.8251% decline in growth rate. Adding the Project alone to the in-combination impact made an extremely small difference to the predicted change in growth rate. This suggests that the growth rate of the West Westray SPA kittiwake population would not be adversely affected by the predicted impacts from Project alone or in-combination.

The mean and median CPS values decreased with the duration of the PVA projection (Table 6-71). The CPS values at 35 years of the Project alone, the in-combination values without the Project and the in-combination values with and without the Project show that the majority of the predicted impacts on the SPA are from the in-combination impacts with very little effect from the Project alone. The CPS for the Project alone was high (0.9943 - 0.9994), suggesting that the PVA predicts that the population would be 0.0555% - 0.5696% smaller than the baseline population size. The in-combination CPS value was relatively low (0.7425). Thus, the PVA predicts that the population would be about 25.7% smaller than the baseline population size. Adding the predicted impacts from the Project to the existing in-combination impacts made a very small difference to the CPS value (0.7335 - 0.7363), and thus the PVA predicted that the population would be about 26.4% - 26.6% smaller than the baseline population size.

The quantile metrics showed that across the projected years from the PVA that the overlap in the distribution of the projected end population size reduced for the scenarios that included predicted in-combination impacts. However, the quantile metrics also showed that these distributions remained essentially unchanged between the baseline and the predicted impacts from the Project alone.

Table 6-71 Summary of PVA metrics for the kittiwake population from West Westray SPA for the Project alone, in-combination without the Project and in-combination including the Project. Based on the assessment of in-combination impacts and population sizes for the BDMPS UK North Sea waters Spring migration (January to April). SD = standard deviation, LCI = lower confidence interval, UCI = upper confidence interval.

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone LOW	10	0.9997	0.9998	0.0023	0.9953	1.0043	0.9976	0.9983	0.0314	0.9401	1.0655	51.1	49.2
Project alone MID	10	0.9998	0.9998	0.0023	0.9954	1.0045	0.9984	0.9990	0.0334	0.9320	1.0672	51.1	49.0
Project alone HIGH	10	0.9998	0.9998	0.0024	0.9949	1.0043	0.9988	1.0000	0.0316	0.9376	1.0627	51.1	49.1
In-combination without the Project	10	0.9913	0.9912	0.0026	0.9861	0.9961	0.9088	0.9092	0.0301	0.8480	0.9676	40.1	59.0
In-combination with the Project LOW	10	0.9911	0.9910	0.0024	0.9860	0.9955	0.9069	0.9065	0.0300	0.8496	0.9656	40.1	59.9

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project MID	10	0.9911	0.9911	0.0025	0.9863	0.9958	0.9070	0.9078	0.0291	0.8492	0.9619	40.4	59.2
In-combination with the Project HIGH	10	0.9911	0.9910	0.0024	0.9859	0.9957	0.9066	0.9066	0.0293	0.8490	0.9621	39.6	58.6
Project alone LOW	20	0.9999	0.9999	0.0016	0.9965	1.0030	0.9951	0.9975	0.0382	0.9277	1.0735	50.3	49.3
Project alone MID	20	0.9998	0.9999	0.0016	0.9966	1.0031	0.9985	0.9990	0.0396	0.9244	1.0818	50.2	49.9
Project alone HIGH	20	0.9998	0.9999	0.0017	0.9968	1.0032	0.9986	0.9994	0.0394	0.9279	1.0797	49.9	50.2
In-combination without the Project	20	0.9916	0.9915	0.0018	0.9879	0.9949	0.8383	0.8375	0.0349	0.7680	0.9056	35.9	66.2

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project LOW	20	0.9913	0.9913	0.0017	0.9880	0.9947	0.8341	0.8334	0.0345	0.7686	0.9064	35.1	66.1
In-combination with the Project MID	20	0.9914	0.9913	0.0017	0.9878	0.9945	0.8359	0.8343	0.0338	0.7700	0.8980	34.9	65.7
In-combination with the Project HIGH	20	0.9914	0.9913	0.0017	0.9879	0.9946	0.8334	0.8338	0.0342	0.7678	0.9003	35.2	65.8
Project alone LOW	30	0.9998	0.9998	0.0014	0.9972	1.0026	0.9951	0.9955	0.0456	0.9158	1.0898	49.8	50.4
Project alone MID	30	0.9998	0.9999	0.0014	0.9973	1.0027	0.9986	0.9987	0.0479	0.9111	1.1036	50.1	49.6
Project alone HIGH	30	0.9999	0.9999	0.0014	0.9974	1.0026	0.9993	0.9994	0.0459	0.9150	1.0928	50.0	50.0

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination without the Project	30	0.9916	0.9916	0.0015	0.9885	0.9944	0.7715	0.7715	0.0398	0.6936	0.8527	32.4	68.5
In-combination with the Project LOW	30	0.9914	0.9914	0.0015	0.9884	0.9941	0.7668	0.7666	0.0379	0.6927	0.8424	31.8	69.0
In-combination with the Project MID	30	0.9914	0.9914	0.0015	0.9883	0.9941	0.7660	0.7662	0.0376	0.6937	0.8396	31.6	69.9
In-combination with the Project HIGH	30	0.9915	0.9914	0.0015	0.9883	0.9941	0.7655	0.7659	0.0371	0.6919	0.8384	31.9	69.8
Project alone LOW	35	0.9998	0.9998	0.0013	0.9974	1.0024	0.9943	0.9944	0.0492	0.9084	1.1003	49.9	50.6
Project alone MID	35	0.9999	0.9999	0.0013	0.9973	1.0026	0.9975	0.9982	0.0514	0.9005	1.1105	49.9	50.2

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone HIGH	35	0.9999	0.9999	0.0013	0.9975	1.0025	0.9994	0.9982	0.0493	0.9061	1.0963	49.8	50.2
In-combination without the Project	35	0.9917	0.9916	0.0014	0.9887	0.9943	0.7425	0.7410	0.0404	0.6598	0.8196	30.9	71.4
In-combination with the Project LOW	35	0.9914	0.9914	0.0014	0.9887	0.9941	0.7335	0.7346	0.0391	0.6603	0.8091	30.3	71.8
In-combination with the Project MID	35	0.9915	0.9914	0.0014	0.9886	0.9940	0.7350	0.7351	0.0392	0.6586	0.8109	29.4	71.9
In-combination with the Project HIGH	35	0.9915	0.9914	0.0014	0.9885	0.9940	0.7363	0.7347	0.0389	0.6553	0.8078	29.5	71.6

Impacts from the construction stage of the Project, including all cable installation, are short term, temporary and reversible. Following completion of the construction stage the disturbance effects will be removed. Therefore, this impact source will not have an impact on the conservation objectives to maintain the population in the long term.

The predicted impacts, based on guidance and advice from NatureScot, on the breeding kittiwake population from the West Westray SPA from the Project alone would not adversely affect the integrity of the site. When applying the significant levels of precaution advised it may not be possible to discount AESI arising from the list of in-combination projects, the predicted impacts from the Project alone is beneath any threshold of significance and *de minimis* and as such would not materially alter the significance or the likelihood of an adverse effect on the integrity of the West Westray SPA.

6.21.3.2 Guillemot

The impacts from the Project alone in the breeding and non-breeding seasons on the breeding guillemot population of the SPA were predicted to be 0.1 - 0.2 birds killed per annum (Appendix C, Section C.1, Table C1-6). This was a predicted change in adult survival of 0.0003% - 0.0006% points (Appendix C, Section C.1, Table C1-18). The predicted impacts from other plans and projects was a further 0.8 birds killed per annum, resulting in a total predicted impact from the Project alone an in-combination of 0.96 - 1.07 birds killed per annum, with 12.9% - 21.8%of this total from the Project alone (Appendix C, Section C.2, Table C2-4). This resulted in a predicted change in adult survival of 0.002% - 0.003% points (Appendix C, Section C.2, Table C2-16) and so a PVA was not required.

Impacts from the construction stage of the Project, including all cable installation, are short term, temporary and reversible. Following completion of the construction stage the disturbance effects will be removed. Therefore, this impact source will not have an impact on the conservation objectives to maintain the population in the long term.

The predicted impacts, based on guidance and advice from NatureScot, on the breeding guillemot population from the West Westray SPA from the Project alone and in-combination would not adversely affect the integrity of the site.

6.21.3.3 Razorbill

The predicted impacts from the Project alone on the breeding razorbill population was 0.02 - 0.03 birds per annum in the breeding season (Appendix C, Section C.1, Table C1-7). In the non-breeding season, the predicted impacts were dependent on the BDMPS region used and the seasonal BDMPS population sizes. The largest non-breeding season predicted impact was 0.002 - 0.005 birds per annum based on the UK North Sea and Channel during migration seasons (August to October, and January to March) resulting in a total impact of 0.02 - 0.03 birds per annum. This predicted a change in adult survival of 0.0007% - 0.0012% points and so a PVA was not required (Appendix C, Section C.1, Table C1-19).

The predicted impacts from the Project in-combination on the breeding razorbill population was dependent on the BDMPS region used and the seasonal BDMPS population sizes. The largest predicted impact was 3.73 - 3.75 birds per annum (Appendix C, Section C.2, Table C2-6) based on the UK North Sea and Channel non-breeding season (November and December). This predicted a change in adult survival of 0.1330% - 0.1335% points (Appendix C, Section C.2, Table C2-17), and so a PVA was completed based on this BDMPS region and season with the largest predicted impact.

The PVA provided projected change in population size of the baseline population, the population impacted by the Project alone, impacted by in-combination impacts without the Project and impacted by the in-combination impacts with the Project. The PVA projected that population would decrease in all scenarios based on the input demographic values and the assumptions of the model (Figure 6-44).

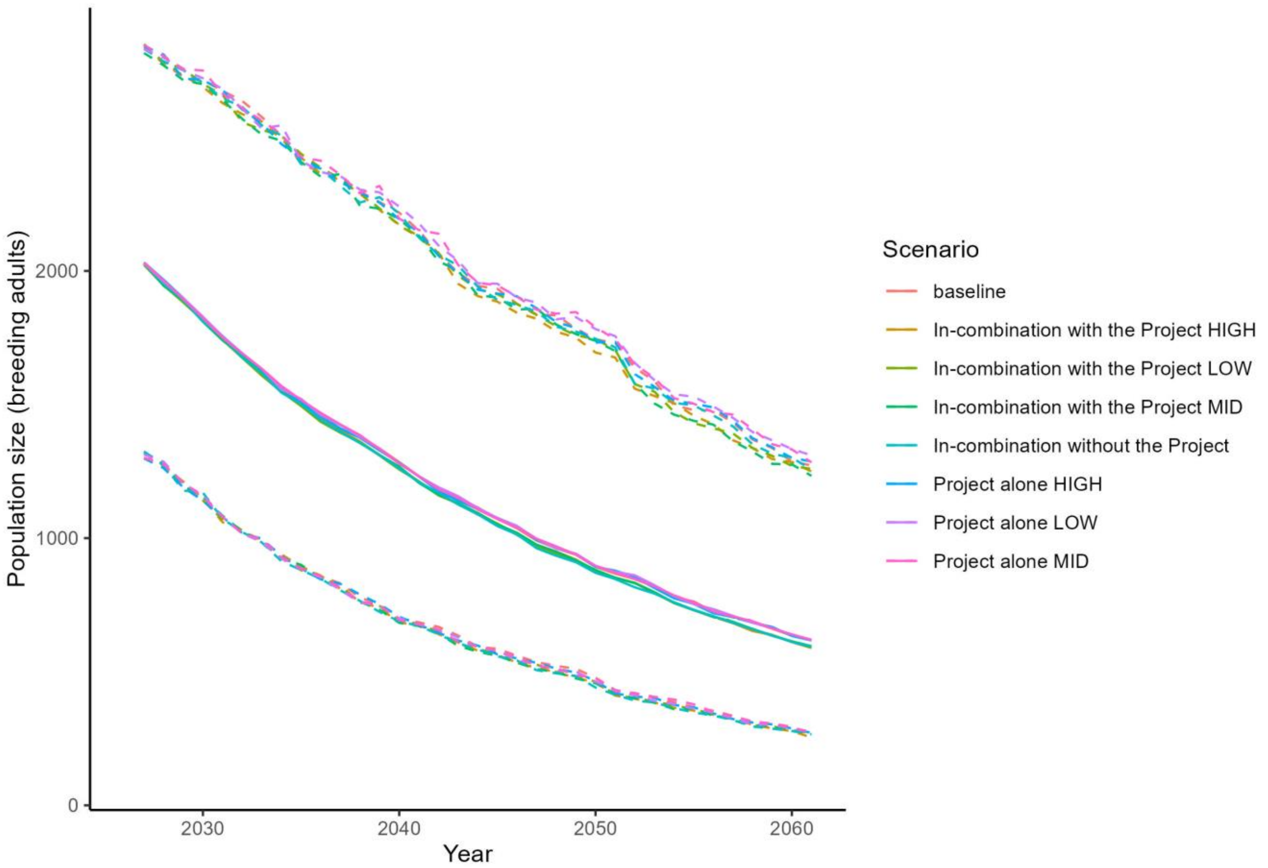


Figure 6-44 Projected population size of the breeding razorbill feature of the West Westray SPA for the baseline (unimpacted), Project alone, in-combination impacts without the Project and in-combination with the Project from 2027 to 2062. Solid line = mean, dashed line = SD

The PVA metrics (Table 6-72) showed that the mean and median CGR was close to one across the projected 35 years used in the model for the Project alone (0.9999 – 0.9999). The CGR value for the in-combination only impacts were 0.9988, or a 0.12% decline in growth rate across all years. Adding the Project alone to the in-combination impact made an extremely small difference to the predicted change in growth rate (0.9989 – 0.9990). This suggests that the growth rate of the West Westray SPA razorbill population would not be adversely affected by the Project alone and in-combination.

The mean and median CPS values increased with the duration of the PVA projection (Table 6-72). The CPS values at 35 years of the Project alone, the in-combination values without the Project and the in-combination values with and without the Project show that the majority of the predicted impacts on the SPA are from the in-combination impacts with very little effect from the Project alone. The CPS for the Project alone was high (0.9965 - 1.0016), suggesting that the PVA predicts that the population would no smaller than the baseline population size. The in-combination only

CPS value was also relatively high (0.9610). Thus, the PVA predicted that the population would be about 3.9% smaller than the baseline population size. Adding the predicted impacts from the Project to the existing in-combination impacts made a very small difference to the CPS value (0.9603 - 0.9627), and thus the PVA predicted that the population would be about 3.7% - 4.0% smaller than the baseline population size.

The quantile metrics showed that across the projected years from the PVA that the overlap in the distribution of the projected end population size reduced for the scenarios that included predicted in-combination impacts. However, the quantile metrics also showed that these distributions remained almost unchanged between the baseline and the predicted impacts from the Project alone.

Impacts from the construction stage of the Project, including all cable installation, are short term, temporary and reversible. Following completion of the construction stage the disturbance effects will be removed. Therefore, this impact source will not have an impact on the conservation objectives to maintain the population in the long term.

The predicted impacts, based on guidance and advice from NatureScot, on the breeding razorbill population from the West Westray SPA from the Project alone and in-combination would **not adversely affect the integrity of the site**.

Table 6-72 Summary of PVA metrics for the razorbill population from West Westray SPA for the Project alone, in-combination without the Project and in-combination including the Project. Based on the assessment of in-combination impacts and population sizes for the BDMPS UK North Sea and Channel non-breeding season (November and December). SD = standard deviation, LCI = lower confidence interval, UCI = upper confidence interval.

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone LOW	10	1.0000	1.0000	0.0035	0.9933	1.0070	1.0008	1.0014	0.0465	0.9157	1.0948	50.4	49.9
Project alone MID	10	1.0002	1.0000	0.0035	0.9928	1.0069	1.0014	1.0018	0.0475	0.9117	1.0978	50.9	49.6
Project alone HIGH	10	1.0000	0.9999	0.0035	0.9925	1.0066	1.0000	1.0002	0.0470	0.9129	1.0960	49.0	51.0
In-combination without the Project	10	0.9988	0.9989	0.0035	0.9919	1.0058	0.9891	0.9909	0.0468	0.9065	1.0788	47.0	52.9
In-combination with the Project LOW	10	0.9989	0.9988	0.0036	0.9918	1.0059	0.9861	0.9886	0.0466	0.8996	1.0832	46.6	52.5

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project MID	10	0.9989	0.9990	0.0035	0.9916	1.0061	0.9880	0.9896	0.0461	0.9039	1.0836	47.0	52.3
In-combination with the Project HIGH	10	0.9987	0.9987	0.0036	0.9917	1.0062	0.9885	0.9885	0.0472	0.9047	1.0832	48.4	52.2
Project alone LOW	20	1.0001	1.0000	0.0027	0.9944	1.0052	1.0009	1.0018	0.0622	0.8828	1.1300	50.6	49.0
Project alone MID	20	1.0000	1.0000	0.0027	0.9948	1.0052	1.0029	1.0031	0.0624	0.8887	1.1354	50.7	49.2
Project alone HIGH	20	1.0000	0.9999	0.0027	0.9944	1.0049	1.0000	0.9995	0.0623	0.8843	1.1279	50.2	49.6
In-combination without the Project	20	0.9988	0.9988	0.0029	0.9933	1.0042	0.9775	0.9788	0.0647	0.8543	1.0982	46.9	52.9

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project LOW	20	0.9990	0.9989	0.0027	0.9935	1.0040	0.9768	0.9787	0.0611	0.8612	1.0944	47.2	51.9
In-combination with the Project MID	20	0.9989	0.9989	0.0027	0.9936	1.0038	0.9751	0.9779	0.0601	0.8683	1.0951	47.9	51.8
In-combination with the Project HIGH	20	0.9988	0.9988	0.0028	0.9935	1.0041	0.9779	0.9786	0.0626	0.8601	1.0982	47.9	52.5
Project alone LOW	30	1.0000	0.9999	0.0025	0.9947	1.0047	1.0018	1.0011	0.0812	0.8418	1.1702	50.9	49.0
Project alone MID	30	1.0000	1.0000	0.0025	0.9951	1.0047	1.0000	1.0047	0.0799	0.8521	1.1694	50.7	49.4
Project alone HIGH	30	0.9999	0.9999	0.0025	0.9948	1.0045	0.9975	1.0001	0.0795	0.8434	1.1634	50.2	50.0

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination without the Project	30	0.9989	0.9988	0.0026	0.9933	1.0036	0.9676	0.9699	0.0823	0.8063	1.1324	46.2	53.3
In-combination with the Project LOW	30	0.9989	0.9989	0.0025	0.9939	1.0039	0.9655	0.9695	0.0804	0.8219	1.1330	46.7	53.3
In-combination with the Project MID	30	0.9990	0.9989	0.0024	0.9942	1.0035	0.9678	0.9694	0.0772	0.8287	1.1253	46.5	53.5
In-combination with the Project HIGH	30	0.9989	0.9989	0.0026	0.9937	1.0039	0.9693	0.9696	0.0808	0.8157	1.1260	46.2	53.7
Project alone LOW	35	0.9999	0.9999	0.0024	0.9950	1.0046	1.0016	1.0021	0.0914	0.8285	1.1821	49.9	50.3
Project alone MID	35	0.9999	1.0000	0.0024	0.9954	1.0046	1.0000	1.0043	0.0901	0.8353	1.1819	51.3	49.5

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone HIGH	35	0.9999	0.9999	0.0024	0.9951	1.0045	0.9965	0.9995	0.0908	0.8313	1.1873	50.0	50.2
In-combination without the Project	35	0.9988	0.9988	0.0025	0.9934	1.0036	0.9610	0.9629	0.0899	0.7813	1.1459	46.7	52.8
In-combination with the Project LOW	35	0.9990	0.9989	0.0025	0.9937	1.0038	0.9627	0.9658	0.0910	0.7904	1.1511	46.7	53.4
In-combination with the Project MID	35	0.9989	0.9989	0.0024	0.9940	1.0036	0.9615	0.9635	0.0864	0.7980	1.1347	45.5	53.3
In-combination with the Project HIGH	35	0.9989	0.9988	0.0025	0.9937	1.0038	0.9603	0.9637	0.0915	0.7935	1.1603	45.4	54.7

6.21.3.4 Fulmar

The predicted impacts from the Project alone on the breeding fulmar population was 0.006 – 0.020 birds per annum in the breeding season (Appendix C, Section C.1, Table C1-11). In the non-breeding season, the predicted impacts were dependent on the BDMPS region used and the seasonal BDMPS population sizes. The largest non-breeding season predicted impact was 0.006 - 0.019 birds per annum based on the UK North Sea during migration seasons (September & October, December to March). This predicted a change in adult survival of 0.0005% - 0.0016% points and so a PVA was not required (Appendix C, Section C.1, Table C1-22).

The predicted impacts from other plans and projects was not possible to estimate as previous projects have screened out impacts on fulmar populations from SPAs. The predicted impact from the Project alone was a sufficiently small impact on the breeding population of fulmars from the West Westray SPA that no PVA was necessary.

Impacts from the construction stage of the Project, including all cable installation, are short term, temporary and reversible. Following completion of the construction stage the disturbance effects will be removed. Therefore, this impact source will not have an impact on the conservation objectives to maintain the population in the long term.

The predicted impacts, based on guidance and advice from NatureScot, on the breeding fulmar population from the West Westray SPA from the Project alone and in combination would therefore not adversely affect the integrity of the site.

6.21.4 Assessment summary and conclusions

The assessment can conclude that there is no adverse effect on site integrity of the West Westray SPA as outlined in Table 6-73.

Table 6-73 Summary of assessment of West Westray SPA.

QUALIFYING FEATURE	POTENTIAL EFFECT	CONCLUSION
Breeding kittiwake	Collisions and, Displacement and barrier effects	The predicted impacts from the Project alone is beneath any threshold of significance and *de minimis* and as such would not materially alter the significance or the likelihood of an adverse effect on the integrity of the SPA.
Breeding Arctic skua	No likely significant effect	
Breeding Arctic tern	No likely significant effect	
Breeding guillemot	Displacement and barrier effects	No adverse effects on site integrity from the Project alone and in-combination with other reasonably foreseeable plans and projects

QUALIFYING FEATURE	POTENTIAL EFFECT	CONCLUSION
Breeding razorbill	Displacement and barrier effects	No adverse effects on site integrity from the Project alone and in-combination with other reasonably foreseeable plans and projects
Breeding fulmar	Displacement and barrier effects	No adverse effects on site integrity from the Project alone and in-combination with other reasonably foreseeable plans and projects
Breeding seabird assemblage	Collisions and, Displacement and barrier effects	No adverse effects on site integrity from the Project alone and in-combination with other reasonably foreseeable plans and projects

6.22 Conclusion

A summary of the offshore Project's assessment on protected sites with ornithological features as listed interests is shown in Table 6-74.

Table 6-74 Summary of conclusions of assessment on each SPA

SPA	CONCLUSIONS
Calf of Eday SPA	No adverse effects on site integrity from the Project alone and in-combination with other reasonably foreseeable plans and projects
Cape Wrath SPA	No adverse effects on site integrity from the Project alone and in-combination with other reasonably foreseeable plans and projects
Copinsay SPA	No adverse effects on site integrity from the Project alone and in-combination with other reasonably foreseeable plans and projects
East Caithness Cliffs SPA	The predicted impacts from the Project alone is beneath any threshold of significance and de minimis and as such would not materially alter the significance or the likelihood of an adverse effect on the integrity.
Handa SPA	No adverse effects on site integrity from the Project alone and in-combination with other reasonably foreseeable plans and projects
Hermaness, Saxa Vord and Valla Field SPA	No adverse effects on site integrity from the Project alone and in-combination with other reasonably foreseeable plans and projects
Hoy SPA	No adverse effects on site integrity from the Project alone and in-combination with other reasonably foreseeable plans and projects
Marwick Head SPA	No adverse effects on site integrity from the Project alone and in-combination with other reasonably foreseeable plans and projects
North Caithness Cliffs SPA	The predicted impacts from the Project alone is beneath any threshold of significance and de minimis and as such would

SPA	CONCLUSIONS
	not materially alter the significance or the likelihood of an adverse effect on the integrity.
North Rona and Sula Sgeir SPA	No adverse effects on site integrity from the Project alone and in-combination with other reasonably foreseeable plans and projects
Rousay SPA	No adverse effects on site integrity from the Project alone and in-combination with other reasonably foreseeable plans and projects
St Kilda SPA	No adverse effects on site integrity from the Project alone and in-combination with other reasonably foreseeable plans and projects
Sule Skerry and Sule Stack SPA	The predicted impacts from the Project alone is beneath any threshold of significance and de minimis and as such would not materially alter the significance or the likelihood of an adverse effect on the integrity.
West Westray SPA	No adverse effects on site integrity from the Project alone and in-combination with other reasonably foreseeable plans and projects

Based on guidance and advice from NatureScot it was not possible to conclude no adverse effect on site integrity due to:

- Existing in-combination impacts on the East Caithness Cliffs SPA breeding kittiwake feature
- Existing in-combination impacts on the North Caithness Cliffs SPA breeding kittiwake and puffin features
- Predicted impacts from the Project alone and in-combination on the Sule Skerry and Sule Stack SPA breeding guillemot and gannet features.

The assessment also showed that a further 24 SPA where predicted impacts from the Project alone *and* in-combination was beneath any threshold of significance and *de minimis* and as such would not materially alter the significance or the likelihood of an adverse effect on the integrity of the SPA. These were for the SPA's and their qualifying features summarised in Table 6-75.. For all of these SPA qualifying features it was concluded that there was no adverse effect on site integrity from the Project alone and in-combination.

Table 6-75 Summary of the SPAs and their qualifying features where the predicted impacts from the Project alone is beneath any threshold of significance and de minimis, but existing in-combination impacts resulted in predicted changes in adult survival requiring PVA's.

SPA	KITTIWAKE	GREAT SKUA	RAZORBILL	PUFFIN	FULMAR	GANNET
Ailsa Craig	Y					Y
Buchan Ness to Collieston Coast	Y					
Canna and Sanday	Y					
Coquet Island				Y		
Fair Isle	Y	Y	Y	Y		Y
Farne Islands	Y			Y		
Fetlar		Y				
Flamborough and Filey Coast	Y		Y	Y		Y
Flannan Islands	Y		Y	Y		
Forth Islands	Y		Y	Y		Y
Foula	Y	Y	Y	Y		
Fowlsheugh	Y		Y			
Grassholm						Y
Mingulay & Berneray	Y		Y	Y		
North Colonsay & Western Cliffs	Y					
Noss	Y	Y		Y		Y
Rathlin Island	Y		Y	Y	Y	

SPA	KITTIWAKE	GREAT SKUA	RAZORBILL	PUFFIN	FULMAR	GANNET
Ronas Hill - North Roe and Tingon		Y				
Rum	Y					
Shiant Isles	Y		Y	Y		
Skomer, Skokholm and the Seas off Pembrokeshire	Y		Y	Y		
St Abbs to Fast Castle	Y		Y			
Sumburgh Head	Y					
Troup, Pennan and Lion's Heads	Y		Y			

The SPA qualifying features where the predicted change in adult survival from the project alone is below 0.02% and the in-combination impacts are all greater than 0.02% are summarised in Table 6-76. The predicted changes in adult survival are also shown in the tables in Appendix C.1.9 (Project alone) and Appendix C.2.8 (Project in-combination).

This shows that there are thirty SPA qualifying features where, despite the in-combination impact being high enough to warrant a PVA, the project alone impacts are so small that the PVA is unlikely to be informative. These predicted impacts from the Project alone are beneath any threshold of significance and *de minimis*.

Table 6-76 Predicted impacts from the Project alone and the predicted in-combination impacts (without the Project) on SPA qualifying features where the impact from the project alone is less than 0.02% point change in adult survival, but the predicted in-combination impacts are greater than 0.02% point change in adult survival.

SPA	SPECIES	CHANGE IN ADULT SURVIVAL (MAX DISPLACEMENT MORTALITY AND HIGHEST BDMPS REGION AND SEASON IMPACT	
		PROJECT ALONE	PROJECT IN-COMBINATION
Ailsa Craig	Gannet	0.0048%	0.0535%
Buchan Ness to Collieston	Kittiwake	0.0063%	0.4335%

SPA	SPECIES	CHANGE IN ADULT SURVIVAL (MAX DISPLACEMENT MORTALITY AND HIGHEST BDMPS REGION AND SEASON IMPACT	
		PROJECT ALONE	PROJECT IN-COMBINATION
Fair Isle	Kittiwake	0.0087%	0.3633%
	Razorbill	0.0004%	0.3633%
	Gannet	0.0101%	1.2655%
Farne Islands	Kittiwake	0.0036%	0.5146%
	Puffin	0.0007%	0.0281%
Flamborough & Filey Coast	Kittiwake	0.0038%	0.5585%
	Razorbill	0.0005%	0.6771%
	Gannet	0.0092%	2.1012%
Flannan Islands	Razorbill	0.0005%	0.0278%
Forth Islands	Kittiwake	0.0019%	1.1038%
	Razorbill	0.0005%	1.1038%
	Puffin	0.0007%	0.1345%
	Gannet	0.0092%	1.2655%
Foula	Kittiwake	0.0039%	0.1623%
	Razorbill	0.0006%	0.3021%
Fowlsheugh	Kittiwake	0.0028%	0.4512%
	Razorbill	0.0005%	0.9751%

SPA	SPECIES	CHANGE IN ADULT SURVIVAL (MAX DISPLACEMENT MORTALITY AND HIGHEST BDMPS REGION AND SEASON IMPACT	
		PROJECT ALONE	PROJECT IN-COMBINATION
Mingulay & Berneray	Razorbill	0.0005%	0.0278%
Noss	Kittiwake	0.0199%	0.9047%
	Gannet	0.0076%	0.5061%
Shiant Isles	Razorbill	0.0010%	0.0232%
Skomer, Skokholm and the Seas off Pembrokeshire	Razorbill	0.0005%	0.0317%
	Puffin	0.0019%	0.0345%
St Abbs Head to Fast Castle	Razorbill	0.0005%	0.6430%
Sumburgh Head	Kittiwake	0.0020%	0.0366%
Troup, Pennan and Lion's Heads	Kittiwake	0.0057%	0.2628%
	Razorbill	0.0008%	0.1991%

Below a certain point, changes in adult survival can't be meaningfully determined by a stochastic PVA as the stochasticity in the model far exceeds the predicted change in adult survival. The PVA is therefore no longer a useful tool in assessing impacts to populations. This is illustrated in Figure 6-45, where the baseline projected mean population size of kittiwakes at the Buchan Ness to Collieston Coast SPA is compared to the predicted impacts from the Project alone (based on the "max" displacement mortality). This shows that there is no meaningful difference in the projected population size between the baseline condition (where there are no impacts) and the Project alone impacts. The Project alone impacts would be smaller than the natural variation seen in the population in the long term. The impacts from the Project alone therefore cannot be distinguished from zero.

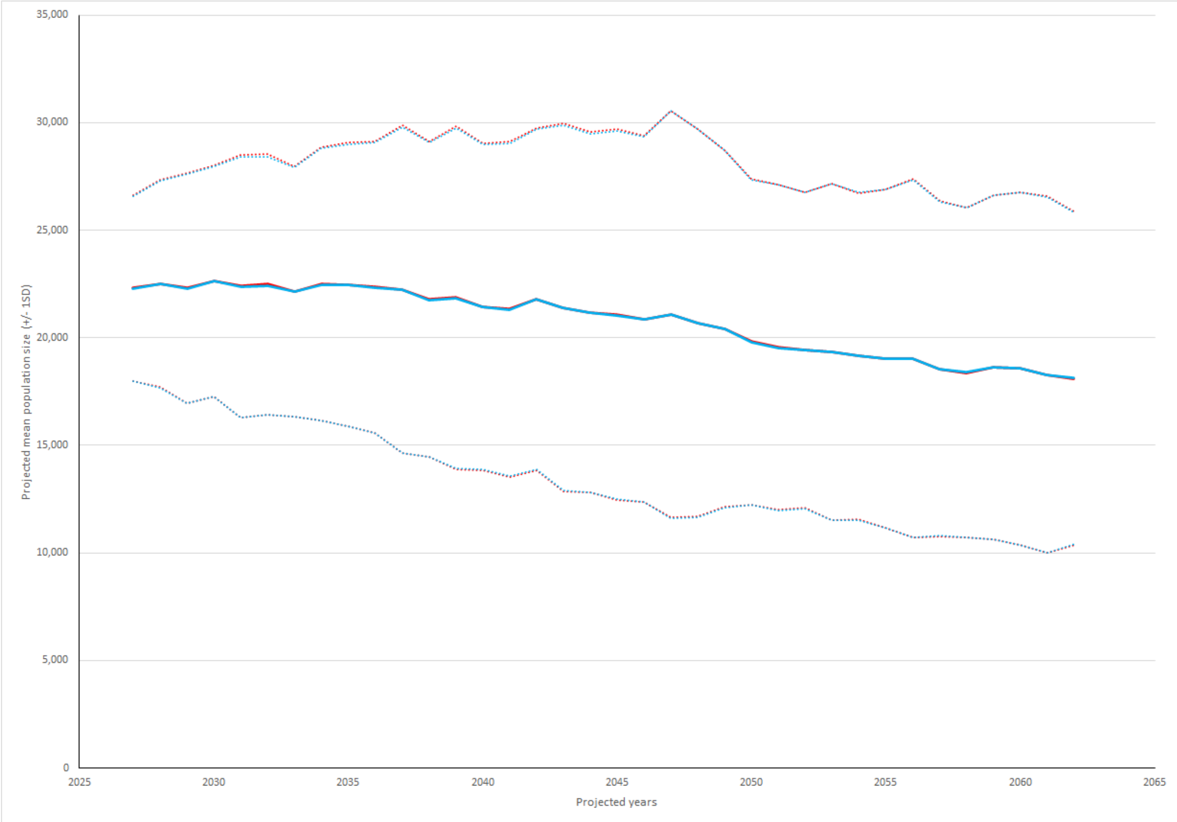


Figure 6-45 Projected mean population size (solid line) of the kittiwake population at Buchan Ness to Collieston Coast SPA comparing the baseline (no impact, red line) with the project alone impact (Max displacement mortality) (blue line). Plus and minus one standard deviation are shown as dotted lines for the baseline (red) and project alone (blue).

For each of these SPA's and their qualifying features PVA models were run for the predicted impacts from the Project alone, in-combination impacts alone, and impacts for the Project alone and in-combination. The outputs from these are provided in Appendix E for all of these SPA's it was concluded that there was no adverse effect on site integrity from the Project alone and that the addition of the Project to the existing in-combination impacts is beneath any threshold of significance and *de minimis* and as such would not materially alter the significance or the likelihood of an adverse effect on the integrity of the SPA.

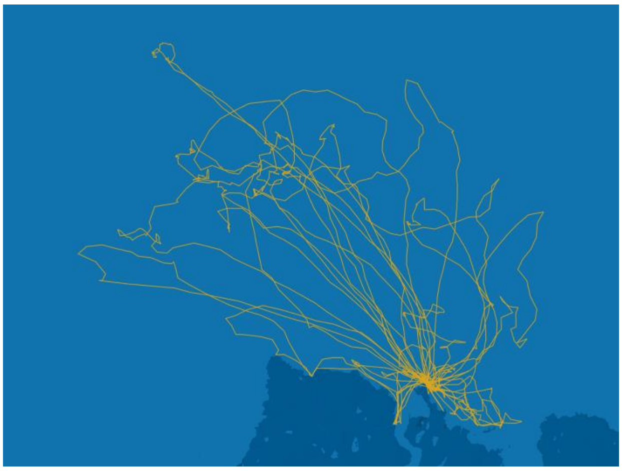
6.22.1 Further evidence not used in the assessment

The Appropriate Assessment is required to be completed "in the light of the best scientific knowledge in the field" at the time, according to the Waddenzee Judgement (CASE C-127/02). However, the approach taken above, while closely following NatureScot guidance and advice does not necessarily follow the best, or most recent, scientific knowledge in the field. NatureScot's guidance is necessarily generic, so it is important that site specific information is considered in determining the likelihood of that guidance being suitable for an Appropriate Assessment. The case for important scientific knowledge in the field, and the expected effects of this on the conclusions of the guidance and advice focussed assessment above, is outlined below.

6.22.1.1 Connectivity

The guidance and advice from NatureScot on available tracking data was to only use the distance metrics as reported by Woodward et al. (2019). However, species specific tracking information provides much more information than just the distances flown by foraging seabirds from their breeding colonies.

Available tracking data from kittiwakes (Figure 6-46), guillemots (Figure 6-47) and razorbills (Figure 6-48) all show a similar pattern. Birds that breed on the eastern side of the Orkney Islands, do no forage on the west side of the Orkney Islands and *vice versa*. While any one of these studies is based on a small sample size and in few years, the general pattern is strong as it occurs across these different species.

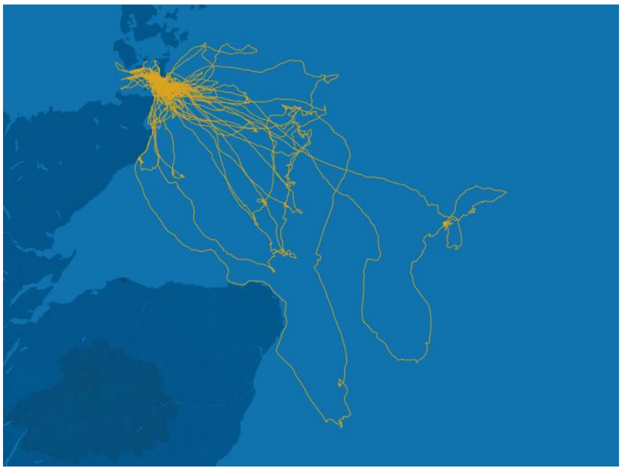


Cape Wrath

Sule Skerry & Sule Stack

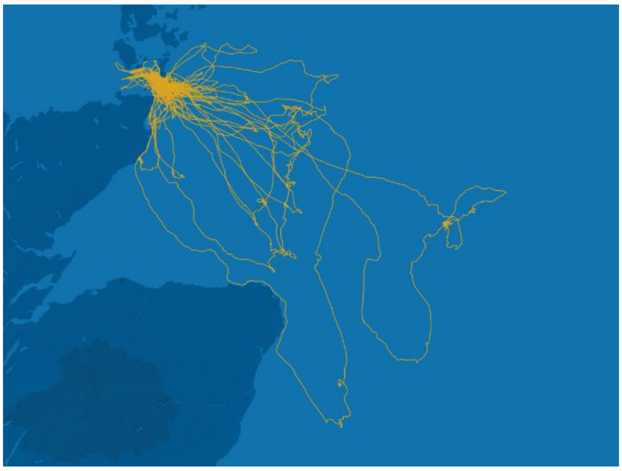
Copinsay

Fair Isle

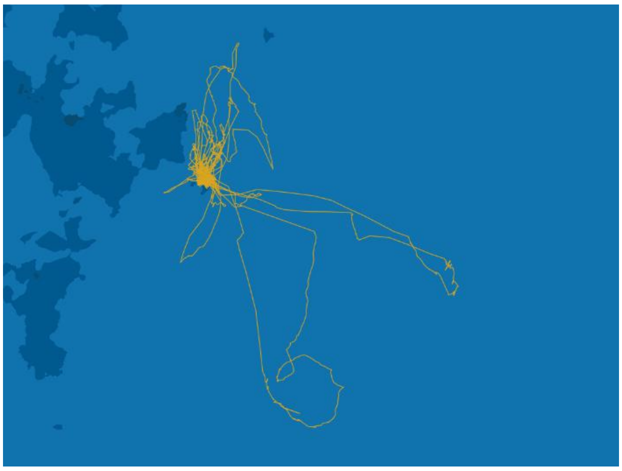


Muckle Skerry

Figure 6-46 GPS tracking data from breeding kittiwakes in the north of Scotland. Tracks obtained from BirdLife International Seabird Tracking Database



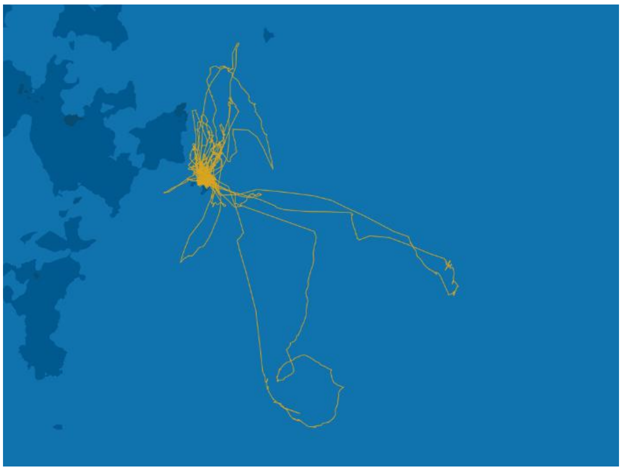
Fair Isle



Copinsay

Figure 6-47 GPS tracking data from breeding guillemots in the north of Scotland. Tracks obtained from BirdLife International Seabird Tracking Database

Fair Isle

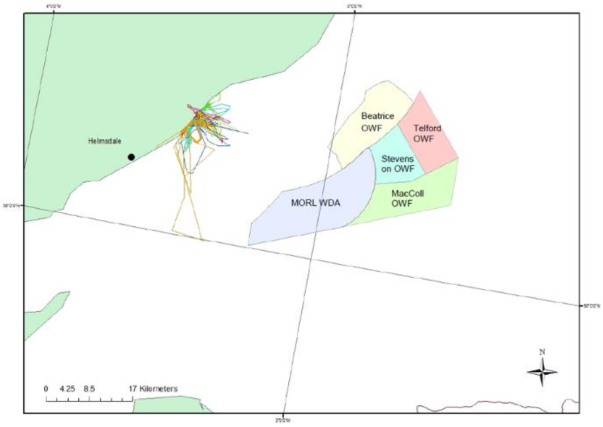


Copinsay

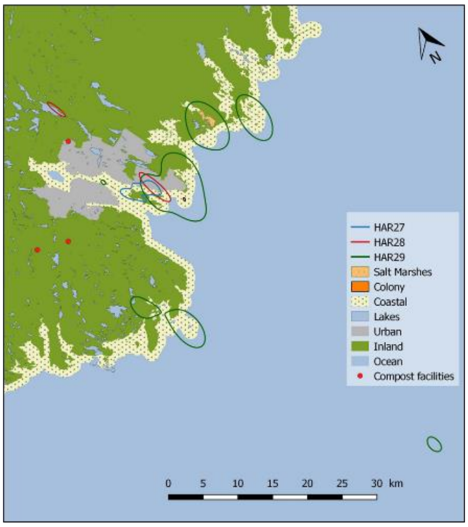
Figure 6-48 GPS tracking data from breeding razorbills in the north of Scotland. Tracks obtained from BirdLife International Seabird Tracking Database

The information on tracking of kittiwake, guillemot and razorbill shown above strongly suggests that connectivity between the Project and SPAs in the breeding season to the east of the Orkney Islands for these species is unlikely. This is particularly important for connectivity with the East Caithness Cliffs SPA in the breeding season for kittiwake and guillemot. While apportioned impacts to this SPA are small, the existing impacts from other project are considered by NatureScot to represent an adverse effect on site integrity.

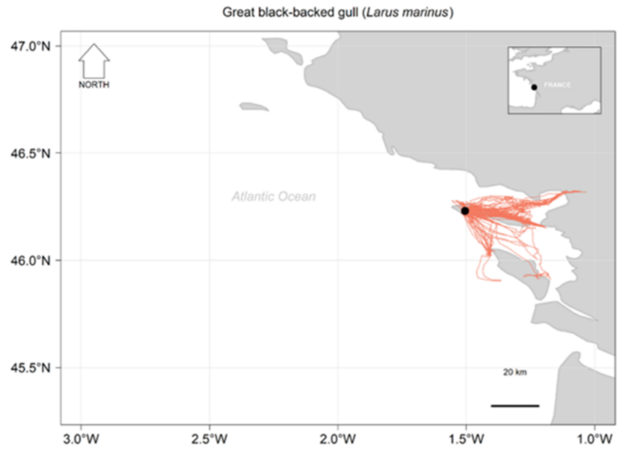
Recent tracking studies of great black-backed gulls around the North Atlantic basin shows that they are very coastal in behaviour while nesting (Figure 6-49). Of the five available studies only one, from Canada, showed that birds foraged further from shore while nesting. The other four studies, including one from the East Caithness Cliffs SPA (Archibald et al. 2015) showed that great black-backed gulls rarely went further than a few kilometres from the coast. Observational studies from the East Caithness Cliffs SPA also highlighted the coastal foraging behaviours of nesting great black-backed gulls (Furness 2022).



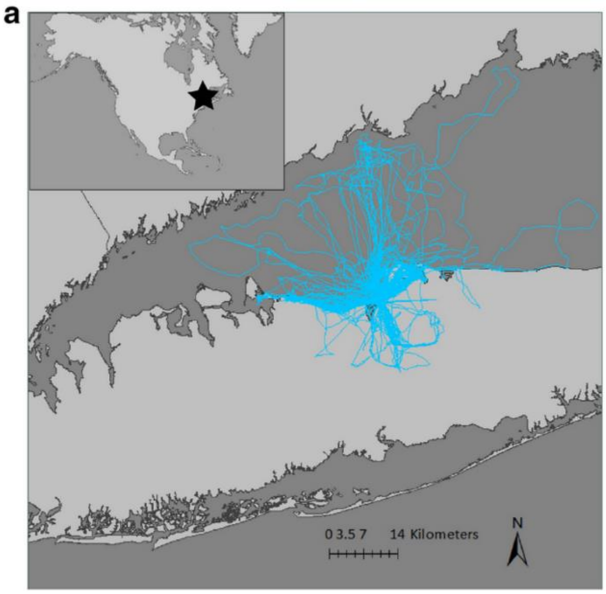
East Caithness Cliffs SPA (from Archibald et al. 2015)



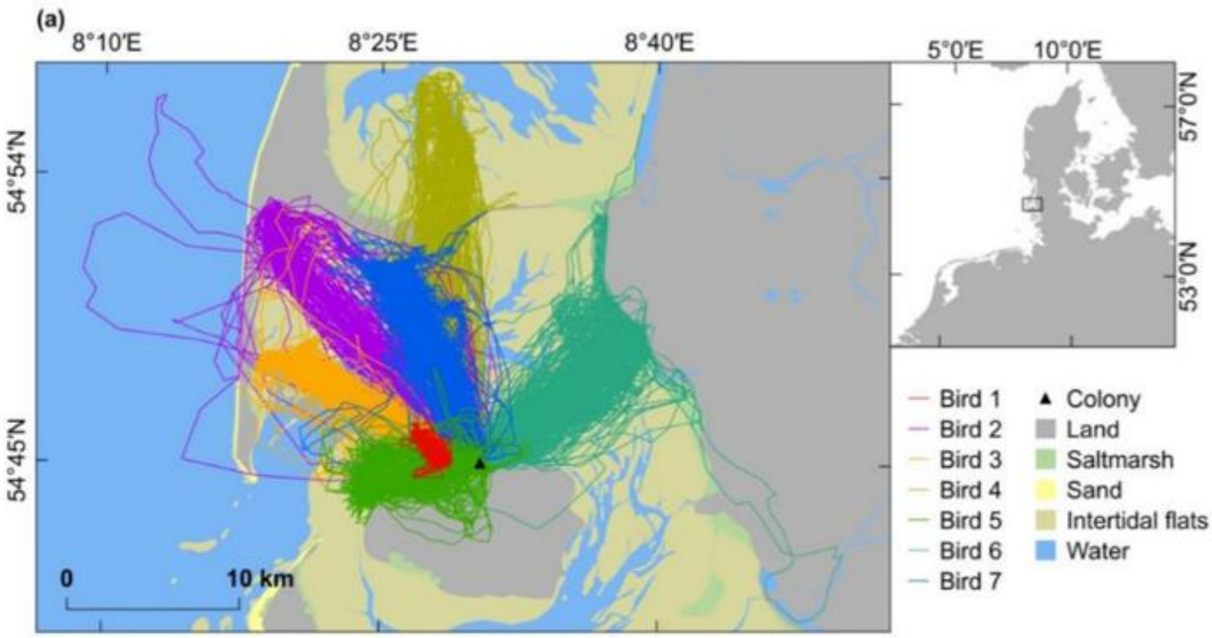
Nova Scotia, Canada (from Maynard & Ronconi 2018)



Ile de Ré,, France (from Jouanneau et al. 2022)



Long Island, NY, USA (from Lato et al. 2021)



Foehr, Germany (from Borrmann et al. 2019)

Figure 6-49 Results from tracking studies of great black-backed gulls from colonies in the North Atlantic basin.

These tracking studies all strongly indicate that the great black-backed gulls occurring in the Project boundary during the breeding season are likely not breeding birds from the SPAs within foraging range. This is particularly the case for the in-combination impacts from the OWFs in the Moray Firth, where connectivity to the East Caithness Cliffs SPA seems extremely unlikely. Therefore, these studies represent the best scientific knowledge in the field, and so show that there is no adverse effect on site integrity for the East Caithness Cliffs SPA from predicted impacts on great black-backed gulls alone and in-combination.

The guidance and advice from NatureScot for the foraging range of great skua, and therefore connectivity with OWFs, was based on the mean of the maximum foraging range plus one standard deviation from Woodward et al. (2019). The review by Woodward et al. (2019) excluded some older studies included by Thaxter et al. (2012) as they used VHF radio tags, so may be underestimates. Other early studies on great skuas (see Furness 1987) were also excluded by Woodward et al. (2019), even though these showed much shorter foraging ranges. However, many of these studies were undertaken when sandeels were abundant around the Northern Isles, and so were unlikely to represent the current foraging conditions experienced by nesting skuas in the north of Scotland. Great skuas tracked from Hoy and Foula both had much shorter foraging ranges than that advised by NatureScot: 108 km and 219 km respectively. These studies, from the core range of the SPA colonies assessed here, are more likely to represent the best scientific knowledge in the field than the studies from Arctic included in the review by Woodward et al. (2019). The mean of the maximum foraging range for great skuas in Scotland is therefore much more likely to be 163.5 km (the mean of the studies from Hoy and Foula) than the 931.2 km advised by NatureScot. Using this value would greatly reduce the likelihood of in-combination effects with the very large number of OWFs that would need to be included if the 931.2 km value suggested by NatureScot were applied.

6.22.1.2 Collision risk

The most important input value to the assessment of collision risk is the avoidance rate. The avoidance rate for seabirds reduces the predicted collisions to seabirds by more than 98%. It is therefore highly sensitive to small changes in avoidance rates as the value tends towards 100% (e.g. a change in avoidance rate from 98% to 99% is a halving of the collision rate). However, the current guidance from NatureScot has not been updated to take into account new analyses so is no longer the best scientific knowledge in the field. The recent report by Ozsanslav-Harris et al. (2022) for JNCC changed the avoidance rate for gulls and terns, and this was of particularly relevance to the estimate collisions of kittiwake and great black-backed gulls from the Project alone. The predicted collisions from recommended avoidance rates for these species using Option 2 of the sCRM were compared. This showed that kittiwake collisions would be reduced by 37.1 individuals per annum from 53.0 individuals per annum, a 70% reduction (Table 6-77). For great black-backed gulls the collisions would be reduced by 11.2 individuals per annum, from 13.4 individuals per annum, a 83.5% reduction (Table 6-78).

Table 6-77 Predicted collisions to kittiwakes based on the avoidance rates from NatureScot Guidance and from Ozsanslav-Harris et al. 2022 using Option 2 for the sCRM.

	NATURESCOT GUIDANCE		OZSANLAV-HARRIS ET AL. (2022)		CHANGE IN COLLISIONS	
MONTH	MEAN	SD	MEAN	SD	BREEDING SEASON	NON-BREEDING SEASON
Jan	1.026	0.459	0.317	0.258		0.709
Feb	3.204	0.983	1.019	0.725		2.185
Mar	14.383	3.813	4.575	3.198		9.808
Apr	4.878	1.300	1.527	1.077	1.676	1.676
May	1.581	0.760	0.494	0.445	1.136	
Jun	0.895	0.517	0.277	0.262	0.633	
Jul	10.376	4.588	3.209	2.606	7.770	
Aug	1.298	0.443	0.411	0.293	1.005	
Sep	1.515	0.545	0.479	0.364		1.036

	NATURESCOT GUIDANCE		OZSANLAV-HARRIS ET AL. (2022)		CHANGE IN COLLISIONS	
MONTH	MEAN	SD	MEAN	SD	BREEDING SEASON	NON-BREEDING SEASON
Oct	10.070	2.599	3.215	2.232		6.855
Nov	3.045	0.972	0.962	0.686		2.083
Dec	0.708	0.292	0.225	0.184		0.483
Seasonal totals					12.220	24.835
Annual total					37.054	

Table 6-78 Predicted collisions to great black-backed gulls based on the avoidance rates from NatureScot Guidance and from Ozsanslav-Harris et al. 2022 using Option 2 for the sCRM.

	NATURESCOT GUIDANCE		OZSANLAV-HARRIS ET AL. (2022)		CHANGE IN COLLISIONS	
MONTH	MEAN	SD	MEAN	SD	BREEDING SEASON	NON-BREEDING SEASON
Jan	1.930	0.593	0.287	0.110		1.643
Feb	1.859	0.579	0.280	0.107		1.579
Mar	0.712	0.461	0.108	0.075		0.604
Apr	0.000	0.000	0.000	0.000	0.000	
May	0.000	0.000	0.000	0.000	0.000	
Jun	0.820	0.530	0.124	0.086	0.734	
Jul	0.000	0.000	0.000	0.000	0.000	

	NATURESCOT GUIDANCE		OZSANLAV-HARRIS ET AL. (2022)		CHANGE IN COLLISIONS	
MONTH	MEAN	SD	MEAN	SD	BREEDING SEASON	NON-BREEDING SEASON
Aug	0.000	0.000	0.000	0.000	0.000	
Sep	0.000	0.000	0.000	0.000		0.000
Oct	0.677	0.431	0.103	0.072		0.574
Nov	2.859	1.112	0.435	0.191		2.424
Dec	4.320	1.197	0.651	0.233		3.669
Seasonal totals					0.734	10.493
Annual total					11.227	

While NatureScot are not currently recommending any changes to the avoidance rates to gannet, Natural England have been advising higher avoidance rates based on two factors: higher all gull avoidance rates (used in deriving avoidance rates for gannet) from Ozsanlev-Harris et al. (2022) and high levels of macro-avoidance recorded in gannets. Natural England are recommending applying a macro-avoidance to the input aerial birds densities prior to applying these to the sCRM, which will reduce the input densities by 70%. The overall effect of the two changes is to reduce the predicted collisions on gannet by 75 – 90%. Applying this to the predicted collision from the Project alone to all gannets would reduce the impact from 47.9 birds per annum to 4.8 to 12.0 individuals per annum (Table 6-79).

Table 6-79 Predicted collisions to gannets from the Project alone using current NatureScot guidance compared with current Natural England guidance.

	PREDICTED COLLISIONS (INDIVIDUAL BIRDS)			SEASON		75% REDUCTION		90% REDUCTION	
MONTH	MEAN	SD	MEDIAN	BREEDING	NON-BREEDING	BREEDING	NON-BREEDING	BREEDING	NON-BREEDING
Jan	0.131	0.106	0.1		0.13	0	0.0325	0	0.013
Feb	0.765	0.489	0.65		0.77	0	0.1925	0	0.077
Mar	1.845	1.004	1.67	0.92	0.92	0.23	0.23	0.092	0.092
Apr	5.105	2.556	4.72	5.11		1.2775	0	0.511	0
May	4.683	2.467	4.22	4.68		1.17	0	0.468	0
Jun	4.443	2.197	4.09	4.44		1.11	0	0.444	0
Jul	6.276	3.516	5.72	6.28		1.57	0	0.628	0
Aug	6.516	3.719	5.84	6.52		1.63	0	0.652	0

	PREDICTED COLLISIONS (INDIVIDUAL BIRDS)			SEASON		75% REDUCTION		90% REDUCTION	
MONTH	MEAN	SD	MEDIAN	BREEDING	NON-BREEDING	BREEDING	NON-BREEDING	BREEDING	NON-BREEDING
Sep	9.833	4.574	9.1	9.83		2.4575	0	0.983	0
Oct	7.881	3.796	7.46		7.88	0	1.97	0	0.788
Nov	0.134	0.111	0.11		0.13	0	0.0325	0	0.013
Dec	0.297	0.232	0.24		0.3	0	0.075	0	0.03
Seasonal totals				37.78	10.13	9.445	2.5325	3.778	1.013
Annual totals				47.91		11.9775		4.791	

The current NatureScot recommended avoidance rates for seabirds are almost entirely based on re-analyses of onshore data from similar species (mostly gulls). However, there have been two empirical studies that have measured collisions and aspects of avoidance behaviour at OWFs in the UK. Skov et al. (2018) collected data on collisions at Thanet OWF in Kent using radar and observers. Tjørnløv et al. (2023) used radar connected with video cameras to measure collisions and avoidance behaviour at Aberdeen Bay. While the data from Skov et al. (2018) was incorporated into the assessment of avoidance rates by Ozsanlev-Harris et al. (2023) it was given equal weight at the onshore data, including that from proxy species (e.g. black-headed gull). It is important to note that Tjørnløv et al. (2023) state, "The level of meso-avoidance recorded was between 0.5 and 0.7, and together with the recorded high levels of micro-avoidance in all target species (> 0.96) it is now evident that the studied species of seabirds will be exposed to very low risks of collision in OWFs during daylight hours. This was also substantiated by the fact that no collisions or even narrow escapes were recorded in over 10,000 bird videos during the two periods of monitoring". Empirical evidence from the species of concern from OWFs certainly represents the "best scientific knowledge in the field", and so should be given due weight when considering the risks of collisions to all species assessed here. The combined evidence presented here, but not used in the current NatureScot guidance strongly indicates that no adverse effect on site integrity could concluded for all SPAs where qualifying features are predicted to be impacted either mostly or entirely by collisions.

6.22.1.3 Displacement

While the current approach to displacement impact assessment that is most frequently applied to seabirds is the SNCB matrix approach, it is mostly based around expert judgement rather than empirical data. However, the seabORD tool (Searle et al. 2018) is based on empirical evidence and is a sophisticated and complex modelling approach. It should, perhaps be considered the "best scientific knowledge in the field" there are several important key constraints and issues with this tool as a practical approach to assessing displacement and barrier effects. Firstly, the empirical evidence it is based upon is tracking data, mostly from the long term studies on the Isle of May. Tracking of seabirds is typically undertaken during the early chick phase of the breeding season. It therefore only represents a small proportion of the annual cycle of seabirds and it cannot be applied to other part of the year. It is also dependent on the interactions of birds between colonies. However, it is limited to only running six colonies simultaneously. Since the model assumes that colonies are single point in space, but that OWFs are two dimensional, large SPAs needs to be split into smaller sections. For this assessment this would mean that all SPAs within foraging range could be modelled simultaneously, as large SPAs (e.g. North Caithness Cliffs SPA) would absorb most or all of the available six colonies. Only assessing a few of the colonies within foraging range of the Project at time would likely result in model predictions with very little explanatory power.

Vallejo et al. (2017) described the displacement effects of Robin Rigg OWF in the Solway Firth. They found that while spatial distributions of guillemot did change across the period of assessment from pre-construction to three years post-construction the pattern of distribution was independent of the OWF. There were both significant decreases and significant increase in spatial distributions between years and OWF stages, including within the OWF leading to the conclusion that no displacement effects could be attributed to the OWF rm itself. Trinder (2021) has shown that there was no displacement effects of the Beatrice OWF in the Moray Firth on kittiwakes, guillemots, razorbills and puffins from one year of post-construction DAS. Even if the results from the monitoring of the Beatrice OWF were not applied to other OWFs, it would be difficult to argue that they do not apply to the Beatrice project itself. The predicted impacts from the Beatrice project should therefore be removed from the in-combination assessment here.

6.22.1.4 Apportioning

The current approach to apportioning impacts to SPAs in the non-breeding season is to use the BDMPS report by Furness (2015). The information in that report can be used to apportion impacts from the Project alone in the non-breeding season to SPAs based on the relatively abundance of birds from different SPAs and other locations. However, much of the relative abundance information is based on older counts (from before 2015) of SPA colony sizes. It has generally been assumed that any changes in population sizes for SPAs and other colonies would change approximately equally so the relative differences remain the same. The predicted impacts in the non-breeding season are then estimated from those relative abundances but are applied to the most recent counts. It is apparent from the most recent count data in the SMP Database that there have been much larger declines in some species across many SPA colonies across the north of Scotland. Since these declines have occurred in SPAs for the most abundant colonies, it is highly likely that the current BDMPS approach will be over-estimating the predicted impacts in the non-breeding season of those colonies that have shown the greatest declines.

It is currently unclear what the scale of the effect of apportioning impacts using colony counts from before 2015 but assessing impact based on current population sizes might be, as this would require a complete reassessment of the BDMPS population sizes. Following the publication of the SMP count for 2015 to 2022 a re-fresh of the BDMPS tables will be needed.

7 CONCLUSION OF THE RIAA

While it was not possible to conclude no adverse effect on site integrity for all SPA using the advice and guidance from NatureScot, by applying additional "best scientific knowledge in the field" (Section 6.22.1) it is highly likely that predicted impacts on kittiwake, guillemot, puffin and gannet would be greatly reduced, both from the Project alone and in-combination.

Current guidance from Natural England, if applied to the assessment here, would reduce the predicted collisions on kittiwake at the East Caithness Cliffs SPA and North Caithness Cliffs SPA and the predicted collisions on gannet at the Sule Skerry and Sule Stack SPA by a large enough level that it would be possible to conclude no adverse effect on site integrity.

Existing empirical data on displacement effects of OWFs in Scotland show there is no displacement to kittiwakes, guillemots and puffins. By applying this evidence, it would be possible to conclude no adverse effect on site integrity for the North Caithness Cliffs SPA and Sule Skerry and Sule Stack SPA.

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9 ABBREVIATIONS AND ACRONYMS

ACRONYM	DEFINITION
AA	Appropriate Assessment
BDMPS	Biologically Defined Minimum Population Scales
CDFSB	Caithness District Salmon Fishery Board
CES	Crown Estate Scotland
CGR	Counterfactual of Growth Rate
CPS	Counterfactual of Population Size
cSAC	Candidate Special Area of Conservation
DSFB	District Salmon Fishery Board
ECC	Export Cable Corridor
EIA	Environmental Impact Assessment
EMF	Electromagnetic Field
FMS	Fisheries Management Scotland
FWPM	Freshwater Pearl Mussel
GW	Gigawatt
HDD	Horizontal Directional Drilling
HRA	Habitats Regulations Appraisal
IROPI	Imperative Reasons of Overriding Public Interest
LSE	Likely Significant Effect

ACRONYM	DEFINITION
MHWS	Mean High Water Springs
MLWS	Mean Low Water Springs
MS-LOT	Marine Scotland Licensing Operations Team
NM	Nautical Mile
OAA	Option Agreement Area
OIC	Orkney Islands Council
OREI	Offshore Renewable Energy Installation
OSP	Offshore Substation Platform
OWF	Offshore Wind Farm
OWPL	Offshore Wind Power Limited
PDE	Project Design Envelope
PO	Plan Option
PPA	Power Purchase Agreement
PPP	Planning Permission in Principle
pSPA	Proposed Special Protection Area
RIAA	Report to Inform Appropriate Assessment
RSPB	Royal Society for the Protection of Birds
PVA	Population Viability Analysis
SAC	Special Area of Conservation

ACRONYM	DEFINITION
SCI	Site of Community Importance
SNCB	Statutory Nature Conservation Body
SNH	Scottish Natural Heritage
SPA	Special Protection Area
SSC	Suspended Sediment Concentration
WTG	Wind Turbine Generator
ZOI	Zone of Influence

10 GLOSSARY

ACRONYM	DEFINITION
Annex I habitat	A habitat listed under Annex I of the Habitats Directive (Council Directive 92/43/EEC). Annex I habitats can be designated as a qualifying feature of a Special Area of Conservation (SAC), to ensure the conservation of these habitats. The protection of Annex I habitats within SACs persists in UK law following EU Exit.
Annex II species	A species listed under Annex II of the Habitats Directive (Council Directive 92/43/EEC). Annex II can be designated as a qualifying feature of a Special Area of Conservation (SAC), to ensure the conservation of these habitats. The protection of Annex II species within SACs persists in UK law following EU Exit.
Competent authority	Authority granting consent.
European site	Special Areas of Conservation (SAC), Special Protection Areas (SPAs) and Sites of Community Importance (SCI) that were originally designated under EU legislation. Prior to the UK's withdrawal from the EU, the UK's European sites contributed to the Natura 2000 and were referred to as Natura 2000 sites. They now are part of the UK's National Site Network.
Habitats Regulations	Collectively the term used to refer to the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended) - applicable to Marine Licence applications out to the 12 nautical mile (NM) limit, the Conservation of Offshore Marine Habitats and Species Regulations 2017 – applicable to Marine Licence applications between the 12 and 200 NM limits, and the Conservation of Habitats and Species Regulations 2017 (as amended) – applicable to Section 36 Consent applications.
Habitats regulations appraisal	Process of the identification and assessment of the potential for a development to have an adverse effect on the integrity on a European site.
LSE	Any effect of a plan or project that may affect the conservation objectives of the qualifying features for a European site which cannot be ruled out on the basis of objective information, either individually or in combination with other plans and projects (Tyldesley *et al.*, 2015).
Offshore Project	The entire offshore Project, including all offshore components seaward of mean high-water springs (MHWS) (turbines, cables, foundations, offshore substation platform and all other associated infrastructure) and all project stages from development to decommissioning.
Project	The entire offshore and onshore Projects, including all offshore components and onshore components and all project stages from pre-construction to decommissioning to which the EIA relates.

APPENDIX A SUMMARY OF SPA APPORTIONING RESULTS FOR EACH SPECIES

A.1 Breeding season

A.1.1 Kittiwake

Table A1-1 Apportioned impact to SPAs with kittiwake as a qualifying feature in the breeding season.

SPA	MOST RECENT COUNT (INDIVIDUALS)	DISTANCE TO WOW (KM)	PROPORTIONAL WEIGHT OF SPA	PREDICTED IMPACT ON SPA (INDIVIDUAL BREEDING ADULTS)		
				LOW	MID	HIGH
Buchan Ness to Collieston Coast SPA	22,590	199.4	0.0171	0.2077	0.2425	0.2773
Calf of Eday SPA	284	72.3	0.0008	0.0102	0.0119	0.0136
Canna and Sanday SPA	2,994	221.9	0.0021	0.0251	0.0293	0.0335
Cape Wrath SPA	7,244	25.9	0.2286	2.7766	3.2418	3.7069
Copinsay SPA	1,910	67.2	0.0077	0.0932	0.1088	0.1244
East Caithness Cliffs SPA	48,958	70.1	0.2370	2.8787	3.3610	3.8432
Fair Isle SPA	896	140.1	0.0005	0.0055	0.0064	0.0073
Flannan Isles SPA	1,650	183.9	0.0008	0.0099	0.0115	0.0132
Foula SPA	850	160.9	0.0002	0.0023	0.0026	0.0030
Fowlsheugh SPA	47,388	236.8	0.0298	0.3626	0.4233	0.4841
Handa SPA	7,498	56.1	0.0539	0.6544	0.7640	0.8737

SPA	MOST RECENT COUNT (INDIVIDUALS)	DISTANCE TO WOW (KM)	PROPORTIONAL WEIGHT OF SPA	PREDICTED IMPACT ON SPA (INDIVIDUAL BREEDING ADULTS)		
				LOW	MID	HIGH
Hermaness, Saxa Vord and Valla Field SPA	530	257.7	0.0000	0.0001	0.0002	0.0002
Hoy SPA	608	24.7	0.0192	0.2329	0.2719	0.3109
Marwick Head SPA	1,812	35.0	0.0260	0.3154	0.3682	0.4211
Mingulay and Berneray SPA	4,176	282.5	0.0017	0.0201	0.0234	0.0268
North Caithness Cliffs SPA	11,142	27.2	0.2991	3.6334	4.2421	4.8507
North Rona and Sula Sgeir SPA	1,424	79.7	0.0035	0.0431	0.0503	0.0575
Noss SPA	236	206.3	0.0000	0.0002	0.0003	0.0003
Rousay SPA	660	49.3	0.0044	0.0540	0.0631	0.0721
Rum SPA	1,400	212.2	0.0011	0.0129	0.0150	0.0172
Shiant Isles SPA	2,150	141.7	0.0015	0.0186	0.0217	0.0248
St Kilda SPA	840	249.8	0.0001	0.0010	0.0012	0.0014
Sumburgh Head SPA	2,502	177.2	0.0019	0.0231	0.0270	0.0309
Troup, Pennan and Lion's Heads SPA	35,592	160.1	0.0397	0.4822	0.5629	0.6437
West Westray SPA	5,510	60.2	0.0235	0.2852	0.3330	0.3808

A.1.2 Great black-backed gull

Table A1-2 Apportioned impact to SPAs with great black-backed gull as a qualifying feature in the breeding season.

SPA	MOST RECENT COUNT (INDIVIDUALS)	DISTANCE TO WOW (KM)	PROPORTIONAL WEIGHT OF SPA	PREDICTED IMPACT ON SPA (INDIVIDUAL BREEDING ADULTS)
Calf of Eday SPA	2	72.3	0.0005	0.0001
Copinsay SPA	142	67.2	0.0768	0.0111
East Caithness Cliffs SPA	532	70.1	0.8583	0.1240
Hoy SPA	10	24.7	0.0645	0.0093

A.1.3 Great skua

Table A1-3 Apportioned impact to SPAs with great skua as a qualifying feature in the breeding season.

SPA	MOST RECENT COUNT (INDIVIDUAL ADULTS)	DISTANCE TO WOW (KM)	PROPORTIONAL WEIGHT OF SPA	PREDICTED IMPACT ON SPA (INDIVIDUAL BREEDING ADULTS)
Fair Isle SPA	860	140.1	0.0058	0.0015
Fetlar SPA	1,704	241.6	0.0038	0.0010
Foula SPA	3,692	160.9	0.0173	0.0044
Handa SPA	146	56.1	0.0045	0.0011
Hoy SPA	876	21.8	0.9665	0.2480
Noss SPA	206	206.3	0.0007	0.0002

SPA	MOST RECENT COUNT (INDIVIDUAL ADULTS)	DISTANCE TO WOW (KM)	PROPORTIONAL WEIGHT OF SPA	PREDICTED IMPACT ON SPA (INDIVIDUAL BREEDING ADULTS)
Ronas Hill - North Roe and Tingon SPA	366	219.2	0.0011	0.0003
St Kilda SPA	188	249.8	0.0003	0.0001

A.1.4 Guillemot

Table A1-4 Apportioned impact to SPAs with guillemot as a qualifying feature in the breeding & non-breeding season.

SPA	MOST RECENT COUNT (INDIVIDUAL ADULTS)	DISTANCE TO WOW (KM)	PROPORTIONAL WEIGHT OF SPA	PREDICTED IMPACT ON SPA (INDIVIDUAL BREEDING ADULTS)		
				LOW	MID	HIGH
Calf of Eday SPA	7,181	72.3	0.0002	0.02	0.02	0.03
Cape Wrath SPA	49,542	25.9	0.0248	2.52	3.62	4.73
Copinsay SPA	23,999	67.2	0.0009	0.09	0.13	0.17
East Caithness Cliffs SPA	193,447	70.1	0.0174	1.77	2.54	3.31
Fair Isle SPA	23,784	140.1	0.0001	0.01	0.01	0.01
Handa SPA	89,081	56.1	0.0116	1.18	1.70	2.21
Hoy SPA	15,857	24.7	0.0058	0.59	0.85	1.11
Marwick Head SPA	15,581	35.0	0.0019	0.19	0.28	0.36
North Caithness Cliffs SPA	50,567	27.2	0.0207	2.10	3.02	3.94

SPA	MOST RECENT COUNT (INDIVIDUAL ADULTS)	DISTANCE TO WOW (KM)	PROPORTIONAL WEIGHT OF SPA	PREDICTED IMPACT ON SPA (INDIVIDUAL BREEDING ADULTS)		
				LOW	MID	HIGH
North Rona and Sula Sgeir SPA	10,045	79.7	0.0002	0.02	0.04	0.05
Rousay SPA	7,684	49.3	0.0004	0.04	0.06	0.08
Sule Skerry and Sule Stack SPA	13,088	1.7	0.9145	92.96	133.56	174.16
The Shiant Isles SPA	11,770	141.7	0.0002	0.02	0.03	0.04
West Westray SPA	37,306	60.2	0.0012	0.12	0.18	0.23

A.1.5 Razorbill

Table A1-5 Apportioned impact to SPAs with razorbill as a qualifying feature in the breeding season.

SPA	MOST RECENT COUNT (INDIVIDUAL ADULTS)	DISTANCE TO WOW (KM)	PROPORTIONAL WEIGHT OF SPA	PREDICTED IMPACT ON SPA (INDIVIDUAL BREEDING ADULTS)		
				LOW	MID	HIGH
Cape Wrath SPA	4,220	25.9	0.2295	0.3863	0.5151	0.6439
East Caithness Cliffs SPA	38,835	70.1	0.3689	0.6210	0.8280	1.0350
Fair Isle SPA	2,503	140.1	0.0007	0.0012	0.0016	0.0020
Foula SPA	635	160.9	0.0001	0.0002	0.0002	0.0003
Handa SPA	10,669	56.1	0.1471	0.2476	0.3301	0.4127
North Caithness Cliffs SPA	4,653	27.2	0.2091	0.3519	0.4692	0.5865

SPA	MOST RECENT COUNT (INDIVIDUAL ADULTS)	DISTANCE TO WOW (KM)	PROPORTIONAL WEIGHT OF SPA	PREDICTED IMPACT ON SPA (INDIVIDUAL BREEDING ADULTS)		
				LOW	MID	HIGH
North Rona and Sula Sgeir SPA	515	79.7	0.0015	0.0025	0.0033	0.0042
Shiant Isles SPA	10,438	141.7	0.0220	0.0370	0.0493	0.0617
Troup, Pennan and Lion's Heads SPA	5,873	160.1	0.0109	0.0184	0.0245	0.0306
West Westray SPA	2,807	60.2	0.0102	0.0171	0.0228	0.0285

A.1.6 Puffin

Table A1-6 Apportioned impact to SPAs with puffin as a qualifying feature in the breeding season.

SPA	MOST RECENT COUNT (INDIVIDUAL ADULTS)	DISTANCE TO WOW (KM)	PROPORTIONAL WEIGHT OF SPA	PREDICTED IMPACT ON SPA (INDIVIDUAL BREEDING ADULTS)		
				LOW	MID	HIGH
Canna and Sanday SPA	1,935	221.9	0.0000	0.0001	0.0002	0.0002
Cape Wrath SPA	2,244	25.9	0.0001	0.0076	0.0102	0.0127
Fair Isle SPA	6,666	140.1	0.0000	0.0003	0.0004	0.0005
Flannan Isles SPA	1,742	183.9	0.0000	0.0044	0.0059	0.0073
Foula SPA	6,351	160.9	0.0000	0.0001	0.0001	0.0002
Hermaness, Saxa Vord and Valla Field SPA	47,322	257.7	0.0000	0.0001	0.0001	0.0001
Hoy SPA	361	24.7	0.0000	0.0099	0.0132	0.0164

SPA	MOST RECENT COUNT (INDIVIDUAL ADULTS)	DISTANCE TO WOW (KM)	PROPORTIONAL WEIGHT OF SPA	PREDICTED IMPACT ON SPA (INDIVIDUAL BREEDING ADULTS)		
				LOW	MID	HIGH
North Caithness Cliffs SPA	3,053	27.2	0.0001	0.0088	0.0117	0.0146
North Rona and Sula Sgeir SPA	2,834	79.7	0.0000	0.0006	0.0009	0.0011
Noss SPA	1,174	206.3	0.0000	0.0000	0.0000	0.0000
St Kilda SPA	69,622	249.8	0.0000	0.0014	0.0018	0.0023
Sule Skerry and Sule Stack SPA	95,484	1.7	0.9994	63.8266	85.1022	106.3777
The Shiant Isles SPA	129,390	141.7	0.0003	0.0170	0.0227	0.0283

A.1.7 Fulmar

Table A1-7 Apportioned impact to SPAs with fulmars as a qualifying feature in the breeding season.

SPA	MOST RECENT COUNT (INDIVIDUAL ADULTS)	DISTANCE TO WOW (KM)	PROPORTIONAL WEIGHT OF SPA	PREDICTED IMPACT ON SPA (INDIVIDUAL BREEDING ADULTS)		
				LOW	MID	HIGH
Buchan Ness to Collieston Coast SPA	1,652	199.4	0.0004	0.0004	0.0008	0.0012
Calf of Eday SPA	4,648	72.3	0.0067	0.0076	0.0153	0.0229
Cape Wrath SPA	2,954	25.9	0.0292	0.0335	0.0670	0.1006
Copinsay SPA	3,236	67.2	0.0055	0.0063	0.0127	0.0190
East Caithness Cliffs SPA	27,628	70.1	0.0431	0.0494	0.0988	0.1482

SPA	MOST RECENT COUNT (INDIVIDUAL ADULTS)	DISTANCE TO WOW (KM)	PROPORTIONAL WEIGHT OF SPA	PREDICTED IMPACT ON SPA BREEDING (INDIVIDUAL ADULTS)		
				LOW	MID	HIGH
Fair Isle SPA	64,982	140.1	0.0257	0.0294	0.0589	0.0883
Fetlar SPA	18,388	241.6	0.0024	0.0027	0.0055	0.0082
Flannan Isles SPA	6,132	183.9	0.0009	0.0011	0.0021	0.0032
Foula SPA	20,506	160.9	0.0058	0.0067	0.0133	0.0200
Fowlsheugh SPA	1,050	236.8	0.0002	0.0002	0.0004	0.0006
Handa SPA	1,382	56.1	0.0029	0.0033	0.0066	0.0098
Hermaness, Saxa Vord and Valla Field SPA	26,416	257.7	0.0030	0.0034	0.0069	0.0103
Hoy SPA	42,202	24.7	0.5160	0.5918	1.1836	1.7754
Mingulay and Berneray SPA	14,096	282.5	0.0010	0.0011	0.0022	0.0033
North Caithness Cliffs SPA	30,740	27.2	0.3133	0.3593	0.7187	1.0780
North Rona and Sula Sgeir SPA	4,420	79.7	0.0040	0.0046	0.0092	0.0138
Noss SPA	8,694	206.3	0.0016	0.0018	0.0036	0.0054
Rousay SPA	4,384	49.3	0.0134	0.0153	0.0307	0.0460
Shiant Isles SPA	3,012	249.8	0.0002	0.0003	0.0005	0.0008
St Kilda SPA	58,372	177.2	0.0144	0.0165	0.0329	0.0494
Sumburgh Head SPA	14,954	141.7	0.0044	0.0051	0.0101	0.0152

SPA	MOST RECENT COUNT (INDIVIDUAL ADULTS)	DISTANCE TO WOW (KM)	PROPORTIONAL WEIGHT OF SPA	PREDICTED IMPACT ON SPA (INDIVIDUAL BREEDING ADULTS)		
				LOW	MID	HIGH
Troup, Pennan and Lion's Heads SPA	3,788	160.1	0.0012	0.0014	0.0028	0.0043
West Westray SPA	2,428	60.2	0.0049	0.0057	0.0113	0.0170

A.1.8 Gannet

Table A1-8 Apportioned impact to SPAs with gannets as a qualifying feature in the breeding season.

SPA	MOST RECENT COUNT (INDIVIDUAL ADULTS)	DISTANCE TO WOW (KM)	PROPORTIONAL WEIGHT OF SPA	PREDICTED IMPACT ON SPA (INDIVIDUAL BREEDING ADULTS)		
				LOW	MID	HIGH
Ailsa Craig SPA	66,452	391.9	0.0003	0.0069	0.0078	0.0088
Fair Isle	7,182	140.1	0.0001	0.0026	0.0029	0.0032
Hermaness, Saxa Vord and Valla Field SPA	51,160	257.7	0.0002	0.0051	0.0058	0.0064
North Rona and Sula Sgeir SPA	22,460	79.7	0.0007	0.0192	0.0218	0.0244
Noss SPA	23,572	206.3	0.0002	0.0040	0.0045	0.0050
Sule Skerry and Sule Stack SPA	12,840	1.7	0.9973	25.8380	29.2869	32.7358
Forth Islands SPA	150,518	301.9	0.0008	0.0200	0.0226	0.0253
St Kilda SPA	120,580	249.8	0.0005	0.0128	0.0145	0.0162

A.2 Non-breeding season

A.2.1 UK North Sea waters

Kittiwake

Table A2-1 Apportioned impact to SPAs with kittiwake as a qualifying feature in the non-breeding season assuming the Project is in the North Sea BDMPS Region in autumn.

SPA	PROPORTION OF ADULTS IN UK NORTH SEA WATERS IN AUTUMN	UK NORTH SEA NUMBER OF ADULTS	PROPORTION FROM EACH SPA	PREDICTED IMPACT PROJECT ALONE (NUMBER OF ADULTS)		
				LOW	MID	HIGH
Buchan Ness to Collieston SPA	0.60	15,050	0.0313	0.00051	0.00055	0.00060
Calf of Eday SPA	0.60	896	0.0019	0.76406	0.83372	0.90338
Copinsay SPA	0.60	799	0.0017	0.04549	0.04964	0.05378
East Caithness Cliffs SPA	0.60	48,492	0.1010	0.00081	0.00089	0.00096
Fair Isle SPA	0.60	925	0.0019	0.01051	0.01147	0.01243
Farne Islands SPA	0.60	4,132	0.0086	0.04056	0.04426	0.04796
Flamborough and Filey SPA	0.60	45,140	0.0940	2.46186	2.68630	2.91074
Forth Islands SPA	0.60	3,720	0.0077	0.04696	0.05124	0.05552
Foula SPA	0.60	392	0.0008	0.20977	0.22890	0.24802
Fowlsheugh SPA	0.60	11,204	0.0233	2.29168	2.50061	2.70953

SPA	PROPORTION OF ADULTS IN UK NORTH SEA WATERS IN AUTUMN	UK NORTH SEA NUMBER OF ADULTS	PROPORTION FROM EACH SPA	PREDICTED IMPACT PROJECT ALONE (NUMBER OF ADULTS)		
				LOW	MID	HIGH
Hermaness, Saxa Vord and Valla Field SPA	0.60	469	0.0010	0.00142	0.00155	0.00168
Hoy SPA	0.60	476	0.0010	0.18886	0.20608	0.22329
Marwick Head SPA	0.60	631	0.0013	0.01990	0.02172	0.02353
North Caithness Cliffs SPA	0.60	12,180	0.0254	0.56881	0.62066	0.67252
Noss SPA	0.60	608	0.0013	0.00188	0.00205	0.00222
Rousay SPA	0.60	2,117	0.0044	0.02381	0.02598	0.02815
St Abbs Head to Fast Castle SPA	0.60	4,084	0.0085	0.02417	0.02637	0.02857
Sumburgh Head SPA	0.60	252	0.0005	0.03203	0.03496	0.03788
Troup, Pennan & Lions Heads SPA	0.60	17,875	0.0372	0.00228	0.00249	0.00270
West Westray SPA	0.60	14,466	0.0301	0.61836	0.67473	0.73111

Table A2-2 Apportioned impact to SPAs with kittiwake as a qualifying feature in the non-breeding season assuming the Project is in the North Sea BDMPS Region in spring.

SPA	PROPORTION OF ADULTS IN UK NORTH SEA WATERS IN SPRING	UK NORTH SEA NUMBER OF ADULTS	PROPORTION FROM EACH SPA	PREDICTED IMPACT PROJECT ALONE (NUMBER OF ADULTS)		
				LOW	MID	HIGH
Buchan Ness to Collieston SPA	0.60	15,050	0.0401	0.0006	0.0007	0.0008
Calf of Eday SPA	0.60	896	0.0024	0.9775	1.0667	1.1558
Copinsay SPA	0.60	799	0.0021	0.0582	0.0635	0.0688
East Caithness Cliffs SPA	0.60	48,492	0.1293	0.0010	0.0011	0.0012
Fair Isle SPA	0.60	925	0.0025	0.0134	0.0147	0.0159
Farne Islands SPA	0.60	4,132	0.0110	0.0519	0.0566	0.0614
Flamborough and Filey SPA	0.60	45,140	0.1203	3.1497	3.4368	3.7240
Forth Islands SPA	0.60	3,720	0.0099	0.0601	0.0656	0.0710
Foula SPA	0.60	392	0.0010	0.2684	0.2929	0.3173
Fowlsheugh SPA	0.60	11,204	0.0299	2.9320	3.1993	3.4666
Hermaness, Saxa Vord and Valla Field SPA	0.60	469	0.0013	0.0018	0.0020	0.0022
Hoy SPA	0.60	476	0.0013	0.2416	0.2637	0.2857
Marwick Head SPA	0.60	631	0.0017	0.0255	0.0278	0.0301

SPA	PROPORTION OF ADULTS IN UK NORTH SEA WATERS IN SPRING	UK NORTH SEA NUMBER OF ADULTS	PROPORTION FROM EACH SPA	PREDICTED IMPACT PROJECT ALONE (NUMBER OF ADULTS)		
				LOW	MID	HIGH
North Caithness Cliffs SPA	0.60	12,180	0.0325	0.7277	0.7941	0.8604
Noss SPA	0.60	608	0.0016	0.0024	0.0026	0.0028
Rousay SPA	0.60	2,117	0.0056	0.0305	0.0332	0.0360
St Abbs Head to Fast Castle SPA	0.60	4,084	0.0109	0.0309	0.0337	0.0366
Sumburgh Head SPA	0.60	252	0.0007	0.0410	0.0447	0.0485
Troup, Pennan & Lions Heads SPA	0.60	17,875	0.0477	0.0029	0.0032	0.0035
West Westray SPA	0.60	14,466	0.0386	0.7911	0.8632	0.9354

Great black-backed gull

Table A2-3 Apportioned impact to SPAs with great black-backed gull as a qualifying feature in the non-breeding season assuming the Project is in the North Sea BDMPS Region.

SPA	PROPORTION OF ADULTS IN UK NORTH SEA WATERS NON-BREEDING SEASON	UK NORTH SEA NUMBER OF ADULTS	PROPORTION FROM EACH SPA	PREDICTED IMPACT PROJECT ALONE (NUMBER OF ADULTS)
Calf of Eday SPA	1.00	562	0.0175	0.0831
Copinsay SPA	1.00	436	0.0136	0.0645
East Caithness Cliffs SPA	1.00	350	0.0109	0.0518
Hoy SPA	1.00	120	0.0037	0.0178

Razorbill

Table A2-4 Apportioned impact to SPAs with razorbill as a qualifying feature in the non-breeding season assuming the Project is in the North Sea BDMPS Region in winter.

SPA	PROPORTION OF ADULTS IN UK NORTH SEA & CHANNEL WATERS IN WINTER	UK NORTH SEA NUMBER OF ADULTS	PROPORTION FROM EACH SPA	PREDICTED IMPACT PROJECT ALONE (NUMBER OF ADULTS)		
				LOW	MID	HIGH
East Caithness Cliffs SPA	0.30	7,500	0.0758	0.0021	0.0041	0.0062
Fair Isle SPA	0.30	549	0.0055	0.0370	0.0740	0.1110
Flamborough & Filey SPA	0.30	6,001	0.0606	0.0027	0.0054	0.0081
Forth Islands SPA	0.30	1,575	0.0159	0.0296	0.0592	0.0888
Foula SPA	0.30	225	0.0023	0.0010	0.0021	0.0031
Fowlsheugh SPA	0.30	2,114	0.0214	0.0078	0.0155	0.0233
North Caithness Cliffs SPA	0.30	1,020	0.0103	0.0011	0.0022	0.0033
St Abbs to Fast Castle SPA	0.30	731	0.0074	0.0104	0.0209	0.0313
Troup, Pennan & Lions Heads SPA	0.30	1,046	0.0106	0.0051	0.0102	0.0153
West Westray SPA	0.30	330	0.0033	0.0100	0.0199	0.0299

Table A2-5 Apportioned impact to SPAs with razorbill as a qualifying feature in the non-breeding season assuming the Project is in the North Sea BDMPS Region in migration seasons.

SPA	PROPORTION OF ADULTS IN UK NORTH SEA & CHANNEL WATERS IN MIGRATION	UK NORTH SEA NUMBER OF ADULTS	PROPORTION FROM EACH SPA	PREDICTED IMPACT PROJECT ALONE (NUMBER OF ADULTS)		
				LOW	MID	HIGH
East Caithness Cliffs SPA	1.00	25,000	0.0832	0.0001	0.0003	0.0004
Fair Isle SPA	0.95	1,738	0.0058	0.0433	0.0866	0.1299
Flamborough & Filey SPA	1.00	20,002	0.0666	0.0030	0.0060	0.0090
Forth Islands SPA	1.00	5,250	0.0175	0.0346	0.0693	0.1039
Foula SPA	0.95	712	0.0024	0.0001	0.0001	0.0002
Fowlsheugh SPA	1.00	7,048	0.0235	0.0091	0.0182	0.0273
North Caithness Cliffs SPA	0.95	3,230	0.0108	0.0012	0.0025	0.0037
St Abbs to Fast Castle SPA	1.00	2,438	0.0081	0.0122	0.0244	0.0366
Troup, Pennan & Lions Heads SPA	1.00	3,486	0.0116	0.0004	0.0007	0.0011
West Westray SPA	0.95	1,045	0.0035	0.0007	0.0014	0.0021

Puffin

Table A2-6 Apportioned impact to SPAs with puffin as a qualifying feature in the non-breeding season assuming the Project is in the North Sea BDMPS Region in winter.

SPA	PROPORTION OF ADULTS IN UK NORTH SEA & CHANNEL WATERS IN NON-BREEDING SEASON	UK NORTH SEA NUMBER OF ADULTS	PROPORTION FROM EACH SPA	PREDICTED IMPACT PROJECT ALONE (NUMBER OF ADULTS)		
				LOW	MID	HIGH
Coquet Island SPA	0.50	12,344	0.0618	0.0001	0.0002	0.0003
Fair Isle SPA	0.15	3,212	0.0161	0.0001	0.0003	0.0004
Farne Islands SPA	0.50	39,962	0.2000	0.5313	1.0626	1.5938
Flamborough & Filey SPA	0.50	958	0.0048	0.1382	0.2765	0.4147
Forth Islands SPA	0.50	62,231	0.3115	1.7199	3.4399	5.1598
Foula SPA	0.15	6,750	0.0338	0.0412	0.0825	0.1237
Hermaness, Saxavord & Valla Field SPA	0.15	7,098	0.0355	0.0013	0.0027	0.0040
Hoy SPA	0.15	1,050	0.0053	2.6784	5.3568	8.0352
North Caithness Cliffs SPA	0.15	293	0.0015	0.2905	0.5810	0.8715
Noss SPA	0.15	241	0.0012	0.3055	0.6110	0.9165

Fulmar

Table A2-7 Apportioned impact to SPAs with fulmar as a qualifying feature in the non-breeding season assuming the Project is in the North Sea BDMPS Region in winter.

SPA	PROPORTION OF ADULTS IN UK NORTH SEA WATERS IN WINTER	UK NORTH SEA NUMBER OF ADULTS	PROPORTION FROM EACH SPA	PREDICTED IMPACT PROJECT ALONE (NUMBER OF ADULTS)		
				LOW	MID	HIGH
Buchan Ness to Collieston SPA	0.70	1,914	0.0047	0.0100	0.0200	0.0300
Calf of Eday SPA	0.70	2,579	0.0064	0.0135	0.0270	0.0405
Copinsay SPA	0.70	2,282	0.0056	0.0004	0.0009	0.0013
East Caithness Cliffs SPA	0.70	19,883	0.0491	0.0119	0.0239	0.0358
Fair Isle SPA	0.70	41,509	0.1025	0.1040	0.2080	0.3120
Fetlar SPA	0.70	12,477	0.0308	0.2171	0.4342	0.6514
Flamborough & Filey Coast SPA	0.70	1,229	0.0030	0.0653	0.1305	0.1958
Forth Islands SPA	0.70	1,165	0.0029	0.0064	0.0129	0.0193
Foula SPA	0.70	27,661	0.0683	0.0015	0.0031	0.0046
Fowlsheugh SPA	0.70	270	0.0007	0.0061	0.0122	0.0183
Hermaness, Saxavord & Valla Field SPA	0.70	9,800	0.0242	0.1447	0.2894	0.4341
Hoy SPA	0.70	27,420	0.0677	0.0014	0.0028	0.0042
North Caithness Cliffs SPA	0.70	19,950	0.0493	0.0004	0.0008	0.0012
Noss SPA	0.70	7,347	0.0181	0.0513	0.1025	0.1538

SPA	PROPORTION OF ADULTS IN UK NORTH SEA WATERS IN WINTER	UK NORTH SEA NUMBER OF ADULTS	PROPORTION FROM EACH SPA	PREDICTED IMPACT PROJECT ALONE (NUMBER OF ADULTS)		
				LOW	MID	HIGH
Rousay SPA	0.70	1,442	0.0036	0.1434	0.2869	0.4303
Sumburgh Head SPA	0.70	326	0.0008	0.0019	0.0038	0.0057
Troup, Pennan & Lions Heads SPA	0.70	2,513	0.0062	0.1044	0.2087	0.3131
West Westray SPA	0.70	948	0.0023	0.0010	0.0021	0.0031

Table A2-8 Apportioned impact to SPAs with fulmar as a qualifying feature in the non-breeding season assuming the Project is in the North Sea BDMPS Region during migration.

SPA	PROPORTION OF ADULTS IN UK NORTH SEA WATERS IN WINTER	UK NORTH SEA NUMBER OF ADULTS	PROPORTION FROM EACH SPA	PREDICTED IMPACT PROJECT ALONE (NUMBER OF ADULTS)		
				LOW	MID	HIGH
Buchan Ness to Collieston SPA	0.70	1,914	0.0047	0.0143	0.0286	0.0429
Calf of Eday SPA	0.70	2,579	0.0064	0.0173	0.0347	0.0520
Copinsay SPA	0.70	2,282	0.0056	0.0000	0.0000	0.0000
East Caithness Cliffs SPA	0.70	19,883	0.0491	0.0119	0.0239	0.0358
Fair Isle SPA	0.70	41,509	0.1025	0.1486	0.2972	0.4457
Fetlar SPA	0.70	12,477	0.0308	0.2792	0.5583	0.8375
Flamborough & Filey Coast SPA	0.70	1,229	0.0030	0.0839	0.1678	0.2517

SPA	PROPORTION OF ADULTS IN UK NORTH SEA WATERS IN WINTER	UK NORTH SEA NUMBER OF ADULTS	PROPORTION FROM EACH SPA	PREDICTED IMPACT PROJECT ALONE (NUMBER OF ADULTS)		
				LOW	MID	HIGH
Forth Islands SPA	0.70	1,165	0.0029	0.0092	0.0184	0.0276
Foula SPA	0.70	27,661	0.0683	0.0000	0.0000	0.0000
Fowlsheugh SPA	0.70	270	0.0007	0.0087	0.0174	0.0261
Hermaness, Saxavord & Valla Field SPA	0.70	9,800	0.0242	0.1860	0.3721	0.5581
Hoy SPA	0.70	27,420	0.0677	0.0020	0.0040	0.0061
North Caithness Cliffs SPA	0.70	19,950	0.0493	0.0000	0.0000	0.0000
Noss SPA	0.70	7,347	0.0181	0.0659	0.1318	0.1977
Rousay SPA	0.70	1,442	0.0036	0.1844	0.3688	0.5532
Sumburgh Head SPA	0.70	326	0.0008	0.0000	0.0000	0.0000
Troup, Pennan & Lions Heads SPA	0.70	2,513	0.0062	0.1342	0.2683	0.4025
West Westray SPA	0.70	948	0.0023	0.0000	0.0000	0.0000

Gannet

Table A2-9 Apportioned impact to SPAs with gannet as a qualifying feature in the non-breeding season assuming the Project is in the North Sea BDMPS Region in autumn.

SPA	PROPORTION OF ADULTS IN UK NORTH SEA & CHANNEL WATERS IN AUTUMN	UK N SEA & CHANNEL NUMBER ADULTS	PROPORTION FROM EACH SPA	PREDICTED IMPACT PROJECT ALONE (NUMBER OF ADULTS)		
				LOW	MID	HIGH
Fair Isle SPA	0.70	6,278	0.0276	0.0000	0.0000	0.0000
Flamborough & Filey SPA	0.70	22,122	0.0972	0.2893	0.4124	0.5356
Forth Islands SPA	0.70	110,964	0.4875	1.0193	1.4533	1.8873
Hermaness, Saxavord & Valla Field SPA	0.70	38,965	0.1712	5.1128	7.2898	9.4668
Noss SPA	0.70	15,627	0.0686	0.0000	0.0000	0.0000

Table A2-10 Apportioned impact to SPAs with gannet as a qualifying feature in the non-breeding season assuming the Project is in the North Sea BDMPS Region in spring.

SPA	PROPORTION OF ADULTS IN UK NORTH SEA & CHANNEL WATERS IN SPRING	UK N SEA & CHANNEL NUMBER ADULTS	PROPORTION FROM EACH SPA	PREDICTED IMPACT PROJECT ALONE (NUMBER OF ADULTS)		
				LOW	MID	HIGH
Fair Isle SPA	0.70	5,494	0.0336	0.0000	0.0000	0.0000
Flamborough & Filey SPA	0.70	15,485	0.0946	0.3748	0.5343	0.6939
Forth Islands SPA	0.70	77,675	0.4745	1.0562	1.5060	1.9557

SPA	PROPORTION OF ADULTS IN UK NORTH SEA & CHANNEL WATERS IN SPRING	UK N SEA & CHANNEL NUMBER ADULTS	PROPORTION FROM EACH SPA	PREDICTED IMPACT PROJECT ALONE (NUMBER OF ADULTS)		
				LOW	MID	HIGH
Hermaness, Saxavord & Valla Field SPA	0.70	34,094	0.2083	5.2983	7.5542	9.8102
Noss SPA	0.70	13,674	0.0835	0.0000	0.0000	0.0000

A.2.2 Western waters

Kittiwake

Table A2-10 Apportioned impact to SPAs with kittiwake as a qualifying feature in the non-breeding season assuming the Project is in the Western waters BDMPS Region in autumn.

SPA	PROPORTION OF ADULTS IN UK WESTERN WATERS IN AUTUMN	UK WESTERN WATERS NUMBER OF ADULTS	PROPORTION FROM EACH SPA	PREDICTED IMPACT PROJECT ALONE (NUMBER OF ADULTS)		
				LOW	MID	HIGH
Ailsa Craig	0.6	587	0.0012	0.0287	0.0313	0.0340
Buchan Ness to Collieston	0.2	5,017	0.0101	0.2454	0.2678	0.2902
Calf of Eday	0.2	299	0.0006	0.0146	0.0160	0.0173
Canna & Sanday	0.6	984	0.0020	0.0481	0.0525	0.0569
Cape Wrath	0.6	12,413	0.0249	0.6073	0.6626	0.7180
Copinsay	0.2	266	0.0005	0.0130	0.0142	0.0154
East Caithness Cliffs	0.2	16,164	0.0324	0.7908	0.8629	0.9349
Fair Isle	0.2	308	0.0006	0.0151	0.0164	0.0178
Farne Islands	0.2	1,377	0.0028	0.0674	0.0735	0.0796
Flamborough and Filey	0.2	15,047	0.0302	0.7361	0.8032	0.8703
Flannan Isles	0.6	1,670	0.0033	0.0817	0.0891	0.0966
Forth Islands	0.2	1,240	0.0025	0.0607	0.0662	0.0717
Foula	0.2	131	0.0003	0.0064	0.0070	0.0076

SPA	PROPORTION OF ADULTS IN UK WESTERN WATERS IN AUTUMN	UK WESTERN WATERS NUMBER OF ADULTS	PROPORTION FROM EACH SPA	PREDICTED IMPACT PROJECT ALONE (NUMBER OF ADULTS)		
				LOW	MID	HIGH
Fowlsheugh	0.2	3,735	0.0075	0.1827	0.1994	0.2160
Handa	0.6	2,246	0.0045	0.1099	0.1199	0.1299
Hermaness, Saxavord	0.2	156	0.0003	0.0076	0.0083	0.0090
Hoy	0.2	159	0.0003	0.0078	0.0085	0.0092
Marwick Head	0.2	210	0.0004	0.0103	0.0112	0.0121
Mingulay & Berneray	0.6	2,674	0.0054	0.1308	0.1427	0.1547
North Caithness Cliffs	0.2	4,060	0.0081	0.1986	0.2167	0.2348
North Colonsay & Western Cliffs	0.6	6,676	0.0134	0.3266	0.3564	0.3861
North Rona & Sula Sgeir	0.6	1,504	0.0030	0.0736	0.0803	0.0870
Noss	0.2	203	0.0004	0.0099	0.0108	0.0117
Rathlin Island	0.6	9,506	0.0191	0.4650	0.5074	0.5498
Rousay	0.2	706	0.0014	0.0345	0.0377	0.0408
Rum	0.6	946	0.0019	0.0463	0.0505	0.0547
Shiant Isles	0.6	659	0.0013	0.0322	0.0352	0.0381
Skomer, Skokholm, Middleholm	0.6	1,254	0.0025	0.0613	0.0669	0.0725

SPA	PROPORTION OF ADULTS IN UK WESTERN WATERS IN AUTUMN	UK WESTERN WATERS NUMBER OF ADULTS	PROPORTION FROM EACH SPA	PREDICTED IMPACT PROJECT ALONE (NUMBER OF ADULTS)		
				LOW	MID	HIGH
St Abbs Head to Fast Castle	0.2	1,361	0.0027	0.0666	0.0727	0.0787
St Kilda	0.6	1,148	0.0023	0.0562	0.0613	0.0664
Sumburgh Head	0.2	84	0.0002	0.0041	0.0045	0.0049
Troup, Pennan & Lions Heads	0.2	5,958	0.0119	0.2915	0.3180	0.3446
West Westray	0.2	4,822	0.0097	0.2359	0.2574	0.2789

Table A2-11 Apportioned impact to SPAs with kittiwake as a qualifying feature in the non-breeding season assuming the Project is in the Western Waters BDMPS Region in spring.

SPA	PROPORTION OF ADULTS IN UK WESTERN WATERS IN AUTUMN	UK WESTERN WATERS NUMBER OF ADULTS	PROPORTION FROM EACH SPA	PREDICTED IMPACT PROJECT ALONE (NUMBER OF ADULTS)		
				LOW	MID	HIGH
Ailsa Craig	0.6	587	0.0012	0.0508	0.0554	0.0601
Buchan Ness to Collieston	0.2	5,017	0.0101	0.4889	0.5335	0.5780

SPA	PROPORTION OF ADULTS IN UK WESTERN WATERS IN AUTUMN	UK WESTERN WATERS NUMBER OF ADULTS	PROPORTION FROM EACH SPA	PREDICTED IMPACT PROJECT ALONE (NUMBER OF ADULTS)		
				LOW	MID	HIGH
Calf of Eday	0.2	299	0.0006	0.0291	0.0318	0.0344
Canna & Sanday	0.6	984	0.0020	0.0852	0.0930	0.1008
Cape Wrath	0.6	12,413	0.0249	1.0753	1.1733	1.2713
Copinsay	0.2	266	0.0005	0.0260	0.0284	0.0307
East Caithness Cliffs	0.2	16,164	0.0324	1.5753	1.7189	1.8625
Fair Isle	0.2	308	0.0006	0.0301	0.0328	0.0356
Farne Islands	0.2	1,377	0.0028	0.1342	0.1465	0.1587
Flamborough and Filey	0.2	15,047	0.0302	1.4664	1.6001	1.7338
Flannan Isles	0.6	1,670	0.0033	0.1447	0.1579	0.1711
Forth Islands	0.2	1,240	0.0025	0.1208	0.1319	0.1429
Foula	0.2	131	0.0003	0.0127	0.0139	0.0151
Fowlsheugh	0.2	3,735	0.0075	0.3640	0.3971	0.4303
Handa	0.6	2,246	0.0045	0.1946	0.2123	0.2301
Hermaness, Saxavord	0.2	156	0.0003	0.0153	0.0167	0.0181
Hoy	0.2	159	0.0003	0.0155	0.0169	0.0183
Marwick Head	0.2	210	0.0004	0.0205	0.0224	0.0243

SPA	PROPORTION OF ADULTS IN UK WESTERN WATERS IN AUTUMN	UK WESTERN WATERS NUMBER OF ADULTS	PROPORTION FROM EACH SPA	PREDICTED IMPACT PROJECT ALONE (NUMBER OF ADULTS)		
				LOW	MID	HIGH
Mingulay & Berneray	0.6	2,674	0.0054	0.2316	0.2527	0.2739
North Caithness Cliffs	0.2	4,060	0.0081	0.3957	0.4317	0.4678
North Colonsay & Western Cliffs	0.6	6,676	0.0134	0.5783	0.6310	0.6837
North Rona & Sula Sgeir	0.6	1,504	0.0030	0.1303	0.1421	0.1540
Noss	0.2	203	0.0004	0.0198	0.0216	0.0234
Rathlin Island	0.6	9,506	0.0191	0.8235	0.8986	0.9737
Rousay	0.2	706	0.0014	0.0687	0.0750	0.0813
Rum	0.6	946	0.0019	0.0819	0.0894	0.0969
Shiant Isles	0.6	659	0.0013	0.0570	0.0622	0.0674
Skomer, Skokholm, Middleholm	0.6	1,254	0.0025	0.1086	0.1185	0.1284
St Abbs Head to Fast Castle	0.2	1,361	0.0027	0.1327	0.1448	0.1569
St Kilda	0.6	1,148	0.0023	0.0995	0.1085	0.1176
Sumburgh Head	0.2	84	0.0002	0.0082	0.0089	0.0097

SPA	PROPORTION OF ADULTS IN UK WESTERN WATERS IN AUTUMN	UK WESTERN WATERS NUMBER OF ADULTS	PROPORTION FROM EACH SPA	PREDICTED IMPACT PROJECT ALONE (NUMBER OF ADULTS)		
				LOW	MID	HIGH
Troup, Pennan & Lions Heads	0.2	5,958	0.0119	0.5807	0.6336	0.6866
West Westray	0.2	4,822	0.0097	0.4699	0.5128	0.5556

Great black-backed gull

Table A2-12 Apportioned impact to SPAs with great black-backed gull as a qualifying feature in the non-breeding season assuming the Project is in the West Scotland BDMPS Region.

SPA	PROPORTION OF ADULTS IN WEST SCOTLAND WATERS NON-BREEDING SEASON	UK NORTH SEA NUMBER OF ADULTS	PROPORTION FROM EACH SPA	PREDICTED IMPACT PROJECT ALONE (NUMBER OF ADULTS)
Calf of Eday SPA	0	0	0.0000	0.000000
Copinsay SPA	0	0	0.0000	0.000000
East Caithness Cliffs SPA	0	0	0.0000	0.000000
Hoy SPA	0	0	0.0000	0.000000
Isles of Scilly SPA	0	0	0.0000	0.000000
North Rona & Sula Sgeir SPA	0.99	378	0.0265	0.058310

Razorbill

Table A2-13 Apportioned impact to SPAs with razorbill as a qualifying feature in the non-breeding season assuming the Project is in the Western Waters BDMPS Region in winter.

SPA	PROPORTION OF ADULTS IN UK WESTERN WATERS IN WINTER	WESTERN WATERS NUMBER OF ADULTS	PROPORTION FROM EACH SPA	PREDICTED IMPACT PROJECT ALONE (NUMBER OF ADULTS)		
				LOW	MID	HIGH
Cape Wrath	0.40	1,672	0.0093	0.0049	0.0098	0.0147
East Caithness Cliffs	0.01	250	0.0014	0.0007	0.0015	0.0022
Fair Isle	0.01	18	0.0001	0.0001	0.0001	0.0002
Flamborough & Filey	0.01	200	0.0011	0.0006	0.0012	0.0018
Flannan Islands	0.40	841	0.0047	0.0025	0.0049	0.0074
Forth Islands	0.01	52	0.0003	0.0002	0.0003	0.0005
Foula	0.01	8	0.0000	0.0000	0.0000	0.0001
Fowlsheugh	0.01	70	0.0004	0.0002	0.0004	0.0006
Handa	0.40	4,132	0.0231	0.0121	0.0242	0.0362
Mingulay & Berneray	0.40	8,089	0.0451	0.0236	0.0473	0.0709
North Caithness Cliffs	0.01	34	0.0002	0.0001	0.0002	0.0003
North Rona & Sula Sgeir	0.40	871	0.0049	0.0025	0.0051	0.0076
Rathlin Island	0.40	12,314	0.0687	0.0360	0.0720	0.1080
Shiants	0.40	3,398	0.0190	0.0099	0.0199	0.0298

SPA	PROPORTION OF ADULTS IN UK WESTERN WATERS IN WINTER	WESTERN WATERS NUMBER OF ADULTS	PROPORTION FROM EACH SPA	PREDICTED IMPACT PROJECT ALONE (NUMBER OF ADULTS)		
				LOW	MID	HIGH
Skomer & Skokholm	0.30	3,601	0.0201	0.0105	0.0210	0.0316
St Abbs to Fast Castle	0.01	24	0.0001	0.0001	0.0001	0.0002
St Kilda	0.40	1,360	0.0076	0.0040	0.0079	0.0119
Troup, Pennan & Lions	0.01	35	0.0002	0.0001	0.0002	0.0003
West Westray	0.01	11	0.0001	0.0000	0.0001	0.0001

Table A2-14 Apportioned impact to SPAs with razorbill as a qualifying feature in the non-breeding season assuming the Project is in the Western Waters BDMPS Region in migration seasons.

SPA	PROPORTION OF ADULTS IN UK WESTERN WATERS IN WINTER	WESTERN WATERS NUMBER OF ADULTS	PROPORTION FROM EACH SPA	PREDICTED IMPACT PROJECT ALONE (NUMBER OF ADULTS)		
				LOW	MID	HIGH
Cape Wrath	0.40	1,672	0.0093	0.0068	0.0135	0.0203
East Caithness Cliffs	0.01	250	0.0014	0.0000	0.0000	0.0000
Fair Isle	0.01	18	0.0001	0.0002	0.0003	0.0005
Flamborough & Filey	0.01	200	0.0011	0.0000	0.0000	0.0000
Flannan Islands	0.40	841	0.0047	0.0034	0.0068	0.0102
Forth Islands	0.01	52	0.0003	0.0000	0.0000	0.0000

SPA	PROPORTION OF ADULTS IN UK WESTERN WATERS IN WINTER	WESTERN WATERS NUMBER OF ADULTS	PROPORTION FROM EACH SPA	PREDICTED IMPACT PROJECT ALONE (NUMBER OF ADULTS)		
				LOW	MID	HIGH
Foula	0.01	8	0.0000	0.0001	0.0001	0.0002
Fowlsheugh	0.01	70	0.0004	0.0000	0.0000	0.0000
Handa	0.40	4,132	0.0231	0.0167	0.0335	0.0502
Mingulay & Berneray	0.40	8,089	0.0451	0.0327	0.0655	0.0982
North Caithness Cliffs	0.01	34	0.0002	0.0003	0.0006	0.0008
North Rona & Sula Sgeir	0.40	871	0.0049	0.0035	0.0071	0.0106
Rathlin Island	0.40	12,314	0.0687	0.0499	0.0997	0.1496
Shiants	0.40	3,398	0.0190	0.0138	0.0275	0.0413
Skomer & Skokholm	0.30	3,601	0.0201	0.0194	0.0389	0.0583
St Abbs to Fast Castle	0.01	24	0.0001	0.0000	0.0000	0.0000
St Kilda	0.40	1,360	0.0076	0.0055	0.0110	0.0165
Troup, Pennan & Lions	0.01	35	0.0002	0.0000	0.0000	0.0000
West Westray	0.01	11	0.0001	0.0001	0.0002	0.0003

Puffin

Table A2-15 Apportioned impact to SPAs with puffin as a qualifying feature in the non-breeding season assuming the Project is in the Western Waters BDMPS Region in winter.

SPA	PROPORTION OF ADULTS IN UK WESTERN WATERS IN NON-BREEDING SEASON	UK WESTERN WATERS NUMBER OF ADULTS	PROPORTION FROM EACH SPA	PREDICTED IMPACT PROJECT ALONE (NUMBER OF ADULTS)		
				LOW	MID	HIGH
Canna & Sanday	0.18	340	0.0014	0.0117	0.0234	0.0351
Cape Wrath	0.18	577	0.0023	0.0199	0.0398	0.0596
Coquet Island	0.07	1,728	0.0069	0.0595	0.1191	0.1786
Fair Isle	0.08	1,713	0.0068	0.0590	0.1180	0.1770
Farne Islands	0.07	5,595	0.0223	0.1928	0.3855	0.5783
Flamborough & Filey	0.07	134	0.0005	0.0046	0.0092	0.0138
Flannan Isles	0.18	5,616	0.0224	0.1935	0.3870	0.5805
Forth Islands	0.07	8,712	0.0348	0.3001	0.6003	0.9004
Foula	0.08	3,600	0.0144	0.1240	0.2481	0.3721
Hermaness, Saxavord	0.08	3,786	0.0151	0.1304	0.2609	0.3913
Hoy	0.08	560	0.0022	0.0193	0.0386	0.0579
Mingulay & Berneray	0.18	1,125	0.0045	0.0388	0.0775	0.1163
North Caithness Cliffs	0.08	156	0.0006	0.0054	0.0107	0.0161
North Rona & Sula Sgeir	0.18	1,959	0.0078	0.0675	0.1350	0.2025
Noss	0.08	128	0.0005	0.0044	0.0088	0.0132

SPA	PROPORTION OF ADULTS IN UK WESTERN WATERS IN NON-BREEDING SEASON	UK WESTERN WATERS NUMBER OF ADULTS	PROPORTION FROM EACH SPA	PREDICTED IMPACT PROJECT ALONE (NUMBER OF ADULTS)		
				LOW	MID	HIGH
Rathlin Island	0.18	250	0.0010	0.0086	0.0172	0.0258
Shiant Isles	0.18	23,461	0.0937	0.8083	0.5982	0.8972
Skomer &Skokholm	0.18	8,681	0.0347	0.2991	3.5289	5.2934
St Kilda	0.18	51,215	0.2045	1.7645	1.4752	2.2129
Sule Skerry & Sule Stack	0.18	21,410	0.0855	0.7376	1.6166	2.4248

Fulmar

Table A2-16 Apportioned impact to SPAs with fulmar as a qualifying feature in the non-breeding season assuming the Project is in the Western Waters BDMPS Region in winter.

SPA	PROPORTION OF ADULTS IN UK WESTERN WATERS IN WINTER	UK WESTERN WATERS NUMBER OF ADULTS	PROPORTION FROM EACH SPA	PREDICTED IMPACT PROJECT ALONE (NUMBER OF ADULTS)		
				LOW	MID	HIGH
Buchan Ness to Collieston	0.10	273	0.0008	0.0016	0.0032	0.0048
Calf of Eday	0.10	368	0.0010	0.0022	0.0043	0.0065
Cape Wrath	0.70	2,961	0.0081	0.0174	0.0348	0.0523
Copinsay	0.10	326	0.0009	0.0019	0.0038	0.0058
East Caithness Cliffs	0.10	2,840	0.0078	0.0167	0.0334	0.0501
Fair Isle	0.10	5,930	0.0163	0.0349	0.0698	0.1047

SPA	PROPORTION OF ADULTS IN UK WESTERN WATERS IN WINTER	UK WESTERN WATERS NUMBER OF ADULTS	PROPORTION FROM EACH SPA	PREDICTED IMPACT PROJECT ALONE (NUMBER OF ADULTS)		
				LOW	MID	HIGH
Fetlar	0.10	1,782	0.0049	0.0105	0.0210	0.0315
Flamborough & Filey Coast	0.10	176	0.0005	0.0010	0.0021	0.0031
Flannan Isles	0.70	10,259	0.0282	0.0604	0.1207	0.1811
Forth Islands	0.10	166	0.0005	0.0010	0.0020	0.0029
Foula	0.10	3,952	0.0109	0.0233	0.0465	0.0698
Fowlsheugh	0.10	39	0.0001	0.0002	0.0005	0.0007
Handa	0.70	2,618	0.0072	0.0154	0.0308	0.0462
Hermaness, Saxavord	0.10	1,400	0.0039	0.0082	0.0165	0.0247
Hoy	0.10	3,917	0.0108	0.0231	0.0461	0.0692
Mingulay & Berneray	0.70	12,664	0.0349	0.0745	0.1490	0.2236
North Caithness Cliffs	0.10	2,850	0.0078	0.0168	0.0335	0.0503
North Rona & Sula Sgeir	0.70	7,000	0.0193	0.0412	0.0824	0.1236
Noss	0.10	1,050	0.0029	0.0062	0.0124	0.0185
Rathlin Island	0.70	2,125	0.0058	0.0125	0.0250	0.0375
Rousay	0.10	206	0.0006	0.0012	0.0024	0.0036
Shiant Isles	0.70	6,142	0.0169	0.0361	0.0723	0.1084
St Kilda	0.70	92,477	0.2545	0.5442	1.0884	1.6326

SPA	PROPORTION OF ADULTS IN UK WESTERN WATERS IN WINTER	UK WESTERN WATERS NUMBER OF ADULTS	PROPORTION FROM EACH SPA	PREDICTED IMPACT PROJECT ALONE (NUMBER OF ADULTS)		
				LOW	MID	HIGH
Sumburgh Head	0.10	47	0.0001	0.0003	0.0006	0.0008
Troup, Pennan & Lions Heads	0.10	359	0.0010	0.0021	0.0042	0.0063
West Westray	0.10	135	0.0004	0.0008	0.0016	0.0024

Table A2-17 Apportioned impact to SPAs with fulmar as a qualifying feature in the non-breeding season assuming the Project is in the Western Waters BDMPS Region during migration.

SPA	PROPORTION OF ADULTS IN UK WESTERN WATERS IN WINTER	UK WESTERN WATERS NUMBER OF ADULTS	PROPORTION FROM EACH SPA	PREDICTED IMPACT PROJECT ALONE (NUMBER OF ADULTS)		
				LOW	MID	HIGH
Buchan Ness to Collieston	0.10	273	0.0008	0.0000	0.0000	0.0000
Calf of Eday	0.10	368	0.0010	0.0022	0.0043	0.0065
Cape Wrath	0.70	2,961	0.0081	0.0249	0.0498	0.0747
Copinsay	0.10	326	0.0009	0.0019	0.0038	0.0058
East Caithness Cliffs	0.10	2,840	0.0078	0.0000	0.0000	0.0000
Fair Isle	0.10	5,930	0.0163	0.0349	0.0698	0.1047
Fetlar	0.10	1,782	0.0049	0.0105	0.0210	0.0315
Flamborough & Filey Coast	0.10	176	0.0005	0.0000	0.0000	0.0000
Flannan Isles	0.70	10,259	0.0282	0.0862	0.1725	0.2587

SPA	PROPORTION OF ADULTS IN UK WESTERN WATERS IN WINTER	UK WESTERN WATERS NUMBER OF ADULTS	PROPORTION FROM EACH SPA	PREDICTED IMPACT PROJECT ALONE (NUMBER OF ADULTS)		
				LOW	MID	HIGH
Forth Islands	0.10	166	0.0005	0.0000	0.0000	0.0000
Foula	0.10	3,952	0.0109	0.0233	0.0465	0.0698
Fowlsheugh	0.10	39	0.0001	0.0000	0.0000	0.0000
Handa	0.70	2,618	0.0072	0.0220	0.0440	0.0660
Hermaness, Saxavord	0.10	1,400	0.0039	0.0082	0.0165	0.0247
Hoy	0.10	3,917	0.0108	0.0231	0.0461	0.0692
Mingulay & Berneray	0.70	12,664	0.0349	0.1065	0.2129	0.3194
North Caithness Cliffs	0.10	2,850	0.0078	0.0168	0.0335	0.0503
North Rona & Sula Sgeir	0.70	7,000	0.0193	0.0588	0.1177	0.1765
Noss	0.10	1,050	0.0029	0.0062	0.0124	0.0185
Rathlin Island	0.70	2,125	0.0058	0.0179	0.0357	0.0536
Rousay	0.10	206	0.0006	0.0012	0.0024	0.0036
Shiant Isles	0.70	6,142	0.0169	0.0516	0.1033	0.1549
St Kilda	0.70	92,477	0.2545	0.7774	1.5548	2.3323
Sumburgh Head	0.10	47	0.0001	0.0003	0.0006	0.0008
Troup, Pennan & Lions Heads	0.10	359	0.0010	0.0000	0.0000	0.0000
West Westray	0.10	135	0.0004	0.0008	0.0016	0.0024

Gannet

Table A2-18 Apportioned impact to SPAs with gannet as a qualifying feature in the non-breeding season assuming the Project is in the Western Waters BDMPS Region in autumn.

SPA	PROPORTION OF ADULTS IN UK WESTERN WATERS IN AUTUMN	UK WESTERN WATERS NUMBER ADULTS	PROPORTION FROM EACH SPA	PREDICTED IMPACT PROJECT ALONE (NUMBER OF ADULTS)		
				LOW	MID	HIGH
Ailsa Craig	1.00	54,260	0.1706	1.9053	2.7165	2.9671
Fair Isle	0.20	1,570	0.0049	0.0551	0.0786	0.0859
Flamborough & Filey	0.00	0	0.0000	0.0000	0.0000	0.0000
Forth Islands	0.00	0	0.0000	0.0000	0.0000	0.0000
Grassholm	1.00	78,584	0.2471	2.7594	3.9343	4.2972
Hermaness, Saxavord	0.20	9,741	0.0306	0.3420	0.4877	0.5327
North Rona & Sula Sgeir	0.90	16,605	0.0522	0.5831	0.8313	0.9080
Noss	0.20	3,907	0.0123	0.1372	0.1956	0.2136
St Kilda	0.90	107,320	0.3375	3.7684	5.3729	5.8686
Sule Skerry & Sule Stack	0.90	8,415	0.0265	0.2955	0.4213	0.4602

Table A2-19 Apportioned impact to SPAs with gannet as a qualifying feature in the non-breeding season assuming the Project is in the Western Waters BDMPS Region in spring.

SPA	PROPORTION OF ADULTS IN UK WESTERN WATERS IN AUTUMN	UK WESTERN WATERS NUMBER ADULTS	PROPORTION FROM EACH SPA	PREDICTED IMPACT PROJECT ALONE (NUMBER OF ADULTS)		
				LOW	MID	HIGH
Ailsa Craig	1.00	54,260	0.1706	1.5474	2.2063	2.8652
Fair Isle	0.20	1,570	0.0049	0.0671	0.0957	0.1243
Flamborough & Filey	0.00	0	0.0000	0.1893	0.2699	0.3505
Forth Islands	0.00	0	0.0000	0.9494	1.3536	1.7578
Grassholm	1.00	78,584	0.2471	2.2411	3.1953	4.1496
Hermaness, Saxavord	0.20	9,741	0.0306	0.4167	0.5941	0.7716
North Rona & Sula Sgeir	0.90	16,605	0.0522	0.5262	0.7502	0.9742
Noss	0.20	3,907	0.0123	0.1671	0.2383	0.3094
St Kilda	0.90	107,320	0.3375	3.4007	4.8486	6.2966
Sule Skerry & Sule Stack	0.90	8,415	0.0265	0.2666	0.3802	0.4937

APPENDIX B COLLATED IN-COMBINATION IMPACTS

Predicted annual impacts from collisions and/or displacement were collated for each SPA qualifying feature predicted to be impacted by the offshore Project.

Since previous projects in the UK North Sea waters provided results for different seasons in the non-breeding season (following Furness 2015[1]) these have been provided for each season. Available information from other projects in UK western waters only provided overall non-breeding season impacts.

The only species where impacts in the non-breeding season were not assessed at a BDMPS regional scale was guillemot. Predicted in-combination impacts on guillemot were therefore restricted to impacts from the Pentland Floating, Moray West, Moray East and Beatrice offshore wind projects in both the breeding and non-breeding seasons (Table B-1).

The approach to the in-combination was discussed with NatureScot in a consultation meeting on 8th February 2023.

Table B1-1 Predicted in-combination impacts on breeding adult guillemots from SPAs with connectivity in the breeding and non-breeding seasons

SPA	Season	Project	
		Moray West, Moray East & Beatrice	Pentland Floating
East Caithness Cliffs SPA	Breeding	198.000	0.287
	Non-breeding	61.000	1.440
North Caithness Cliffs SPA	Breeding	12.000	5.540
	Non-breeding	25.000	0.000
Troup, Pennan and Lion's Heads SPA	Breeding	6.000	0.000
	Non-breeding	6.000	0.000
Buchan Ness to Collieston Coast SPA	Breeding	3.000	0.000
	Non-breeding	8.000	0.000
Hoy SPA	Breeding	0.000	0.392
	Non-breeding	0.000	0.084
Copinsay SPA	Breeding	0.000	0.028

[1] *Furness, R. W. (2015). Non-breeding season populations of seabirds in UK waters: Population sizes for Biologically Defined Minimum Population Scales (BDMPS). Natural England Commissioned Reports, 164.*

SPA	Season	Project	
		Moray West, Moray East & Beatrice	Pentland Floating
	Non-breeding	0.000	0.076
West Westray SPA	Breeding	0.000	0.147
	Non-breeding	0.000	0.460
Cape Wrath SPA	Breeding	0.000	0.119
	Non-breeding	0.000	0.368
Handa SPA	Breeding	0.000	0.238
	Non-breeding	0.000	0.512
Marwick Head SPA	Breeding	0.000	0.315
	Non-breeding	0.000	0.152
Rousay SPA	Breeding	0.000	0.014
	Non-breeding	0.000	0.084
Sule Skerry and Sule Stack SPA	Breeding	0.000	0.028
	Non-breeding	0.000	0.104
Calf of Eday SPA	Breeding	0.000	0.000
	Non-breeding	0.000	0.084
Source		Moray West - EIA Addendum Report	Pentland Floating HRA

B.1 BDMPS UK North Sea (& Channel)

B.1.1 Kittiwake in autumn migration

Table B1-2 Apportioning of predicted collision impacts to breeding adult kittiwakes from SPAs within UK North Sea waters in autumn migration (August to December)

Project	Source	Ailsa Craig	Buchan Ness to Collieston Coast	Calf of Eday	Canna & Sanday	Cape Wrath	Copinsay	East Caithness Cliffs	Fair Isle	Farne Islands	Flamborough and Filey	Flannan Isles	Forth Islands	Foula	Fowlsheugh	Handa	Hermaness, Saxavord	Hoy	Marwick Head	Mingulay & Berneray	North Caithness Cliffs	North Colonsay & Western Cliffs	North Rona & Sula Sgeir	Noss	Rathlin Island	Rousay	Rum	Shiant Isles	Skomer, Skokholm, Middleholm	St Abbs Head to Fast Castle	St Kilda	Sumburgh Head	Troup, Pennan & Lions Heads	West Westray
Beatrice Demonstrator	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.00002	0.03464	0.00206	0.00004	0.00048	0.00184	0.11161	0.00213	0.00951	0.10390	0.00006	0.00856	0.00090	0.02579	0.00009	0.00108	0.00110	0.00145	0.00010	0.02803	0.00026	0.00006	0.00140	0.00036	0.00487	0.00004	0.00003	0.00005	0.00940	0.00004	0.00058	0.04114	0.03330
Greater Gabbard	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.00016	0.24743	0.01473	0.00026	0.00340	0.01314	0.79725	0.01521	0.06793	0.74214	0.00046	0.06116	0.00644	0.18420	0.00061	0.00771	0.00783	0.01037	0.00074	0.20025	0.00182	0.00041	0.01000	0.00260	0.03481	0.00026	0.00018	0.00035	0.06714	0.00031	0.00414	0.29388	0.23783
Gunfleet Sands	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Kentish Flats	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.00001	0.01485	0.00088	0.00002	0.00020	0.00079	0.04783	0.00091	0.00408	0.04453	0.00003	0.00367	0.00039	0.01105	0.00004	0.00046	0.00047	0.00062	0.00004	0.01201	0.00011	0.00002	0.00060	0.00016	0.00209	0.00002	0.00001	0.00002	0.00403	0.00002	0.00025	0.01763	0.01427
Kentish Flats Extension	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Lincs	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.00001	0.01979	0.00118	0.00002	0.00027	0.00105	0.06378	0.00122	0.00543	0.05937	0.00004	0.00489	0.00052	0.01474	0.00005	0.00062	0.00063	0.00083	0.00006	0.01602	0.00015	0.00003	0.00080	0.00021	0.00278	0.00002	0.00001	0.00003	0.00537	0.00002	0.00033	0.02351	0.01903
London Array	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.00003	0.03794	0.00226	0.00004	0.00052	0.00201	0.12224	0.00233	0.01042	0.11379	0.00007	0.00938	0.00099	0.02824	0.00009	0.00118	0.00120	0.00159	0.00011	0.03070	0.00028	0.00006	0.00153	0.00040	0.00534	0.00004	0.00003	0.00005	0.01030	0.00005	0.00064	0.04506	0.03647
Lynn and Inner Dowsing	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Scroby Sands	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Sheringham Shoal	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Teesside	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.00026	0.39590	0.02357	0.00042	0.00545	0.02102	1.27560	0.02433	0.10869	1.18742	0.00074	0.09786	0.01031	0.29472	0.00097	0.01234	0.01252	0.01660	0.00118	0.32040	0.00292	0.00066	0.01599	0.00416	0.05569	0.00042	0.00029	0.00055	0.10743	0.00050	0.00663	0.47021	0.38053
Thanet	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.00001	0.00825	0.00049	0.00001	0.00011	0.00044	0.02657	0.00051	0.00226	0.02474	0.00002	0.00204	0.00021	0.00614	0.00002	0.00026	0.00026	0.00035	0.00002	0.00667	0.00006	0.00001	0.00033	0.00009	0.00116	0.00001	0.00001	0.00001	0.00224	0.00001	0.00014	0.00980	0.00793
Humber Gateway	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.00004	0.05279	0.00314	0.00006	0.00073	0.00280	0.17008	0.00324	0.01449	0.15832	0.00010	0.01305	0.00137	0.03930	0.00013	0.00164	0.00167	0.00221	0.00016	0.04272	0.00039	0.00009	0.00213	0.00055	0.00743	0.00006	0.00004	0.00007	0.01432	0.00007	0.00088	0.06269	0.05074
Westermost Rough	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.00000	0.00330	0.00020	0.00000	0.00005	0.00018	0.01063	0.00020	0.00091	0.00990	0.00001	0.00082	0.00009	0.00246	0.00001	0.00010	0.00010	0.00014	0.00001	0.00267	0.00002	0.00001	0.00013	0.00003	0.00046	0.00000	0.00000	0.00000	0.00090	0.00000	0.00006	0.00392	0.00317
Hywind	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.00001	0.01485	0.00088	0.00002	0.00020	0.00079	0.04783	0.00091	0.00408	0.04453	0.00003	0.00367	0.00039	0.01105	0.00004	0.00046	0.00047	0.00062	0.00004	0.01201	0.00011	0.00002	0.00060	0.00016	0.00209	0.00002	0.00001	0.00002	0.00403	0.00002	0.00025	0.01763	0.01427
Kincardine	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.00010	0.14846	0.00884	0.00016	0.00204	0.00788	0.47835	0.00912	0.04076	0.44528	0.00028	0.03670	0.00387	0.11052	0.00036	0.00463	0.00470	0.00622	0.00044	0.12015	0.00109	0.00025	0.00600	0.00156	0.02088	0.00016	0.00011	0.00021	0.04029	0.00019	0.00249	0.17633	0.14270

Project	Source	Ailsa Craig	Buchan Ness to Collieston Coast	Calf of Eday	Canna & Sanday	Cape Wrath	Copinsay	East Caithness Cliffs	Fair Isle	Farne Islands	Flamborough and Filey	Flannan Isles	Forth Islands	Foula	Fowlsheugh	Handa	Hermaness, Saxavord	Hoy	Marwick Head	Mingulay & Berneray	North Caithness Cliffs	North Colonsay & Western Cliffs	North Rona & Sula Sgeir	Noss	Rathlin Island	Rousay	Rum	Shiant Isles	Skomer, Skokholm, Middleholm	St Abbs Head to Fast Castle	St Kilda	Sumburgh Head	Troup, Pennan & Lions Heads	West Westray
Beatrice	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.00012	0.17650	0.01051	0.00019	0.00243	0.00937	0.56870	0.01085	0.04846	0.52939	0.00033	0.04363	0.00460	0.13140	0.00043	0.00550	0.00558	0.00740	0.00053	0.14284	0.00130	0.00029	0.00713	0.00185	0.02483	0.00019	0.00013	0.00025	0.04790	0.00022	0.00296	0.20963	0.16965
Dudgeon	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Galloper	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.00030	0.45858	0.02730	0.00049	0.00631	0.02435	1.47757	0.02819	0.12590	1.37543	0.00085	0.11335	0.01194	0.34139	0.00113	0.01429	0.01450	0.01923	0.00137	0.37113	0.00338	0.00076	0.01853	0.00481	0.06451	0.00049	0.00034	0.00064	0.12444	0.00058	0.00768	0.54466	0.44078
Race Bank	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.00026	0.39425	0.02347	0.00042	0.00542	0.02093	1.27028	0.02423	0.10824	1.18248	0.00073	0.09745	0.01027	0.29350	0.00097	0.01229	0.01247	0.01653	0.00118	0.31906	0.00291	0.00065	0.01593	0.00414	0.05546	0.00042	0.00029	0.00055	0.10698	0.00050	0.00660	0.46825	0.37895
Rampion	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.00041	0.61694	0.03673	0.00066	0.00849	0.03275	1.98781	0.03792	0.16938	1.85040	0.00115	0.15249	0.01607	0.45928	0.00152	0.01923	0.01951	0.02587	0.00184	0.49929	0.00455	0.00102	0.02492	0.00648	0.08678	0.00066	0.00045	0.00086	0.16741	0.00078	0.01033	0.73274	0.59300
Hornsea Project One	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.00061	0.92211	0.05490	0.00098	0.01268	0.04895	2.97108	0.05667	0.25317	2.76571	0.00172	0.22792	0.02402	0.68646	0.00227	0.02874	0.02916	0.03866	0.00276	0.74626	0.00680	0.00153	0.03725	0.00968	0.12971	0.00098	0.00067	0.00129	0.25022	0.00116	0.01544	1.09519	0.88632
Blyth Demonstration Project	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.00003	0.03794	0.00226	0.00004	0.00052	0.00201	0.12224	0.00233	0.01042	0.11379	0.00007	0.00938	0.00099	0.02824	0.00009	0.00118	0.00120	0.00159	0.00011	0.03070	0.00028	0.00006	0.00153	0.00040	0.00534	0.00004	0.00003	0.00005	0.01030	0.00005	0.00064	0.04506	0.03647
Dogger Bank Creyke Beck Projects A and B	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.00148	2.22691	0.13258	0.00237	0.03063	0.11823	7.17524	0.13687	0.61140	6.67925	0.00414	0.55044	0.05800	1.65783	0.00547	0.06940	0.07043	0.09337	0.00666	1.80224	0.01642	0.00370	0.08996	0.02338	0.31325	0.00237	0.00163	0.00311	0.60430	0.00281	0.03729	2.64492	2.14050
East Anglia ONE	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.00176	2.64590	0.15752	0.00281	0.03639	0.14047	8.52525	0.16262	0.72644	7.93594	0.00492	0.65400	0.06892	1.96975	0.00650	0.08245	0.08368	0.11093	0.00791	2.14133	0.01951	0.00440	0.10689	0.02778	0.37218	0.00281	0.00193	0.00369	0.71800	0.00334	0.04430	3.14256	2.54323
European Offshore Wind Deployment Centre	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.00006	0.09567	0.00570	0.00010	0.00132	0.00508	0.30827	0.00588	0.02627	0.28696	0.00018	0.02365	0.00249	0.07123	0.00024	0.00298	0.00303	0.00401	0.00029	0.07743	0.00071	0.00016	0.00387	0.00100	0.01346	0.00010	0.00007	0.00013	0.02596	0.00012	0.00160	0.11363	0.09196
Firth of Forth Alpha and Bravo	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.00343	5.16478	0.30748	0.00549	0.07104	0.27420	16.64124	0.31744	1.41800	15.49092	0.00961	1.27661	0.13452	3.84493	0.01270	0.16095	0.16335	0.21654	0.01544	4.17987	0.03809	0.00858	0.20865	0.05422	0.72650	0.00549	0.00377	0.00721	1.40153	0.00652	0.08648	6.13425	4.96437
Inch Cape	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.00246	3.70822	0.22077	0.00394	0.05100	0.19687	11.94810	0.22791	1.01810	11.12219	0.00690	0.91658	0.09659	2.76059	0.00912	0.11556	0.11728	0.15547	0.01109	3.00107	0.02735	0.00616	0.14981	0.03893	0.52161	0.00394	0.00271	0.00517	1.00627	0.00468	0.06209	4.40428	3.56433
Methil	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Moray Firth (EDA)	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.00002	0.03299	0.00196	0.00004	0.00045	0.00175	0.10630	0.00203	0.00906	0.09895	0.00006	0.00815	0.00086	0.02456	0.00008	0.00103	0.00104	0.00138	0.00010	0.02670	0.00024	0.00005	0.00133	0.00035	0.00464	0.00004	0.00002	0.00005	0.00895	0.00004	0.00055	0.03918	0.03171
Neart na Gaoithe	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.00061	0.92541	0.05509	0.00098	0.01273	0.04913	2.98171	0.05688	0.25407	2.77560	0.00172	0.22874	0.02410	0.68892	0.00228	0.02884	0.02927	0.03880	0.00277	0.74893	0.00683	0.00154	0.03739	0.00972	0.13017	0.00098	0.00068	0.00129	0.25112	0.00117	0.01550	1.09911	0.88950
Dogger Bank Teesside Projects A and B	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.00099	1.49615	0.08907	0.00159	0.02058	0.07943	4.82070	0.09196	0.41077	4.48747	0.00278	0.36981	0.03897	1.11381	0.00368	0.04662	0.04732	0.06273	0.00447	1.21084	0.01103	0.00249	0.06044	0.01571	0.21046	0.00159	0.00109	0.00209	0.40600	0.00189	0.02505	1.77699	1.43810
Triton Knoll	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.00152	2.29289	0.13651	0.00244	0.03154	0.12173	7.38784	0.14093	0.62952	6.87716	0.00427	0.56675	0.05972	1.70695	0.00564	0.07145	0.07252	0.09613	0.00686	1.85564	0.01691	0.00381	0.09263	0.02407	0.32253	0.00244	0.00168	0.00320	0.62220	0.00289	0.03839	2.72329	2.20392
Hornsea Project Two	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.00010	0.14846	0.00884	0.00016	0.00204	0.00788	0.47835	0.00912	0.04076	0.44528	0.00028	0.03670	0.00387	0.11052	0.00036	0.00463	0.00470	0.00622	0.00044	0.12015	0.00109	0.00025	0.00600	0.00156	0.02088	0.00016	0.00011	0.00021	0.04029	0.00019	0.00249	0.17633	0.14270
East Anglia THREE	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.00076	1.13820	0.06776	0.00121	0.01565	0.06043	3.66735	0.06996	0.31249	3.41384	0.00212	0.28134	0.02965	0.84733	0.00280	0.03547	0.03600	0.04772	0.00340	0.92115	0.00839	0.00189	0.04598	0.01195	0.16010	0.00121	0.00083	0.00159	0.30886	0.00144	0.01906	1.35185	1.09403

Project	Source	Ailsa Craig	Buchan Ness to Collieston Coast	Calf of Eday	Canna & Sanday	Cape Wrath	Copinsay	East Caithness Cliffs	Fair Isle	Farne Islands	Flamborough and Filey	Flannan Isles	Forth Islands	Foula	Fowlsheugh	Handa	Hermaness, Saxavord	Hoy	Marwick Head	Mingulay & Berneray	North Caithness Cliffs	North Colonsay & Western Cliffs	North Rona & Sula Sgeir	Noss	Rathlin Island	Rousay	Rum	Shiant Isles	Skomer, Skokholm, Middleholm	St Abbs Head to Fast Castle	St Kilda	Sumburgh Head	Troup, Pennan & Lions Heads	West Westray
Hornsea Project Three	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.00042	0.62683	0.03732	0.00067	0.00862	0.03328	2.01970	0.03853	0.17210	1.88009	0.00117	0.15494	0.01633	0.46665	0.00154	0.01953	0.01983	0.02628	0.00187	0.50730	0.00462	0.00104	0.02532	0.00658	0.08817	0.00067	0.00046	0.00087	0.17010	0.00079	0.01050	0.74450	0.60251
Norfolk Vanguard	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.00018	0.27053	0.01611	0.00029	0.00372	0.01436	0.87166	0.01663	0.07427	0.81141	0.00050	0.06687	0.00705	0.20140	0.00067	0.00843	0.00856	0.01134	0.00081	0.21894	0.00200	0.00045	0.01093	0.00284	0.03805	0.00029	0.00020	0.00038	0.07341	0.00034	0.00453	0.32131	0.26003
Moray West	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.00026	0.39590	0.02357	0.00042	0.00545	0.02102	1.27560	0.02433	0.10869	1.18742	0.00074	0.09786	0.01031	0.29472	0.00097	0.01234	0.01252	0.01660	0.00118	0.32040	0.00292	0.00066	0.01599	0.00416	0.05569	0.00042	0.00029	0.00055	0.10743	0.00050	0.00663	0.47021	0.38053
Norfolk Boreas	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.00035	0.53116	0.03162	0.00056	0.00731	0.02820	1.71143	0.03265	0.14583	1.59313	0.00099	0.13129	0.01383	0.39542	0.00131	0.01655	0.01680	0.02227	0.00159	0.42987	0.00392	0.00088	0.02146	0.00558	0.07472	0.00056	0.00039	0.00074	0.14414	0.00067	0.00889	0.63086	0.51055
East Anglia TWO	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.00006	0.08908	0.00530	0.00009	0.00123	0.00473	0.28701	0.00547	0.02446	0.26717	0.00017	0.02202	0.00232	0.06631	0.00022	0.00278	0.00282	0.00373	0.00027	0.07209	0.00066	0.00015	0.00360	0.00094	0.01253	0.00009	0.00007	0.00012	0.02417	0.00011	0.00149	0.10580	0.08562
East Anglia ONE North	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.00009	0.13361	0.00795	0.00014	0.00184	0.00709	0.43051	0.00821	0.03668	0.40076	0.00025	0.03303	0.00348	0.09947	0.00033	0.00416	0.00423	0.00560	0.00040	0.10813	0.00099	0.00022	0.00540	0.00140	0.01879	0.00014	0.00010	0.00019	0.03626	0.00017	0.00224	0.15870	0.12843
Hornsea 4 (PEIR)	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.00038	0.57240	0.03408	0.00061	0.00787	0.03039	1.84430	0.03518	0.15715	1.71682	0.00106	0.14148	0.01491	0.42612	0.00141	0.01784	0.01810	0.02400	0.00171	0.46324	0.00422	0.00095	0.02312	0.00601	0.08052	0.00061	0.00042	0.00080	0.15533	0.00072	0.00958	0.67984	0.55019
DEP and SEP (PEIR)	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.00011	0.17254	0.01027	0.00018	0.00237	0.00916	0.55595	0.01060	0.04737	0.51752	0.00032	0.04265	0.00449	0.12845	0.00042	0.00538	0.00546	0.00723	0.00052	0.13964	0.00127	0.00029	0.00697	0.00181	0.02427	0.00018	0.00013	0.00024	0.04682	0.00022	0.00289	0.20493	0.16585
Berwick Bank	Pentland Floating HRA	0.00000	3.20000	0.00000	0.00000	0.00000	0.00000	10.40000	0.00000	0.90000	9.70000	0.00000	0.70000	0.00000	2.30000	0.00000	0.00000	0.20000	0.00000	0.00000	2.70000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.90000	0.00000	0.00000	3.90000	3.00000
Pentland Floating	Berwick Bank RIAA (Scope B)	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

Table B1-3 In-combination predicted displacement impacts to breeding adult kittiwakes from SPAs within UK North Sea waters in autumn migration (August to December)

Project	Source	Ailsa Craig	Buchan Ness to Collieston	Calf of Eday	Canna & Sanday	Cape Wrath	Copinsay	East Caithness Cliffs	Fair Isle	Farne Islands	Flamborough and Filey	Flannan Isles	Forth Islands	Foula	Fowlsheugh	Handa	Hermaness, Saxavord	Hoy	Marwick Head	Mingulay & Berneray	North Caithness Cliffs	North Colonsay & Western Cliffs	North Rona & Sula Sgeir	Noss	Rathlin Island	Rousay	Rum	Shiant Isles	Skomer, Skokholm, Middleholm	St Abbs Head to Fast Castle	St Kilda	Sumburgh Head	Troup, Pennan & Lions Heads	West Westray
UK North Sea	Berwick Bank RIAA	0.0	3.2	0.0	0.0	0.0	0.2	10.5	0.0	0.9	9.7	0.0	0.8	0.0	2.4	0.0	0.0	0.1	0.0	0.0	2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.0	0.0	3.9	3.1
Forth & Tay	Berwick Bank RIAA	0.0	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0
Berwick Bank	Berwick Bank RIAA	0.0	0.6	0.0	0.0	0.0	0.0	2.0	0.0	0.2	1.8	0.0	0.1	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.7	0.6
Pentland Floating	Pentland Floating HRA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

B.1.2 Kittiwake in spring migration

Table B1-4 Apportioning of predicted collision impacts to breeding adult kittiwakes from SPAs within UK North Sea waters in spring migration (January to April)

Project	Source	Ailsa Craig	Buchan Ness to Collieston Coast	Calf of Eday	Canna & Sanday	Cape Wrath	Copinsay	East Caithness Cliffs	Fair Isle	Farne Islands	Flamborough and Filey	Flannan Isles	Forth Islands	Foula	Fowlsheugh	Handa	Hermaness, Saxavord	Hoy	Marwick Head	Mingulay & Berneray	North Caithness Cliffs	North Colonsay & Western Cliffs	North Rona & Sula Sgeir	Noss	Rathlin Island	Rousay	Rum	Shiant Isles	Skomer, Skokholm, Middleholm	St Abbs Head to Fast Castle	St Kilda	Sumburgh Head	Troup, Pennan & Lions Heads	West Westray
Beatrice Demonstrator	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.00002	0.03588	0.00214	0.00004	0.00049	0.00190	0.11560	0.00221	0.00985	0.10761	0.00007	0.00887	0.00093	0.02671	0.00009	0.00112	0.00113	0.00150	0.00011	0.02904	0.00026	0.00006	0.00145	0.00038	0.00505	0.00004	0.00003	0.00005	0.00974	0.00005	0.00060	0.04261	0.03449
Greater Gabbard	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.00016	0.24059	0.01432	0.00026	0.00331	0.01277	0.77520	0.01479	0.06605	0.72161	0.00045	0.05947	0.00627	0.17911	0.00059	0.00750	0.00761	0.01009	0.00072	0.19471	0.00177	0.00040	0.00972	0.00253	0.03384	0.00026	0.00018	0.00034	0.06529	0.00030	0.00403	0.28575	0.23125
Gunfleet Sands	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Kentish Flats	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.00001	0.01477	0.00088	0.00002	0.00020	0.00078	0.04760	0.00091	0.00406	0.04431	0.00003	0.00365	0.00038	0.01100	0.00004	0.00046	0.00047	0.00062	0.00004	0.01196	0.00011	0.00002	0.00060	0.00016	0.00208	0.00002	0.00001	0.00002	0.00401	0.00002	0.00025	0.01755	0.01420
Kentish Flats Extension	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.00004	0.05698	0.00339	0.00006	0.00078	0.00303	0.18360	0.00350	0.01564	0.17091	0.00011	0.01408	0.00148	0.04242	0.00014	0.00178	0.00180	0.00239	0.00017	0.04612	0.00042	0.00009	0.00230	0.00060	0.00802	0.00006	0.00004	0.00008	0.01546	0.00007	0.00095	0.06768	0.05477
Lincs	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.00001	0.01477	0.00088	0.00002	0.00020	0.00078	0.04760	0.00091	0.00406	0.04431	0.00003	0.00365	0.00038	0.01100	0.00004	0.00046	0.00047	0.00062	0.00004	0.01196	0.00011	0.00002	0.00060	0.00016	0.00208	0.00002	0.00001	0.00002	0.00401	0.00002	0.00025	0.01755	0.01420
London Array	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.00003	0.03799	0.00226	0.00004	0.00052	0.00202	0.12240	0.00233	0.01043	0.11394	0.00007	0.00939	0.00099	0.02828	0.00009	0.00118	0.00120	0.00159	0.00011	0.03074	0.00028	0.00006	0.00153	0.00040	0.00534	0.00004	0.00003	0.00005	0.01031	0.00005	0.00064	0.04512	0.03651
Lynn and Inner Dowsing	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Scroby Sands	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Sheringham Shoal	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Teesside	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.00004	0.05276	0.00314	0.00006	0.00073	0.00280	0.17000	0.00324	0.01449	0.15825	0.00010	0.01304	0.00137	0.03928	0.00013	0.00164	0.00167	0.00221	0.00016	0.04270	0.00039	0.00009	0.00213	0.00055	0.00742	0.00006	0.00004	0.00007	0.01432	0.00007	0.00088	0.06266	0.05071
Thanet	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.00001	0.00844	0.00050	0.00001	0.00012	0.00045	0.02720	0.00052	0.00232	0.02532	0.00002	0.00209	0.00022	0.00628	0.00002	0.00026	0.00027	0.00035	0.00003	0.00683	0.00006	0.00001	0.00034	0.00009	0.00119	0.00001	0.00001	0.00001	0.00229	0.00001	0.00014	0.01003	0.00811
Humber Gateway	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.00003	0.04010	0.00239	0.00004	0.00055	0.00213	0.12920	0.00246	0.01101	0.12027	0.00007	0.00991	0.00104	0.02985	0.00010	0.00125	0.00127	0.00168	0.00012	0.03245	0.00030	0.00007	0.00162	0.00042	0.00564	0.00004	0.00003	0.00006	0.01088	0.00005	0.00067	0.04763	0.03854
Westermost Rough	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.00000	0.00211	0.00013	0.00000	0.00003	0.00011	0.00680	0.00013	0.00058	0.00633	0.00000	0.00052	0.00005	0.00157	0.00001	0.00007	0.00007	0.00009	0.00001	0.00171	0.00002	0.00000	0.00009	0.00002	0.00030	0.00000	0.00000	0.00000	0.00057	0.00000	0.00004	0.00251	0.00203
Hywind	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.00001	0.01899	0.00113	0.00002	0.00026	0.00101	0.06120	0.00117	0.00521	0.05697	0.00004	0.00469	0.00049	0.01414	0.00005	0.00059	0.00060	0.00080	0.00006	0.01537	0.00014	0.00003	0.00077	0.00020	0.00267	0.00002	0.00001	0.00003	0.00515	0.00002	0.00032	0.02256	0.01826
Kincardine	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.00001	0.02110	0.00126	0.00002	0.00029	0.00112	0.06800	0.00130	0.00579	0.06330	0.00004	0.00522	0.00055	0.01571	0.00005	0.00066	0.00067	0.00088	0.00006	0.01708	0.00016	0.00004	0.00085	0.00022	0.00297	0.00002	0.00002	0.00003	0.00573	0.00003	0.00035	0.02507	0.02029

Project	Source	Ailsa Craig	Buchan Ness to Collieston Coast	Calf of Eday	Canna & Sanday	Cape Wrath	Copinsay	East Caithness Cliffs	Fair Isle	Farne Islands	Flamborough and Filey	Flannan Isles	Forth Islands	Foula	Fowlsheugh	Handa	Hermaness, Saxavord	Hoy	Marwick Head	Mingulay & Berneray	North Caithness Cliffs	North Colonsay & Western Cliffs	North Rona & Sula Sgeir	Noss	Rathlin Island	Rousay	Rum	Shiant Isles	Skomer, Skokholm, Middleholm	St Abbs Head to Fast Castle	St Kilda	Sumburgh Head	Troup, Pennan & Lions Heads	West Westray
Beatrice	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.00056	0.83996	0.05001	0.00089	0.01155	0.04459	2.70639	0.05163	0.23061	2.51931	0.00156	0.20762	0.02188	0.62531	0.00207	0.02618	0.02657	0.03522	0.00251	0.67978	0.00620	0.00140	0.03393	0.00882	0.11815	0.00089	0.00061	0.00117	0.22793	0.00106	0.01406	0.99762	0.80736
Dudgeon	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Galloper	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.00045	0.67112	0.03996	0.00071	0.00923	0.03563	2.16239	0.04125	0.18426	2.01291	0.00125	0.16588	0.01748	0.49962	0.00165	0.02091	0.02123	0.02814	0.00201	0.54314	0.00495	0.00111	0.02711	0.00705	0.09440	0.00071	0.00049	0.00094	0.18212	0.00085	0.01124	0.79709	0.64508
Race Bank	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.00008	0.11818	0.00704	0.00013	0.00163	0.00627	0.38080	0.00726	0.03245	0.35448	0.00022	0.02921	0.00308	0.08798	0.00029	0.00368	0.00374	0.00496	0.00035	0.09565	0.00087	0.00020	0.00477	0.00124	0.01662	0.00013	0.00009	0.00016	0.03207	0.00015	0.00198	0.14037	0.11360
Rampion	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.00042	0.62680	0.03732	0.00067	0.00862	0.03328	2.01959	0.03852	0.17209	1.87999	0.00117	0.15493	0.01633	0.46662	0.00154	0.01953	0.01982	0.02628	0.00187	0.50727	0.00462	0.00104	0.02532	0.00658	0.08817	0.00067	0.00046	0.00087	0.17009	0.00079	0.01050	0.74446	0.60248
Hornsea Project One	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.00029	0.44108	0.02626	0.00047	0.00607	0.02342	1.42119	0.02711	0.12110	1.32295	0.00082	0.10902	0.01149	0.32836	0.00108	0.01375	0.01395	0.01849	0.00132	0.35697	0.00325	0.00073	0.01782	0.00463	0.06204	0.00047	0.00032	0.00062	0.11969	0.00056	0.00739	0.52388	0.42397
Blyth Demonstration Project	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.00002	0.02955	0.00176	0.00003	0.00041	0.00157	0.09520	0.00182	0.00811	0.08862	0.00005	0.00730	0.00077	0.02200	0.00007	0.00092	0.00093	0.00124	0.00009	0.02391	0.00022	0.00005	0.00119	0.00031	0.00416	0.00003	0.00002	0.00004	0.00802	0.00004	0.00049	0.03509	0.02840
Dogger Bank Creyke Beck Projects A and B	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.00414	6.23424	0.37115	0.00663	0.08575	0.33097	20.08709	0.38317	1.71162	18.69858	0.01160	1.54095	0.16238	4.64109	0.01533	0.19428	0.19718	0.26138	0.01864	5.04538	0.04598	0.01036	0.25185	0.06545	0.87694	0.00663	0.00456	0.00870	1.69174	0.00787	0.10439	7.40445	5.99233
East Anglia ONE	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.00066	0.98769	0.05880	0.00105	0.01358	0.05244	3.18238	0.06070	0.27117	2.96240	0.00184	0.24413	0.02573	0.73528	0.00243	0.03078	0.03124	0.04141	0.00295	0.79934	0.00728	0.00164	0.03990	0.01037	0.13893	0.00105	0.00072	0.00138	0.26802	0.00125	0.01654	1.17308	0.94936
European Offshore Wind Deployment Centre	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.00002	0.02321	0.00138	0.00002	0.00032	0.00123	0.07480	0.00143	0.00637	0.06963	0.00004	0.00574	0.00060	0.01728	0.00006	0.00072	0.00073	0.00097	0.00007	0.01879	0.00017	0.00004	0.00094	0.00024	0.00327	0.00002	0.00002	0.00003	0.00630	0.00003	0.00039	0.02757	0.02231
Firth of Forth Alpha and Bravo	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.00347	5.22545	0.31110	0.00556	0.07187	0.27742	16.83671	0.32117	1.43465	15.67288	0.00972	1.29161	0.13610	3.89010	0.01285	0.16284	0.16527	0.21909	0.01562	4.22897	0.03854	0.00868	0.21110	0.05486	0.73503	0.00556	0.00382	0.00729	1.41799	0.00660	0.08750	6.20631	5.02268
Inch Cape	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.00089	1.34013	0.07978	0.00142	0.01843	0.07115	4.31798	0.08237	0.36793	4.01950	0.00249	0.33125	0.03491	0.99766	0.00329	0.04176	0.04239	0.05619	0.00401	1.08457	0.00988	0.00223	0.05414	0.01407	0.18851	0.00142	0.00098	0.00187	0.36366	0.00169	0.02244	1.59168	1.28813
Methil	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Moray Firth (EDA)	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.00027	0.40731	0.02425	0.00043	0.00560	0.02162	1.31239	0.02503	0.11183	1.22167	0.00076	0.10068	0.01061	0.30323	0.00100	0.01269	0.01288	0.01708	0.00122	0.32964	0.00300	0.00068	0.01645	0.00428	0.05729	0.00043	0.00030	0.00057	0.11053	0.00051	0.00682	0.48377	0.39151
Neart na Gaoithe	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.00006	0.09286	0.00553	0.00010	0.00128	0.00493	0.29920	0.00571	0.02549	0.27852	0.00017	0.02295	0.00242	0.06913	0.00023	0.00289	0.00294	0.00389	0.00028	0.07515	0.00068	0.00015	0.00375	0.00097	0.01306	0.00010	0.00007	0.00013	0.02520	0.00012	0.00155	0.11029	0.08926
Dogger Bank Teesside Projects A and B	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.00304	4.57754	0.27252	0.00487	0.06296	0.24302	14.74912	0.28134	1.25677	13.72959	0.00852	1.13146	0.11923	3.40776	0.01125	0.14265	0.14478	0.19192	0.01369	3.70462	0.03376	0.00760	0.18493	0.04806	0.64390	0.00487	0.00335	0.00639	1.24217	0.00578	0.07665	5.43678	4.39992
Triton Knoll	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.00064	0.95814	0.05704	0.00102	0.01318	0.05087	3.08718	0.05889	0.26306	2.87378	0.00178	0.23683	0.02496	0.71329	0.00236	0.02986	0.03030	0.04017	0.00286	0.77542	0.00707	0.00159	0.03871	0.01006	0.13478	0.00102	0.00070	0.00134	0.26000	0.00121	0.01604	1.13799	0.92096
Hornsea Project Two	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.00004	0.06331	0.00377	0.00007	0.00087	0.00336	0.20400	0.00389	0.01738	0.18990	0.00012	0.01565	0.00165	0.04713	0.00016	0.00197	0.00200	0.00265	0.00019	0.05124	0.00047	0.00011	0.00256	0.00066	0.00891	0.00007	0.00005	0.00009	0.01718	0.00008	0.00106	0.07520	0.06086
East Anglia THREE	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.00053	0.79353	0.04724	0.00084	0.01091	0.04213	2.55679	0.04877	0.21786	2.38005	0.00148	0.19614	0.02067	0.59074	0.00195	0.02473	0.02510	0.03327	0.00237	0.64220	0.00585	0.00132	0.03206	0.00833	0.11162	0.00084	0.00058	0.00111	0.21533	0.00100	0.01329	0.94248	0.76273

Project	Source	Ailsa Craig	Buchan Ness to Collieston Coast	Calf of Eday	Canna & Sanday	Cape Wrath	Copinsay	East Caithness Cliffs	Fair Isle	Farne Islands	Flamborough and Filey	Flannan Isles	Forth Islands	Foula	Fowlsheugh	Handa	Hermaness, Saxavord	Hoy	Marwick Head	Mingulay & Berneray	North Caithness Cliffs	North Colonsay & Western Cliffs	North Rona & Sula Sgeir	Noss	Rathlin Island	Rousay	Rum	Shiant Isles	Skomer, Skokholm, Middleholm	St Abbs Head to Fast Castle	St Kilda	Sumburgh Head	Troup, Pennan & Lions Heads	West Westray
Hornsea Project Three	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.00011	0.16884	0.01005	0.00018	0.00232	0.00896	0.54400	0.01038	0.04635	0.50639	0.00031	0.04173	0.00440	0.12569	0.00042	0.00526	0.00534	0.00708	0.00050	0.13664	0.00125	0.00028	0.00682	0.00177	0.02375	0.00018	0.00012	0.00024	0.04582	0.00021	0.00283	0.20053	0.16228
Norfolk Vanguard	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.00027	0.40731	0.02425	0.00043	0.00560	0.02162	1.31239	0.02503	0.11183	1.22167	0.00076	0.10068	0.01061	0.30323	0.00100	0.01269	0.01288	0.01708	0.00122	0.32964	0.00300	0.00068	0.01645	0.00428	0.05729	0.00043	0.00030	0.00057	0.11053	0.00051	0.00682	0.48377	0.39151
Moray West	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.00010	0.14773	0.00880	0.00016	0.00203	0.00784	0.47600	0.00908	0.04056	0.44309	0.00027	0.03652	0.00385	0.10998	0.00036	0.00460	0.00467	0.00619	0.00044	0.11956	0.00109	0.00025	0.00597	0.00155	0.02078	0.00016	0.00011	0.00021	0.04009	0.00019	0.00247	0.17546	0.14200
Norfolk Boreas	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.00017	0.25114	0.01495	0.00027	0.00345	0.01333	0.80920	0.01544	0.06895	0.75326	0.00047	0.06208	0.00654	0.18696	0.00062	0.00783	0.00794	0.01053	0.00075	0.20325	0.00185	0.00042	0.01015	0.00264	0.03533	0.00027	0.00018	0.00035	0.06815	0.00032	0.00421	0.29828	0.24140
East Anglia TWO	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.00010	0.15617	0.00930	0.00017	0.00215	0.00829	0.50320	0.00960	0.04288	0.46841	0.00029	0.03860	0.00407	0.11626	0.00038	0.00487	0.00494	0.00655	0.00047	0.12639	0.00115	0.00026	0.00631	0.00164	0.02197	0.00017	0.00011	0.00022	0.04238	0.00020	0.00261	0.18549	0.15011
East Anglia ONE North	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.00005	0.07387	0.00440	0.00008	0.00102	0.00392	0.23800	0.00454	0.02028	0.22155	0.00014	0.01826	0.00192	0.05499	0.00018	0.00230	0.00234	0.00310	0.00022	0.05978	0.00054	0.00012	0.00298	0.00078	0.01039	0.00008	0.00005	0.00010	0.02004	0.00009	0.00124	0.08773	0.07100
Hornsea 4 (PEIR)	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.00014	0.20893	0.01244	0.00022	0.00287	0.01109	0.67320	0.01284	0.05736	0.62666	0.00039	0.05164	0.00544	0.15554	0.00051	0.00651	0.00661	0.00876	0.00062	0.16909	0.00154	0.00035	0.00844	0.00219	0.02939	0.00022	0.00015	0.00029	0.05670	0.00026	0.00350	0.24815	0.20083
DEP and SEP (PEIR)	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.00003	0.04643	0.00276	0.00005	0.00064	0.00246	0.14960	0.00285	0.01275	0.13926	0.00009	0.01148	0.00121	0.03456	0.00011	0.00145	0.00147	0.00195	0.00014	0.03758	0.00034	0.00008	0.00188	0.00049	0.00653	0.00005	0.00003	0.00006	0.01260	0.00006	0.00078	0.05514	0.04463
Berwick Bank	Pentland Floating HRA	0.00000	4.60000	0.00000	0.00000	0.00000	0.20000	14.60000	0.00000	1.30000	13.70000	0.00000	1.10000	0.00000	3.40000	0.00000	0.00000	0.20000	0.00000	0.00000	3.60000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	1.30000	0.00000	0.00000	5.30000	4.40000
Pentland Floating	Berwick Bank RIAA (Scope B)	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

Table B1-5 Apportioning of predicted displacement impacts to breeding adult kittiwakes from SPAs within UK North Sea waters in spring migration (January to April)

Project	Source	Ailsa Craig	Buchan Ness to Collieston	Calf of Eday	Canna & Sanday	Cape Wrath	Copinsay	East Caithness	Fair Isle	Farne Islands	Flamborough and Filey	Flannan Isles	Forth Islands	Foula	Fowlsheugh	Handa	Hermaness, Saxavord	Hoy	Marwick Head	Mingulay & Berneray	North Caithness	North Colonsay &	North Rona & Sula Sgeir	Noss	Rathlin Island	Rousay	Rum	Shiant Isles	Skomer, Skokholm,	St Abbs Head to Fast	St Kilda	Sumburgh Head	Troup, Pennan &	West Westray
UK North Sea	Berwick Bank RIAA	0.0	5.0	0.0	0.0	0.0	0.3	16.0	0.0	1.4	14.9	0.0	1.2	0.0	3.7	0.0	0.0	0.2	0.0	0.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.0	0.0	5.9	4.8
Forth & Tay	Berwick Bank RIAA	0.0	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0
Berwick Bank	Berwick Bank RIAA	0.0	1.0	0.0	0.0	0.0	0.0	3.2	0.0	0.3	3.0	0.0	0.2	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	1.1	0.9
Pentland Floating	Pentland Floating HRA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

B.1.3 Great black-backed gull in non-breeding season

Table B1-6 Apportioning of predicted impacts to breeding adult great black-backed gull from SPAs within UK North Sea waters in non-breeding season (September to March)

Project	Source	East Caithness Cliffs SPA	Calf of Eday SPA	Hoy SPA	Isles of Scilly	North Rona & Sula Sgeir
Moray West	Moray West Appropriate Assessment	1.9	0.0	0.0	0.0	0.0
BOWL & ME	Moray West Appropriate Assessment	3.3	0.0	0.0	0.0	0.0

B.1.4 Razorbill in winter

Table B1-7 Apportioning of predicted displacement impacts to breeding adult razorbill from SPAs within UK North Sea & Channel waters in winter (November and December)

Project	Source	Cape Wrath	East Caithness Cliffs	Fair Isle	Flamborough & Filey	Flannan Islands	Forth Islands	Foula	Fowlsheugh	Handa	Mingulay & Berneray	North Caithness Cliffs	North Rona & Sula Sgeir	Rathlin Island	Shiants	Skomer & Skokholm	St Abbs to Fast Castle	St Kilda	Troup, Pennan & Lions	West Westray
Beatrice Demonstrator	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Gunfleet Sands	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Kentish Flats	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Kentish Flats Extension	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Greater Gabbard	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0024	0.0436	0.0032	0.0349	0.0012	0.0092	0.0013	0.0123	0.0060	0.0118	0.0059	0.0013	0.0090	0.0049	0.0035	0.0043	0.0020	0.0061	0.0041
Lincs & LID	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0010	0.0177	0.0013	0.0141	0.0005	0.0037	0.0005	0.0050	0.0024	0.0048	0.0024	0.0005	0.0036	0.0020	0.0014	0.0017	0.0008	0.0025	0.0016
London Array	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0006	0.0104	0.0008	0.0083	0.0003	0.0022	0.0003	0.0029	0.0014	0.0028	0.0014	0.0003	0.0021	0.0012	0.0008	0.0010	0.0005	0.0014	0.0010
Scroby Sands	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Sheringham Shoal	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0009	0.0156	0.0011	0.0125	0.0004	0.0033	0.0005	0.0044	0.0021	0.0042	0.0021	0.0005	0.0032	0.0018	0.0012	0.0015	0.0007	0.0022	0.0015
Teesside	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0006	0.0104	0.0008	0.0083	0.0003	0.0022	0.0003	0.0029	0.0014	0.0028	0.0014	0.0003	0.0021	0.0012	0.0008	0.0010	0.0005	0.0014	0.0010
Thanet	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0006	0.0109	0.0008	0.0087	0.0003	0.0023	0.0003	0.0031	0.0015	0.0029	0.0015	0.0003	0.0022	0.0012	0.0009	0.0011	0.0005	0.0015	0.0010
Humber Gateway	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0006	0.0104	0.0008	0.0083	0.0003	0.0022	0.0003	0.0029	0.0014	0.0028	0.0014	0.0003	0.0021	0.0012	0.0008	0.0010	0.0005	0.0014	0.0010
Westermost Rough	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0026	0.0473	0.0035	0.0378	0.0013	0.0099	0.0014	0.0133	0.0065	0.0127	0.0064	0.0014	0.0097	0.0054	0.0038	0.0046	0.0021	0.0066	0.0044
Hywind	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Kincardine	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Beatrice	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0241	0.4328	0.0317	0.3463	0.0121	0.0909	0.0130	0.1220	0.0596	0.1167	0.0589	0.0126	0.0888	0.0491	0.0346	0.0422	0.0196	0.0604	0.0403
Dudgeon	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0100	0.1798	0.0132	0.1438	0.0050	0.0378	0.0054	0.0507	0.0248	0.0485	0.0244	0.0052	0.0369	0.0204	0.0144	0.0175	0.0081	0.0251	0.0167
Galloper	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0114	0.2047	0.0150	0.1638	0.0057	0.0430	0.0061	0.0577	0.0282	0.0552	0.0278	0.0060	0.0420	0.0232	0.0164	0.0200	0.0093	0.0286	0.0190

Project	Source	Cape Wrath	East Caithness Cliffs	Fair Isle	Flamborough & Filey	Flannan Islands	Forth Islands	Foula	Fowlsheugh	Handa	Mingulay & Berneray	North Caithness Cliffs	North Rona & Sula Sgeir	Rathlin Island	Shiants	Skomer & Skokholm	St Abbs to Fast Castle	St Kilda	Troup, Pennan & Lions	West Westray
Race Bank	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0012	0.0218	0.0016	0.0175	0.0006	0.0046	0.0007	0.0062	0.0030	0.0059	0.0030	0.0006	0.0045	0.0025	0.0017	0.0021	0.0010	0.0030	0.0020
Rampion	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0963	1.7286	0.1265	1.3831	0.0484	0.3630	0.0519	0.4872	0.2381	0.4660	0.2351	0.0502	0.3547	0.1959	0.1383	0.1685	0.0784	0.2411	0.1608
Hornsea Project One	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0522	0.9368	0.0686	0.7496	0.0262	0.1967	0.0281	0.2641	0.1290	0.2526	0.1274	0.0272	0.1922	0.1062	0.0749	0.0913	0.0425	0.1307	0.0872
Blyth Demonstration Project	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0026	0.0473	0.0035	0.0378	0.0013	0.0099	0.0014	0.0133	0.0065	0.0127	0.0064	0.0014	0.0097	0.0054	0.0038	0.0046	0.0021	0.0066	0.0044
Dogger Bank Creyke Beck A	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.1201	2.1557	0.1578	1.7249	0.0604	0.4527	0.0647	0.6076	0.2969	0.5812	0.2932	0.0627	0.4424	0.2443	0.1725	0.2101	0.0977	0.3007	0.2006
Dogger Bank Creyke Beck B	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.1482	2.6597	0.1947	2.1281	0.0745	0.5585	0.0798	0.7497	0.3663	0.7171	0.3617	0.0773	0.5458	0.3014	0.2128	0.2592	0.1206	0.3709	0.2474
East Anglia ONE	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0097	0.1746	0.0128	0.1397	0.0049	0.0367	0.0052	0.0492	0.0240	0.0471	0.0237	0.0051	0.0358	0.0198	0.0140	0.0170	0.0079	0.0243	0.0162
European Offshore Wind Deployment Centre	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0008	0.0135	0.0010	0.0108	0.0004	0.0028	0.0004	0.0038	0.0019	0.0036	0.0018	0.0004	0.0028	0.0015	0.0011	0.0013	0.0006	0.0019	0.0013
Firth of Forth Alpha	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Firth of Forth Bravo	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Inch Cape	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Methil	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Moray Firth (EDA)	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0049	0.0873	0.0064	0.0698	0.0024	0.0183	0.0026	0.0246	0.0120	0.0235	0.0119	0.0025	0.0179	0.0099	0.0070	0.0085	0.0040	0.0122	0.0081
Neart na Gaoithe	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Dogger Bank Teesside A	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0556	0.9971	0.0730	0.7978	0.0279	0.2094	0.0299	0.2810	0.1373	0.2688	0.1356	0.0290	0.2046	0.1130	0.0798	0.0972	0.0452	0.1391	0.0928
Dogger Bank Teesside B	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0855	1.5343	0.1123	1.2276	0.0430	0.3222	0.0460	0.4325	0.2113	0.4136	0.2087	0.0446	0.3148	0.1739	0.1227	0.1495	0.0696	0.2140	0.1427
Triton Knoll	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0034	0.0608	0.0044	0.0486	0.0017	0.0128	0.0018	0.0171	0.0084	0.0164	0.0083	0.0018	0.0125	0.0069	0.0049	0.0059	0.0028	0.0085	0.0057
Hornsea Project Two	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0483	0.8667	0.0634	0.6934	0.0243	0.1820	0.0260	0.2443	0.1194	0.2336	0.1179	0.0252	0.1778	0.0982	0.0693	0.0845	0.0393	0.1209	0.0806
East Anglia THREE	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0441	0.7918	0.0580	0.6336	0.0222	0.1663	0.0238	0.2232	0.1091	0.2135	0.1077	0.0230	0.1625	0.0897	0.0633	0.0772	0.0359	0.1104	0.0737
Hornsea Project Three	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0610	1.0937	0.0801	0.8751	0.0306	0.2297	0.0328	0.3083	0.1506	0.2949	0.1487	0.0318	0.2244	0.1240	0.0875	0.1066	0.0496	0.1525	0.1018
Norfolk Vanguard	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0268	0.4801	0.0351	0.3841	0.0134	0.1008	0.0144	0.1353	0.0661	0.1294	0.0653	0.0140	0.0985	0.0544	0.0384	0.0468	0.0218	0.0670	0.0447
Moray West	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.1038	1.8627	0.1363	1.4904	0.0522	0.3912	0.0559	0.5250	0.2566	0.5022	0.2533	0.0541	0.3822	0.2111	0.1490	0.1815	0.0844	0.2598	0.1733
Norfolk Boreas	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0100	0.1793	0.0131	0.1434	0.0050	0.0376	0.0054	0.0505	0.0247	0.0483	0.0244	0.0052	0.0368	0.0203	0.0143	0.0175	0.0081	0.0250	0.0167
East Anglia TWO	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0067	0.1195	0.0087	0.0956	0.0033	0.0251	0.0036	0.0337	0.0165	0.0322	0.0163	0.0035	0.0245	0.0135	0.0096	0.0116	0.0054	0.0167	0.0111
East Anglia ONE North	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0060	0.1076	0.0079	0.0861	0.0030	0.0226	0.0032	0.0303	0.0148	0.0290	0.0146	0.0031	0.0221	0.0122	0.0086	0.0105	0.0049	0.0150	0.0100
Hornsea 4 (PEIR)	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0394	0.7071	0.0518	0.5658	0.0198	0.1485	0.0212	0.1993	0.0974	0.1906	0.0962	0.0206	0.1451	0.0801	0.0566	0.0689	0.0321	0.0986	0.0658
DEP and SEP (PEIR)	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0122	0.2182	0.0160	0.1746	0.0061	0.0458	0.0065	0.0615	0.0301	0.0588	0.0297	0.0063	0.0448	0.0247	0.0175	0.0213	0.0099	0.0304	0.0203
Berwick Bank	Berwick Bank RIAA (Scope B)	0.0000	0.3000	0.0000	0.2000	0.0000	0.1000	0.0000	0.1000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Pentland Floating	Pentland Floating HRA	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

B.1.5 Razorbill in migration seasons

Table B1-8 Apportioning of predicted displacement impacts to breeding adult razorbill from SPAs within UK North Sea & Channel waters in migration seasons (August to October, and January to March)

Project	Source	Cape Wrath	East Caithness Cliffs	Fair Isle	Flamborough & Filey	Flannan Islands	Forth Islands	Foula	Fowlsheugh	Handa	Mingulay & Berneray	North Caithness Cliffs	North Rona & Sula Sgeir	Rathlin Island	Shiants	Skomer & Skokholm	St Abbs to Fast Castle	St Kilda	Troup, Pennan & Lions	West Westray
Beatrice Demonstrator	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Gunfleet Sands	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Kentish Flats	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Kentish Flats Extension	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Greater Gabbard	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0002	0.0511	0.0036	0.0409	0.0001	0.0107	0.0015	0.0144	0.0004	0.0008	0.0066	0.0001	0.0013	0.0003	0.0005	0.0050	0.0001	0.0071	0.0021
Lincs & LID	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0001	0.0414	0.0029	0.0331	0.0001	0.0087	0.0012	0.0117	0.0003	0.0007	0.0053	0.0001	0.0010	0.0003	0.0004	0.0040	0.0001	0.0058	0.0017
London Array	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0001	0.0243	0.0017	0.0195	0.0000	0.0051	0.0007	0.0069	0.0002	0.0004	0.0031	0.0000	0.0006	0.0002	0.0002	0.0024	0.0001	0.0034	0.0010
Scroby Sands	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Sheringham Shoal	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0028	0.8352	0.0581	0.6682	0.0014	0.1754	0.0238	0.2355	0.0069	0.0135	0.1079	0.0015	0.0206	0.0057	0.0080	0.0814	0.0023	0.1165	0.0349
Teesside	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0002	0.0493	0.0034	0.0394	0.0001	0.0103	0.0014	0.0139	0.0004	0.0008	0.0064	0.0001	0.0012	0.0003	0.0005	0.0048	0.0001	0.0069	0.0021
Thanet	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0128	0.0009	0.0102	0.0000	0.0027	0.0004	0.0036	0.0001	0.0002	0.0017	0.0000	0.0003	0.0001	0.0001	0.0012	0.0000	0.0018	0.0005
Humber Gateway	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0001	0.0243	0.0017	0.0195	0.0000	0.0051	0.0007	0.0069	0.0002	0.0004	0.0031	0.0000	0.0006	0.0002	0.0002	0.0024	0.0001	0.0034	0.0010
Westermost Rough	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0004	0.1290	0.0090	0.1032	0.0002	0.0271	0.0037	0.0364	0.0011	0.0021	0.0167	0.0002	0.0032	0.0009	0.0012	0.0126	0.0004	0.0180	0.0054
Hywind	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0015	0.4374	0.0304	0.3499	0.0007	0.0918	0.0125	0.1233	0.0036	0.0071	0.0565	0.0008	0.0108	0.0030	0.0042	0.0427	0.0012	0.0610	0.0183
Kincardine	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Beatrice	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0034	1.0134	0.0705	0.8108	0.0017	0.2128	0.0289	0.2857	0.0084	0.0164	0.1309	0.0018	0.0250	0.0069	0.0097	0.0988	0.0028	0.1413	0.0424
Dudgeon	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0014	0.4209	0.0293	0.3368	0.0007	0.0884	0.0120	0.1187	0.0035	0.0068	0.0544	0.0007	0.0104	0.0029	0.0040	0.0411	0.0011	0.0587	0.0176
Galloper	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0009	0.2658	0.0185	0.2127	0.0004	0.0558	0.0076	0.0749	0.0022	0.0043	0.0343	0.0005	0.0066	0.0018	0.0026	0.0259	0.0007	0.0371	0.0111
Race Bank	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0002	0.0511	0.0036	0.0409	0.0001	0.0107	0.0015	0.0144	0.0004	0.0008	0.0066	0.0001	0.0013	0.0003	0.0005	0.0050	0.0001	0.0071	0.0021
Rampion	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0069	2.0640	0.1435	1.6514	0.0035	0.4334	0.0588	0.5819	0.0171	0.0334	0.2667	0.0036	0.0509	0.0140	0.0198	0.2013	0.0056	0.2878	0.0863
Hornsea Project One	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0135	4.0240	0.2797	3.2195	0.0068	0.8450	0.1146	1.1344	0.0333	0.0650	0.5199	0.0071	0.0992	0.0274	0.0386	0.3924	0.0109	0.5611	0.1682
Blyth Demonstration Project	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0004	0.1107	0.0077	0.0886	0.0002	0.0232	0.0032	0.0312	0.0009	0.0018	0.0143	0.0002	0.0027	0.0008	0.0011	0.0108	0.0003	0.0154	0.0046
Dogger Bank Creyke Beck A	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0117	3.4826	0.2421	2.7863	0.0059	0.7313	0.0992	0.9818	0.0288	0.0563	0.4499	0.0061	0.0858	0.0237	0.0334	0.3396	0.0095	0.4856	0.1456
Dogger Bank Creyke Beck B	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0147	4.3895	0.3052	3.5120	0.0074	0.9218	0.1250	1.2375	0.0363	0.0709	0.5671	0.0077	0.1082	0.0298	0.0421	0.4281	0.0119	0.6121	0.1835
East Anglia ONE	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0007	0.2202	0.0153	0.1762	0.0004	0.0462	0.0063	0.0621	0.0018	0.0036	0.0285	0.0004	0.0054	0.0015	0.0021	0.0215	0.0006	0.0307	0.0092
European Offshore Wind Deployment Centre	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0002	0.0547	0.0038	0.0438	0.0001	0.0115	0.0016	0.0154	0.0005	0.0009	0.0071	0.0001	0.0013	0.0004	0.0005	0.0053	0.0001	0.0076	0.0023

Project	Source	Cape Wrath	East Caithness Cliffs	Fair Isle	Flamborough & Filey	Flannan Islands	Forth Islands	Foula	Fowlsheugh	Handa	Mingulay & Berneray	North Caithness Cliffs	North Rona & Sula Sgeir	Rathlin Island	Shiants	Skomer & Skokholm	St Abbs to Fast Castle	St Kilda	Troup, Pennan & Lions	West Westray
Firth of Forth Alpha	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Firth of Forth Bravo	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Inch Cape	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0059	1.7458	0.1214	1.3968	0.0029	0.3666	0.0497	0.4922	0.0145	0.0282	0.2256	0.0031	0.0430	0.0119	0.0168	0.1703	0.0047	0.2434	0.0730
Methil	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Moray Firth (EDA)	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0026	0.7732	0.0538	0.6186	0.0013	0.1624	0.0220	0.2180	0.0064	0.0125	0.0999	0.0014	0.0191	0.0053	0.0074	0.0754	0.0021	0.1078	0.0323
Neart na Gaoithe	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0112	3.3408	0.2323	2.6729	0.0056	0.7016	0.0951	0.9418	0.0277	0.0540	0.4316	0.0059	0.0823	0.0227	0.0321	0.3258	0.0091	0.4658	0.1396
Dogger Bank Teesside A	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0046	1.3559	0.0943	1.0848	0.0023	0.2847	0.0386	0.3823	0.0112	0.0219	0.1752	0.0024	0.0334	0.0092	0.0130	0.1322	0.0037	0.1891	0.0567
Dogger Bank Teesside B	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0072	2.1565	0.1499	1.7253	0.0036	0.4529	0.0614	0.6079	0.0179	0.0348	0.2786	0.0038	0.0531	0.0147	0.0207	0.2103	0.0059	0.3007	0.0901
Triton Knoll	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0008	0.2257	0.0157	0.1806	0.0004	0.0474	0.0064	0.0636	0.0019	0.0036	0.0292	0.0004	0.0056	0.0015	0.0022	0.0220	0.0006	0.0315	0.0094
Hornsea Project Two	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0120	3.5823	0.2490	2.8661	0.0060	0.7523	0.1020	1.0099	0.0297	0.0579	0.4628	0.0063	0.0883	0.0244	0.0344	0.3493	0.0097	0.4995	0.1497
East Anglia THREE	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0054	1.6096	0.1119	1.2878	0.0027	0.3380	0.0458	0.4538	0.0133	0.0260	0.2080	0.0028	0.0397	0.0109	0.0155	0.1570	0.0044	0.2244	0.0673
Hornsea Project Three	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0084	2.5093	0.1744	2.0076	0.0042	0.5269	0.0715	0.7074	0.0208	0.0405	0.3242	0.0044	0.0618	0.0171	0.0241	0.2447	0.0068	0.3499	0.1049
Norfolk Vanguard	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0037	1.0889	0.0757	0.8712	0.0018	0.2287	0.0310	0.3070	0.0090	0.0176	0.1407	0.0019	0.0268	0.0074	0.0105	0.1062	0.0030	0.1518	0.0455
Moray West	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0146	4.3366	0.3015	3.4696	0.0073	0.9107	0.1235	1.2226	0.0359	0.0701	0.5603	0.0076	0.1069	0.0295	0.0416	0.4229	0.0118	0.6047	0.1813
Norfolk Boreas	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0012	0.3699	0.0257	0.2959	0.0006	0.0777	0.0105	0.1043	0.0031	0.0060	0.0478	0.0007	0.0091	0.0025	0.0036	0.0361	0.0010	0.0516	0.0155
East Anglia TWO	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0006	0.1667	0.0116	0.1334	0.0003	0.0350	0.0047	0.0470	0.0014	0.0027	0.0215	0.0003	0.0041	0.0011	0.0016	0.0163	0.0005	0.0232	0.0070
East Anglia ONE North	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0006	0.1776	0.0123	0.1421	0.0003	0.0373	0.0051	0.0501	0.0015	0.0029	0.0229	0.0003	0.0044	0.0012	0.0017	0.0173	0.0005	0.0248	0.0074
Hornsea 4 (PEIR)	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0150	4.4534	0.3096	3.5631	0.0075	0.9352	0.1268	1.2555	0.0369	0.0720	0.5754	0.0078	0.1097	0.0303	0.0428	0.4343	0.0121	0.6210	0.1862
DEP and SEP (PEIR)	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0096	2.8682	0.1994	2.2948	0.0048	0.6023	0.0817	0.8086	0.0237	0.0463	0.3706	0.0050	0.0707	0.0195	0.0275	0.2797	0.0078	0.3999	0.1199
Berwick Bank	Berwick Bank RIAA (Scope B)	0.0000	4.1000	0.0000	3.3000	0.0000	0.9000	0.0000	1.1000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.4000	0.0000	0.6000	0.0000
Pentland Floating	Pentland Floating HRA	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

B.1.6 Puffin in non-breeding season

Table B1-9 Apportioning of predicted displacement impacts to breeding adult puffin from SPAs within UK North Sea & Channel waters in non-breeding season (mid-August to March)

Project	Source	Canna & Sanday	Cape Wrath	Coquet Island	Fair Isle	Farne Islands	Flamborough & Filey	Flannan Isles	Forth Islands	Foula	Hermaness, Saxavord	Hoy	Mingulay & Berneray	North Caithness Cliffs	North Rona & Sula Sgeir	Noss	Rathlin Island	Skomer &Skokholm	St Kilda	Sule Skerry & Sule Stack	The Shiant Isles
UK North Sea Breeding	Berwick Bank RIAA	0.00	0.00	0.00	0.00	17.30	0.00	0.00	159.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Project	Source	Canna & Sanday	Cape Wrath	Coquet Island	Fair Isle	Farne Islands	Flamborough & Filey	Flannan Isles	Forth Islands	Foula	Hermaness, Saxavord	Hoy	Mingulay & Berneray	North Caithness Cliffs	North Rona & Sula Sgeir	Noss	Rathlin Island	Skomer &Skokholm	St Kilda	Sule Skerry & Sule Stack	The Shiant Isles
Forth & Tay Breeding	Berwick Bank RIAA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	158.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
UK North Sea Non-breeding	Berwick Bank RIAA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Forth & Tay Non-breeding	Berwick Bank RIAA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Moray West Breeding	Moray West - EIA Addendum Report	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	40.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Berwick Bank Breeding	Berwick Bank RIAA	0.00	0.00	3.60	0.00	12.90	0.03	0.00	18.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Berwick Bank Non-breeding	Berwick Bank RIAA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pentland Floating	Pentland Floating HRA	0.00	0.05	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.02	0.00	1.80	0.00	0.00	0.00	0.00	0.00	1.97	0.00

B.1.7 Gannet in autumn

Table B1-10 Apportioning of predicted collision impacts to breeding adult gannet from SPAs within UK North Sea & Channel waters in autumn (September to November)

Project	Source	Ailsa Craig	Fair Isle	Flamborough & Filey	Forth Islands	Grassholm	Hermaness, Saxavord	North Rona & Sula Sgeir	Noss	St Kilda	Sule Skerry & Sule Stack
Beatrice Demonstrator	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0093	0.0329	0.1648	0.0000	0.0579	0.0027	0.0232	0.0177	0.0014
Greater Gabbard	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.2176	0.7668	3.8462	0.0000	1.3506	0.0640	0.5417	0.4133	0.0324
Gunfleet Sands	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Kentish Flats	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0218	0.0767	0.3846	0.0000	0.1351	0.0064	0.0542	0.0413	0.0032
Kentish Flats Extension	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Lincs	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0326	0.1150	0.5769	0.0000	0.2026	0.0096	0.0812	0.0620	0.0049
London Array	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0357	0.1260	0.6319	0.0000	0.2219	0.0105	0.0890	0.0679	0.0053
Lynn and Inner Dowsing	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0031	0.0110	0.0549	0.0000	0.0193	0.0009	0.0077	0.0059	0.0005
Scroby Sands	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Sheringham Shoal	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.2192	0.7723	3.8737	0.0000	1.3603	0.0644	0.5455	0.4163	0.0326
Teesside	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0762	0.2684	1.3462	0.0000	0.4727	0.0224	0.1896	0.1447	0.0113
Thanet	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0171	0.0602	0.3022	0.0000	0.1061	0.0050	0.0426	0.0325	0.0025
Humber Gateway	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0295	0.1041	0.5220	0.0000	0.1833	0.0087	0.0735	0.0561	0.0044
Westermost Rough	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0031	0.0110	0.0549	0.0000	0.0193	0.0009	0.0077	0.0059	0.0005
Hywind	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0870	0.3067	1.5385	0.0000	0.5402	0.0256	0.2167	0.1653	0.0130
Kincardine	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0466	0.1643	0.8242	0.0000	0.2894	0.0137	0.1161	0.0886	0.0069
Beatrice	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.5813	2.0484	10.2750	0.0000	3.6080	0.1708	1.4470	1.1041	0.0866
Dudgeon	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.3466	1.2214	6.1265	0.0000	2.1513	0.1019	0.8628	0.6583	0.0516
Galloper	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.2813	0.9914	4.9726	0.0000	1.7461	0.0827	0.7003	0.5344	0.0419
Race Bank	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.5238	1.8458	9.2584	0.0000	3.2511	0.1539	1.3039	0.9949	0.0780
Rampion	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.5627	1.9827	9.9453	0.0000	3.4923	0.1654	1.4006	1.0687	0.0838
Hornsea Project One	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.1787	0.6299	3.1594	0.0000	1.1094	0.0525	0.4449	0.3395	0.0266
Blyth Demonstration Project	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0544	0.1917	0.9616	0.0000	0.3377	0.0160	0.1354	0.1033	0.0081
Dogger Bank Creyke Beck Projects A and B	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	1.2606	4.4419	22.2807	0.0000	7.8239	0.3705	3.1378	2.3942	0.1877
East Anglia ONE	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0528	0.1862	0.9341	0.0000	0.3280	0.0155	0.1315	0.1004	0.0079
European Offshore Wind Deployment Centre	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0653	0.2300	1.1539	0.0000	0.4052	0.0192	0.1625	0.1240	0.0097
Firth of Forth Alpha and Bravo	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	12.4472	43.8606	220.0049	0.0000	77.2547	3.6580	30.9832	23.6413	1.8538
Inch Cape	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	5.2366	18.4523	92.5570	0.0000	32.5014	1.5389	13.0348	9.9460	0.7799
Methil	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0933	0.3286	1.6484	0.0000	0.5788	0.0274	0.2321	0.1771	0.0139
Moray Firth (EDA)	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	1.2528	4.4145	22.1433	0.0000	7.7756	0.3682	3.1184	2.3795	0.1866
Neart na Gaoithe	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	2.2227	7.8323	39.2866	0.0000	13.7955	0.6532	5.5327	4.2217	0.3310
Dogger Bank Teesside Projects A and B	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.2300	0.8106	4.0660	0.0000	1.4278	0.0676	0.5726	0.4369	0.0343
Triton Knoll	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.4166	1.4679	7.3628	0.0000	2.5854	0.1224	1.0369	0.7912	0.0620
Hornsea Project Two	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.1088	0.3834	1.9231	0.0000	0.6753	0.0320	0.2708	0.2067	0.0162
East Anglia THREE	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0948	0.3341	1.6759	0.0000	0.5885	0.0279	0.2360	0.1801	0.0141
Hornsea Project Three	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.1554	0.5477	2.7473	0.0000	0.9647	0.0457	0.3869	0.2952	0.0231
Norfolk Vanguard	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.1275	0.4491	2.2528	0.0000	0.7911	0.0375	0.3173	0.2421	0.0190
Moray West	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.1554	0.5477	2.7473	0.0000	0.9647	0.0457	0.3869	0.2952	0.0231
Norfolk Boreas	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.2192	0.7723	3.8737	0.0000	1.3603	0.0644	0.5455	0.4163	0.0326
East Anglia TWO	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.1943	0.6846	3.4341	0.0000	1.2059	0.0571	0.4836	0.3690	0.0289
East Anglia ONE North	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.1927	0.6792	3.4067	0.0000	1.1963	0.0566	0.4798	0.3661	0.0287
DEP and SEP (PEIR)	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0616	0.2169	1.0879	0.0000	0.3820	0.0181	0.1532	0.1169	0.0092

Project	Source	Ailsa Craig	Fair Isle	Flamborough & Filey	Forth Islands	Grassholm	Hermaness, Saxavord	North Rona & Sula Sgeir	Noss	St Kilda	Sule Skerry & Sule Stack
Hornsea 4 (PEIR)	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.6730	2.3716	11.8959	0.0000	4.1772	0.1978	1.6753	1.2783	0.1002
Berwick Bank	Pentland Floating HRA	0.0000	0.1000	0.4000	3.2000	0.0000	0.9000	0.1000	0.5000	0.0000	0.1000
Pentland Floating	Berwick Bank RIAA (Scope B)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Table B1-11 Apportioning of predicted displacement impacts to breeding adult gannet from SPAs within UK North Sea & Channel waters in autumn (September to November)

Project	Source	Ailsa Craig	Fair Isle	Flamborough & Filey	Forth Islands	Grassholm	Hermaness, Saxavord	North Rona & Sula Sgeir	Noss	St Kilda	Sule Skerry & Sule Stack
Beatrice Demonstrator	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Greater Gabbard	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0150	0.0529	0.2654	0.0000	0.0932	0.0044	0.0374	0.0285	0.0022
Gunfleet Sands	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0026	0.0092	0.0462	0.0000	0.0162	0.0008	0.0065	0.0050	0.0004
Kentish Flats	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Kentish Flats Extension	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0028	0.0100	0.0500	0.0000	0.0176	0.0008	0.0070	0.0054	0.0004
Lincs	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
London Array	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Scroby Sands	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Sheringham Shoal	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0067	0.0238	0.1192	0.0000	0.0419	0.0020	0.0168	0.0128	0.0010
Teesside	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Thanet	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Humber Gateway	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Westermost Rough	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hywind	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Kincardine	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Beatrice	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Dudgeon	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0054	0.0192	0.0962	0.0000	0.0338	0.0016	0.0135	0.0103	0.0008
Galloper	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.1974	0.6955	3.4885	0.0000	1.2250	0.0580	0.4913	0.3749	0.0294
Race Bank	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0070	0.0245	0.1231	0.0000	0.0432	0.0020	0.0173	0.0132	0.0010
Rampion	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.1284	0.4524	2.2693	0.0000	0.7969	0.0377	0.3196	0.2439	0.0191
Hornsea Project One	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.1510	0.5322	2.6693	0.0000	0.9373	0.0444	0.3759	0.2868	0.0225
Blyth Demonstration Project	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Dogger Bank Creyke Beck Projects A and B	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.4457	1.5704	7.8771	0.0000	2.7660	0.1310	1.1093	0.8465	0.0664
East Anglia ONE	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.7917	2.7896	13.9926	0.0000	4.9135	0.2327	1.9706	1.5036	0.1179
European Offshore Wind Deployment Centre	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0011	0.0038	0.0192	0.0000	0.0068	0.0003	0.0027	0.0021	0.0002
Firth of Forth Alpha and Bravo	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.1445	0.5092	2.5539	0.0000	0.8968	0.0425	0.3597	0.2744	0.0215
Inch Cape	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.1530	0.5391	2.7039	0.0000	0.9495	0.0450	0.3808	0.2906	0.0228
Methil	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Moray Firth (EDA)	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0635	0.2239	1.1231	0.0000	0.3944	0.0187	0.1582	0.1207	0.0095
Neart na Gaoithe	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.1201	0.4233	2.1231	0.0000	0.7455	0.0353	0.2990	0.2281	0.0179
Dogger Bank Teesside Projects A and B	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.1930	0.6801	3.4116	0.0000	1.1980	0.0567	0.4805	0.3666	0.0287
Triton Knoll	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0033	0.0115	0.0577	0.0000	0.0203	0.0010	0.0081	0.0062	0.0005
Hornsea Project Two	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.2481	0.8741	4.3847	0.0000	1.5397	0.0729	0.6175	0.4712	0.0369
East Anglia THREE	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.2761	0.9731	4.8809	0.0000	1.7139	0.0812	0.6874	0.5245	0.0411
Hornsea Project Three	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.2141	0.7545	3.7847	0.0000	1.3290	0.0629	0.5330	0.4067	0.0319
Norfolk Vanguard	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.5338	1.8809	9.4348	0.0000	3.3130	0.1569	1.3287	1.0138	0.0795

Project	Source	Ailsa Craig	Fair Isle	Flamborough & Filey	Forth Islands	Grassholm	Hermaness, Saxavord	North Rona & Sula Sgeir	Noss	St Kilda	Sule Skerry & Sule Stack
Moray West	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0955	0.3366	1.6885	0.0000	0.5929	0.0281	0.2378	0.1814	0.0142
Norfolk Boreas	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.3749	1.3212	6.6271	0.0000	2.3271	0.1102	0.9333	0.7121	0.0558
East Anglia TWO	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.1939	0.6832	3.4270	0.0000	1.2034	0.0570	0.4826	0.3683	0.0289
East Anglia ONE North	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.1018	0.3589	1.8000	0.0000	0.6321	0.0299	0.2535	0.1934	0.0152
Hornsea 4 (PEIR)	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.2594	0.9140	4.5847	0.0000	1.6099	0.0762	0.6457	0.4927	0.0386
DEP and SEP (PEIR)	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.1388	0.4892	2.4539	0.0000	0.8617	0.0408	0.3456	0.2637	0.0207
Pentland Floating	Berwick Bank RIAA (Scope B)	0.0000	0.1000	0.2000	2.0000	0.0000	0.5000	0.1000	0.3000	0.0000	0.0000
Berwick Bank	Pentland Floating HRA	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

B.1.8 Gannet in spring

Table B1-12 Apportioning of predicted collision impacts to breeding adult gannet from SPAs within UK North Sea & Channel waters in spring (December to March)

Project	Source	Ailsa Craig	Fair Isle	Flamborough & Filey	Forth Islands	Grassholm	Hermaness, Saxavord	North Rona & Sula Sgeir	Noss	St Kilda	Sule Skerry & Sule Stack
Beatrice Demonstrator	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0141	0.0397	0.1993	0.0000	0.0875	0.0000	0.0351	0.0000	0.0000
Greater Gabbard	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0967	0.2724	1.3665	0.0000	0.5998	0.0000	0.2406	0.0000	0.0000
Gunfleet Sands	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Kentish Flats	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0222	0.0624	0.3132	0.0000	0.1375	0.0000	0.0551	0.0000	0.0000
Kentish Flats Extension	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Lincs	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0342	0.0965	0.4840	0.0000	0.2124	0.0000	0.0852	0.0000	0.0000
London Array	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0362	0.1022	0.5125	0.0000	0.2249	0.0000	0.0902	0.0000	0.0000
Lynn and Inner Dowsing	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0040	0.0114	0.0569	0.0000	0.0250	0.0000	0.0100	0.0000	0.0000
Scroby Sands	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Sheringham Shoal	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Teesside	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Thanet	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Humber Gateway	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0302	0.0851	0.4270	0.0000	0.1874	0.0000	0.0752	0.0000	0.0000
Westermost Rough	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0040	0.0114	0.0569	0.0000	0.0250	0.0000	0.0100	0.0000	0.0000
Hywind	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0161	0.0454	0.2278	0.0000	0.1000	0.0000	0.0401	0.0000	0.0000
Kincardine	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Beatrice	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.1913	0.5392	2.7046	0.0000	1.1871	0.0000	0.4761	0.0000	0.0000
Dudgeon	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.3846	1.0840	5.4377	0.0000	2.3868	0.0000	0.9573	0.0000	0.0000
Galloper	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.2537	0.7151	3.5872	0.0000	1.5745	0.0000	0.6315	0.0000	0.0000
Race Bank	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0826	0.2327	1.1673	0.0000	0.5123	0.0000	0.2055	0.0000	0.0000
Rampion	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0423	0.1192	0.5979	0.0000	0.2624	0.0000	0.1052	0.0000	0.0000
Hornsea Project One	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.4531	1.2770	6.4057	0.0000	2.8116	0.0000	1.1277	0.0000	0.0000
Blyth Demonstration Project	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0564	0.1589	0.7971	0.0000	0.3499	0.0000	0.1403	0.0000	0.0000
Dogger Bank Creyke Beck Projects A and B	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	1.0954	3.0875	15.4875	0.0000	6.7979	0.0000	2.7264	0.0000	0.0000
East Anglia ONE	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.1269	0.3576	1.7936	0.0000	0.7873	0.0000	0.3157	0.0000	0.0000
European Offshore Wind Deployment Centre	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0020	0.0057	0.0285	0.0000	0.0125	0.0000	0.0050	0.0000	0.0000
Firth of Forth Alpha and Bravo	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	1.3250	3.7345	18.7330	0.0000	8.2225	0.0000	3.2978	0.0000	0.0000
Inch Cape	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.1047	0.2951	1.4804	0.0000	0.6498	0.0000	0.2606	0.0000	0.0000

Project	Source	Ailsa Craig	Fair Isle	Flamborough & Filey	Forth Islands	Grassholm	Hermaness, Saxavord	North Rona & Sula Sgeir	Noss	St Kilda	Sule Skerry & Sule Stack
Methil	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Moray Firth (EDA)	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.1792	0.5051	2.5338	0.0000	1.1122	0.0000	0.4461	0.0000	0.0000
Neart na Gaoithe	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.4631	1.3054	6.5480	0.0000	2.8741	0.0000	1.1527	0.0000	0.0000
Dogger Bank Teesside Projects A and B	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.2175	0.6130	3.0747	0.0000	1.3496	0.0000	0.5413	0.0000	0.0000
Triton Knoll	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.6061	1.7084	8.5693	0.0000	3.7614	0.0000	1.5086	0.0000	0.0000
Hornsea Project Two	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.1208	0.3405	1.7082	0.0000	0.7498	0.0000	0.3007	0.0000	0.0000
East Anglia THREE	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.1933	0.5449	2.7331	0.0000	1.1996	0.0000	0.4811	0.0000	0.0000
Hornsea Project Three	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0805	0.2270	1.1388	0.0000	0.4998	0.0000	0.2005	0.0000	0.0000
Norfolk Vanguard	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.1067	0.3008	1.5089	0.0000	0.6623	0.0000	0.2656	0.0000	0.0000
Moray West	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0201	0.0568	0.2847	0.0000	0.1250	0.0000	0.0501	0.0000	0.0000
Norfolk Boreas	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0785	0.2213	1.1103	0.0000	0.4874	0.0000	0.1955	0.0000	0.0000
East Anglia TWO	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0805	0.2270	1.1388	0.0000	0.4998	0.0000	0.2005	0.0000	0.0000
East Anglia ONE North	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0222	0.0624	0.3132	0.0000	0.1375	0.0000	0.0551	0.0000	0.0000
DEP and SEP (PEIR)	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0072	0.0204	0.1025	0.0000	0.0450	0.0000	0.0180	0.0000	0.0000
Hornsea 4 (PEIR)	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.1631	0.4597	2.3060	0.0000	1.0122	0.0000	0.4060	0.0000	0.0000
Berwick Bank	Pentland Floating HRA	0.0000	0.0000	0.1000	1.0000	0.0000	0.1000	0.0000	0.1000	0.0000	0.0000
Pentland Floating	Berwick Bank RIAA (Scope B)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Table B1-13 Apportioning of predicted displacement impacts to breeding adult gannet from SPAs within UK North Sea & Channel waters in spring (December to March)

Project	Source	Ailsa Craig	Fair Isle	Flamborough & Filey	Forth Islands	Grassholm	Hermaness, Saxavord	North Rona & Sula Sgeir	Noss	St Kilda	Sule Skerry & Sule Stack
Beatrice Demonstrator	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Greater Gabbard	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0195	0.0548	0.2750	0.0000	0.1207	0.0000	0.0484	0.0000	0.0000
Gunfleet Sands	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0034	0.0095	0.0478	0.0000	0.0210	0.0000	0.0084	0.0000	0.0000
Kentish Flats	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Kentish Flats Extension	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0037	0.0103	0.0518	0.0000	0.0227	0.0000	0.0091	0.0000	0.0000
Lincs	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
London Array	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Scroby Sands	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Sheringham Shoal	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0087	0.0246	0.1236	0.0000	0.0542	0.0000	0.0218	0.0000	0.0000
Teesside	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Thanet	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Humber Gateway	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Westermost Rough	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hywind	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Kincardine	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Beatrice	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Dudgeon	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0070	0.0199	0.0996	0.0000	0.0437	0.0000	0.0175	0.0000	0.0000
Galloper	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.2557	0.7207	3.6151	0.0000	1.5868	0.0000	0.6364	0.0000	0.0000
Race Bank	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0090	0.0254	0.1275	0.0000	0.0560	0.0000	0.0225	0.0000	0.0000
Rampion	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.1663	0.4688	2.3516	0.0000	1.0322	0.0000	0.4140	0.0000	0.0000
Hornsea Project One	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.1956	0.5514	2.7661	0.0000	1.2141	0.0000	0.4869	0.0000	0.0000
Blyth Demonstration Project	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Dogger Bank Creyke Beck Projects A and B	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.5774	1.6273	8.1628	0.0000	3.5829	0.0000	1.4370	0.0000	0.0000

Project	Source	Ailsa Craig	Fair Isle	Flamborough & Filey	Forth Islands	Grassholm	Hermaness, Saxavord	North Rona & Sula Sgeir	Noss	St Kilda	Sule Skerry & Sule Stack
East Anglia ONE	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	1.0256	2.8907	14.5001	0.0000	6.3646	0.0000	2.5526	0.0000	0.0000
European Offshore Wind Deployment Centre	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0014	0.0040	0.0199	0.0000	0.0087	0.0000	0.0035	0.0000	0.0000
Firth of Forth Alpha and Bravo	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.1872	0.5276	2.6465	0.0000	1.1616	0.0000	0.4659	0.0000	0.0000
Inch Cape	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.1982	0.5586	2.8020	0.0000	1.2299	0.0000	0.4933	0.0000	0.0000
Methil	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Moray Firth (EDA)	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0823	0.2320	1.1638	0.0000	0.5108	0.0000	0.2049	0.0000	0.0000
Neart na Gaoithe	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.1556	0.4386	2.2001	0.0000	0.9657	0.0000	0.3873	0.0000	0.0000
Dogger Bank Teesside Projects A and B	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.2501	0.7048	3.5354	0.0000	1.5518	0.0000	0.6224	0.0000	0.0000
Triton Knoll	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.0042	0.0119	0.0598	0.0000	0.0262	0.0000	0.0105	0.0000	0.0000
Hornsea Project Two	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.3214	0.9058	4.5437	0.0000	1.9944	0.0000	0.7999	0.0000	0.0000
East Anglia THREE	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.3577	1.0083	5.0579	0.0000	2.2201	0.0000	0.8904	0.0000	0.0000
Hornsea Project Three	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.2774	0.7819	3.9220	0.0000	1.7215	0.0000	0.6904	0.0000	0.0000
Norfolk Vanguard	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.6915	1.9491	9.7770	0.0000	4.2914	0.0000	1.7212	0.0000	0.0000
Moray West	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.1238	0.3488	1.7497	0.0000	0.7680	0.0000	0.3080	0.0000	0.0000
Norfolk Boreas	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.4857	1.3691	6.8674	0.0000	3.0143	0.0000	1.2090	0.0000	0.0000
East Anglia TWO	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.2512	0.7080	3.5513	0.0000	1.5588	0.0000	0.6252	0.0000	0.0000
East Anglia ONE North	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.1319	0.3719	1.8653	0.0000	0.8188	0.0000	0.3284	0.0000	0.0000
Hornsea 4 (PEIR)	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.3360	0.9471	4.7510	0.0000	2.0854	0.0000	0.8364	0.0000	0.0000
DEP and SEP (PEIR)	EA1N & EA2 RIAA Updated at PINS Deadline 13	0.0000	0.1799	0.5069	2.5429	0.0000	1.1162	0.0000	0.4477	0.0000	0.0000
Pentland Floating	Berwick Bank RIAA (Scope B)	0.0000	0.0000	0.1000	0.7000	0.0000	0.1000	0.0000	0.1000	0.0000	0.0000
Berwick Bank	Pentland Floating HRA	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

B.2 BDMPS in Western Waters (& Channel)

B.2.1 Kittiwake

Table B2-1 Apportioning of predicted impacts to breeding adult kittiwakes from SPAs within UK western waters & Channel

SPA	Awel Y Mor				Erebus				Pentland Floating	
	Breeding		Non-breeding		Breeding		Non-breeding		Breeding	
	CRM	Displacement	CRM	Displacement	CRM	Displacement	CRM	Displacement	CRM	Displacement
Ailsa Craig	0.010	0.000	0.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Buchan Ness to Collieston	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Calf of Eday	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Canna & Sanday	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Cape Wrath	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.177	0.075
Copinsay	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.028	0.012
East Caithness Cliffs	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.561	0.240
Fair Isle	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Farne Islands	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Flamborough and Filey	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Flannan Isles	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Forth Islands	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Foula	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Fowlsheugh	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Handa	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.041	0.018
Hermaness, Saxavord	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

SPA	Awel Y Mor				Erebus				Pentland Floating	
	Breeding		Non-breeding		Breeding		Non-breeding		Breeding	
	CRM	Displacement	CRM	Displacement	CRM	Displacement	CRM	Displacement	CRM	Displacement
Hoy	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.010	0.068
Marwick Head	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.179	0.078
Mingulay & Berneray	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
North Caithness Cliffs	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	5.020	2.600
North Colonsay & Western Cliffs	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
North Rona & Sula Sgeir	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Noss	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Rathlin Island	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Rousay	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.036	0.015
Rum	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Shiant Isles	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Skomer, Skokholm and the Seas off Pembrokeshire	0.020	0.000	0.090	0.000	0.280				0.000	0.000
St Abbs Head to Fast Castle	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
St Kilda	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sumburgh Head	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Troup, Pennan & Lions Heads	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.010	0.003
West Westray	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.444	0.189

B.2.2 Razorbill

Table B2-2 Apportioning of predicted impacts to breeding adult razorbill from SPAs within UK western waters

SPA	Awel Y Mor		Erebus		Pentland Floating
	Breeding	Non-breeding	Breeding	Non-breeding	Breeding
	Displacement	Displacement	Displacement	Displacement	Displacement
Cape Wrath	0.000	0.000	0.000	0.000	0.058
East Caithness Cliffs	0.000	0.000	0.000	0.000	0.324
Fair Isle	0.000	0.000	0.000	0.000	0.000
Flamborough & Filey	0.000	0.000	0.000	0.000	0.000
Flannan Islands	0.000	0.000	0.000	0.000	0.000
Forth Islands	0.000	0.000	0.000	0.000	0.000
Foula	0.000	0.000	0.000	0.000	0.000
Fowlsheugh	0.000	0.000	0.000	0.000	0.000
Handa	0.000	0.000	0.000	0.000	0.318
Mingulay & Berneray	0.000	0.000	0.000	0.000	0.000
North Caithness Cliffs	0.000	0.000	0.000	0.000	1.300
North Rona & Sula Sgeir	0.000	0.000	0.000	0.000	0.002
Rathlin Island	0.000	0.000	0.000	0.000	0.000
Shiants Isles	0.000	0.000	0.000	0.000	0.000
Skomer, Skokholm and the Seas off Pembrokeshire	0.000	0.047	3.700		0.000
St Abbs to Fast Castle	0.000	0.000	0.000	0.000	0.000
St Kilda	0.000	0.000	0.000	0.000	0.000
Troup, Pennan & Lions	0.000	0.000	0.000	0.000	0.000
West Westray	0.000	0.000	0.000	0.000	0.030

B.2.3 Puffin

Table B2-3 Apportioning of predicted impacts to breeding adult puffin from SPAs within UK western waters

SPA	Awel Y Mor		Erebus		Pentland Floating
	Breeding	Non-breeding	Breeding	Non-breeding	Annual
	Displacement	Displacement	Displacement	Displacement	Displacement
Canna & Sanday	0.000	0.000	0.000	0.000	0.000
Cape Wrath	0.000	0.000	0.000	0.000	0.049
Coquet Island	0.000	0.000	0.000	0.000	0.000
Fair Isle	0.000	0.000	0.000	0.000	0.014
Farne Islands	0.000	0.000	0.000	0.000	0.000
Flamborough & Filey	0.000	0.000	0.000	0.000	0.000
Flannan Isles	0.000	0.000	0.000	0.000	0.000
Forth Islands	0.000	0.000	0.000	0.000	0.000
Foula	0.000	0.000	0.000	0.000	0.007
Hermaness, Saxavord	0.000	0.000	0.000	0.000	0.000
Hoy	0.000	0.000	0.000	0.000	0.021
Mingulay & Berneray	0.000	0.000	0.000	0.000	0.000
North Caithness Cliffs	0.000	0.000	0.000	0.000	1.800
North Rona & Sula Sgeir	0.000	0.000	0.000	0.000	0.000
Noss	0.000	0.000	0.000	0.000	0.000
Rathlin Island	0.001	0.000	0.000	0.000	0.000
Skomer, Skokholm and the Seas off Pembrokeshire	0.020	0.000	15.700	0.000	0.000
St Kilda	0.000	0.000	0.000	0.000	0.000
Sule Skerry & Sule Stack	0.000	0.000	0.000	0.000	1.974
The Shiant Isles	0.000	0.000	0.000	0.000	0.000

B.2.4 Gannet

Table B2-4 Apportioning of predicted impacts to breeding adult gannet from SPAs within UK western waters

SPA	Awel Y Mor		Morlais		Walney Ext		Erebus		Pentland Floating Annual	
	Breeding	Non-breeding	Breeding	Non-breeding	Breeding	Non-breeding	Breeding	Non-breeding	CRM	Displacement
Ailsa Craig	7.4		0	0	25		0	0	0.1	0.1
Fair Isle	0	0	0	0	0	0	0	0	0.11	0.027
Flamborough & Filey Coast	0	0	0	0	0	0	0	0	0	0
Forth Islands	0	0	0	0	0	0	0	0	0.22	0.11
Grassholm	5.1		0		0	0	24.8		0	0
Hermaness, Saxa Vord and Valla Field	0	0	0	0	0	0	0	0	0.16	0.04
North Rona & Sula Sgeir	0	0	0	0	0	0	0	0	0.41	0.1
Noss	0	0	0	0	0	0	0	0	0.07	0.035
St Kilda	0	0	0	0	0	0	0	0	0.21	0.11
Sule Skerry & Sule Stack	0	0	0	0	0	0	0	0	2.1	0.53

APPENDIX C PREDICTED IMPACTS AND CHANGE IN ADULT SURVIVAL SUMMARY TABLES

C.1 Predicted impacts from the Project alone

The total predicted impacts that were apportioned to each SPA were compiled for the breeding season and each BDMPS region and season. Sections C.1.1 to C.1.8 summarise the apportioned impacts to SPAs in the breeding and non-breeding seasons to each BDMPS region in each BDMPS season for kittiwake, great black-backed gull, great skua, guillemot, razorbill, puffin, fulmar and gannet.

C.1.1 Kittiwake

The predicted impacts on kittiwakes from the Project alone apportioned to each SPA in the breeding season, and non-breeding season are shown in Table C1-1 and Table C1-2.

Table C1-1 Predicted impacts (number of adult birds) to kittiwakes in the UK North Sea during the breeding and non-breeding seasons from the Project alone.

SPA	BREEDING SEASON			NON-BREEDING SEASON						TOTAL					
				AUTUMN			SPRING			AUTUMN			SPRING		
	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
Ailsa Craig	0.0000	0.0000	0.0000	0.0005	0.0006	0.0006	0.0006	0.0007	0.0008	0.0005	0.0006	0.0006	0.0006	0.0007	0.0008
Buchan Ness to Collieston Coast	0.2077	0.2425	0.2773	0.7641	0.8337	0.9034	0.9775	1.0667	1.1558	0.9718	1.0763	1.1807	1.1853	1.3092	1.4331
Calf of Eday	0.0102	0.0119	0.0136	0.0455	0.0496	0.0538	0.0582	0.0635	0.0688	0.0557	0.0615	0.0674	0.0684	0.0754	0.0824
Canna and Sanday	0.0251	0.0293	0.0335	0.0008	0.0009	0.0010	0.0010	0.0011	0.0012	0.0259	0.0302	0.0344	0.0261	0.0304	0.0347
Cape Wrath	2.7766	3.2418	3.7069	0.0105	0.0115	0.0124	0.0134	0.0147	0.0159	2.7871	3.2532	3.7193	2.7901	3.2564	3.7228
Copinsay	0.0932	0.1088	0.1244	0.0406	0.0443	0.0480	0.0519	0.0566	0.0614	0.1337	0.1530	0.1723	0.1451	0.1654	0.1857
East Caithness Cliffs	2.8787	3.3610	3.8432	2.4619	2.6863	2.9107	3.1497	3.4368	3.7240	5.3406	6.0473	6.7539	6.0284	6.7978	7.5672
Fair Isle	0.0055	0.0064	0.0073	0.0470	0.0512	0.0555	0.0601	0.0656	0.0710	0.0524	0.0576	0.0628	0.0656	0.0720	0.0783

SPA	BREEDING SEASON			NON-BREEDING SEASON						TOTAL					
				AUTUMN			SPRING			AUTUMN			SPRING		
	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
Farne Islands	0.0000	0.0000	0.0000	0.2098	0.2289	0.2480	0.2684	0.2929	0.3173	0.2098	0.2289	0.2480	0.2684	0.2929	0.3173
Flamborough and Filey Coast	0.0000	0.0000	0.0000	2.2917	2.5006	2.7095	2.9320	3.1993	3.4666	2.2917	2.5006	2.7095	2.9320	3.1993	3.4666
Flannan Isles	0.0099	0.0115	0.0132	0.0014	0.0016	0.0017	0.0018	0.0020	0.0022	0.0113	0.0131	0.0149	0.0117	0.0135	0.0154
Forth Islands	0.0023	0.0000	0.0000	0.1889	0.2061	0.2233	0.2416	0.2637	0.2857	0.1911	0.2061	0.2233	0.2439	0.2637	0.2857
Foula	0.0000	0.0026	0.0030	0.0199	0.0217	0.0235	0.0255	0.0278	0.0301	0.0199	0.0243	0.0265	0.0255	0.0304	0.0331
Fowlsheugh	0.3626	0.4233	0.4841	0.5688	0.6207	0.6725	0.7277	0.7941	0.8604	0.9314	1.0440	1.1566	1.0903	1.2174	1.3445
Handa	0.6544	0.7640	0.8737	0.0019	0.0020	0.0022	0.0024	0.0026	0.0028	0.6563	0.7661	0.8759	0.6568	0.7667	0.8765
Hermaness, Saxa Vord and Valla Field	0.0001	0.0002	0.0002	0.0238	0.0260	0.0282	0.0305	0.0332	0.0360	0.0239	0.0261	0.0283	0.0306	0.0334	0.0362
Hoy	0.2329	0.2719	0.3109	0.0242	0.0264	0.0286	0.0309	0.0337	0.0366	0.2570	0.2983	0.3395	0.2638	0.3056	0.3475

SPA	BREEDING SEASON			NON-BREEDING SEASON						TOTAL					
				AUTUMN			SPRING			AUTUMN			SPRING		
	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
Marwick Head	0.3154	0.3682	0.4211	0.0320	0.0350	0.0379	0.0410	0.0447	0.0485	0.3474	0.4032	0.4589	0.3564	0.4129	0.4695
Mingulay and Berneray	0.0201	0.0234	0.0268	0.0023	0.0025	0.0027	0.0029	0.0032	0.0035	0.0224	0.0259	0.0295	0.0230	0.0266	0.0303
North Caithness Cliffs	3.6334	4.2421	4.8507	0.6184	0.6747	0.7311	0.7911	0.8632	0.9354	4.2518	4.9168	5.5818	4.4245	5.1053	5.7861
North Colonsay & Western Cliffs	0.0000	0.0000	0.0000	0.0056	0.0061	0.0067	0.0072	0.0079	0.0085	0.0056	0.0061	0.0067	0.0072	0.0079	0.0085
North Rona and Sula Sgeir	0.0431	0.0503	0.0575	0.0013	0.0014	0.0015	0.0016	0.0018	0.0019	0.0444	0.0517	0.0590	0.0447	0.0521	0.0594
Noss	0.0002	0.0003	0.0003	0.0309	0.0337	0.0365	0.0395	0.0431	0.0467	0.0311	0.0340	0.0368	0.0397	0.0434	0.0470
Rathlin Island	0.0000	0.0000	0.0000	0.0080	0.0088	0.0095	0.0103	0.0112	0.0121	0.0080	0.0088	0.0095	0.0103	0.0112	0.0121
Rousay	0.0540	0.0631	0.0721	0.1075	0.1173	0.1271	0.1375	0.1500	0.1626	0.1615	0.1803	0.1992	0.1915	0.2131	0.2347
Rum	0.0129	0.0150	0.0172	0.0008	0.0009	0.0010	0.0010	0.0011	0.0012	0.0137	0.0159	0.0182	0.0139	0.0162	0.0184

SPA	BREEDING SEASON			NON-BREEDING SEASON						TOTAL					
				AUTUMN			SPRING			AUTUMN			SPRING		
	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
St Abbs Head to Fast Castle	0.0186	0.0217	0.0248	0.0006	0.0006	0.0007	0.0007	0.0008	0.0008	0.0191	0.0223	0.0255	0.0193	0.0225	0.0256
Shiant Isles	0.0000	0.0000	0.0000	0.0011	0.0012	0.0013	0.0014	0.0015	0.0016	0.0011	0.0012	0.0013	0.0014	0.0015	0.0016
Skomer, Skokholm and the Seas off Pembrokeshire	0.0000	0.0000	0.0000	0.2073	0.2262	0.2451	0.2653	0.2894	0.3136	0.2073	0.2262	0.2451	0.2653	0.2894	0.3136
St Kilda	0.0010	0.0012	0.0014	0.0010	0.0011	0.0011	0.0012	0.0013	0.0015	0.0020	0.0022	0.0025	0.0023	0.0025	0.0028
Sumburgh Head	0.0231	0.0270	0.0309	0.0128	0.0140	0.0151	0.0164	0.0179	0.0194	0.0359	0.0410	0.0460	0.0395	0.0449	0.0502
Troup, Pennan and Lion's Heads	0.4822	0.5629	0.6437	0.9075	0.9902	1.0729	1.1610	1.2669	1.3727	1.3897	1.5532	1.7167	1.6432	1.8298	2.0164
West Westray	0.2852	0.3330	0.3808	0.7344	0.8014	0.8683	0.9396	1.0253	1.1109	1.0196	1.1344	1.2491	1.2248	1.3583	1.4917

Table C1-2 Predicted impacts (number of adult birds) to kittiwakes in the Western Waters & Channel during the breeding and non-breeding seasons from the Project alone.

SPA	BREEDING SEASON			NON-BREEDING SEASON						TOTAL					
				AUTUMN			SPRING			AUTUMN			SPRING		
	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
Ailsa Craig	0.0000	0.0000	0.0000	0.0287	0.0313	0.0340	0.0508	0.0554	0.0601	0.0287	0.0313	0.0340	0.0508	0.0554	0.0601
Buchan Ness to Collieston Coast	0.2077	0.2425	0.2773	0.2454	0.2678	0.2902	0.4889	0.5335	0.5780	0.4532	0.5104	0.5675	0.6966	0.7760	0.8554
Calf of Eday	0.0102	0.0119	0.0136	0.0146	0.0160	0.0173	0.0291	0.0318	0.0344	0.0248	0.0278	0.0309	0.0393	0.0436	0.0480
Canna and Sanday	0.0251	0.0293	0.0335	0.0481	0.0525	0.0569	0.0852	0.0930	0.1008	0.0732	0.0818	0.0904	0.1103	0.1223	0.1343
Cape Wrath	2.7766	3.2418	3.7069	0.6073	0.6626	0.7180	1.0753	1.1733	1.2713	3.3839	3.9044	4.4249	3.8519	4.4151	4.9782
Copinsay	0.0932	0.1088	0.1244	0.0130	0.0142	0.0154	0.0260	0.0284	0.0307	0.1062	0.1230	0.1398	0.1192	0.1371	0.1551
East Caithness Cliffs	2.8787	3.3610	3.8432	0.7908	0.8629	0.9349	1.5753	1.7189	1.8625	3.6695	4.2238	4.7781	4.4540	5.0798	5.7057
Fair Isle	0.0055	0.0064	0.0073	0.0151	0.0164	0.0178	0.0301	0.0328	0.0356	0.0205	0.0228	0.0251	0.0356	0.0392	0.0429

SPA	BREEDING SEASON			NON-BREEDING SEASON						TOTAL					
				AUTUMN			SPRING			AUTUMN			SPRING		
	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
Farne Islands	0.0000	0.0000	0.0000	0.0674	0.0735	0.0796	0.1342	0.1465	0.1587	0.0674	0.0735	0.0796	0.1342	0.1465	0.1587
Flamborough and Filey Coast	0.0000	0.0000	0.0000	0.7361	0.8032	0.8703	1.4664	1.6001	1.7338	0.7361	0.8032	0.8703	1.4664	1.6001	1.7338
Flannan Isles	0.0099	0.0115	0.0132	0.0817	0.0891	0.0966	0.1447	0.1579	0.1711	0.0916	0.1007	0.1098	0.1546	0.1694	0.1843
Forth Islands	0.0023	0.0000	0.0000	0.0607	0.0662	0.0717	0.1208	0.1319	0.1429	0.0629	0.0662	0.0717	0.1231	0.1319	0.1429
Foula	0.0000	0.0026	0.0030	0.0064	0.0070	0.0076	0.0127	0.0139	0.0151	0.0064	0.0096	0.0106	0.0127	0.0165	0.0181
Fowlsheugh	0.3626	0.4233	0.4841	0.1827	0.1994	0.2160	0.3640	0.3971	0.4303	0.5453	0.6227	0.7001	0.7265	0.8205	0.9144
Handa	0.6544	0.7640	0.8737	0.1099	0.1199	0.1299	0.1946	0.2123	0.2301	0.7643	0.8839	1.0036	0.8490	0.9764	1.1037
Hermaness, Saxa Vord and Valla Field	0.0001	0.0002	0.0002	0.0076	0.0083	0.0090	0.0153	0.0167	0.0181	0.0078	0.0085	0.0092	0.0154	0.0168	0.0182
Hoy	0.2329	0.2719	0.3109	0.0078	0.0085	0.0092	0.0155	0.0169	0.0183	0.2407	0.2804	0.3201	0.2483	0.2888	0.3292

SPA	BREEDING SEASON			NON-BREEDING SEASON						TOTAL					
				AUTUMN			SPRING			AUTUMN			SPRING		
	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
Marwick Head	0.3154	0.3682	0.4211	0.0103	0.0112	0.0121	0.0205	0.0224	0.0243	0.3257	0.3794	0.4332	0.3359	0.3906	0.4453
Mingulay and Berneray	0.0201	0.0234	0.0268	0.1308	0.1427	0.1547	0.2316	0.2527	0.2739	0.1509	0.1662	0.1815	0.2517	0.2762	0.3007
North Caithness Cliffs	3.6334	4.2421	4.8507	0.1986	0.2167	0.2348	0.3957	0.4317	0.4678	3.8320	4.4588	5.0856	4.0291	4.6738	5.3185
North Colonsay & Western Cliffs	0.0000	0.0000	0.0000	0.3266	0.3564	0.3861	0.5783	0.6310	0.6837	0.3266	0.3564	0.3861	0.5783	0.6310	0.6837
North Rona and Sula Sgeir	0.0431	0.0503	0.0575	0.0736	0.0803	0.0870	0.1303	0.1421	0.1540	0.1167	0.1306	0.1445	0.1733	0.1924	0.2115
Noss	0.0002	0.0003	0.0003	0.0099	0.0108	0.0117	0.0198	0.0216	0.0234	0.0102	0.0111	0.0121	0.0200	0.0218	0.0237
Rathlin Island	0.0000	0.0000	0.0000	0.4650	0.5074	0.5498	0.8235	0.8986	0.9737	0.4650	0.5074	0.5498	0.8235	0.8986	0.9737
Rousay	0.0540	0.0631	0.0721	0.0345	0.0377	0.0408	0.0687	0.0750	0.0813	0.0885	0.1007	0.1129	0.1227	0.1381	0.1534
Rum	0.0129	0.0150	0.0172	0.0463	0.0505	0.0547	0.0819	0.0894	0.0969	0.0592	0.0655	0.0719	0.0948	0.1044	0.1141
St Abbs Head to Fast Castle	0.0186	0.0217	0.0248	0.0322	0.0352	0.0381	0.0570	0.0622	0.0674	0.0508	0.0569	0.0629	0.0756	0.0839	0.0922

SPA	BREEDING SEASON			NON-BREEDING SEASON						TOTAL					
				AUTUMN			SPRING			AUTUMN			SPRING		
	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
Shiant Isles	0.0000	0.0000	0.0000	0.0613	0.0669	0.0725	0.1086	0.1185	0.1284	0.0613	0.0669	0.0725	0.1086	0.1185	0.1284
Skomer, Skokholm and the Seas off Pembrokeshire	0.0000	0.0000	0.0000	0.0666	0.0727	0.0787	0.1327	0.1448	0.1569	0.0666	0.0727	0.0787	0.1327	0.1448	0.1569
St Kilda	0.0010	0.0012	0.0014	0.0562	0.0613	0.0664	0.0995	0.1085	0.1176	0.0572	0.0625	0.0678	0.1005	0.1097	0.1190
Sumburgh Head	0.0231	0.0270	0.0309	0.0041	0.0045	0.0049	0.0082	0.0089	0.0097	0.0273	0.0315	0.0358	0.0313	0.0360	0.0406
Troup, Pennan and Lion's Heads	0.4822	0.5629	0.6437	0.2915	0.3180	0.3446	0.5807	0.6336	0.6866	0.7736	0.8810	0.9883	1.0629	1.1966	1.3303
West Westray	0.2852	0.3330	0.3808	0.2359	0.2574	0.2789	0.4699	0.5128	0.5556	0.5211	0.5904	0.6597	0.7551	0.8458	0.9364

C.1.2 Great black-backed gull

The predicted impacts on great black-backed gulls from the Project alone apportioned to each SPA in the breeding season, and non-breeding season are shown in Table C1-3.

Table C1-3 Predicted impacts to SPAs designated for breeding great black-backed gulls in the breeding and non-breeding seasons from the Project alone.

SPA	BREEDING SEASON	NON-BREEDING		TOTAL	
		UK NORTH SEA	WEST OF SCOTLAND	UK NORTH SEA	WEST OF SCOTLAND
Calf of Eday SPA	0.0001	0.0831	0.0000	0.0831	0.0001
Copinsay SPA	0.0111	0.0645	0.0000	0.0756	0.0111
East Caithness Cliffs SPA	0.1240	0.0517	0.0000	0.1758	0.1240
Hoy SPA	0.0093	0.0177	0.0000	0.0271	0.0093
Isles of Scilly SPA	0.0000	0.0027	0.0000	0.0027	0.0000
North Rona & Sula Sgeir SPA	0.0000	0.0006	0.1259	0.0006	0.1259

C.1.3 Great skua

The predicted impacts on great skuas from the Project alone apportioned to each SPA in the breeding season, and non-breeding season are shown in Table C1-4 and Table C1-5.

Table C1-4 Predicted impacts to SPAs designated for breeding great skuas in the UK North Sea & Channel during breeding and non-breeding seasons from the Project alone.

SPA	BREEDING SEASON	NON-BREEDING SEASON			TOTAL		
		AUTUMN	WINTER	SPRING	AUTUMN	WINTER	SPRING
Fair Isle SPA	0.0074	0.0000	0.0000	0.0000	0.0074	0.0074	0.0074

SPA	BREEDING SEASON	NON-BREEDING SEASON			TOTAL		
		AUTUMN	WINTER	SPRING	AUTUMN	WINTER	SPRING
Fetlar SPA	0.0048	0.0000	0.0000	0.0000	0.0048	0.0048	0.0048
Foula SPA	0.0221	0.0000	0.0000	0.0000	0.0221	0.0221	0.0221
Handa SPA	0.0057	0.0000	0.0000	0.0000	0.0057	0.0057	0.0057
Hoy SPA	0.2137	0.0000	0.0000	0.0000	0.2137	0.2137	0.2137
Noss SPA	0.0010	0.0000	0.0000	0.0000	0.0010	0.0010	0.0010
Ronas Hill - North Roe and Tingon SPA	0.0015	0.0000	0.0000	0.0000	0.0015	0.0015	0.0015
St Kilda SPA	0.0004	0.0000	0.0000	0.0000	0.0004	0.0004	0.0004

Table C1-5 Predicted impacts to SPAs designated for breeding great skuas in Western Waters during the breeding and non-breeding seasons from the Project alone.

SPA	BREEDING SEASON	NON-BREEDING SEASON			TOTAL		
		AUTUMN	WINTER	SPRING	AUTUMN	WINTER	SPRING
Fair Isle SPA	0.0074	0.0000	0.0000	0.0000	0.0074	0.0074	0.0074
Fetlar SPA	0.0048	0.0000	0.0000	0.0000	0.0048	0.0048	0.0048
Foula SPA	0.0221	0.0000	0.0000	0.0000	0.0221	0.0221	0.0221
Handa SPA	0.0057	0.0000	0.0000	0.0000	0.0057	0.0057	0.0057
Hoy SPA	0.2137	0.0000	0.0000	0.0000	0.2137	0.2137	0.2137
Noss SPA	0.0010	0.0000	0.0000	0.0000	0.0010	0.0010	0.0010

SPA	BREEDING SEASON	NON-BREEDING SEASON			TOTAL		
		AUTUMN	WINTER	SPRING	AUTUMN	WINTER	SPRING
Ronas Hill - North Roe and Tingon SPA	0.0015	0.0000	0.0000	0.0000	0.0015	0.0015	0.0015
St Kilda SPA	0.0004	0.0000	0.0000	0.0000	0.0004	0.0004	0.0004

C.1.4 Guillemot

The predicted impacts on guillemots from the Project alone apportioned to each SPA in the breeding season, and non-breeding season are shown in Table C1-6.

Table C1-6 Predicted impacts to SPAs designated for breeding guillemots in the breeding and non-breeding seasons from the Project alone.

SPA	TOTAL		
	BREEDING & NON-BREEDING SEASON		
	LOW	MID	HIGH
Calf of Eday	0.02	0.02	0.03
Cape Wrath	2.52	3.62	4.73
Copinsay	0.09	0.13	0.17
East Caithness Cliffs	1.77	2.54	3.31
Fair Isle	0.01	0.01	0.01
Handa	1.18	1.70	2.21
Hoy	0.59	0.85	1.11
Marwick Head	0.19	0.28	0.36

SPA	TOTAL		
	BREEDING & NON-BREEDING SEASON		
	LOW	MID	HIGH
North Caithness Cliffs	2.10	3.02	3.94
North Rona and Sula Sgeir	0.02	0.04	0.05
Rousay	0.04	0.06	0.08
Shiant Isles	0.02	0.03	0.04
Sule Skerry and Sule Stack	92.96	133.56	174.16
West Westray	0.12	0.18	0.23

C.1.5 Razorbill

The predicted impacts on razorbills from the Project alone apportioned to each SPA in the breeding season, and non-breeding season are shown in Table C1-7 and Table C1-8.

Table C1-7 Predicted impacts to SPAs designated for breeding razorbills in the UK North Sea & Channel during breeding and non-breeding seasons from the Project alone.

SPA	BREEDING SEASON			NON-BREEDING SEASON						TOTAL					
				AUTUMN & SPRING MIGRATION			NON-BREEDING SEASON			AUTUMN & SPRING MIGRATION			NON-BREEDING SEASON		
	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
Cape Wrath	0.3863	0.5151	0.6439	0.0001	0.0003	0.0004	0.0021	0.0041	0.0004	0.3865	0.5154	0.6443	0.3884	0.5192	0.6443
East Caithness Cliffs	0.6210	0.8280	1.0350	0.0433	0.0866	0.1299	0.0370	0.0740	0.1299	0.6643	0.9146	1.1649	0.6580	0.9019	1.1649
Fair Isle	0.0012	0.0016	0.0020	0.0030	0.0060	0.0090	0.0027	0.0054	0.0090	0.0042	0.0076	0.0110	0.0039	0.0070	0.0110
Flamborough & Filey Coast	0.0000	0.0000	0.0000	0.0346	0.0693	0.1039	0.0296	0.0592	0.1039	0.0346	0.0693	0.1039	0.0296	0.0592	0.1039
Flannan Islands	0.0000	0.0000	0.0000	0.0001	0.0001	0.0002	0.0010	0.0021	0.0002	0.0001	0.0001	0.0002	0.0010	0.0021	0.0002
Forth Islands	0.0000	0.0000	0.0000	0.0091	0.0182	0.0273	0.0078	0.0155	0.0273	0.0091	0.0182	0.0273	0.0078	0.0155	0.0273

SPA	BREEDING SEASON			NON-BREEDING SEASON						TOTAL					
				AUTUMN & SPRING MIGRATION			NON-BREEDING SEASON			AUTUMN & SPRING MIGRATION			NON-BREEDING SEASON		
	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
Foula	0.0002	0.0002	0.0003	0.0012	0.0025	0.0037	0.0011	0.0022	0.0037	0.0014	0.0027	0.0040	0.0013	0.0024	0.0040
Fowlsheugh	0.0000	0.0000	0.0000	0.0122	0.0244	0.0366	0.0104	0.0209	0.0366	0.0122	0.0244	0.0366	0.0104	0.0209	0.0366
Handa	0.2476	0.3301	0.4127	0.0004	0.0007	0.0011	0.0051	0.0102	0.0011	0.2480	0.3309	0.4137	0.2527	0.3403	0.4137
Mingulay & Berneray	0.0000	0.0000	0.0000	0.0007	0.0014	0.0021	0.0100	0.0199	0.0021	0.0007	0.0014	0.0021	0.0100	0.0199	0.0021
North Caithness Cliffs	0.3519	0.4692	0.5865	0.0056	0.0112	0.0168	0.0050	0.0101	0.0168	0.3575	0.4804	0.6033	0.3569	0.4793	0.6033
North Rona & Sula Sgeir	0.0025	0.0033	0.0042	0.0001	0.0002	0.0002	0.0011	0.0022	0.0032	0.0026	0.0035	0.0044	0.0036	0.0055	0.0074
Rathlin Island	0.0000	0.0000	0.0000	0.0011	0.0021	0.0032	0.0076	0.0152	0.0032	0.0011	0.0021	0.0032	0.0076	0.0152	0.0032
Shiant Isles	0.0370	0.0493	0.0617	0.0003	0.0006	0.0009	0.0042	0.0084	0.0009	0.0373	0.0499	0.0625	0.0412	0.0577	0.0625
Skomer, Skokholm and the Seas off Pembrokeshire	0.0000	0.0000	0.0000	0.0004	0.0008	0.0012	0.0030	0.0059	0.0012	0.0004	0.0008	0.0012	0.0030	0.0059	0.0012

SPA	BREEDING SEASON			NON-BREEDING SEASON						TOTAL					
				AUTUMN & SPRING MIGRATION			NON-BREEDING SEASON			AUTUMN & SPRING MIGRATION			NON-BREEDING SEASON		
	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
St Abbs to Fast Castle	0.0000	0.0000	0.0000	0.0042	0.0084	0.0127	0.0036	0.0072	0.0127	0.0042	0.0084	0.0127	0.0036	0.0072	0.0127
St Kilda	0.0000	0.0000	0.0000	0.0001	0.0002	0.0004	0.0017	0.0034	0.0004	0.0001	0.0002	0.0004	0.0017	0.0034	0.0004
Troup, Pennan & Lions	0.0184	0.0245	0.0306	0.0060	0.0121	0.0181	0.0052	0.0103	0.0181	0.0244	0.0366	0.0488	0.0235	0.0348	0.0488
West Westray	0.0171	0.0228	0.0285	0.0018	0.0036	0.0054	0.0016	0.0033	0.0054	0.0189	0.0264	0.0339	0.0187	0.0261	0.0339

Table C1-8 Predicted impacts to SPAs designated for breeding razorbills in Western Waters during breeding and non-breeding seasons from the Project alone.

SPA	BREEDING SEASON			NON-BREEDING SEASON						TOTAL					
				AUTUMN & MIGRATION		SPRING	NON-BREEDING SEASON			AUTUMN & MIGRATION		SPRING	NON-BREEDING SEASON		
	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
Cape Wrath	0.38633	0.51510	0.64388	0.0068	0.0135	0.02	0.0049	0.0098	0.0147	0.39	0.53	0.66	0.39	0.52	0.66
East Caithness Cliffs	0.62098	0.82797	1.03496	0.00000	0.00000	0.00000	0.00073	0.00146	0.00219	0.62098	0.82797	1.03496	0.62171	0.82943	1.03715
Fair Isle	0.00121	0.00161	0.00201	0.00015	0.00030	0.00046	0.00005	0.00011	0.00016	0.00136	0.00191	0.00247	0.00126	0.00171	0.00217
Flamborough & Filey Coast	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00058	0.00117	0.00175	0.00000	0.00000	0.00000	0.00058	0.00117	0.00175
Flannan Islands	0.00000	0.00000	0.00000	0.00340	0.00681	0.01021	0.00246	0.00492	0.00737	0.00340	0.00681	0.01021	0.00246	0.00492	0.00737
Forth Islands	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00015	0.00030	0.00046	0.00000	0.00000	0.00000	0.00015	0.00030	0.00046
Foula	0.00015	0.00020	0.00025	0.00006	0.00013	0.00019	0.00002	0.00005	0.00007	0.00021	0.00033	0.00044	0.00017	0.00025	0.00032
Fowlsheugh	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00020	0.00041	0.00061	0.00000	0.00000	0.00000	0.00020	0.00041	0.00061

SPA	BREEDING SEASON			NON-BREEDING SEASON						TOTAL					
				AUTUMN & SPRING MIGRATION			NON-BREEDING SEASON			AUTUMN & SPRING MIGRATION			NON-BREEDING SEASON		
	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
Handa	0.24760	0.33014	0.41267	0.0167	0.0335	0.0502	0.0121	0.0242	0.0362	0.26433	0.36359	0.46285	0.25968	0.35429	0.44890
Mingulay & Berneray	0.00000	0.00000	0.00000	0.03275	0.06550	0.09824	0.02364	0.04728	0.07093	0.03275	0.06550	0.09824	0.02364	0.04728	0.07093
North Caithness Cliffs	0.35191	0.46922	0.58652	0.00028	0.00056	0.00084	0.00010	0.00020	0.00030	0.35219	0.46978	0.58737	0.35201	0.46942	0.58682
North Rona & Sula Sgeir	0.00249	0.00332	0.00415	0.00353	0.00705	0.01058	0.00255	0.00509	0.00764	0.00602	0.01038	0.01473	0.00504	0.00842	0.01179
Rathlin Island	0.00000	0.00000	0.00000	0.04985	0.09971	0.14956	0.03599	0.07198	0.10797	0.04985	0.09971	0.14956	0.03599	0.07198	0.10797
Shiant Isles	0.03700	0.04933	0.06166	0.01376	0.02752	0.04127	0.00993	0.01986	0.02979	0.05075	0.07684	0.10293	0.04693	0.06919	0.09145
Skomer, Skokholm and the Seas off Pembrokeshire	0.00000	0.00000	0.00000	0.01944	0.03887	0.05831	0.01052	0.02105	0.03157	0.01944	0.03887	0.05831	0.01052	0.02105	0.03157

SPA	BREEDING SEASON			NON-BREEDING SEASON						TOTAL					
				AUTUMN & MIGRATION		SPRING	NON-BREEDING SEASON			AUTUMN & MIGRATION		SPRING	NON-BREEDING SEASON		
	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
St Abbs to Fast Castle	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00007	0.00014	0.00021	0.00000	0.00000	0.00000	0.00007	0.00014	0.00021
St Kilda	0.00000	0.00000	0.00000	0.00551	0.01101	0.01652	0.00397	0.00795	0.01192	0.00551	0.01101	0.01652	0.00397	0.00795	0.01192
Troup, Pennan & Lions	0.01839	0.02451	0.03064	0.00000	0.00000	0.00000	0.00010	0.00020	0.00031	0.01839	0.02451	0.03064	0.01849	0.02472	0.03095
West Westray	0.01710	0.02280	0.02850	0.00009	0.00018	0.00027	0.00003	0.00006	0.00010	0.01719	0.02298	0.02878	0.01713	0.02287	0.02860

C.1.6 Puffin

The predicted impacts on puffins from the Project alone apportioned to each SPA in the breeding season, and non-breeding season are shown in Table C1-9 and Table C1-10.

Table C1-9 Predicted impacts to SPAs designated for breeding puffins in the UK North Sea & Channel during breeding and non-breeding seasons from the Project alone.

SPA	BREEDING SEASON			NON-BREEDING SEASON			TOTAL		
	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
Canna & Sanday	0.0001	0.0002	0.0002	0.0001	0.0002	0.0003	0.0002	0.0004	0.0005
Cape Wrath	0.0076	0.0102	0.0125	0.0001	0.0003	0.0004	0.0077	0.0104	0.0128
Coquet Island	0.0000	0.0000	0.0000	0.5313	1.0626	1.5938	0.5313	1.0626	1.5938
Fair Isle	0.0003	0.0004	0.0005	0.1382	0.2765	0.4147	0.1385	0.2769	0.4152
Farne Islands	0.0000	0.0000	0.0000	1.7199	3.4399	5.1598	1.7199	3.4399	5.1598
Flamborough & Filey Coast	0.0000	0.0000	0.0000	0.0412	0.0825	0.1237	0.0412	0.0825	0.1237
Flannan Isles	0.0044	0.0059	0.0072	0.0013	0.0027	0.0040	0.0057	0.0085	0.0112

SPA	BREEDING SEASON			NON-BREEDING SEASON			TOTAL		
	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
Forth Islands	0.0000	0.0000	0.0000	2.6784	5.3568	8.0352	2.6784	5.3568	8.0352
Foula	0.0001	0.0001	0.0002	0.2905	0.5810	0.8715	0.2906	0.5812	0.8717
Hermaness, Saxa Vord and Valla Field	0.0001	0.0001	0.0001	0.3055	0.6110	0.9165	0.3056	0.6111	0.9166
Hoy	0.0099	0.0132	0.0161	0.0452	0.0904	0.1356	0.0551	0.1035	0.1517
Mingulay & Berneray	0.0000	0.0000	0.0000	0.0003	0.0005	0.0008	0.0003	0.0005	0.0008
North Caithness Cliffs	0.0088	0.0117	0.0144	0.0126	0.0252	0.0378	0.0214	0.0369	0.0522
North Rona & Sula Sgeir	0.0006	0.0009	0.0010	0.0005	0.0009	0.0014	0.0011	0.0018	0.0025
Noss	0.0000	0.0000	0.0000	0.0104	0.0207	0.0311	0.0104	0.0208	0.0311
Rathlin Island	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	0.0000	0.0001	0.0001
Shiant Isles	0.0170	0.0227	0.0278	0.0056	0.0112	0.0168	0.0226	0.0339	0.0446
Skomer, Skokholm and the Seas off Pembrokeshire	0.0000	0.0000	0.0000	0.0021	0.0041	0.0062	0.0021	0.0041	0.0062

SPA	BREEDING SEASON			NON-BREEDING SEASON			TOTAL		
	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
St Kilda	0.0014	0.0018	0.0022	0.0123	0.0245	0.0368	0.0136	0.0264	0.0390
Sule Skerry & Sule Stack	63.8266	85.1022	104.4070	0.0051	0.0102	0.0154	63.8318	85.1124	104.4224

Table C1-10 Predicted impacts to SPAs designated for breeding puffins in Western Waters during the breeding and non-breeding seasons from the Project alone.

SPA	BREEDING SEASON			NON-BREEDING SEASON			TOTAL		
	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
Canna & Sanday	0.0001	0.0002	0.0002	0.0117	0.0234	0.0351	0.0119	0.0236	0.0354
Cape Wrath	0.0076	0.0102	0.0125	0.0199	0.0398	0.0596	0.0275	0.0499	0.0721
Coquet Island	0.0000	0.0000	0.0000	0.0595	0.1191	0.1786	0.0595	0.1191	0.1786
Fair Isle	0.0003	0.0004	0.0005	0.0590	0.1180	0.1770	0.0593	0.1184	0.1775
Farne Islands	0.0000	0.0000	0.0000	0.1928	0.3855	0.5783	0.1928	0.3855	0.5783

SPA	BREEDING SEASON			NON-BREEDING SEASON			TOTAL		
	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
Flamborough & Filey Coast	0.0000	0.0000	0.0000	0.0046	0.0092	0.0138	0.0046	0.0092	0.0138
Flannan Isles	0.0044	0.0059	0.0072	0.1935	0.3870	0.5805	0.1979	0.3928	0.5876
Forth Islands	0.0000	0.0000	0.0000	0.3001	0.6003	0.9004	0.3001	0.6003	0.9004
Foula	0.0001	0.0001	0.0002	0.1240	0.2481	0.3721	0.1241	0.2482	0.3722
Hermaness, Saxa Vord and Valla Field	0.0001	0.0001	0.0001	0.1304	0.2609	0.3913	0.1305	0.2610	0.3914
Hoy	0.0099	0.0132	0.0161	0.0193	0.0386	0.0579	0.0292	0.0517	0.0740
Mingulay & Berneray	0.0000	0.0000	0.0000	0.0388	0.0775	0.1163	0.0388	0.0775	0.1163
North Caithness Cliffs	0.0088	0.0117	0.0144	0.0054	0.0107	0.0161	0.0142	0.0225	0.0305
North Rona & Sula Sgeir	0.0006	0.0009	0.0010	0.0675	0.1350	0.2025	0.0681	0.1358	0.2035
Noss	0.0000	0.0000	0.0000	0.0044	0.0088	0.0132	0.0044	0.0088	0.0132
Rathlin Island	0.0000	0.0000	0.0000	0.0086	0.0172	0.0258	0.0086	0.0172	0.0258

SPA	BREEDING SEASON			NON-BREEDING SEASON			TOTAL		
	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
Shiant Isles	0.0170	0.0227	0.0278	0.8083	1.6166	2.4248	0.8253	1.6392	2.4527
Skomer, Skokholm and the Seas off Pembrokeshire	0.0000	0.0000	0.0000	0.2991	0.5982	0.8972	0.2991	0.5982	0.8972
St Kilda	0.0014	0.0018	0.0022	1.7645	3.5289	5.2934	1.7658	3.5308	5.2956
Sule Skerry & Sule Stack	63.8266	85.1022	104.4070	0.7376	1.4752	2.2129	64.5643	86.5774	106.6199

C.1.7 Fulmar

The predicted impacts on fulmar from the Project alone apportioned to each SPA in the breeding season, and non-breeding season are shown in Table C1-11 and Table C1-12.

Table C1-11 Predicted impacts to SPAs designated for breeding fulmars in the UK North Sea during the breeding and non-breeding seasons from the Project alone.

SPA	BREEDING SEASON			NON-BREEDING SEASON						TOTAL					
				WINTER			MIGRATION			WINTER			MIGRATION		
	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
Buchan Ness to Collieston Coast	0.0004	0.0008	0.0012	0.0100	0.0200	0.0429	0.0143	0.0286	0.0429	0.0104	0.0208	0.0441	0.0147	0.0294	0.0441
Calf of Eday	0.0076	0.0153	0.0229	0.0135	0.0270	0.0520	0.0173	0.0347	0.0520	0.0211	0.0423	0.0750	0.0250	0.0500	0.0750
Cape Wrath	0.0335	0.0670	0.1006	0.0004	0.0009	0.0000	0.0000	0.0000	0.0000	0.0340	0.0679	0.1006	0.0335	0.0670	0.1006
Copinsay	0.0063	0.0127	0.0190	0.0119	0.0239	0.0358	0.0119	0.0239	0.0358	0.0183	0.0365	0.0548	0.0183	0.0365	0.0548
East Caithness Cliffs	0.0494	0.0988	0.1482	0.1040	0.2080	0.4457	0.1486	0.2972	0.4457	0.1534	0.3068	0.5939	0.1980	0.3959	0.5939
Fair Isle	0.0294	0.0589	0.0883	0.2171	0.4342	0.8375	0.2792	0.5583	0.8375	0.2466	0.4931	0.9258	0.3086	0.6172	0.9258

SPA	BREEDING SEASON			NON-BREEDING SEASON						TOTAL					
				WINTER			MIGRATION			WINTER			MIGRATION		
	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
Fetlar	0.0027	0.0055	0.0082	0.0653	0.1305	0.2517	0.0839	0.1678	0.2517	0.0680	0.1360	0.2600	0.0867	0.1733	0.2600
Flamborough & Filey Coast	0.0000	0.0000	0.0000	0.0064	0.0129	0.0276	0.0092	0.0184	0.0276	0.0064	0.0129	0.0276	0.0092	0.0184	0.0276
Flannan Isles	0.0011	0.0021	0.0032	0.0015	0.0031	0.0000	0.0000	0.0000	0.0000	0.0026	0.0052	0.0032	0.0011	0.0021	0.0032
Forth Islands	0.0000	0.0000	0.0000	0.0061	0.0122	0.0261	0.0087	0.0174	0.0261	0.0061	0.0122	0.0261	0.0087	0.0174	0.0261
Foula	0.0067	0.0133	0.0200	0.1447	0.2894	0.5581	0.1860	0.3721	0.5581	0.1514	0.3027	0.5781	0.1927	0.3854	0.5781
Fowlsheugh	0.0002	0.0004	0.0006	0.0014	0.0028	0.0061	0.0020	0.0040	0.0061	0.0016	0.0032	0.0066	0.0022	0.0044	0.0066
Handa	0.0033	0.0066	0.0098	0.0004	0.0008	0.0000	0.0000	0.0000	0.0000	0.0037	0.0073	0.0098	0.0033	0.0066	0.0098
Hermaness, Saxa Vord and Valla Field	0.0034	0.0069	0.0103	0.0513	0.1025	0.1977	0.0659	0.1318	0.1977	0.0547	0.1094	0.2080	0.0693	0.1387	0.2080
Hoy	0.5918	1.1836	1.7754	0.1434	0.2869	0.5532	0.1844	0.3688	0.5532	0.7352	1.4704	2.3286	0.7762	1.5524	2.3286
Mingulay and Berneray	0.0011	0.0022	0.0033	0.0019	0.0038	0.0000	0.0000	0.0000	0.0000	0.0030	0.0060	0.0033	0.0011	0.0022	0.0033

SPA	BREEDING SEASON			NON-BREEDING SEASON						TOTAL					
				WINTER			MIGRATION			WINTER			MIGRATION		
	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
North Caithness Cliffs	0.3593	0.7187	1.0780	0.1044	0.2087	0.4025	0.1342	0.2683	0.4025	0.4637	0.9274	1.4805	0.4935	0.9870	1.4805
North Rona and Sula Sgeir	0.0046	0.0092	0.0138	0.0010	0.0021	0.0000	0.0000	0.0000	0.0000	0.0056	0.0113	0.0138	0.0046	0.0092	0.0138
Noss	0.0018	0.0036	0.0054	0.0384	0.0769	0.1482	0.0494	0.0988	0.1482	0.0402	0.0805	0.1536	0.0512	0.1024	0.1536
Rathlin Island	0.0000	0.0000	0.0000	0.0003	0.0006	0.0000	0.0000	0.0000	0.0000	0.0003	0.0006	0.0000	0.0000	0.0000	0.0000
Rousay	0.0153	0.0307	0.0460	0.0075	0.0151	0.0291	0.0097	0.0194	0.0291	0.0229	0.0457	0.0751	0.0250	0.0500	0.0751
Shiant Isles	0.0003	0.0005	0.0008	0.0009	0.0018	0.0000	0.0000	0.0000	0.0000	0.0012	0.0023	0.0008	0.0003	0.0005	0.0008
St Kilda	0.0165	0.0329	0.0494	0.0138	0.0276	0.0000	0.0000	0.0000	0.0000	0.0303	0.0606	0.0494	0.0165	0.0329	0.0494
Sumburgh Head	0.0051	0.0101	0.0152	0.0017	0.0034	0.0066	0.0022	0.0044	0.0066	0.0068	0.0135	0.0218	0.0073	0.0145	0.0218
Troup, Pennan and Lion's Heads	0.0014	0.0028	0.0043	0.0131	0.0263	0.0563	0.0188	0.0376	0.0563	0.0146	0.0291	0.0606	0.0202	0.0404	0.0606
West Westray	0.0057	0.0113	0.0170	0.0050	0.0099	0.0191	0.0064	0.0128	0.0191	0.0106	0.0212	0.0361	0.0120	0.0241	0.0361

Table C1-12 Predicted impacts to SPAs designated for breeding fulmars in Western Waters during the breeding and non-breeding seasons from the Project alone.

SPA	BREEDING SEASON			NON-BREEDING SEASON						TOTAL					
				WINTER			MIGRATION			WINTER			MIGRATION		
	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
Buchan Ness to Collieston Coast	0.0004	0.0008	0.0012	0.0016	0.0032	0.0048	0.0000	0.0000	0.0000	0.0020	0.0040	0.0061	0.0004	0.0008	0.0012
Calf of Eday	0.0076	0.0153	0.0229	0.0022	0.0043	0.0065	0.0022	0.0043	0.0125	0.0098	0.0196	0.0294	0.0098	0.0196	0.0355
Cape Wrath	0.0335	0.0670	0.1006	0.0174	0.0348	0.0523	0.0249	0.0498	0.1439	0.0509	0.1019	0.1528	0.0584	0.1168	0.2444
Copinsay	0.0063	0.0127	0.0190	0.0019	0.0038	0.0058	0.0019	0.0038	0.0111	0.0082	0.0165	0.0247	0.0082	0.0165	0.0301
East Caithness Cliffs	0.0494	0.0988	0.1482	0.0167	0.0334	0.0501	0.0000	0.0000	0.0000	0.0661	0.1322	0.1983	0.0494	0.0988	0.1482
Fair Isle	0.0294	0.0589	0.0883	0.0349	0.0698	0.1047	0.0349	0.0698	0.2017	0.0643	0.1286	0.1930	0.0643	0.1286	0.2900
Fetlar	0.0027	0.0055	0.0082	0.0105	0.0210	0.0315	0.0105	0.0210	0.0606	0.0132	0.0264	0.0397	0.0132	0.0264	0.0688
Flamborough & Filey Coast	0.0000	0.0000	0.0000	0.0010	0.0021	0.0031	0.0000	0.0000	0.0000	0.0010	0.0021	0.0031	0.0000	0.0000	0.0000

SPA	BREEDING SEASON			NON-BREEDING SEASON						TOTAL					
				WINTER			MIGRATION			WINTER			MIGRATION		
	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
Flannan Isles	0.0011	0.0021	0.0032	0.0604	0.1207	0.1811	0.0862	0.1725	0.4984	0.0614	0.1228	0.1843	0.0873	0.1746	0.5016
Forth Islands	0.0000	0.0000	0.0000	0.0010	0.0020	0.0029	0.0000	0.0000	0.0000	0.0010	0.0020	0.0029	0.0000	0.0000	0.0000
Foula	0.0067	0.0133	0.0200	0.0233	0.0465	0.0698	0.0233	0.0465	0.1344	0.0299	0.0598	0.0898	0.0299	0.0598	0.1544
Fowlsheugh	0.0002	0.0004	0.0006	0.0002	0.0005	0.0007	0.0000	0.0000	0.0000	0.0004	0.0008	0.0012	0.0002	0.0004	0.0006
Handa	0.0033	0.0066	0.0098	0.0154	0.0308	0.0462	0.0220	0.0440	0.1272	0.0187	0.0374	0.0560	0.0253	0.0506	0.1370
Hermaness, Saxa Vord and Valla Field	0.0034	0.0069	0.0103	0.0082	0.0165	0.0247	0.0082	0.0165	0.0476	0.0117	0.0233	0.0350	0.0117	0.0233	0.0579
Hoy	0.5918	1.1836	1.7754	0.0231	0.0461	0.0692	0.0231	0.0461	0.1332	0.6148	1.2297	1.8445	0.6148	1.2297	1.9086
Mingulay and Berneray	0.0011	0.0022	0.0033	0.0745	0.1490	0.2236	0.1065	0.2129	0.6153	0.0756	0.1512	0.2269	0.1076	0.2151	0.6186
North Caithness Cliffs	0.3593	0.7187	1.0780	0.0168	0.0335	0.0503	0.0168	0.0335	0.0969	0.3761	0.7522	1.1283	0.3761	0.7522	1.1749
North Rona and Sula Sgeir	0.0046	0.0092	0.0138	0.0412	0.0824	0.1236	0.0588	0.1177	0.3401	0.0458	0.0916	0.1374	0.0634	0.1269	0.3539

SPA	BREEDING SEASON			NON-BREEDING SEASON						TOTAL					
				WINTER			MIGRATION			WINTER			MIGRATION		
	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
Noss	0.0018	0.0036	0.0054	0.0062	0.0124	0.0185	0.0062	0.0124	0.0357	0.0080	0.0160	0.0239	0.0080	0.0160	0.0411
Rathlin Island	0.0000	0.0000	0.0000	0.0125	0.0250	0.0375	0.0179	0.0357	0.1032	0.0125	0.0250	0.0375	0.0179	0.0357	0.1032
Rousay	0.0153	0.0307	0.0460	0.0012	0.0024	0.0036	0.0012	0.0024	0.0070	0.0165	0.0331	0.0496	0.0165	0.0331	0.0530
Shiant Isles	0.0003	0.0005	0.0008	0.0361	0.0723	0.1084	0.0516	0.1033	0.2984	0.0364	0.0728	0.1092	0.0519	0.1038	0.2992
St Kilda	0.0165	0.0329	0.0494	0.5442	1.0884	1.6326	0.7774	1.5548	4.4928	0.5607	1.1213	1.6820	0.7939	1.5878	4.5422
Sumburgh Head	0.0051	0.0101	0.0152	0.0003	0.0006	0.0008	0.0003	0.0006	0.0016	0.0053	0.0107	0.0160	0.0053	0.0107	0.0168
Troup, Pennan and Lion's Heads	0.0014	0.0028	0.0043	0.0021	0.0042	0.0063	0.0000	0.0000	0.0000	0.0035	0.0071	0.0106	0.0014	0.0028	0.0043
West Westray	0.0057	0.0113	0.0170	0.0008	0.0016	0.0024	0.0008	0.0016	0.0046	0.0064	0.0129	0.0193	0.0064	0.0129	0.0215

C.1.8 Gannet

The predicted impacts on gannet from the Project alone apportioned to each SPA in the breeding season, and non-breeding season are shown in Table C1-13 and Table C1-14.

Table C1-13 Predicted impacts to SPAs designated for breeding gannets in the UK North Sea & Channel during breeding and non-breeding seasons from the Project alone.

SPA	BREEDING SEASON			NON-BREEDING SEASON						TOTAL					
				AUTUMN			SPRING			AUTUMN			SPRING		
	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
Ailsa Craig	0.0069	0.0078	0.0088	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0069	0.0078	0.0088	0.0069	0.0078	0.0088
Fair Isle	0.0026	0.0029	0.0032	0.2893	0.4124	0.5356	0.5343	0.5343	0.7195	0.2918	0.4153	0.5388	0.5369	0.5372	0.7228
Flamborough & Filey Coast	0.0000	0.0000	0.0000	1.0193	1.4533	1.8873	1.5060	1.5060	2.0280	1.0193	1.4533	1.8873	1.5060	1.5060	2.0280
Forth Islands	0.0200	0.0226	0.0253	5.1128	7.2898	9.4668	7.5542	7.5542	10.1727	5.1328	7.3124	9.4921	7.5742	7.5768	10.1979
Grassholm	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hermaness, Saxa Vord and Valla Field	0.0051	0.0058	0.0064	1.7954	2.5598	3.3243	3.3158	3.3158	4.4651	1.8004	2.5656	3.3307	3.3209	3.3215	4.4715

SPA	BREEDING SEASON			NON-BREEDING SEASON						TOTAL					
				AUTUMN			SPRING			AUTUMN			SPRING		
	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
North Rona & Sula Sgeir	0.0192	0.0218	0.0244	0.0850	0.1212	0.1574	0.0000	0.0000	0.0000	0.1042	0.1430	0.1818	0.0192	0.0218	0.0244
Noss	0.0040	0.0045	0.0050	0.7200	1.0266	1.3332	1.3299	1.3299	1.7908	0.7240	1.0311	1.3382	1.3338	1.3343	1.7958
St Kilda	0.0128	0.0145	0.0162	0.5494	0.7834	1.0173	0.0000	0.0000	0.0000	0.5622	0.7978	1.0335	0.0128	0.0145	0.0162
Sule Skerry & Sule Stack	25.8380	29.2869	32.7358	0.0431	0.0614	0.0798	0.0000	0.0000	0.0000	25.8811	29.3483	32.8156	25.8380	29.2869	32.7358

Table C1-14 Predicted impacts to SPAs designated for breeding gannets in Western Waters during the breeding and non-breeding seasons from the Project alone.

SPA	BREEDING SEASON			NON-BREEDING SEASON						TOTAL					
				AUTUMN			SPRING			AUTUMN			SPRING		
	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
Ailsa Craig	0.0069	0.0078	0.0088	1.9053	2.7165	2.9671	1.5474	2.2063	2.8652	1.9122	2.7244	2.9759	1.5543	2.2141	2.8739
Fair Isle	0.0026	0.0029	0.0032	0.0551	0.0786	0.0859	0.0671	0.0957	0.1243	0.0577	0.0815	0.0891	0.0697	0.0986	0.1275
Flamborough & Filey Coast	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1893	0.2699	0.3505	0.0000	0.0000	0.0000	0.1893	0.2699	0.3505
Forth Islands	0.0200	0.0226	0.0253	0.0000	0.0000	0.0000	0.9494	1.3536	1.7578	0.0200	0.0226	0.0253	0.9693	1.3762	1.7831
Grassholm	0.0000	0.0000	0.0000	2.7594	3.9343	4.2972	2.2411	3.1953	4.1496	2.7594	3.9343	4.2972	2.2411	3.1953	4.1496
Hermaness, Saxa Vord and Valla Field	0.0051	0.0058	0.0064	0.3420	0.4877	0.5327	0.4167	0.5941	0.7716	0.3471	0.4934	0.5391	0.4218	0.5999	0.7780
North Rona & Sula Sgeir	0.0192	0.0218	0.0244	0.5831	0.8313	0.9080	0.5262	0.7502	0.9742	0.6023	0.8531	0.9324	0.5454	0.7720	0.9986

SPA	BREEDING SEASON			NON-BREEDING SEASON						TOTAL					
				AUTUMN			SPRING			AUTUMN			SPRING		
	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
Noss	0.0040	0.0045	0.0050	0.1372	0.1956	0.2136	0.1671	0.2383	0.3094	0.1411	0.2001	0.2187	0.1711	0.2428	0.3144
St Kilda	0.0128	0.0145	0.0162	3.7684	5.3729	5.8686	3.4007	4.8486	6.2966	3.7812	5.3874	5.8848	3.4134	4.8631	6.3128
Sule Skerry & Sule Stack	25.8380	29.2869	32.7358	0.2955	0.4213	0.4602	0.2666	0.3802	0.4937	26.1335	29.7082	33.1960	26.1046	29.6671	33.2295

C.1.9 Predicted change in adult survival from the Project alone

For each qualifying feature of each SPA the total predicted impacts in the breeding and non-breeding season were compared with the baseline survival rate used in the PVA (Offshore EIA report, SS12: Offshore ornithology technical supporting study). Using the baseline survival rate and the most recent population size from the SMP Database (Offshore EIA report, SS12: Offshore ornithology technical supporting study) the predicted change in adult survival was calculated for each SPA qualifying feature. These are summarised in the sections below.

Kittiwake

The predicted change in adult survival of kittiwakes from the Project alone apportioned to each SPA in the breeding season, and non-breeding season are shown in Table C1-15.

Table C1-15 Predicted change in adult survival from the Project alone on SPAs with kittiwake as a qualifying feature.

SPA	BASELINE ADULT SURVIVAL RATE	NON-BREEDING SEASON											
		UK NORTH SEA						WESTERN WATERS & CHANNEL					
		AUTUMN			SPRING			AUTUMN			SPRING		
		LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
Ailsa Craig	0.8540	0.0001%	0.0001%	0.0001%	0.0001%	0.0001%	0.0001%	0.0029%	0.0032%	0.0035%	0.0052%	0.0057%	0.0061%
Buchan Ness to Collieston Coast	0.8540	0.0043%	0.0048%	0.0052%	0.0052%	0.0058%	0.0063%	0.0020%	0.0023%	0.0025%	0.0031%	0.0034%	0.0038%
Calf of Eday	0.8540	0.0196%	0.0217%	0.0237%	0.0241%	0.0265%	0.0290%	0.0087%	0.0098%	0.0109%	0.0138%	0.0154%	0.0169%
Canna and Sanday	0.8540	0.0009%	0.0010%	0.0012%	0.0009%	0.0010%	0.0012%	0.0024%	0.0027%	0.0030%	0.0037%	0.0041%	0.0045%
Cape Wrath	0.8540	0.0385%	0.0449%	0.0513%	0.0385%	0.0450%	0.0514%	0.0467%	0.0539%	0.0611%	0.0532%	0.0609%	0.0687%

SPA	BASELINE ADULT SURVIVAL RATE	NON-BREEDING SEASON											
		UK NORTH SEA						WESTERN WATERS & CHANNEL					
		AUTUMN			SPRING			AUTUMN			SPRING		
		LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
Copinsay	0.8540	0.0070%	0.0080%	0.0090%	0.0076%	0.0087%	0.0097%	0.0056%	0.0064%	0.0073%	0.0062%	0.0072%	0.0081%
East Caithness Cliffs	0.8540	0.0109%	0.0124%	0.0138%	0.0123%	0.0139%	0.0155%	0.0075%	0.0086%	0.0098%	0.0091%	0.0104%	0.0117%
Fair Isle	0.8540	0.0059%	0.0064%	0.0070%	0.0073%	0.0080%	0.0087%	0.0023%	0.0025%	0.0028%	0.0040%	0.0044%	0.0048%
Farne Islands	0.8540	0.0024%	0.0026%	0.0028%	0.0030%	0.0033%	0.0036%	0.0008%	0.0008%	0.0009%	0.0015%	0.0017%	0.0018%
Flamborough and Filey Coast	0.8540	0.0025%	0.0027%	0.0030%	0.0032%	0.0035%	0.0038%	0.0008%	0.0009%	0.0010%	0.0016%	0.0018%	0.0019%
Flannan Isles	0.8540	0.0007%	0.0008%	0.0009%	0.0007%	0.0008%	0.0009%	0.0056%	0.0061%	0.0067%	0.0094%	0.0103%	0.0112%
Forth Islands	0.8540	0.0013%	0.0014%	0.0015%	0.0016%	0.0018%	0.0019%	0.0004%	0.0004%	0.0005%	0.0008%	0.0009%	0.0010%
Foula	0.8540	0.0023%	0.0029%	0.0031%	0.0030%	0.0036%	0.0039%	0.0010%	0.0011%	0.0012%	0.0018%	0.0019%	0.0021%

SPA	BASELINE ADULT SURVIVAL RATE	NON-BREEDING SEASON											
		UK NORTH SEA						WESTERN WATERS & CHANNEL					
		AUTUMN			SPRING			AUTUMN			SPRING		
		LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
Fowlsheugh	0.8540	0.0020%	0.0022%	0.0024%	0.0023%	0.0026%	0.0028%	0.0012%	0.0013%	0.0015%	0.0015%	0.0017%	0.0019%
Handa	0.8540	0.0088%	0.0102%	0.0117%	0.0088%	0.0102%	0.0117%	0.0102%	0.0118%	0.0134%	0.0113%	0.0130%	0.0147%
Hermaness, Saxa Vord and Valla Field	0.8540	0.0045%	0.0049%	0.0053%	0.0058%	0.0063%	0.0068%	0.0010%	0.0011%	0.0012%	0.0020%	0.0022%	0.0023%
Hoy	0.8540	0.0423%	0.0491%	0.0558%	0.0434%	0.0503%	0.0571%	0.0396%	0.0461%	0.0526%	0.0408%	0.0475%	0.0541%
Marwick Head	0.8540	0.0192%	0.0223%	0.0253%	0.0197%	0.0228%	0.0259%	0.0180%	0.0209%	0.0239%	0.0185%	0.0216%	0.0246%
Mingulay and Berneray	0.8540	0.0005%	0.0006%	0.0007%	0.0006%	0.0006%	0.0007%	0.0036%	0.0040%	0.0043%	0.0060%	0.0066%	0.0072%
North Caithness Cliffs	0.8540	0.0382%	0.0441%	0.0501%	0.0397%	0.0458%	0.0519%	0.0344%	0.0400%	0.0456%	0.0362%	0.0419%	0.0477%

SPA	BASELINE ADULT SURVIVAL RATE	NON-BREEDING SEASON											
		UK NORTH SEA						WESTERN WATERS & CHANNEL					
		AUTUMN			SPRING			AUTUMN			SPRING		
		LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
North Colonsay & Western Cliffs	0.8540	0.0001%	0.0001%	0.0001%	0.0001%	0.0001%	0.0001%	0.0052%	0.0057%	0.0061%	0.0092%	0.0100%	0.0108%
North Rona and Sula Sgeir	0.8540	0.0031%	0.0036%	0.0041%	0.0031%	0.0037%	0.0042%	0.0082%	0.0092%	0.0101%	0.0122%	0.0135%	0.0149%
Noss	0.8540	0.0132%	0.0144%	0.0156%	0.0168%	0.0184%	0.0199%	0.0043%	0.0047%	0.0051%	0.0085%	0.0093%	0.0100%
Rathlin Island	0.8540	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0017%	0.0018%	0.0020%	0.0030%	0.0033%	0.0035%
Rousay	0.8540	0.0245%	0.0273%	0.0302%	0.0290%	0.0323%	0.0356%	0.0134%	0.0153%	0.0171%	0.0186%	0.0209%	0.0232%
Rum	0.8540	0.0010%	0.0011%	0.0013%	0.0010%	0.0012%	0.0013%	0.0042%	0.0047%	0.0051%	0.0068%	0.0075%	0.0081%
St Abbs Head to Fast Castle	0.8540	0.0009%	0.0010%	0.0012%	0.0009%	0.0010%	0.0012%	0.0024%	0.0026%	0.0029%	0.0035%	0.0039%	0.0043%

SPA	BASELINE ADULT SURVIVAL RATE	NON-BREEDING SEASON											
		UK NORTH SEA						WESTERN WATERS & CHANNEL					
		AUTUMN			SPRING			AUTUMN			SPRING		
		LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
Shiant Isles	0.8540	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0001%	0.0020%	0.0022%	0.0023%	0.0035%	0.0038%	0.0042%
Skomer, Skokholm and the Seas off Pembrokeshire	0.8540	0.0023%	0.0025%	0.0027%	0.0029%	0.0031%	0.0034%	0.0007%	0.0008%	0.0009%	0.0014%	0.0016%	0.0017%
St Kilda	0.8540	0.0002%	0.0003%	0.0003%	0.0003%	0.0003%	0.0003%	0.0068%	0.0074%	0.0081%	0.0120%	0.0131%	0.0142%
Sumburgh Head	0.8540	0.0014%	0.0016%	0.0018%	0.0016%	0.0018%	0.0020%	0.0011%	0.0013%	0.0014%	0.0013%	0.0014%	0.0016%
Troup, Pennan and Lion's Heads	0.8540	0.0039%	0.0044%	0.0048%	0.0046%	0.0051%	0.0057%	0.0022%	0.0025%	0.0028%	0.0030%	0.0034%	0.0037%
West Westray	0.8540	0.0185%	0.0206%	0.0227%	0.0222%	0.0247%	0.0271%	0.0095%	0.0107%	0.0120%	0.0137%	0.0153%	0.0170%

Great black-backed gull

The predicted change in adult survival of great black-backed gulls from the Project alone apportioned to each SPA in the breeding season, and non-breeding season are shown in Table C1-16.

Table C1-16 Predicted change in adult survival from the Project alone on SPAs with great black-backed gull as a qualifying feature.

SPA	BASELINE ADULT SURVIVAL	PREDICTED CHANGE IN ADULT SURVIVAL	
		UK NORTH SEA	WEST OF SCOTLAND
Calf of Eday SPA	0.93000	0.0693%	0.0001%
Copinsay SPA	0.93000	0.0532%	0.0078%
East Caithness Cliffs SPA	0.93000	0.0330%	0.0233%
Hoy SPA	0.93000	0.0966%	0.0333%
Isles of Scilly SPA	0.93000	0.0027%	0.0000%
North Rona & Sula Sgeir SPA	0.93000	0.0002%	0.0328%

Great skua

The predicted change in adult survival of great skuas from the Project alone apportioned to each SPA in the breeding season, and non-breeding season are shown in Table C1-17.

Table C1-17 Predicted change in adult survival from the Project alone on SPAs with great skua as a qualifying feature.

SPA	PREDICTED CHANGE IN ADULT SURVIVAL	
	BASELINE ADULT SURVIVAL	BREEDING SEASON
Fair Isle SPA	0.8820	0.0009%
Fetlar SPA	0.8820	0.0003%
Foula SPA	0.8820	0.0006%
Handa SPA	0.8820	0.0039%
Hoy SPA	0.8820	0.0244%
Noss SPA	0.8820	0.0005%
Ronas Hill - North Roe and Tingon SPA	0.8820	0.0004%
St Kilda SPA	0.8820	0.0002%

Guillemot

The predicted change in adult survival of guillemots from the Project alone apportioned to each SPA in the breeding season, and non-breeding season are shown in Table C1-18.

Table C1-18 Predicted change in adult survival from the Project alone on SPAs with guillemot as a qualifying feature.

SPA	BASELINE ADULT SURVIVAL RATE	TOTAL		
		BREEDING & NON-BREEDING SEASON		
		LOW	MID	HIGH
Calf of Eday	0.939	0.0002%	0.0003%	0.0004%
Cape Wrath	0.939	0.0051%	0.0073%	0.0095%
Copinsay	0.939	0.0004%	0.0006%	0.0007%
East Caithness Cliffs	0.939	0.0009%	0.0013%	0.0017%
Fair Isle	0.939	0.0000%	0.0000%	0.0000%
Handa	0.939	0.0013%	0.0019%	0.0025%
Hoy	0.939	0.0037%	0.0054%	0.0070%
Marwick Head	0.939	0.0012%	0.0018%	0.0023%
North Caithness Cliffs	0.939	0.0042%	0.0060%	0.0078%
North Rona and Sula Sgeir	0.939	0.0002%	0.0003%	0.0005%
Rousay	0.939	0.0005%	0.0008%	0.0010%
Shiant Isles	0.939	0.0002%	0.0003%	0.0004%
Sule Skerry and Sule Stack	0.939	0.7102%	1.0204%	1.3306%
West Westray	0.939	0.0003%	0.0005%	0.0006%

Razorbill

The predicted change in adult survival of razorbills from the Project alone apportioned to each SPA in the breeding season, and non-breeding season are shown in Table C1-19.

Table C1-19 Predicted change in adult survival from the Project alone on SPAs with razorbill as a qualifying feature.

SPA	BASELINE ADULT SURVIVAL RATE	NON-BREEDING SEASON											
		UK NORTH SEA & CHANNEL						WESTERN WATERS					
		AUTUMN & SPRING MIGRATION			NON-BREEDING SEASON			AUTUMN & SPRING MIGRATION			NON-BREEDING SEASON		
		LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
Cape Wrath	0.8950	0.0092%	0.0122%	0.0153%	0.0092%	0.0123%	0.0154%	0.0093%	0.0125%	0.0157%	0.0093%	0.0124%	0.0156%
East Caithness Cliffs	0.8950	0.0017%	0.0024%	0.0030%	0.0017%	0.0023%	0.0030%	0.0016%	0.0021%	0.0027%	0.0016%	0.0021%	0.0027%
Fair Isle	0.8950	0.0002%	0.0003%	0.0004%	0.0002%	0.0003%	0.0004%	0.0001%	0.0001%	0.0001%	0.0001%	0.0001%	0.0001%
Flamborough & Filey Coast	0.8950	0.0002%	0.0003%	0.0005%	0.0001%	0.0003%	0.0004%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%
Flannan Islands	0.8950	0.0000%	0.0000%	0.0000%	0.0000%	0.0001%	0.0001%	0.0002%	0.0003%	0.0005%	0.0001%	0.0002%	0.0004%

SPA	BASELINE ADULT SURVIVAL RATE	NON-BREEDING SEASON											
		UK NORTH SEA & CHANNEL						WESTERN WATERS					
		AUTUMN & SPRING MIGRATION			NON-BREEDING SEASON			AUTUMN & SPRING MIGRATION			NON-BREEDING SEASON		
		LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
Forth Islands	0.8950	0.0002%	0.0003%	0.0005%	0.0001%	0.0003%	0.0004%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%
Foula	0.8950	0.0002%	0.0004%	0.0006%	0.0002%	0.0004%	0.0006%	0.0000%	0.0001%	0.0001%	0.0000%	0.0000%	0.0001%
Fowlsheugh	0.8950	0.0002%	0.0003%	0.0005%	0.0001%	0.0003%	0.0004%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%
Handa	0.8950	0.0023%	0.0031%	0.0039%	0.0024%	0.0032%	0.0040%	0.0025%	0.0034%	0.0043%	0.0024%	0.0033%	0.0042%
Mingulay & Berneray	0.8950	0.0000%	0.0000%	0.0000%	0.0000%	0.0001%	0.0001%	0.0002%	0.0003%	0.0005%	0.0001%	0.0002%	0.0004%
North Caithness Cliffs	0.8950	0.0077%	0.0103%	0.0130%	0.0077%	0.0103%	0.0129%	0.0076%	0.0101%	0.0126%	0.0076%	0.0101%	0.0126%
North Rona & Sula Sgeir	0.8950	0.0005%	0.0007%	0.0009%	0.0007%	0.0011%	0.0014%	0.0012%	0.0020%	0.0029%	0.0010%	0.0016%	0.0023%
Rathlin Island	0.8950	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0001%	0.0002%	0.0003%	0.0005%	0.0001%	0.0002%	0.0004%

SPA	BASELINE ADULT SURVIVAL RATE	NON-BREEDING SEASON											
		UK NORTH SEA & CHANNEL						WESTERN WATERS					
		AUTUMN & SPRING MIGRATION			NON-BREEDING SEASON			AUTUMN & SPRING MIGRATION			NON-BREEDING SEASON		
		LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
Shiant Isles	0.8950	0.0004%	0.0005%	0.0006%	0.0004%	0.0006%	0.0007%	0.0005%	0.0007%	0.0010%	0.0004%	0.0007%	0.0009%
Skomer, Skokholm and the Seas off Pembrokeshire	0.8950	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0001%	0.0002%	0.0003%	0.0005%	0.0001%	0.0002%	0.0003%
St Abbs to Fast Castle	0.8950	0.0002%	0.0003%	0.0005%	0.0001%	0.0003%	0.0004%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%
St Kilda	0.8950	0.0000%	0.0000%	0.0000%	0.0000%	0.0001%	0.0001%	0.0002%	0.0003%	0.0005%	0.0001%	0.0002%	0.0004%
Troup, Pennan & Lions	0.8950	0.0004%	0.0006%	0.0008%	0.0004%	0.0006%	0.0008%	0.0003%	0.0004%	0.0005%	0.0003%	0.0004%	0.0005%
West Westray	0.8950	0.0007%	0.0009%	0.0012%	0.0007%	0.0009%	0.0012%	0.0006%	0.0008%	0.0010%	0.0006%	0.0008%	0.0010%

Puffin

The predicted change in adult survival of puffins from the Project alone apportioned to each SPA in the breeding season, and non-breeding season are shown in Table C1-20 and Table C1-21.

Table C1-20 Predicted change in adult survival from the Project alone on SPAs with puffin as a qualifying feature in UK North Sea & Channel.

SPA	BASELINE ADULT SURVIVAL RATE	BREEDING SEASON			NON-BREEDING SEASON			TOTAL		
		LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
Canna & Sanday	0.906	0.000004%	0.000009%	0.000013%	0.000004%	0.000009%	0.000013%	0.000012%	0.000018%	0.000025%
Cape Wrath	0.906	0.000006%	0.000012%	0.000017%	0.000006%	0.000012%	0.000017%	0.000345%	0.000464%	0.000573%
Coquet Island	0.906	0.002152%	0.004304%	0.006456%	0.002152%	0.004304%	0.006456%	0.002152%	0.004304%	0.006456%
Fair Isle	0.906	0.002074%	0.004148%	0.006222%	0.002074%	0.004148%	0.006222%	0.002078%	0.004153%	0.006228%
Farne Islands	0.906	0.002152%	0.004304%	0.006456%	0.002152%	0.004304%	0.006456%	0.002152%	0.004304%	0.006456%
Flamborough & Filey Coast	0.906	0.002152%	0.004304%	0.006456%	0.002152%	0.004304%	0.006456%	0.002152%	0.004304%	0.006456%
Flannan Isles	0.906	0.000001%	0.000003%	0.000004%	0.000001%	0.000003%	0.000004%	0.000006%	0.000009%	0.000012%

SPA	BASELINE ADULT SURVIVAL RATE	BREEDING SEASON			NON-BREEDING SEASON			TOTAL		
		LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
Forth Islands	0.906	0.002152%	0.004304%	0.006456%	0.002152%	0.004304%	0.006456%	0.002152%	0.004304%	0.006456%
Foula	0.906	0.004574%	0.009149%	0.013723%	0.004574%	0.009149%	0.013723%	0.004576%	0.009151%	0.013725%
Hermaness, Saxa Vord and Valla Field	0.906	0.000646%	0.001291%	0.001937%	0.000646%	0.001291%	0.001937%	0.000646%	0.001291%	0.001937%
Hoy	0.906	0.001506%	0.003013%	0.004519%	0.001506%	0.003013%	0.004519%	0.001835%	0.003451%	0.005057%
Mingulay & Berneray	0.906	0.000004%	0.000008%	0.000012%	0.000004%	0.000008%	0.000012%	0.000004%	0.000008%	0.000012%
North Caithness Cliffs	0.906	0.000413%	0.000826%	0.001239%	0.000413%	0.000826%	0.001239%	0.000701%	0.001210%	0.001710%
North Rona & Sula Sgeir	0.906	0.000017%	0.000033%	0.000050%	0.000017%	0.000033%	0.000050%	0.000039%	0.000063%	0.000087%
Noss	0.906	0.000884%	0.001767%	0.002651%	0.000884%	0.001767%	0.002651%	0.000884%	0.001768%	0.002651%
Rathlin Island	0.906	0.000003%	0.000006%	0.000009%	0.000003%	0.000006%	0.000009%	0.000003%	0.000006%	0.000009%
Shiant Isles	0.906	0.000004%	0.000009%	0.000013%	0.000004%	0.000009%	0.000013%	0.000017%	0.000026%	0.000034%

SPA	BASELINE ADULT SURVIVAL RATE	BREEDING SEASON			NON-BREEDING SEASON			TOTAL		
		LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
Skomer, Skokholm and the Seas off Pembrokeshire	0.906	0.000004%	0.000009%	0.000013%	0.000004%	0.000009%	0.000013%	0.000004%	0.000009%	0.000013%
St Kilda	0.906	0.000018%	0.000035%	0.000053%	0.000018%	0.000035%	0.000053%	0.000020%	0.000038%	0.000056%
Sule Skerry & Sule Stack	0.906	0.000005%	0.000011%	0.000016%	0.000005%	0.000011%	0.000016%	0.066851%	0.089138%	0.109361%

Table C1-21 Predicted change in adult survival from the Project alone on SPAs with puffin as a qualifying feature in Western Waters.

SPA	BASELINE ADULT SURVIVAL RATE	BREEDING SEASON			NON-BREEDING SEASON			TOTAL		
		LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
Canna & Sanday	0.906	0.000007%	0.000009%	0.000012%	0.000605%	0.001211%	0.001816%	0.000612%	0.001220%	0.001828%
Cape Wrath	0.906	0.000339%	0.000453%	0.000566%	0.000886%	0.001772%	0.002658%	0.001225%	0.002224%	0.003223%
Coquet Island	0.906	0.000000%	0.000000%	0.000000%	0.000241%	0.000482%	0.000723%	0.000241%	0.000482%	0.000723%
Fair Isle	0.906	0.000004%	0.000006%	0.000007%	0.000885%	0.001771%	0.002656%	0.000890%	0.001776%	0.002663%

SPA	BASELINE ADULT SURVIVAL RATE	BREEDING SEASON			NON-BREEDING SEASON			TOTAL		
		LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
Farne Islands	0.906	0.000000%	0.000000%	0.000000%	0.000241%	0.000482%	0.000724%	0.000241%	0.000482%	0.000724%
Flamborough & Filey Coast	0.906	0.000000%	0.000000%	0.000000%	0.000241%	0.000482%	0.000723%	0.000241%	0.000482%	0.000723%
Flannan Isles	0.906	0.000005%	0.000006%	0.000008%	0.000203%	0.000405%	0.000608%	0.000207%	0.000412%	0.000616%
Forth Islands	0.906	0.000000%	0.000000%	0.000000%	0.000241%	0.000482%	0.000723%	0.000241%	0.000482%	0.000723%
Foula	0.906	0.000002%	0.000002%	0.000003%	0.001953%	0.003906%	0.005859%	0.001954%	0.003908%	0.005861%
Hermaness, Saxa Vord and Valla Field	0.906	0.000000%	0.000000%	0.000000%	0.000276%	0.000551%	0.000827%	0.000276%	0.000551%	0.000827%
Hoy	0.906	0.000329%	0.000438%	0.000548%	0.000643%	0.001286%	0.001929%	0.000972%	0.001725%	0.002477%
Mingulay & Berneray	0.906	0.000000%	0.000000%	0.000000%	0.000620%	0.001240%	0.001860%	0.000620%	0.001240%	0.001860%
North Caithness Cliffs	0.906	0.000288%	0.000384%	0.000480%	0.000176%	0.000352%	0.000528%	0.000464%	0.000736%	0.001008%
North Rona & Sula Sgeir	0.906	0.000023%	0.000030%	0.000038%	0.002382%	0.004763%	0.007145%	0.002404%	0.004793%	0.007182%

SPA	BASELINE ADULT SURVIVAL RATE	BREEDING SEASON			NON-BREEDING SEASON			TOTAL		
		LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
Noss	0.906	0.000001%	0.000001%	0.000001%	0.000376%	0.000751%	0.001127%	0.000376%	0.000752%	0.001128%
Rathlin Island	0.906	0.000000%	0.000000%	0.000000%	0.000620%	0.001239%	0.001859%	0.000620%	0.001239%	0.001859%
Shiant Isles	0.906	0.000013%	0.000018%	0.000022%	0.000625%	0.001249%	0.001874%	0.000638%	0.001267%	0.001896%
Skomer, Skokholm and the Seas off Pembrokeshire	0.906	0.000000%	0.000000%	0.000000%	0.000620%	0.001240%	0.001860%	0.000620%	0.001240%	0.001860%
St Kilda	0.906	0.000002%	0.000003%	0.000003%	0.002534%	0.005069%	0.007603%	0.002536%	0.005071%	0.007606%
Sule Skerry & Sule Stack	0.906	0.066845%	0.089127%	0.111409%	0.000773%	0.001545%	0.002318%	0.067618%	0.090672%	0.113726%

Fulmar

The predicted change in adult survival of fulmars from the Project alone apportioned to each SPA in the breeding season, and non-breeding season are shown in Table C1-22.

Table C1-22 Predicted change in adult survival from the Project alone on SPAs with fulmar as a qualifying feature.

SPA	BASELINE ADULT SURVIVAL RATE	UK NORTH SEA						WESTERN WATERS & CHANNEL					
		WINTER			MIGRATION			WINTER			MIGRATION		
		LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
Buchan Ness to Collieston Coast	0.9360	0.000025%	0.000050%	0.000075%	0.000631%	0.001262%	0.002672%	0.000891%	0.001781%	0.002672%	0.000074%	0.000148%	0.000221%
Calf of Eday	0.9360	0.000165%	0.000329%	0.000494%	0.000455%	0.000910%	0.001613%	0.000538%	0.001075%	0.001613%	0.000266%	0.000533%	0.000799%
Cape Wrath	0.9360	0.001135%	0.002269%	0.003404%	0.001150%	0.002299%	0.003404%	0.001135%	0.002269%	0.003404%	0.001204%	0.002409%	0.003613%
Copinsay	0.9360	0.000196%	0.000391%	0.000587%	0.000564%	0.001129%	0.001693%	0.000564%	0.001129%	0.001693%	0.000253%	0.000506%	0.000759%

SPA	BASELINE ADULT SURVIVAL RATE	UK NORTH SEA						WESTERN WATERS & CHANNEL					
		WINTER			MIGRATION			WINTER			MIGRATION		
		LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
East Caithness Cliffs	0.9360	0.000179%	0.000358%	0.000536%	0.000555%	0.001110%	0.002150%	0.000717%	0.001433%	0.002150%	0.000233%	0.000465%	0.000698%
Fair Isle	0.9360	0.000045%	0.000091%	0.000136%	0.000379%	0.000759%	0.001425%	0.000475%	0.000950%	0.001425%	0.000108%	0.000217%	0.000325%
Fetlar	0.9360	0.000015%	0.000030%	0.000045%	0.000370%	0.000740%	0.001414%	0.000471%	0.000942%	0.001414%	0.000074%	0.000148%	0.000223%
Flamborough & Filey Coast	0.9360	0.000000%	0.000000%	0.000000%	0.000380%	0.000760%	0.001629%	0.000543%	0.001086%	0.001629%	0.000059%	0.000118%	0.000177%
Flannan Isles	0.9360	0.000017%	0.000034%	0.000051%	0.000042%	0.000084%	0.000051%	0.000017%	0.000034%	0.000051%	0.000419%	0.000838%	0.001257%
Forth Islands	0.9360	0.000000%	0.000000%	0.000000%	0.000429%	0.000857%	0.001836%	0.000612%	0.001224%	0.001836%	0.000059%	0.000117%	0.000176%
Foula	0.9360	0.000032%	0.000065%	0.000097%	0.000738%	0.001476%	0.002819%	0.000940%	0.001879%	0.002819%	0.000076%	0.000151%	0.000227%

SPA	BASELINE ADULT SURVIVAL RATE	UK NORTH SEA						WESTERN WATERS & CHANNEL					
		WINTER			MIGRATION			WINTER			MIGRATION		
		LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
Fowlsheugh	0.9360	0.000018%	0.000035%	0.000053%	0.000152%	0.000304%	0.000630%	0.000210%	0.000420%	0.000630%	0.000107%	0.000215%	0.000322%
Handa	0.9360	0.000237%	0.000474%	0.000711%	0.000265%	0.000531%	0.000711%	0.000237%	0.000474%	0.000711%	0.000500%	0.000999%	0.001499%
Hermaness, Saxa Vord and Valla Field	0.9360	0.000013%	0.000026%	0.000039%	0.000207%	0.000414%	0.000787%	0.000262%	0.000525%	0.000787%	0.000083%	0.000167%	0.000250%
Hoy	0.9360	0.001402%	0.002805%	0.004207%	0.001742%	0.003484%	0.005518%	0.001839%	0.003679%	0.005518%	0.001570%	0.003139%	0.004709%
Mingulay and Berneray	0.9360	0.000008%	0.000016%	0.000023%	0.000021%	0.000042%	0.000023%	0.000008%	0.000016%	0.000023%	0.000418%	0.000836%	0.001254%
North Caithness Cliffs	0.9360	0.001169%	0.002338%	0.003507%	0.001508%	0.003017%	0.004816%	0.001605%	0.003211%	0.004816%	0.001320%	0.002639%	0.003959%

SPA	BASELINE ADULT SURVIVAL RATE	UK NORTH SEA						WESTERN WATERS & CHANNEL					
		WINTER			MIGRATION			WINTER			MIGRATION		
		LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
North Rona and Sula Sgeir	0.9360	0.000104%	0.000208%	0.000312%	0.000128%	0.000255%	0.000312%	0.000104%	0.000208%	0.000312%	0.000458%	0.000916%	0.001374%
Noss	0.9360	0.000021%	0.000041%	0.000062%	0.000463%	0.000926%	0.001767%	0.000589%	0.001178%	0.001767%	0.000076%	0.000152%	0.000228%
Rathlin Island	0.9360	0.000000%	0.000000%	0.000000%	0.000015%	0.000031%	0.000000%	0.000000%	0.000000%	0.000000%	0.000917%	0.000824%	0.001236%
Rousay	0.9360	0.000350%	0.000699%	0.001049%	0.000522%	0.001043%	0.001712%	0.000571%	0.001142%	0.001712%	0.000071%	0.001606%	0.002409%
Shiant Isles	0.9360	0.000009%	0.000017%	0.000026%	0.000039%	0.000078%	0.000026%	0.000009%	0.000017%	0.000026%	0.000412%	0.000830%	0.001245%
St Kilda	0.9360	0.000028%	0.000056%	0.000085%	0.000052%	0.000104%	0.000085%	0.000028%	0.000056%	0.000085%	0.000424%	0.000849%	0.001273%
Sumburgh Head	0.9360	0.000034%	0.000068%	0.000102%	0.000045%	0.000091%	0.000146%	0.000049%	0.000097%	0.000146%	0.001147%	0.002293%	0.003440%

SPA	BASELINE ADULT SURVIVAL RATE	UK NORTH SEA						WESTERN WATERS & CHANNEL					
		WINTER			MIGRATION			WINTER			MIGRATION		
		LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
Troup, Pennan and Lion's Heads	0.9360	0.000037%	0.000075%	0.000112%	0.000384%	0.000769%	0.001599%	0.000533%	0.001066%	0.001599%	0.000098%	0.000197%	0.000295%
West Westray	0.9360	0.000233%	0.000465%	0.000698%	0.000437%	0.000874%	0.001486%	0.000495%	0.000991%	0.001486%	0.000476%	0.000952%	0.001428%

Gannet

The predicted change in adult survival of gannets from the Project alone apportioned to each SPA in the breeding season, and non-breeding season are shown in Table C1-23.

Table C1-23 Predicted change in adult survival from the Project alone on SPAs with gannet as a qualifying feature.

SPA	BASELINE ADULT SURVIVAL RATE	UK NORTH SEA & CHANNEL						WESTERN WATERS					
		AUTUMN			SPRING			AUTUMN			SPRING		
		LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
Ailsa Craig	0.9190	0.00001%	0.00001%	0.00001%	0.00001%	0.00001%	0.00001%	0.00288%	0.00410%	0.00448%	0.00234%	0.00333%	0.00432%
Fair Isle	0.9190	0.00406%	0.00578%	0.00750%	0.00525%	0.00748%	0.01006%	0.00080%	0.00113%	0.00124%	0.00097%	0.00137%	0.00178%
Flamborough & Filey Coast	0.9190	0.00461%	0.00657%	0.00853%	0.00477%	0.00681%	0.00917%	0.00000%	0.00000%	0.00000%	0.00086%	0.00122%	0.00158%
Forth Islands	0.9190	0.00463%	0.00659%	0.00855%	0.00479%	0.00683%	0.00919%	0.00002%	0.00002%	0.00002%	0.00087%	0.00124%	0.00161%
Grassholm	0.9190	0.00000%	0.00000%	0.00000%	0.00000%	0.00000%	0.00000%	0.00351%	0.00501%	0.00547%	0.00285%	0.00407%	0.00528%
Hermaness, Saxa Vord and Valla Field	0.9190	0.00352%	0.00501%	0.00651%	0.00456%	0.00649%	0.00874%	0.00068%	0.00096%	0.00105%	0.00082%	0.00117%	0.00152%
North Rona & Sula Sgeir	0.9190	0.00046%	0.00064%	0.00081%	0.00009%	0.00010%	0.00011%	0.00268%	0.00380%	0.00415%	0.00243%	0.00344%	0.00445%

SPA	BASELINE ADULT SURVIVAL RATE	UK NORTH SEA & CHANNEL						WESTERN WATERS					
		AUTUMN			SPRING			AUTUMN			SPRING		
		LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
Noss	0.9190	0.00307%	0.00437%	0.00568%	0.00397%	0.00566%	0.00762%	0.00060%	0.00085%	0.00093%	0.00073%	0.00103%	0.00133%
St Kilda	0.9190	0.00047%	0.00066%	0.00086%	0.00001%	0.00001%	0.00001%	0.00026%	0.00447%	0.00488%	0.00023%	0.00403%	0.00524%
Sule Skerry & Sule Stack	0.9190	0.20157%	0.22857%	0.25557%	0.20123%	0.22809%	0.25495%	0.23058%	0.23137%	0.25854%	0.22772%	0.23105%	0.25880%

C.2 Predicted impacts from the Project in-combination

The total predicted impacts that were apportioned to each SPA from the Project alone and in-combination with other reasonably foreseeable plans and projects (Appendix C) were compiled for the breeding season and each BDMPS region and season. Sections C.2.1 to 0 summarises the apportioned impacts to SPAs in the breeding and non-breeding seasons to each BDMPS region in each BDMPS season for kittiwake, great black-backed gull, great skua, guillemot, razorbill, puffin, fulmar and gannet.

C.2.1 Kittiwake

The predicted impacts on kittiwakes from the Project alone and in-combination apportioned to each SPA in the breeding season, and non-breeding season from the UK North Sea BDMPS region are shown in Table C2-1 and for the BDMPS UK Western waters region in Table C2-2.

Table C2-1 Predicted impacts from the Project alone and in-combination on SPAs with kittiwake as a qualifying feature for the BDMPS North Sea region in autumn and spring.

SPA	PROJECT ALONE						IN-COMBINATION TOTAL	ALONE & IN-COMBINATION TOTAL						PERCENTAGE FROM THE PROJECT ALONE					
	AUTUMN			SPRING				AUTUMN			SPRING			AUTUMN			SPRING		
	LOW	MID	HIGH	LOW	MID	HIGH		LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
Ailsa Craig	0.0005	0.0006	0.0006	0.0006	0.0007	0.0008	0.0343	0.0349	0.0349	0.0349	0.0350	0.0351	0.0351	1.5%	1.6%	1.7%	1.9%	2.0%	2.2%
Buchan Ness to Collieston Coast	0.9718	1.0763	1.1807	1.1853	1.3092	1.4331	96.4872	97.4590	97.5634	97.6679	97.6724	97.7964	97.9203	1.0%	1.1%	1.2%	1.2%	1.3%	1.5%
Calf of Eday	0.0557	0.0615	0.0674	0.0684	0.0754	0.0824	3.0772	3.1328	3.1387	3.1445	3.1456	3.1526	3.1596	1.8%	2.0%	2.1%	2.2%	2.4%	2.6%

SPA	PROJECT ALONE						IN-COMBINATION TOTAL	ALONE & IN-COMBINATION TOTAL						PERCENTAGE FROM THE PROJECT ALONE					
	AUTUMN			SPRING				AUTUMN			SPRING			AUTUMN			SPRING		
	LOW	MID	HIGH	LOW	MID	HIGH		LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
Canna and Sanday	0.0259	0.0302	0.0344	0.0261	0.0304	0.0347	0.0549	0.0808	0.0851	0.0894	0.0811	0.0854	0.0897	32.0%	35.4%	38.5%	32.2%	35.6%	38.7%
Cape Wrath	2.7871	3.2532	3.7193	2.7901	3.2564	3.7228	0.9629	3.7501	4.2162	4.6822	3.7530	4.2194	4.6857	74.3%	77.2%	79.4%	74.3%	77.2%	79.5%
Copinsay	0.1337	0.1530	0.1723	0.1451	0.1654	0.1857	3.4841	3.6178	3.6371	3.6564	3.6291	3.6495	3.6698	3.7%	4.2%	4.7%	4.0%	4.5%	5.1%
East Caithness Cliffs	5.3406	6.0473	6.7539	6.0284	6.7978	7.5672	337.7392	343.0797	343.7864	344.4931	343.7676	344.5369	345.3063	1.6%	1.8%	2.0%	1.8%	2.0%	2.2%
Fair Isle	0.0524	0.0576	0.0628	0.0656	0.0720	0.0783	3.1768	3.2292	3.2344	3.2396	3.2423	3.2487	3.2551	1.6%	1.8%	1.9%	2.0%	2.2%	2.4%
Farne Islands	0.2098	0.2289	0.2480	0.2684	0.2929	0.3173	44.9908	45.2006	45.2197	45.2388	45.2592	45.2836	45.3081	0.5%	0.5%	0.5%	0.6%	0.6%	0.7%
Flamborough and Filey Coast	2.2917	2.5006	2.7095	2.9320	3.1993	3.4666	504.7872	507.0788	507.2878	507.4967	507.7191	507.9864	508.2537	0.5%	0.5%	0.5%	0.6%	0.6%	0.7%

SPA	PROJECT ALONE						IN-COMBINATION TOTAL	ALONE & IN-COMBINATION TOTAL						PERCENTAGE FROM THE PROJECT ALONE					
	AUTUMN			SPRING				AUTUMN			SPRING			AUTUMN			SPRING		
	LOW	MID	HIGH	LOW	MID	HIGH		LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
Flannan Isles	0.0113	0.0131	0.0149	0.0117	0.0135	0.0154	0.0962	0.1075	0.1093	0.1110	0.1079	0.1097	0.1115	10.5%	12.0%	13.4%	10.9%	12.3%	13.8%
Forth Islands	0.1911	0.2061	0.2233	0.2439	0.2637	0.2857	71.9758	72.1669	72.1819	72.1991	72.2197	72.2395	72.2615	0.3%	0.3%	0.3%	0.3%	0.4%	0.4%
Foula	0.0199	0.0243	0.0265	0.0255	0.0304	0.0331	1.3463	1.3662	1.3706	1.3728	1.3717	1.3767	1.3794	1.5%	1.8%	1.9%	1.9%	2.2%	2.4%
Fowlsheugh	0.9314	1.0440	1.1566	1.0903	1.2174	1.3445	212.4786	213.4100	213.5226	213.6352	213.5689	213.6960	213.8231	0.4%	0.5%	0.5%	0.5%	0.6%	0.6%
Handa	0.6563	0.7661	0.8759	0.6568	0.7667	0.8765	0.1861	0.8424	0.9522	1.0620	0.8429	0.9527	1.0626	77.9%	80.5%	82.5%	77.9%	80.5%	82.5%
Hermaness, Saxa Vord and Valla Field	0.0239	0.0261	0.0283	0.0306	0.0334	0.0362	1.6107	1.6347	1.6369	1.6391	1.6413	1.6441	1.6469	1.5%	1.6%	1.7%	1.9%	2.0%	2.2%
Hoy	0.2570	0.2983	0.3395	0.2638	0.3056	0.3475	2.2328	2.4898	2.5310	2.5722	2.4966	2.5384	2.5802	10.3%	11.8%	13.2%	10.6%	12.0%	13.5%

SPA	PROJECT ALONE						IN-COMBINATION TOTAL	ALONE & IN-COMBINATION TOTAL						PERCENTAGE FROM THE PROJECT ALONE					
	AUTUMN			SPRING				AUTUMN			SPRING			AUTUMN			SPRING		
	LOW	MID	HIGH	LOW	MID	HIGH		LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
Marwick Head	0.3474	0.4032	0.4589	0.3564	0.4129	0.4695	2.4241	2.7715	2.8273	2.8830	2.7805	2.8370	2.8936	12.5%	14.3%	15.9%	12.8%	14.6%	16.2%
Mingulay and Berneray	0.0224	0.0259	0.0295	0.0230	0.0266	0.0303	0.1545	0.1769	0.1805	0.1841	0.1776	0.1812	0.1848	12.6%	14.4%	16.0%	13.0%	14.7%	16.4%
North Caithness Cliffs	4.2518	4.9168	5.5818	4.4245	5.1053	5.7861	65.6505	69.9023	70.5673	71.2324	70.0751	70.7559	71.4366	6.1%	7.0%	7.8%	6.3%	7.2%	8.1%
North Colonsay & Western Cliffs	0.0056	0.0061	0.0067	0.0072	0.0079	0.0085	0.3812	0.3868	0.3874	0.3879	0.3884	0.3891	0.3897	1.5%	1.6%	1.7%	1.9%	2.0%	2.2%
North Rona and Sula Sgeir	0.0444	0.0517	0.0590	0.0447	0.0521	0.0594	0.0859	0.1302	0.1375	0.1449	0.1306	0.1379	0.1453	34.1%	37.6%	40.7%	34.2%	37.8%	40.9%
Noss	0.0311	0.0340	0.0368	0.0397	0.0434	0.0470	2.0881	2.1192	2.1221	2.1249	2.1278	2.1315	2.1351	1.5%	1.6%	1.7%	1.9%	2.0%	2.2%

SPA	PROJECT ALONE						IN-COMBINATION TOTAL	ALONE & IN-COMBINATION TOTAL						PERCENTAGE FROM THE PROJECT ALONE					
	AUTUMN			SPRING				AUTUMN			SPRING			AUTUMN			SPRING		
	LOW	MID	HIGH	LOW	MID	HIGH		LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
Rathlin Island	0.0080	0.0088	0.0095	0.0103	0.0112	0.0121	0.5426	0.5507	0.5514	0.5521	0.5529	0.5538	0.5548	1.5%	1.6%	1.7%	1.9%	2.0%	2.2%
Rousay	0.1615	0.1803	0.1992	0.1915	0.2131	0.2347	7.3215	7.4830	7.5019	7.5207	7.5131	7.5346	7.5562	2.2%	2.4%	2.6%	2.5%	2.8%	3.1%
Rum	0.0137	0.0159	0.0182	0.0139	0.0162	0.0184	0.0549	0.0687	0.0709	0.0731	0.0689	0.0711	0.0734	20.0%	22.5%	24.8%	20.2%	22.8%	25.1%
St Abbs Head to Fast Castle	0.0191	0.0223	0.0255	0.0193	0.0225	0.0256	0.0378	0.0569	0.0601	0.0632	0.0571	0.0602	0.0634	33.6%	37.1%	40.3%	33.8%	37.3%	40.4%
Shiant Isles	0.0011	0.0012	0.0013	0.0014	0.0015	0.0016	0.0721	0.0732	0.0733	0.0734	0.0735	0.0736	0.0737	1.5%	1.6%	1.7%	1.9%	2.0%	2.2%
Skomer, Skokholm and the Seas off Pembrokeshire	0.2073	0.2262	0.2451	0.2653	0.2894	0.3136	338.4259	338.6333	338.6522	338.6711	338.6912	338.7154	338.7396	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%

SPA	PROJECT ALONE						IN-COMBINATION TOTAL	ALONE & IN-COMBINATION TOTAL						PERCENTAGE FROM THE PROJECT ALONE					
	AUTUMN			SPRING				AUTUMN			SPRING			AUTUMN			SPRING		
	LOW	MID	HIGH	LOW	MID	HIGH		LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
St Kilda	0.0020	0.0022	0.0025	0.0023	0.0025	0.0028	0.0653	0.0672	0.0675	0.0678	0.0675	0.0678	0.0681	2.9%	3.3%	3.7%	3.3%	3.7%	4.1%
Sumburgh Head	0.0359	0.0410	0.0460	0.0395	0.0449	0.0502	0.8655	0.9014	0.9064	0.9115	0.9050	0.9103	0.9157	4.0%	4.5%	5.0%	4.4%	4.9%	5.5%
Troup, Pennan and Lion's Heads	1.3897	1.5532	1.7167	1.6432	1.8298	2.0164	91.5022	92.8919	93.0554	93.2189	93.1454	93.3321	93.5187	1.5%	1.7%	1.8%	1.8%	2.0%	2.2%
West Westray	1.0196	1.1344	1.2491	1.2248	1.3583	1.4917	64.1145	65.1341	65.2489	65.3636	65.3393	65.4728	65.6062	1.6%	1.7%	1.9%	1.9%	2.1%	2.3%

Table C2-2 Predicted impacts from the Project alone and in-combination on SPAs with kittiwake as a qualifying feature for the BDMPS UK Western waters region in autumn and spring.

SPA	PROJECT ALONE						IN-COMBINATION TOTAL	ALONE & IN-COMBINATION TOTAL						PERCENTAGE FROM THE PROJECT ALONE					
	AUTUMN			SPRING				AUTUMN			SPRING			AUTUMN			SPRING		
	LOW	MID	HIGH	LOW	MID	HIGH		LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
Ailsa Craig	0.0287	0.0313	0.0340	0.0508	0.0554	0.0601	0.0500	0.0787	0.0813	0.0840	0.1008	0.1054	0.1101	36.5%	38.5%	40.4%	50.4%	52.6%	54.6%
Buchan Ness to Collieston Coast	0.4532	0.5104	0.5675	0.6966	0.7760	0.8554	0.0000	0.4532	0.5104	0.5675	0.6966	0.7760	0.8554	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Calf of Eday	0.0248	0.0278	0.0309	0.0393	0.0436	0.0480	0.0000	0.0248	0.0278	0.0309	0.0393	0.0436	0.0480	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Canna and Sanday	0.0732	0.0818	0.0904	0.1103	0.1223	0.1343	0.0000	0.0732	0.0818	0.0904	0.1103	0.1223	0.1343	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Cape Wrath	3.3839	3.9044	4.4249	3.8519	4.4151	4.9782	0.2520	3.6359	4.1564	4.6769	4.1039	4.6671	5.2302	93.1%	93.9%	94.6%	93.9%	94.6%	95.2%
Copinsay	0.1062	0.1230	0.1398	0.1192	0.1371	0.1551	0.0400	0.1462	0.1630	0.1798	0.1592	0.1771	0.1951	72.6%	75.5%	77.7%	74.9%	77.4%	79.5%

SPA	PROJECT ALONE						IN-COMBINATION TOTAL	ALONE & IN-COMBINATION TOTAL						PERCENTAGE FROM THE PROJECT ALONE					
	AUTUMN			SPRING				AUTUMN			SPRING			AUTUMN			SPRING		
	LOW	MID	HIGH	LOW	MID	HIGH		LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
East Caithness Cliffs	3.6695	4.2238	4.7781	4.4540	5.0798	5.7057	0.8010	4.4705	5.0248	5.5791	5.2550	5.8808	6.5067	82.1%	84.1%	85.6%	84.8%	86.4%	87.7%
Fair Isle	0.0205	0.0228	0.0251	0.0356	0.0392	0.0429	0.0000	0.0205	0.0228	0.0251	0.0356	0.0392	0.0429	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Farne Islands	0.0674	0.0735	0.0796	0.1342	0.1465	0.1587	0.0000	0.0674	0.0735	0.0796	0.1342	0.1465	0.1587	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Flamborough and Filey Coast	0.7361	0.8032	0.8703	1.4664	1.6001	1.7338	0.0000	0.7361	0.8032	0.8703	1.4664	1.6001	1.7338	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Flannan Isles	0.0916	0.1007	0.1098	0.1546	0.1694	0.1843	0.0000	0.0916	0.1007	0.1098	0.1546	0.1694	0.1843	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Forth Islands	0.0607	0.0662	0.0717	0.1208	0.1319	0.1429	0.0000	0.0607	0.0662	0.0717	0.1208	0.1319	0.1429	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Foula	0.0087	0.0096	0.0106	0.0150	0.0165	0.0181	0.0000	0.0087	0.0096	0.0106	0.0150	0.0165	0.0181	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Fowlsheugh	0.5453	0.6227	0.7001	0.7265	0.8205	0.9144	0.0000	0.5453	0.6227	0.7001	0.7265	0.8205	0.9144	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

SPA	PROJECT ALONE						IN-COMBINATION TOTAL	ALONE & IN-COMBINATION TOTAL						PERCENTAGE FROM THE PROJECT ALONE					
	AUTUMN			SPRING				AUTUMN			SPRING			AUTUMN			SPRING		
	LOW	MID	HIGH	LOW	MID	HIGH		LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
Handa	0.7643	0.8839	1.0036	0.8490	0.9764	1.1037	0.0590	0.8233	0.9429	1.0626	0.9080	1.0354	1.1627	92.8%	93.7%	94.4%	93.5%	94.3%	94.9%
Hermaness, Saxa Vord and Valla Field	0.0078	0.0085	0.0092	0.0154	0.0168	0.0182	0.0000	0.0078	0.0085	0.0092	0.0154	0.0168	0.0182	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Hoy	0.2407	0.2804	0.3201	0.2483	0.2888	0.3292	0.0780	0.3187	0.3584	0.3981	0.3263	0.3668	0.4072	75.5%	78.2%	80.4%	76.1%	78.7%	80.8%
Marwick Head	0.3257	0.3794	0.4332	0.3359	0.3906	0.4453	0.2570	0.5827	0.6364	0.6902	0.5929	0.6476	0.7023	55.9%	59.6%	62.8%	56.7%	60.3%	63.4%
Mingulay and Berneray	0.1509	0.1662	0.1815	0.2517	0.2762	0.3007	0.0000	0.1509	0.1662	0.1815	0.2517	0.2762	0.3007	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
North Caithness Cliffs	3.8320	4.4588	5.0856	4.0291	4.6738	5.3185	7.6200	11.4520	12.0788	12.7056	11.6491	12.2938	12.9385	33.5%	36.9%	40.0%	34.6%	38.0%	41.1%
North Colonsay & Western Cliffs	0.3266	0.3564	0.3861	0.5783	0.6310	0.6837	0.0000	0.3266	0.3564	0.3861	0.5783	0.6310	0.6837	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

SPA	PROJECT ALONE						IN-COMBINATION TOTAL	ALONE & IN-COMBINATION TOTAL						PERCENTAGE FROM THE PROJECT ALONE					
	AUTUMN			SPRING				AUTUMN			SPRING			AUTUMN			SPRING		
	LOW	MID	HIGH	LOW	MID	HIGH		LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
North Rona and Sula Sgeir	0.1167	0.1306	0.1445	0.1733	0.1924	0.2115	0.0000	0.1167	0.1306	0.1445	0.1733	0.1924	0.2115	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Noss	0.0102	0.0111	0.0121	0.0200	0.0218	0.0237	0.0000	0.0102	0.0111	0.0121	0.0200	0.0218	0.0237	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Rathlin Island	0.4650	0.5074	0.5498	0.8235	0.8986	0.9737	0.0000	0.4650	0.5074	0.5498	0.8235	0.8986	0.9737	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Rousay	0.0885	0.1007	0.1129	0.1227	0.1381	0.1534	0.0510	0.1395	0.1517	0.1639	0.1737	0.1891	0.2044	63.5%	66.4%	68.9%	70.6%	73.0%	75.0%
Rum	0.0592	0.0655	0.0719	0.0948	0.1044	0.1141	0.0000	0.0592	0.0655	0.0719	0.0948	0.1044	0.1141	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
St Abbs Head to Fast Castle	0.0508	0.0569	0.0629	0.0756	0.0839	0.0922	0.0000	0.0508	0.0569	0.0629	0.0756	0.0839	0.0922	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Shiant Isles	0.0613	0.0669	0.0725	0.1086	0.1185	0.1284	0.3900	0.4513	0.4569	0.4625	0.4986	0.5085	0.5184	13.6%	14.6%	15.7%	21.8%	23.3%	24.8%
Skomer, Skokholm and	0.0666	0.0727	0.0787	0.1327	0.1448	0.1569	0.0000	0.0666	0.0727	0.0787	0.1327	0.1448	0.1569	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

SPA	PROJECT ALONE						IN-COMBINATION TOTAL	ALONE & IN-COMBINATION TOTAL						PERCENTAGE FROM THE PROJECT ALONE					
	AUTUMN			SPRING				AUTUMN			SPRING			AUTUMN			SPRING		
	LOW	MID	HIGH	LOW	MID	HIGH		LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
the Seas off Pembrokeshire																			
St Kilda	0.0572	0.0625	0.0678	0.1005	0.1097	0.1190	0.0000	0.0572	0.0625	0.0678	0.1005	0.1097	0.1190	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Sumburgh Head	0.0273	0.0315	0.0358	0.0313	0.0360	0.0406	0.0000	0.0273	0.0315	0.0358	0.0313	0.0360	0.0406	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Troup, Pennan and Lion's Heads	0.7736	0.8810	0.9883	1.0629	1.1966	1.3303	0.0130	0.7866	0.8940	1.0013	1.0759	1.2096	1.3433	98.3%	98.5%	98.7%	98.8%	98.9%	99.0%
West Westray	0.5211	0.5904	0.6597	0.7551	0.8458	0.9364	0.6330	1.1541	1.2234	1.2927	1.3881	1.4788	1.5694	45.2%	48.3%	51.0%	54.4%	57.2%	59.7%

C.2.2 Great black-backed gull

The predicted impacts on great black-backed gull from the Project alone and in-combination apportioned to each SPA in the breeding season, and non-breeding season from the UK North Sea BDMPS region are shown in Table C2-3.

Table C2-3 Predicted impacts from the Project alone and in-combination on SPAs with great black-backed gull as a qualifying feature.

SPA	PROJECT ALONE	IN-COMBINATION TOTAL	ALONE & IN-COMBINATION	PERCENTAGE FROM THE PROJECT ALONE
East Caithness Cliffs	0.1758	10.4000	10.5758	1.7%
Calf of Eday	0.0831	0.0000	0.0831	100.0%
Copinsay	0.0756	0.0000	0.0756	100.0%
Hoy	0.0271	0.0000	0.0271	100.0%
Isles of Scilly	0.0027	0.0000	0.0027	100.0%
North Rona & Sula Sgeir	0.0006	0.0000	0.0006	100.0%

C.2.3 Guillemot

The predicted impacts on guillemots from the Project alone and in-combination apportioned to each SPA in the breeding season, and non-breeding season are shown in Table C2-4 and for the BDMPS Western Waters region in Table C2-5.

Table C2-4 Predicted impacts from the Project alone and in-combination on SPAs with guillemot as a qualifying feature for the BDMPS UK North Sea region.

SPA	TOTAL BREEDING & NON-BREEDING SEASON			IN-COMBINATION TOTAL	ALONE & IN-COMBINATION TOTAL			PERCENTAGE FROM THE PROJECT ALONE		
	LOW	MID	HIGH		LOW	MID	HIGH	LOW	MID	HIGH
Calf of Eday	0.02	0.02	0.03	0.11	0.13	0.14	0.14	12.2%	16.6%	20.6%
Cape Wrath	2.52	3.62	4.73	5.18	7.70	8.81	9.91	32.7%	41.2%	47.7%
Copinsay	0.09	0.13	0.17	0.28	0.37	0.41	0.45	25.1%	32.5%	38.6%
East Caithness Cliffs	1.77	2.54	3.31	264.02	265.79	266.56	267.33	0.7%	1.0%	1.2%
Fair Isle	0.01	0.01	0.01	0.01	0.02	0.02	0.02	34.9%	43.6%	50.2%

SPA	TOTAL			IN-COMBINATION TOTAL	ALONE & IN-COMBINATION TOTAL			PERCENTAGE FROM THE PROJECT ALONE		
	BREEDING & NON-BREEDING SEASON									
	LOW	MID	HIGH		LOW	MID	HIGH	LOW	MID	HIGH
Handa	1.18	1.70	2.21	2.95	4.13	4.65	5.16	28.6%	36.5%	42.9%
Hoy	0.59	0.85	1.11	1.58	2.17	2.43	2.69	41.1%	35.0%	41.3%
Marwick Head	0.19	0.28	0.36	0.83	1.02	1.10	1.19	18.9%	25.1%	30.4%
North Caithness Cliffs	2.10	3.02	3.94	46.46	48.56	49.48	50.40	4.3%	6.1%	7.8%
North Rona & Sula Sgeir	0.02	0.04	0.05	0.05	0.07	0.08	0.09	34.9%	43.6%	50.2%
Rousay	0.04	0.06	0.08	0.18	0.22	0.24	0.26	19.2%	25.5%	30.9%
Shiant Isles	0.02	0.03	0.04	173.17	173.19	173.20	173.21	0.0%	0.0%	0.0%
Sule Skerry & Sule Stack	92.96	133.56	174.16	0.04	93.00	133.60	174.20	100.0%	100.0%	100.0%
West Westray	0.12	0.18	0.23	0.84	0.96	1.02	1.07	12.9%	17.6%	21.8%

Table C2-5 Predicted impacts from the Project alone and in-combination on SPAs with guillemot as a qualifying feature for the BDMPS Western Waters region.

SPA	TOTAL			IN-COMBINATION TOTAL	ALONE & IN-COMBINATION TOTAL			PERCENTAGE FROM THE PROJECT ALONE		
	BREEDING & NON-BREEDING SEASON									
	LOW	MID	HIGH		LOW	MID	HIGH	LOW	MID	HIGH
Calf of Eday	0.02	0.02	0.03	0.08	0.10	0.11	0.11	15.7%	21.2%	25.9%
Cape Wrath	2.52	3.62	4.73	0.49	3.01	4.11	5.21	83.8%	88.2%	90.7%
Copinsay	0.09	0.13	0.17	0.10	0.20	0.24	0.28	47.2%	56.2%	62.6%
East Caithness Cliffs	1.77	2.54	3.31	1.73	3.50	4.27	5.04	50.6%	59.5%	65.7%
Fair Isle	0.01	0.01	0.01	0.00	0.01	0.01	0.01	100.0%	100.0%	100.0%
Handa	1.18	1.70	2.21	0.75	1.93	2.45	2.96	61.2%	69.4%	74.7%
Hoy	0.59	0.85	1.11	0.48	1.07	1.33	1.59	55.5%	64.2%	70.0%

SPA	TOTAL			IN-COMBINATION TOTAL	ALONE & IN-COMBINATION TOTAL			PERCENTAGE FROM THE PROJECT ALONE		
	BREEDING & NON-BREEDING SEASON									
	LOW	MID	HIGH		LOW	MID	HIGH	LOW	MID	HIGH
Marwick Head	0.19	0.28	0.36	0.47	0.66	0.74	0.83	29.2%	37.3%	43.6%
North Caithness Cliffs	2.10	3.02	3.94	5.54	7.64	8.56	9.48	27.5%	35.3%	41.6%
North Rona & Sula Sgeir	0.02	0.04	0.05	0.00	0.02	0.04	0.05	100.0%	100.0%	100.0%
Rousay	0.04	0.06	0.08	0.10	0.14	0.16	0.18	30.0%	38.1%	44.5%
Shiant Isles	0.02	0.03	0.04	0.00	0.02	0.03	0.04	100.0%	100.0%	100.0%
Sule Skerry & Sule Stack	92.96	133.56	174.16	0.13	93.09	133.69	174.29	99.9%	99.9%	99.9%
West Westray	0.12	0.18	0.23	0.61	0.73	0.79	0.84	17.0%	22.8%	27.8%

C.2.4 Razorbill

The predicted impacts on razorbills from the Project alone and in-combination apportioned to each SPA in the breeding season, and non-breeding season from the UK North Sea BDMPS region are shown in Table C2-6 and for the BDMPS Western Waters region in Table C2-7.

Table C2-6 Predicted impacts from the Project alone and in-combination on SPAs with razorbill as a qualifying feature for the BDMPS UK North Sea region in autumn and spring, and non-breeding seasons.

SPA	PROJECT ALONE						IN-COMBINATION TOTAL	TOTAL						PERCENTAGE FROM THE PROJECT ALONE					
	AUTUMN & SPRING MIGRATION			NON-BREEDING SEASON				AUTUMN & SPRING MIGRATION			NON-BREEDING SEASON			AUTUMN & SPRING MIGRATION			NON-BREEDING SEASON		
	LOW	MID	HIGH	LOW	MID	HIGH		LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
Cape Wrath	0.3865	0.5154	0.6443	0.3884	0.5192	0.6501	1.2144	1.6009	1.7298	1.8587	1.6028	1.7337	1.8645	24.1%	29.8%	34.7%	24.2%	29.9%	34.9%
East Caithness Cliffs	0.6643	0.9146	1.1649	0.6580	0.9019	1.1459	154.1138	154.7781	155.0284	155.2787	154.7717	155.0157	155.2597	0.4%	0.6%	0.8%	0.4%	0.6%	0.7%
Fair Isle	0.0042	0.0076	0.0110	0.0039	0.0070	0.0101	4.6741	4.6783	4.6817	4.6851	4.6780	4.6811	4.6842	0.1%	0.2%	0.2%	0.1%	0.2%	0.2%

SPA	PROJECT ALONE						IN-COMBINATION TOTAL	TOTAL						PERCENTAGE FROM THE PROJECT ALONE					
	AUTUMN & SPRING MIGRATION			NON-BREEDING SEASON				AUTUMN & SPRING MIGRATION			NON-BREEDING SEASON			AUTUMN & SPRING MIGRATION			NON-BREEDING SEASON		
	LOW	MID	HIGH	LOW	MID	HIGH		LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
Flamborough & Filey Coast	0.0346	0.0693	0.1039	0.0296	0.0592	0.0888	135.3381	135.3727	135.4074	135.4420	135.3677	135.3973	135.4269	0.0%	0.1%	0.1%	0.0%	0.0%	0.1%
Flannan Islands	0.0001	0.0001	0.0002	0.0010	0.0021	0.0031	0.5806	0.5807	0.5807	0.5808	0.5816	0.5827	0.5837	0.0%	0.0%	0.0%	0.2%	0.4%	0.5%
Forth Islands	0.0091	0.0182	0.0273	0.0078	0.0155	0.0233	57.9209	57.9299	57.9390	57.9481	57.9286	57.9364	57.9442	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Foula	0.0014	0.0027	0.0040	0.0013	0.0024	0.0036	1.9150	1.9164	1.9177	1.9190	1.9163	1.9175	1.9186	0.1%	0.1%	0.2%	0.1%	0.1%	0.2%
Fowlsheugh	0.0122	0.0244	0.0366	0.0104	0.0209	0.0313	68.6875	68.6997	68.7119	68.7241	68.6979	68.7083	68.7187	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%
Handa	0.2480	0.3309	0.4137	0.2527	0.3403	0.4280	3.1747	3.4227	3.5056	3.5885	3.4274	3.5151	3.6027	7.2%	9.4%	11.5%	7.4%	9.7%	11.9%

SPA	PROJECT ALONE						IN-COMBINATION TOTAL	TOTAL						PERCENTAGE FROM THE PROJECT ALONE					
	AUTUMN & SPRING MIGRATION			NON-BREEDING SEASON				AUTUMN & SPRING MIGRATION			NON-BREEDING SEASON			AUTUMN & SPRING MIGRATION			NON-BREEDING SEASON		
	LOW	MID	HIGH	LOW	MID	HIGH		LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
Mingulay & Berneray	0.0007	0.0014	0.0021	0.0100	0.0199	0.0299	5.5895	5.5902	5.5909	5.5916	5.5995	5.6094	5.6194	0.0%	0.0%	0.0%	0.2%	0.4%	0.5%
North Caithness Cliffs	0.3575	0.4804	0.6033	0.3569	0.4793	0.6016	9.0099	9.3674	9.4903	9.6132	9.3668	9.4891	9.6115	3.8%	5.1%	6.3%	3.8%	5.1%	6.3%
North Rona & Sula Sgeir	0.0026	0.0035	0.0044	0.0036	0.0055	0.0074	0.6035	0.6061	0.6070	0.6079	0.6071	0.6090	0.6109	0.4%	0.6%	0.7%	0.6%	0.9%	1.2%
Rathlin Island	0.0011	0.0021	0.0032	0.0076	0.0152	0.0228	4.8523	4.8534	4.8545	4.8555	4.8599	4.8675	4.8751	0.0%	0.0%	0.1%	0.2%	0.3%	0.5%
Shiant Isles	0.0373	0.0499	0.0625	0.0412	0.0577	0.0742	2.3500	2.3873	2.3999	2.4126	2.3912	2.4077	2.4242	1.6%	2.1%	2.6%	1.7%	2.4%	3.1%
Skomer, Skokholm and the	0.0004	0.0008	0.0012	0.0030	0.0059	0.0089	1.8914	1.8919	1.8923	1.8927	1.8944	1.8974	1.9003	0.0%	0.0%	0.1%	0.2%	0.3%	0.5%

SPA	PROJECT ALONE						IN-COMBINATION TOTAL	TOTAL						PERCENTAGE FROM THE PROJECT ALONE					
	AUTUMN & SPRING MIGRATION			NON-BREEDING SEASON				AUTUMN & SPRING MIGRATION			NON-BREEDING SEASON			AUTUMN & SPRING MIGRATION			NON-BREEDING SEASON		
	LOW	MID	HIGH	LOW	MID	HIGH		LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
Seas off Pembrokeshire																			
St Abbs to Fast Castle	0.0042	0.0084	0.0127	0.0036	0.0072	0.0108	15.6636	15.6679	15.6721	15.6763	15.6672	15.6708	15.6744	0.0%	0.1%	0.1%	0.0%	0.0%	0.1%
St Kilda	0.0001	0.0002	0.0004	0.0017	0.0034	0.0050	0.9400	0.9401	0.9402	0.9404	0.9417	0.9434	0.9450	0.0%	0.0%	0.0%	0.2%	0.4%	0.5%
Troup, Pennan & Lions	0.0244	0.0366	0.0488	0.0235	0.0348	0.0461	11.6439	11.6683	11.6805	11.6927	11.6675	11.6788	11.6900	0.2%	0.3%	0.4%	0.2%	0.3%	0.4%
West Westray	0.0189	0.0264	0.0339	0.0187	0.0261	0.0334	3.7143	3.7332	3.7407	3.7483	3.7330	3.7404	3.7477	0.5%	0.7%	0.9%	0.5%	0.7%	0.9%

Table C2-7 Predicted impacts from the Project alone and in-combination on SPAs with razorbill as a qualifying feature for the BDMPS Western Waters region in autumn and spring, and non-breeding seasons.

SPA	PROJECT ALONE						IN-COMBINATION TOTAL	TOTAL						PERCENTAGE FROM THE PROJECT ALONE					
	AUTUMN & SPRING MIGRATION			NON-BREEDING SEASON				AUTUMN & SPRING MIGRATION			NON-BREEDING SEASON			AUTUMN & SPRING MIGRATION			NON-BREEDING SEASON		
	LOW	MID	HIGH	LOW	MID	HIGH		LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
Cape Wrath	0.3931	0.5286	0.6642	0.3912	0.5249	0.6585	1.21	1.6075	1.7431	1.8786	1.6056	1.7393	1.8730	24.5%	30.3%	35.4%	24.4%	30.2%	35.2%
East Caithness Cliffs	0.6210	0.8280	1.0350	0.6217	0.8294	1.0372	154.11	154.7348	154.9417	155.1487	154.7355	154.9432	155.1509	0.4%	0.5%	0.7%	0.4%	0.5%	0.7%
Fair Isle	0.0014	0.0019	0.0025	0.0013	0.0017	0.0022	4.67	4.6754	4.6760	4.6765	4.6753	4.6758	4.6762	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%
Flamborough & Filey Coast	0.0000	0.0000	0.0000	0.0006	0.0012	0.0018	135.34	135.3381	135.3381	135.3381	135.3387	135.3392	135.3398	n/a	n/a	n/a	0.0%	0.0%	0.0%
Flannan Islands	0.0034	0.0068	0.0102	0.0025	0.0049	0.0074	0.58	0.5840	0.5874	0.5908	0.5830	0.5855	0.5880	0.6%	1.2%	1.7%	0.4%	0.8%	1.3%

SPA	PROJECT ALONE						IN-COMBINATION TOTAL	TOTAL						PERCENTAGE FROM THE PROJECT ALONE					
	AUTUMN & SPRING MIGRATION			NON-BREEDING SEASON				AUTUMN & SPRING MIGRATION			NON-BREEDING SEASON			AUTUMN & SPRING MIGRATION			NON-BREEDING SEASON		
	LOW	MID	HIGH	LOW	MID	HIGH		LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
Forth Islands	0.0000	0.0000	0.0000	0.0002	0.0003	0.0005	57.92	57.9209	57.9209	57.9209	57.9210	57.9212	57.9213	n/a	n/a	n/a	0.0%	0.0%	0.0%
Foula	0.0002	0.0003	0.0004	0.0002	0.0002	0.0003	1.92	1.9152	1.9154	1.9155	1.9152	1.9153	1.9154	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Fowlsheugh	0.0000	0.0000	0.0000	0.0002	0.0004	0.0006	68.69	68.6875	68.6875	68.6875	68.6877	68.6879	68.6881	n/a	n/a	n/a	0.0%	0.0%	0.0%
Handa	0.2643	0.3636	0.4629	0.2597	0.3543	0.4489	3.17	3.4391	3.5383	3.6376	3.4344	3.5290	3.6236	7.7%	10.3%	12.7%	7.6%	10.0%	12.4%
Mingulay & Berneray	0.0327	0.0655	0.0982	0.0236	0.0473	0.0709	5.59	5.6222	5.6550	5.6877	5.6131	5.6368	5.6604	0.6%	1.2%	1.7%	0.4%	0.8%	1.3%
North Caithness Cliffs	0.3522	0.4698	0.5874	0.3520	0.4694	0.5868	9.01	9.3621	9.4796	9.5972	9.3619	9.4793	9.5967	3.8%	5.0%	6.1%	3.8%	5.0%	6.1%

SPA	PROJECT ALONE						IN-COMBINATION TOTAL	TOTAL						PERCENTAGE FROM THE PROJECT ALONE					
	AUTUMN & SPRING MIGRATION			NON-BREEDING SEASON				AUTUMN & SPRING MIGRATION			NON-BREEDING SEASON			AUTUMN & SPRING MIGRATION			NON-BREEDING SEASON		
	LOW	MID	HIGH	LOW	MID	HIGH		LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
North Rona & Sula Sgeir	0.0060	0.0104	0.0147	0.0050	0.0084	0.0118	0.60	0.6095	0.6139	0.6182	0.6085	0.6119	0.6153	1.0%	1.7%	2.4%	0.8%	1.4%	1.9%
Rathlin Island	0.0499	0.0997	0.1496	0.0360	0.0720	0.1080	4.85	4.9022	4.9520	5.0019	4.8883	4.9243	4.9603	1.0%	2.0%	3.0%	0.7%	1.5%	2.2%
Shiant Isles	0.0508	0.0768	0.1029	0.0469	0.0692	0.0915	2.35	2.4008	2.4269	2.4529	2.3969	2.4192	2.4415	2.1%	3.2%	4.2%	2.0%	2.9%	3.7%
Skomer, Skokholm and the Seas off Pembrokeshire	0.0194	0.0389	0.0583	0.0105	0.0210	0.0316	1.89	1.9109	1.9303	1.9498	1.9020	1.9125	1.9230	1.0%	2.0%	3.0%	0.6%	1.1%	1.6%
St Abbs to Fast Castle	0.0000	0.0000	0.0000	0.0001	0.0001	0.0002	15.66	15.6636	15.6636	15.6636	15.6637	15.6638	15.6638	n/a	n/a	n/a	0.0%	0.0%	0.0%

SPA	PROJECT ALONE						IN-COMBINATION TOTAL	TOTAL						PERCENTAGE FROM THE PROJECT ALONE					
	AUTUMN & SPRING MIGRATION			NON-BREEDING SEASON				AUTUMN & SPRING MIGRATION			NON-BREEDING SEASON			AUTUMN & SPRING MIGRATION			NON-BREEDING SEASON		
	LOW	MID	HIGH	LOW	MID	HIGH		LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
St Kilda	0.006	0.011	0.017	0.0040	0.0079	0.0119	0.94	0.9455	0.9510	0.9565	0.9440	0.9480	0.9519	0.6%	1.2%	1.7%	0.4%	0.8%	1.3%
Troup, Pennan & Lions	0.0184	0.0245	0.0306	0.0185	0.0247	0.0309	11.64	11.6623	11.6684	11.6746	11.6624	11.6686	11.6749	n/a	n/a	n/a	0.2%	0.2%	0.3%
West Westray	0.0172	0.0230	0.0288	0.0171	0.0229	0.0286	3.71	3.7315	3.7373	3.7431	3.7315	3.7372	3.7429	0.5%	0.6%	0.8%	0.5%	0.6%	0.8%

C.2.5 Puffin

The predicted impacts on puffins from the Project alone and in-combination apportioned to each SPA in the breeding season, and non-breeding season from the UK North Sea BDMPS region are shown in Table C2-8 and for the BDMPS Western Waters region in Table C2-9.

Table C2-8 Predicted impacts from the Project alone and in-combination on SPAs with puffin for the BDMPS North Sea & Channel region as a qualifying feature.

SPA	PROJECT ALONE			IN-COMBINATION TOTAL	ALONE & IN-COMBINATION TOTAL			PERCENTAGE FROM THE PROJECT ALONE		
	LOW	MID	HIGH		LOW	MID	HIGH	LOW	MID	HIGH
Canna & Sanday	0.0002	0.0004	0.0005	0.0000	0.0002	0.0004	0.0005	100.0%	100.0%	100.0%
Cape Wrath	0.0077	0.0104	0.0128	0.0490	0.0567	0.0594	0.0618	13.7%	17.5%	20.8%
Coquet Island	0.5313	1.0626	1.5938	0.0000	0.5313	1.0626	1.5938	100.0%	100.0%	100.0%
Fair Isle	0.1385	0.2769	0.4152	0.0140	0.1525	0.2909	0.4292	90.8%	95.2%	96.7%
Farne Islands	1.7199	3.4399	5.1598	17.3000	19.0199	20.7399	22.4598	9.0%	16.6%	23.0%
Flamborough & Filey Coast	0.0412	0.0825	0.1237	0.0000	0.0412	0.0825	0.1237	100.0%	100.0%	100.0%

SPA	PROJECT ALONE			IN-COMBINATION TOTAL	ALONE & IN-COMBINATION TOTAL			PERCENTAGE FROM THE PROJECT ALONE		
	LOW	MID	HIGH		LOW	MID	HIGH	LOW	MID	HIGH
Flannan Isles	0.0057	0.0085	0.0112	0.0000	0.0057	0.0085	0.0112	100.0%	100.0%	100.0%
Forth Islands	2.6784	5.3568	8.0352	159.4000	162.0784	164.7568	167.4352	1.7%	3.3%	4.8%
Foula	0.2906	0.5812	0.8717	0.0070	0.2976	0.5882	0.8787	97.6%	98.8%	99.2%
Hermaness, Saxa Vord and Valla Field	0.3056	0.6111	0.9166	0.0000	0.3056	0.6111	0.9166	100.0%	100.0%	100.0%
Hoy	0.0551	0.1035	0.1517	0.0210	0.0761	0.1245	0.1727	72.4%	83.1%	87.8%
Mingulay & Berneray	0.0003	0.0005	0.0008	0.0000	0.0003	0.0005	0.0008	100.0%	100.0%	100.0%
North Caithness Cliffs	0.0214	0.0369	0.0522	41.8000	41.8214	41.8369	41.8522	0.1%	0.1%	0.1%
North Rona & Sula Sgeir	0.0011	0.0018	0.0025	0.0000	0.0011	0.0018	0.0025	100.0%	100.0%	100.0%
Noss	0.0104	0.0208	0.0311	0.0000	0.0104	0.0208	0.0311	100.0%	100.0%	100.0%

SPA	PROJECT ALONE			IN-COMBINATION TOTAL	ALONE & IN-COMBINATION TOTAL			PERCENTAGE FROM THE PROJECT ALONE		
	LOW	MID	HIGH		LOW	MID	HIGH	LOW	MID	HIGH
Rathlin Island	0.0000	0.0001	0.0001	0.0000	0.0000	0.0001	0.0001	100.0%	100.0%	100.0%
Shiant Isles	0.0226	0.0339	0.0446	0.0000	0.0226	0.0339	0.0446	100.0%	100.0%	100.0%
Skomer, Skokholm and the Seas off Pembrokeshire	0.0021	0.0041	0.0062	0.0000	0.0021	0.0041	0.0062	100.0%	100.0%	100.0%
St Kilda	0.0136	0.0264	0.0390	0.0000	0.0136	0.0264	0.0390	100.0%	100.0%	100.0%
Sule Skerry & Sule Stack	63.8318	85.1124	104.4224	1.9740	65.8058	87.0864	106.3964	97.0%	97.7%	98.1%

Table C2-9 Predicted impacts from the Project alone and in-combination on SPAs with puffin for the BDMPS Western Waters region as a qualifying feature.

SPA	PROJECT ALONE			IN-COMBINATION TOTAL	ALONE & IN-COMBINATION TOTAL			PERCENTAGE FROM THE PROJECT ALONE		
	LOW	MID	HIGH		LOW	MID	HIGH	LOW	MID	HIGH
Canna & Sanday	0.0119	0.0236	0.0354	0.0000	0.0119	0.0236	0.0354	100.0%	100.0%	100.0%
Cape Wrath	0.0275	0.0499	0.0723	0.0490	0.0765	0.0989	0.1213	35.9%	50.5%	59.6%
Coquet Island	0.0595	0.1191	0.1786	0.0000	0.0595	0.1191	0.1786	100.0%	100.0%	100.0%
Fair Isle	0.0593	0.1184	0.1775	0.0140	0.0733	0.1324	0.1915	80.9%	89.4%	92.7%
Farne Islands	0.1928	0.3855	0.5783	17.3000	17.4928	17.6855	17.8783	1.1%	2.2%	3.2%
Flamborough & Filey Coast	0.0046	0.0092	0.0138	0.0000	0.0046	0.0092	0.0138	100.0%	100.0%	100.0%
Flannan Isles	0.1979	0.3928	0.5878	0.0000	0.1979	0.3928	0.5878	100.0%	100.0%	100.0%
Forth Islands	0.3001	0.6003	0.9004	159.4000	159.7001	160.0003	160.3004	0.2%	0.4%	0.6%

SPA	PROJECT ALONE			IN-COMBINATION TOTAL	ALONE & IN-COMBINATION TOTAL			PERCENTAGE FROM THE PROJECT ALONE		
	LOW	MID	HIGH		LOW	MID	HIGH	LOW	MID	HIGH
Foula	0.1241	0.2482	0.3722	0.0070	0.1311	0.2552	0.3792	94.7%	97.3%	98.2%
Hermaness, Saxa Vord and Valla Field	0.1305	0.2610	0.3914	0.0000	0.1305	0.2610	0.3914	100.0%	100.0%	100.0%
Hoy	0.0292	0.0517	0.0743	0.0210	0.0502	0.0727	0.0953	58.1%	71.1%	78.0%
Mingulay & Berneray	0.0388	0.0775	0.1163	0.0000	0.0388	0.0775	0.1163	100.0%	100.0%	100.0%
North Caithness Cliffs	0.0142	0.0225	0.0308	41.8000	41.8142	41.8225	41.8308	0.0%	0.1%	0.1%
North Rona & Sula Sgeir	0.0681	0.1358	0.2035	0.0000	0.0681	0.1358	0.2035	100.0%	100.0%	100.0%
Noss	0.0044	0.0088	0.0132	0.0000	0.0044	0.0088	0.0132	100.0%	100.0%	100.0%
Rathlin Island	0.0086	0.0172	0.0258	0.0000	0.0086	0.0172	0.0258	100.0%	100.0%	100.0%
Shiant Isles	0.8253	1.6392	2.4532	0.0000	0.8253	1.6392	2.4532	100.0%	100.0%	100.0%

SPA	PROJECT ALONE			IN-COMBINATION TOTAL	ALONE & IN-COMBINATION TOTAL			PERCENTAGE FROM THE PROJECT ALONE		
	LOW	MID	HIGH		LOW	MID	HIGH	LOW	MID	HIGH
Skomer, Skokholm and the Seas off Pembrokeshire	0.2991	0.5982	0.8972	0.0000	0.2991	0.5982	0.8972	100.0%	100.0%	100.0%
St Kilda	1.7658	3.5308	5.2957	0.0000	1.7658	3.5308	5.2957	100.0%	100.0%	100.0%
Sule Skerry & Sule Stack	64.5643	86.5774	108.5906	1.9740	66.5383	88.5514	110.5646	97.0%	97.8%	98.2%

C.2.6 Fulmar

The predicted impacts on fulmars from the Project alone and in-combination apportioned to each SPA in the breeding season, and non-breeding season from the UK North Sea BDMPS region are shown in Table C2-10 and for the UK Western Waters and Channel BDMPS region in Table C2-11.

Table C2-10 Predicted impacts from the Project alone and in-combination on SPAs with fulmar as a qualifying feature for the BDMPS UK North Sea region in autumn and spring and the non-breeding season.

SPA	PROJECT ALONE						IN-COMBINATION TOTAL	TOTAL						PERCENTAGE FROM THE PROJECT ALONE					
	AUTUMN & SPRING MIGRATION			NON-BREEDING SEASON				AUTUMN & SPRING MIGRATION			NON-BREEDING SEASON			AUTUMN & SPRING MIGRATION			NON-BREEDING SEASON		
	LOW	MID	HIGH	LOW	MID	HIGH		LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
Buchan Ness to Collieston Coast	0.0147	0.0294	0.0441	0.0104	0.0208	0.0313	0.0000	0.0147	0.0294	0.0441	0.0104	0.0208	0.0460	100.0%	100.0%	100.0%	100.0%	100.0%	68.0%
Calf of Eday	0.0250	0.0500	0.0750	0.0211	0.0423	0.0634	0.0000	0.0250	0.0500	0.0750	0.0211	0.0423	0.0884	100.0%	100.0%	100.0%	100.0%	100.0%	71.7%
Cape Wrath	0.0335	0.0670	0.1006	0.0340	0.0679	0.1019	0.0030	0.0365	0.0700	0.1036	0.0370	0.0709	0.1384	91.8%	95.7%	97.1%	91.9%	95.8%	73.6%

SPA	PROJECT ALONE						IN-COMBINATION TOTAL	TOTAL						PERCENTAGE FROM THE PROJECT ALONE					
	AUTUMN & SPRING MIGRATION			NON-BREEDING SEASON				AUTUMN & SPRING MIGRATION			NON-BREEDING SEASON			AUTUMN & SPRING MIGRATION			NON-BREEDING SEASON		
	LOW	MID	HIGH	LOW	MID	HIGH		LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
Copinsay	0.0183	0.0365	0.0548	0.0183	0.0365	0.0548	0.0030	0.0213	0.0395	0.0578	0.0213	0.0395	0.0761	85.9%	92.4%	94.8%	85.9%	92.4%	72.0%
East Caithness Cliffs	0.1980	0.3959	0.5939	0.1534	0.3068	0.4602	3.3180	3.5160	3.7139	3.9119	3.4714	0.3248	3.9761	5.6%	10.7%	15.2%	4.4%	94.5%	11.6%
Fair Isle	0.3086	0.6172	0.9258	0.2466	0.4931	0.7397	0.0090	0.3176	0.6262	0.9348	0.2556	0.5021	1.0572	97.2%	98.6%	99.0%	96.5%	98.2%	70.0%
Fetlar	0.0867	0.1733	0.2600	0.0680	0.1360	0.2040	0.0000	0.0867	0.1733	0.2600	0.0680	0.1360	0.2907	100.0%	100.0%	100.0%	100.0%	100.0%	70.2%
Flamborough & Filey Coast	0.0092	0.0184	0.0276	0.0064	0.0129	0.0193	0.0000	0.0092	0.0184	0.0276	0.0064	0.0129	0.0285	100.0%	100.0%	100.0%	100.0%	100.0%	67.7%
Flannan Isles	0.0011	0.0021	0.0032	0.0026	0.0052	0.0078	0.0000	0.0011	0.0021	0.0032	0.0026	0.0052	0.0088	100.0%	100.0%	100.0%	100.0%	100.0%	88.1%
Forth Islands	0.0087	0.0174	0.0261	0.0061	0.0122	0.0183	0.0000	0.0087	0.0174	0.0261	0.0061	0.0122	0.0270	100.0%	100.0%	100.0%	100.0%	100.0%	67.7%

SPA	PROJECT ALONE						IN-COMBINATION TOTAL	TOTAL						PERCENTAGE FROM THE PROJECT ALONE					
	AUTUMN & SPRING MIGRATION			NON-BREEDING SEASON				AUTUMN & SPRING MIGRATION			NON-BREEDING SEASON			AUTUMN & SPRING MIGRATION			NON-BREEDING SEASON		
	LOW	MID	HIGH	LOW	MID	HIGH		LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
Foula	0.1927	0.3854	0.5781	0.1514	0.3027	0.4541	0.0030	0.1957	0.3884	0.5811	0.1544	0.3057	0.6497	98.5%	99.2%	99.5%	98.1%	99.0%	69.9%
Fowlsheugh	0.0022	0.0044	0.0066	0.0016	0.0032	0.0048	0.0000	0.0022	0.0044	0.0066	0.0016	0.0032	0.0070	100.0%	100.0%	100.0%	100.0%	100.0%	68.5%
Handa	0.0033	0.0066	0.0098	0.0037	0.0073	0.0110	0.0000	0.0033	0.0066	0.0098	0.0037	0.0073	0.0143	100.0%	100.0%	100.0%	100.0%	100.0%	77.1%
Hermaness, Saxa Vord and Valla Field	0.0693	0.1387	0.2080	0.0547	0.1094	0.1641	0.0000	0.0693	0.1387	0.2080	0.0547	0.1094	0.2334	100.0%	100.0%	100.0%	100.0%	100.0%	70.3%
Hoy	0.7762	1.5524	2.3286	0.7352	1.4704	2.2057	0.1740	0.9502	1.7264	2.5026	0.9092	1.6444	3.1559	81.7%	89.9%	93.0%	80.9%	89.4%	69.9%
Mingulay and Berneray	0.0011	0.0022	0.0033	0.0030	0.0060	0.0090	0.0000	0.0011	0.0022	0.0033	0.0030	0.0060	0.0101	100.0%	100.0%	100.0%	100.0%	100.0%	89.1%

SPA	PROJECT ALONE						IN-COMBINATION TOTAL	TOTAL						PERCENTAGE FROM THE PROJECT ALONE					
	AUTUMN & SPRING MIGRATION			NON-BREEDING SEASON				AUTUMN & SPRING MIGRATION			NON-BREEDING SEASON			AUTUMN & SPRING MIGRATION			NON-BREEDING SEASON		
	LOW	MID	HIGH	LOW	MID	HIGH		LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
North Caithness Cliffs	0.4935	0.9870	1.4805	0.4637	0.9274	1.3911	2.7750	3.2685	3.7620	4.2555	3.2387	3.7024	4.6596	15.1%	26.2%	34.8%	14.3%	25.0%	29.9%
North Rona and Sula Sgeir	0.0046	0.0092	0.0138	0.0056	0.0113	0.0169	0.0000	0.0046	0.0092	0.0138	0.0056	0.0113	0.0215	100.0%	100.0%	100.0%	100.0%	100.0%	78.6%
Noss	0.0512	0.1024	0.1536	0.0402	0.0805	0.1207	0.0000	0.0512	0.1024	0.1536	0.0402	0.0805	0.1719	100.0%	100.0%	100.0%	100.0%	100.0%	70.2%
Rathlin Island	0.0000	0.0000	0.0000	0.0003	0.0006	0.0010	0.0000	0.0000	0.0000	0.0000	0.0003	0.0006	0.0010	0.0%	0.0%	0.0%	100.0%	100.0%	100.0%
Rousay	0.0250	0.0500	0.0751	0.0229	0.0457	0.0686	0.0030	0.0280	0.0530	0.0781	0.0259	0.0487	0.0966	89.3%	94.3%	96.2%	88.4%	93.8%	71.0%
Shiant Isles	0.0003	0.0005	0.0008	0.0012	0.0023	0.0035	0.0000	0.0003	0.0005	0.0008	0.0012	0.0023	0.0038	100.0%	100.0%	100.0%	100.0%	100.0%	93.2%
St Kilda	0.0165	0.0329	0.0494	0.0303	0.0606	0.0909	0.0000	0.0165	0.0329	0.0494	0.0303	0.0606	0.1073	100.0%	100.0%	100.0%	100.0%	100.0%	84.7%

SPA	PROJECT ALONE						IN-COMBINATION TOTAL	TOTAL						PERCENTAGE FROM THE PROJECT ALONE					
	AUTUMN & SPRING MIGRATION			NON-BREEDING SEASON				AUTUMN & SPRING MIGRATION			NON-BREEDING SEASON			AUTUMN & SPRING MIGRATION			NON-BREEDING SEASON		
	LOW	MID	HIGH	LOW	MID	HIGH		LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
Sumburgh Head	0.0073	0.0145	0.0218	0.0068	0.0135	0.0203	0.0000	0.0073	0.0145	0.0218	0.0068	0.0135	0.0276	100.0%	100.0%	100.0%	100.0%	100.0%	73.7%
Troup, Pennan and Lion's Heads	0.0202	0.0404	0.0606	0.0146	0.0291	0.0437	0.0000	0.0202	0.0404	0.0606	0.0146	0.0291	0.0639	100.0%	100.0%	100.0%	100.0%	100.0%	68.4%
West Westray	0.0120	0.0241	0.0361	0.0106	0.0212	0.0318	0.0000	0.0120	0.0241	0.0361	0.0106	0.0212	0.0439	100.0%	100.0%	100.0%	100.0%	100.0%	72.6%

Table C2-11 Predicted impacts from the Project alone and in-combination on SPAs with fulmar as a qualifying feature for the BDMPS Western Waters & Channel region in autumn and spring and the non-breeding season.

SPA	PROJECT ALONE						IN-COMBINATION TOTAL	TOTAL						PERCENTAGE FROM THE PROJECT ALONE					
	AUTUMN & SPRING MIGRATION			NON-BREEDING SEASON				AUTUMN & SPRING MIGRATION			NON-BREEDING SEASON			AUTUMN & SPRING MIGRATION			NON-BREEDING SEASON		
	LOW	MID	HIGH	LOW	MID	HIGH		LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
Buchan Ness to Collieston Coast	0.0004	0.0008	0.0012	0.0020	0.0040	0.0061	0.0000	0.0004	0.0008	0.0012	0.0020	0.0040	0.0065	100.0%	100.0%	100.0%	100.0%	100.0%	93.6%
Calf of Eday	0.0098	0.0196	0.0355	0.0098	0.0196	0.0294	0.0000	0.0098	0.0196	0.0355	0.0098	0.0196	0.0393	100.0%	100.0%	100.0%	100.0%	100.0%	75.0%
Cape Wrath	0.0584	0.1168	0.2444	0.0509	0.1019	0.1528	0.0030	0.0614	0.1198	0.2474	0.0539	0.1019	0.2142	95.1%	97.5%	98.8%	94.4%	100.0%	71.3%
Copinsay	0.0082	0.0165	0.0301	0.0082	0.0165	0.0247	0.0030	0.0112	0.0195	0.0331	0.0112	0.0165	0.0360	73.3%	84.6%	90.9%	73.3%	100.0%	68.7%
East Caithness Cliffs	0.0494	0.0988	0.1482	0.0661	0.1322	0.1983	0.0180	0.0674	0.1168	0.1662	0.0841	0.1322	0.2657	73.3%	84.6%	89.2%	78.6%	100.0%	74.6%
Fair Isle	0.0643	0.1286	0.2900	0.0643	0.1286	0.1930	0.0090	0.0733	0.1376	0.2990	0.0733	0.1286	0.2663	87.7%	93.5%	97.0%	87.7%	100.0%	72.5%

SPA	PROJECT ALONE						IN-COMBINATION TOTAL	TOTAL						PERCENTAGE FROM THE PROJECT ALONE					
	AUTUMN & SPRING MIGRATION			NON-BREEDING SEASON				AUTUMN & SPRING MIGRATION			NON-BREEDING SEASON			AUTUMN & SPRING MIGRATION			NON-BREEDING SEASON		
	LOW	MID	HIGH	LOW	MID	HIGH		LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
Fetlar	0.0132	0.0264	0.0688	0.0132	0.0264	0.0397	0.0000	0.0132	0.0264	0.0688	0.0132	0.0264	0.0529	100.0%	100.0%	100.0%	100.0%	100.0%	75.0%
Flamborough & Filey Coast	0.0000	0.0000	0.0000	0.0010	0.0021	0.0031	0.0000	0.0000	0.0000	0.0000	0.0010	0.0021	0.0031	0.0%	0.0%	0.0%	100.0%	100.0%	100.0%
Flannan Isles	0.0873	0.1746	0.5016	0.0614	0.1228	0.1843	0.0000	0.0873	0.1746	0.5016	0.0614	0.1228	0.2716	100.0%	100.0%	100.0%	100.0%	100.0%	67.9%
Forth Islands	0.0000	0.0000	0.0000	0.0010	0.0020	0.0029	0.0000	0.0000	0.0000	0.0000	0.0010	0.0020	0.0029	0.0%	0.0%	0.0%	100.0%	100.0%	100.0%
Foula	0.0299	0.0598	0.1544	0.0299	0.0598	0.0898	0.0030	0.0329	0.0628	0.1574	0.0329	0.0598	0.1227	90.9%	95.2%	98.1%	90.9%	100.0%	73.2%
Fowlsheugh	0.0002	0.0004	0.0006	0.0004	0.0008	0.0012	0.0000	0.0002	0.0004	0.0006	0.0004	0.0008	0.0014	100.0%	100.0%	100.0%	100.0%	100.0%	87.1%
Handa	0.0253	0.0506	0.1370	0.0187	0.0374	0.0560	0.0000	0.0253	0.0506	0.1370	0.0187	0.0374	0.0813	100.0%	100.0%	100.0%	100.0%	100.0%	68.9%
Hermaness, Saxa Vord and Valla Field	0.0117	0.0233	0.0579	0.0117	0.0233	0.0350	0.0000	0.0117	0.0233	0.0579	0.0117	0.0233	0.0467	100.0%	100.0%	100.0%	100.0%	100.0%	75.0%

SPA	PROJECT ALONE						IN-COMBINATION TOTAL	TOTAL						PERCENTAGE FROM THE PROJECT ALONE					
	AUTUMN & SPRING MIGRATION			NON-BREEDING SEASON				AUTUMN & SPRING MIGRATION			NON-BREEDING SEASON			AUTUMN & SPRING MIGRATION			NON-BREEDING SEASON		
	LOW	MID	HIGH	LOW	MID	HIGH		LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
Hoy	0.6148	1.2297	1.9086	0.6148	1.2297	1.8445	0.1740	0.7888	1.4037	2.0826	0.7888	1.2297	2.6334	77.9%	87.6%	91.6%	77.9%	100.0%	70.0%
Mingulay and Berneray	0.1076	0.2151	0.6186	0.0756	0.1512	0.2269	0.0000	0.1076	0.2151	0.6186	0.0756	0.1512	0.3344	100.0%	100.0%	100.0%	100.0%	100.0%	67.8%
North Caithness Cliffs	0.3761	0.7522	1.1749	0.3761	0.7522	1.1283	2.7750	3.1511	3.5272	3.9499	3.1511	0.7522	4.2794	11.9%	21.3%	29.7%	11.9%	100.0%	26.4%
North Rona and Sula Sgeir	0.0634	0.1269	0.3539	0.0458	0.0916	0.1374	0.0000	0.0634	0.1269	0.3539	0.0458	0.0916	0.2008	100.0%	100.0%	100.0%	100.0%	100.0%	68.4%
Noss	0.0080	0.0160	0.0411	0.0080	0.0160	0.0239	0.0000	0.0080	0.0160	0.0411	0.0080	0.0160	0.0319	100.0%	100.0%	100.0%	100.0%	100.0%	75.0%
Rathlin Island	0.0332	0.0357	0.1032	0.0278	0.0250	0.0375	0.0000	0.0332	0.0357	0.1032	0.0278	0.0250	0.0707	100.0%	100.0%	100.0%	100.0%	100.0%	53.1%
Rousay	0.0015	0.0331	0.0530	0.0015	0.0331	0.0496	0.0030	0.0045	0.0361	0.0560	0.0045	0.0331	0.0541	32.9%	91.7%	94.6%	32.9%	100.0%	91.7%

SPA	PROJECT ALONE						IN-COMBINATION TOTAL	TOTAL						PERCENTAGE FROM THE PROJECT ALONE					
	AUTUMN & SPRING MIGRATION			NON-BREEDING SEASON				AUTUMN & SPRING MIGRATION			NON-BREEDING SEASON			AUTUMN & SPRING MIGRATION			NON-BREEDING SEASON		
	LOW	MID	HIGH	LOW	MID	HIGH		LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
Shiant Isles	0.0516	0.1038	0.2992	0.0361	0.0728	0.1092	0.0000	0.0516	0.1038	0.2992	0.0361	0.0728	0.1608	100.0%	100.0%	100.0%	100.0%	100.0%	67.9%
St Kilda	0.7939	1.5878	4.5422	0.5607	1.1213	1.6820	0.0000	0.7939	1.5878	4.5422	0.5607	1.1213	2.4759	100.0%	100.0%	100.0%	100.0%	100.0%	67.9%
Sumburgh Head	0.0053	0.0107	0.0168	0.0053	0.0107	0.0160	0.0000	0.0053	0.0107	0.0168	0.0053	0.0107	0.0214	100.0%	100.0%	100.0%	100.0%	100.0%	75.0%
Troup, Pennan and Lion's Heads	0.0014	0.0028	0.0043	0.0035	0.0071	0.0106	0.0000	0.0014	0.0028	0.0043	0.0035	0.0071	0.0120	100.0%	100.0%	100.0%	100.0%	100.0%	88.2%
West Westray	0.0064	0.0129	0.0215	0.0064	0.0129	0.0193	0.0000	0.0064	0.0129	0.0215	0.0064	0.0129	0.0258	100.0%	100.0%	100.0%	100.0%	100.0%	75.0%

C.2.7 Gannet

The predicted impacts on gannets from the Project alone and in-combination apportioned to each SPA in the breeding season, and non-breeding season from the UK North Sea BDMPS region are shown in Table C2-12 and for the BDMPS Western Waters region in Table C2-13.

Table C2-12 Predicted impacts from the Project alone and in-combination on SPAs with gannet as a qualifying feature for the BDMPS UK North Sea region in autumn and spring.

SPA	PROJECT ALONE						IN-COMBINATION TOTAL	TOTAL						PERCENTAGE FROM THE PROJECT ALONE					
	AUTUMN			SPRING				AUTUMN			SPRING			AUTUMN			SPRING		
	LOW	MID	HIGH	LOW	MID	HIGH		LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
Ailsa Craig	0.0069	0.0078	0.0088	0.0069	0.0078	0.0088	0.2000	0.2069	0.2078	0.2088	0.2069	0.2078	0.2157	3.3%	3.8%	4.2%	3.3%	3.8%	4.1%
Fair Isle	0.2918	0.4153	0.5388	0.3773	0.5372	0.7228	47.1565	47.4484	47.5719	47.6954	47.5339	47.6938	48.1711	0.6%	0.9%	1.1%	0.8%	1.1%	1.5%
Flamborough & Filey Coast	1.0193	1.4533	1.8873	1.0562	1.5060	2.0280	462.7981	463.8174	464.2515	464.6855	463.8544	464.3041	465.8454	0.2%	0.3%	0.4%	0.2%	0.3%	0.4%
Forth Islands	5.1328	7.3124	9.4921	5.3182	7.5768	10.1979	1,393.9999	1,399.1327	1,401.3123	1,403.4919	1,399.3181	1,401.5767	1,409.3306	0.4%	0.5%	0.7%	0.4%	0.5%	0.7%

SPA	PROJECT ALONE						IN-COMBINATION TOTAL	TOTAL						PERCENTAGE FROM THE PROJECT ALONE					
	AUTUMN			SPRING				AUTUMN			SPRING			AUTUMN			SPRING		
	LOW	MID	HIGH	LOW	MID	HIGH		LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
Grassholm	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Hermaness, Saxa Vord and Valla Field	1.8004	2.5656	3.3307	2.3307	3.3215	4.4715	291.1878	292.9882	293.7534	294.5185	293.5184	294.5093	297.4598	0.6%	0.9%	1.1%	0.8%	1.1%	1.5%
North Rona & Sula Sgeir	0.1042	0.1430	0.1818	0.0192	0.0218	0.0244	10.7325	10.8368	10.8755	10.9143	10.7518	10.7543	10.8611	1.0%	1.3%	1.7%	0.2%	0.2%	0.2%
Noss	0.7240	1.0311	1.3382	0.9367	1.3343	1.7958	117.4969	118.2209	118.5280	118.8351	118.4336	118.8312	120.0167	0.6%	0.9%	1.1%	0.8%	1.1%	1.5%
St Kilda	0.5622	0.7978	1.0335	0.0128	0.0145	0.0162	63.8663	64.4285	64.6642	64.8998	63.8791	63.8808	64.4447	0.9%	1.2%	1.6%	0.0%	0.0%	0.0%
Sule Skerry & Sule Stack	25.8811	29.3483	32.8156	25.8380	29.2869	32.7358	7.2629	33.1439	36.6112	40.0785	33.1009	36.5498	65.8798	78.1%	80.2%	81.9%	78.1%	80.1%	49.7%

Table C2-13 Predicted impacts from the Project alone and in-combination on SPAs with gannet as a qualifying feature for the BDMPS Western Waters region in autumn and spring.

SPA	PROJECT ALONE						IN-COMBINATION TOTAL	TOTAL						PERCENTAGE FROM THE PROJECT ALONE					
	AUTUMN			SPRING				AUTUMN			SPRING			AUTUMN			SPRING		
	LOW	MID	HIGH	LOW	MID	HIGH		LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
Ailsa Craig	1.9122	2.7244	2.9759	1.5543	2.2141	2.8739	32.6000	34.5122	35.3244	35.5759	34.1543	34.8141	37.3861	5.5%	7.7%	8.4%	4.6%	6.4%	7.7%
Fair Isle	0.0577	0.0815	0.0891	0.0697	0.0986	0.1275	0.1370	0.1947	0.2185	0.2261	0.2067	0.2356	0.3222	29.6%	37.3%	39.4%	33.7%	41.9%	39.6%
Flamborough Filey Coast	0.0000	0.0000	0.0000	0.1893	0.2699	0.3505	0.0000	0.0000	0.0000	0.0000	0.1893	0.2699	0.3505	0.0%	0.0%	0.0%	100.0%	100.0%	100.0%
Forth Islands	0.0200	0.0226	0.0253	0.9693	1.3762	1.7831	0.3300	0.3500	0.3526	0.3553	1.2993	1.7062	2.1331	5.7%	6.4%	7.1%	74.6%	80.7%	83.6%
Grassholm	2.7594	3.9343	4.2972	2.2411	3.1953	4.1496	29.9000	32.6594	33.8343	34.1972	32.1411	33.0953	36.8089	8.4%	11.6%	12.6%	7.0%	9.7%	11.3%
Hermaness, Saxa Vord and Valla Field	0.3471	0.4934	0.5391	0.4218	0.5999	0.7780	0.2000	0.5471	0.6934	0.7391	0.6218	0.7999	1.3251	63.4%	71.2%	72.9%	67.8%	75.0%	58.7%

SPA	PROJECT ALONE						IN-COMBINATION TOTAL	TOTAL						PERCENTAGE FROM THE PROJECT ALONE					
	AUTUMN			SPRING				AUTUMN			SPRING			AUTUMN			SPRING		
	LOW	MID	HIGH	LOW	MID	HIGH		LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
North Rona & Sula Sgeir	0.6023	0.8531	0.9324	0.5454	0.7720	0.9986	0.5100	1.1123	1.3631	1.4424	1.0554	1.2820	2.1109	54.1%	62.6%	64.6%	51.7%	60.2%	47.3%
Noss	0.1411	0.2001	0.2187	0.1711	0.2428	0.3144	0.1050	0.2461	0.3051	0.3237	0.2761	0.3478	0.5606	57.3%	65.6%	67.6%	62.0%	69.8%	56.1%
St Kilda	0.3083	5.3874	5.8848	0.28	4.86	6.31	0.3200	0.6283	5.7074	6.2048	0.5994	5.1831	6.9410	49.1%	94.4%	94.8%	46.6%	93.8%	90.9%
Sule Skerry & Sule Stack	29.6064	29.7082	33.1960	29.2387	29.6671	33.2295	2.6300	32.2364	32.3382	35.8260	31.8687	32.2971	65.4659	91.8%	91.9%	92.7%	91.7%	91.9%	50.8%

C.2.8 Predicted change in adult survival from the Project in-combination

For each qualifying feature of each SPA the total predicted impacts in the breeding and non-breeding season from the Project alone and in-combination with other reasonably foreseeable plans and projects were compared with the baseline survival rate used in the PVA (Offshore EIA report, SS12: Offshore ornithology technical supporting study). Using the baseline survival rate and the most recent population size from the SMP Database (Offshore EIA report, SS12: Offshore ornithology technical supporting study) the predicted change in adult survival was calculated for each SPA qualifying feature. These are summarised in the sections below.

Kittiwake

The predicted change in adult survival of kittiwakes from the Project alone and in-combination apportioned to each SPA in the breeding season, and non-breeding season are shown in Table C2-14.

Table C2-14 Predicted change on adult survival from the Project alone and in-combination on SPAs with kittiwake as a qualifying feature for the BDMPS North Sea region in autumn and spring.

SPA	BASELINE ADULT SURVIVAL RATE	UK NORTH SEA						WESTERN WATERS & CHANNEL					
		AUTUMN			SPRING			AUTUMN			SPRING		
		LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
Ailsa Craig	0.8540	0.0036%	0.0036%	0.0036%	0.0036%	0.0036%	0.0036%	0.0080%	0.0083%	0.0086%	0.0103%	0.0108%	0.0113%
Buchan Ness to Collieston Coast	0.8540	0.4314%	0.4319%	0.4324%	0.4324%	0.4329%	0.4335%	0.0020%	0.0023%	0.0025%	0.0031%	0.0034%	0.0038%
Calf of Eday	0.8540	1.1031%	1.1052%	1.1072%	1.1076%	1.1101%	1.1125%	0.0087%	0.0098%	0.0109%	0.0138%	0.0154%	0.0169%
Canna and Sanday	0.8540	0.0027%	0.0028%	0.0030%	0.0027%	0.0029%	0.0030%	0.0024%	0.0027%	0.0030%	0.0037%	0.0041%	0.0045%

SPA	BASELINE ADULT SURVIVAL RATE	UK NORTH SEA						WESTERN WATERS & CHANNEL					
		AUTUMN			SPRING			AUTUMN			SPRING		
		LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
Cape Wrath	0.8540	0.0518%	0.0582%	0.0646%	0.0518%	0.0582%	0.0647%	0.0502%	0.0574%	0.0646%	0.0567%	0.0644%	0.0722%
Copinsay	0.8540	0.1894%	0.1904%	0.1914%	0.1900%	0.1911%	0.1921%	0.0077%	0.0085%	0.0094%	0.0083%	0.0093%	0.0102%
East Caithness Cliffs	0.8540	0.7008%	0.7022%	0.7037%	0.7022%	0.7037%	0.7053%	0.0091%	0.0103%	0.0114%	0.0107%	0.0120%	0.0133%
Fair Isle	0.8540	0.3604%	0.3610%	0.3616%	0.3619%	0.3626%	0.3633%	0.0023%	0.0025%	0.0028%	0.0040%	0.0044%	0.0048%
Farne Islands	0.8540	0.5134%	0.5136%	0.5138%	0.5141%	0.5144%	0.5146%	0.0008%	0.0008%	0.0009%	0.0015%	0.0017%	0.0018%
Flamborough and Filey Coast	0.8540	0.5572%	0.5574%	0.5576%	0.5579%	0.5582%	0.5585%	0.0008%	0.0009%	0.0010%	0.0016%	0.0018%	0.0019%
Flannan Isles	0.8540	0.0065%	0.0066%	0.0067%	0.0065%	0.0066%	0.0068%	0.0056%	0.0061%	0.0067%	0.0094%	0.0103%	0.0112%
Forth Islands	0.8540	0.4802%	0.4803%	0.4804%	0.4805%	0.4806%	0.4808%	0.0004%	0.0004%	0.0005%	0.0008%	0.0009%	0.0010%

SPA	BASELINE ADULT SURVIVAL RATE	UK NORTH SEA						WESTERN WATERS & CHANNEL					
		AUTUMN			SPRING			AUTUMN			SPRING		
		LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
Foula	0.8540	0.1607%	0.1612%	0.1615%	0.1614%	0.1620%	0.1623%	0.0010%	0.0011%	0.0012%	0.0018%	0.0019%	0.0021%
Fowlsheugh	0.8540	0.4503%	0.4506%	0.4508%	0.4507%	0.4509%	0.4512%	0.0012%	0.0013%	0.0015%	0.0015%	0.0017%	0.0019%
Handa	0.8540	0.0112%	0.0127%	0.0142%	0.0112%	0.0127%	0.0142%	0.0110%	0.0126%	0.0142%	0.0121%	0.0138%	0.0155%
Hermaness, Saxa Vord and Valla Field	0.8540	0.3084%	0.3088%	0.3093%	0.3097%	0.3102%	0.3107%	0.0010%	0.0011%	0.0012%	0.0020%	0.0022%	0.0023%
Hoy	0.8540	0.4095%	0.4163%	0.4231%	0.4106%	0.4175%	0.4244%	0.0524%	0.0589%	0.0655%	0.0537%	0.0603%	0.0670%
Marwick Head	0.8540	0.1530%	0.1560%	0.1591%	0.1534%	0.1566%	0.1597%	0.0322%	0.0351%	0.0381%	0.0327%	0.0357%	0.0388%
Mingulay and Berneray	0.8540	0.0042%	0.0043%	0.0044%	0.0043%	0.0043%	0.0044%	0.0036%	0.0040%	0.0043%	0.0060%	0.0066%	0.0072%

SPA	BASELINE ADULT SURVIVAL RATE	UK NORTH SEA						WESTERN WATERS & CHANNEL					
		AUTUMN			SPRING			AUTUMN			SPRING		
		LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
North Caithness Cliffs	0.8540	0.6274%	0.6333%	0.6393%	0.6289%	0.6350%	0.6411%	0.1028%	0.1084%	0.1140%	0.1046%	0.1103%	0.1161%
North Colonsay & Western Cliffs	0.8540	0.0061%	0.0061%	0.0062%	0.0062%	0.0062%	0.0062%	0.0052%	0.0057%	0.0061%	0.0092%	0.0100%	0.0108%
North Rona and Sula Sgeir	0.8540	0.0091%	0.0097%	0.0102%	0.0092%	0.0097%	0.0102%	0.0082%	0.0092%	0.0101%	0.0122%	0.0135%	0.0149%
Noss	0.8540	0.8980%	0.8992%	0.9004%	0.9016%	0.9032%	0.9047%	0.0043%	0.0047%	0.0051%	0.0085%	0.0093%	0.0100%
Rathlin Island	0.8540	0.0020%	0.0020%	0.0020%	0.0020%	0.0020%	0.0020%	0.0017%	0.0018%	0.0020%	0.0030%	0.0033%	0.0035%
Rousay	0.8540	1.1338%	1.1366%	1.1395%	1.1383%	1.1416%	1.1449%	0.0211%	0.0230%	0.0248%	0.0263%	0.0286%	0.0310%
Rum	0.8540	0.0049%	0.0051%	0.0052%	0.0049%	0.0051%	0.0052%	0.0042%	0.0047%	0.0051%	0.0068%	0.0075%	0.0081%

SPA	BASELINE ADULT SURVIVAL RATE	UK NORTH SEA						WESTERN WATERS & CHANNEL					
		AUTUMN			SPRING			AUTUMN			SPRING		
		LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
St Abbs Head to Fast Castle	0.8540	3.6808%	3.6810%	3.6812%	3.6814%	3.6817%	3.6820%	0.0024%	0.0026%	0.0029%	0.0035%	0.0039%	0.0043%
Shiant Isles	0.8540	0.0024%	0.0024%	0.0024%	0.0024%	0.0024%	0.0024%	0.0146%	0.0148%	0.0150%	0.0161%	0.0165%	0.0168%
Skomer, Skokholm and the Seas off Pembrokeshire	0.8540	0.0026%	0.0028%	0.0029%	0.0027%	0.0028%	0.0030%	0.0007%	0.0008%	0.0009%	0.0014%	0.0016%	0.0017%
St Kilda	0.8540	0.0080%	0.0080%	0.0081%	0.0080%	0.0081%	0.0081%	0.0068%	0.0074%	0.0081%	0.0120%	0.0131%	0.0142%
Sumburgh Head	0.8540	0.0360%	0.0362%	0.0364%	0.0362%	0.0364%	0.0366%	0.0011%	0.0013%	0.0014%	0.0013%	0.0014%	0.0016%
Troup, Pennan and Lion's Heads	0.8540	0.2610%	0.2615%	0.2619%	0.2617%	0.2622%	0.2628%	0.0022%	0.0025%	0.0028%	0.0030%	0.0034%	0.0038%

SPA	BASELINE ADULT SURVIVAL RATE	UK NORTH SEA						WESTERN WATERS & CHANNEL					
		AUTUMN			SPRING			AUTUMN			SPRING		
		LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
West Westray	0.8540	1.1821%	1.1842%	1.1863%	1.1858%	1.1883%	1.1907%	0.0209%	0.0222%	0.0235%	0.0252%	0.0268%	0.0285%

Great black-backed gull

The predicted change in adult survival of great black-backed gull from the Project alone and in-combination apportioned to each SPA in the breeding season, and non-breeding season are shown in Table C2-15.

Table C2-15 Predicted change on adult survival from the Project alone and in-combination on SPAs with great black-backed gull as a qualifying feature.

SPA	BASELINE ADULT SURVIVAL	PREDICTED CHANGE IN ADULT SURVIVAL
East Caithness Cliffs SPA	0.930	3.9428%
Calf of Eday SPA	0.930	4.1573%
Copinsay SPA	0.930	0.0532%
Hoy SPA	0.930	0.2706%
Isles of Scilly SPA	0.930	0.0001%
North Rona & Sula Sgeir SPA	0.930	0.0002%

Guillemot

The predicted change in adult survival of guillemots from the Project alone and in-combination apportioned to each SPA in the breeding season, and non-breeding season are shown in Table C2-16.

Table C2-16 Predicted change on adult survival from the Project alone and in-combination on SPAs with guillemot as a qualifying feature.

SPA	BASELINE ADULT SURVIVAL RATE	TOTAL		
		BREEDING & NON-BREEDING SEASON		
		LOW	MID	HIGH
Calf of Eday	0.939	0.0016%	0.0018%	0.0020%
Cape Wrath	0.939	0.0112%	0.0156%	0.0201%
Copinsay	0.939	0.0012%	0.0015%	0.0019%
East Caithness Cliffs	0.939	0.1366%	0.1374%	0.1382%
Fair Isle	0.939	0.0001%	0.0001%	0.0001%
Handa	0.939	0.0035%	0.0047%	0.0058%
Hoy	0.939	0.0105%	0.0138%	0.0170%
Marwick Head	0.939	0.0055%	0.0066%	0.0076%
North Caithness Cliffs	0.939	0.0924%	0.0961%	0.0997%
North Rona and Sula Sgeir	0.939	0.0005%	0.0007%	0.0009%
Rousay	0.939	0.0024%	0.0029%	0.0033%
Shiant Isles	0.939	0.0004%	0.0006%	0.0008%
Sule Skerry and Sule Stack	0.939	1.4214%	2.0419%	2.6623%
West Westray	0.939	0.0023%	0.0026%	0.0029%

Razorbill

The predicted change in adult survival of razorbills from the Project alone and in-combination apportioned to each SPA in the breeding season, and non-breeding season are shown in Table C2-17.

Table C2-17 Predicted change on adult survival from the Project alone and in-combination on SPAs with razorbill as a qualifying feature.

SPA	BASELINE ADULT SURVIVAL RATE	UK NORTH SEA & CHANNEL						WESTERN WATERS					
		AUTUMN & SPRING MIGRATION			NON-BREEDING SEASON			AUTUMN & SPRING MIGRATION			NON-BREEDING SEASON		
		LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
Cape Wrath	0.8950	0.0379%	0.0410%	0.0440%	0.0380%	0.0411%	0.0442%	0.0107%	0.0139%	0.0171%	0.0106%	0.0138%	0.0170%
East Caithness Cliffs	0.8950	0.3986%	0.3992%	0.3998%	0.3985%	0.3992%	0.3998%	0.0024%	0.0030%	0.0035%	0.0024%	0.0030%	0.0035%
Fair Isle	0.8950	0.1869%	0.1871%	0.1872%	0.1869%	0.1871%	0.1872%	0.0001%	0.0001%	0.0001%	0.0001%	0.0001%	0.0001%
Flamborough & Filey Coast	0.8950	0.6768%	0.6770%	0.6771%	0.6768%	0.6769%	0.6771%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%
Flannan Islands	0.8950	0.0276%	0.0276%	0.0276%	0.0277%	0.0277%	0.0278%	0.0002%	0.0003%	0.0005%	0.0001%	0.0002%	0.0004%

SPA	BASELINE ADULT SURVIVAL RATE	UK NORTH SEA & CHANNEL						WESTERN WATERS					
		AUTUMN & SPRING MIGRATION			NON-BREEDING SEASON			AUTUMN & SPRING MIGRATION			NON-BREEDING SEASON		
		LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
Forth Islands	0.8950	1.1034%	1.1036%	1.1038%	1.1034%	1.1036%	1.1037%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%
Foula	0.8950	0.3017%	0.3019%	0.3021%	0.3017%	0.3019%	0.3021%	0.0000%	0.0001%	0.0001%	0.0000%	0.0000%	0.0001%
Fowlsheugh	0.8950	0.9747%	0.9749%	0.9751%	0.9747%	0.9749%	0.9750%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%
Handa	0.8950	0.0321%	0.0329%	0.0336%	0.0321%	0.0329%	0.0338%	0.0055%	0.0064%	0.0073%	0.0054%	0.0063%	0.0072%
Mingulay & Berneray	0.8950	0.0276%	0.0276%	0.0277%	0.0277%	0.0277%	0.0278%	0.0002%	0.0003%	0.0005%	0.0001%	0.0002%	0.0004%
North Caithness Cliffs	0.8950	0.2013%	0.2040%	0.2066%	0.2013%	0.2039%	0.2066%	0.0355%	0.0380%	0.0406%	0.0355%	0.0380%	0.0406%
North Rona & Sula Sgeir	0.8950	0.1177%	0.1179%	0.1181%	0.1179%	0.1183%	0.1187%	0.0016%	0.0024%	0.0033%	0.0014%	0.0020%	0.0027%
Rathlin Island	0.8950	0.0158%	0.0158%	0.0158%	0.0158%	0.0158%	0.0158%	0.0002%	0.0003%	0.0005%	0.0001%	0.0002%	0.0004%

SPA	BASELINE ADULT SURVIVAL RATE	UK NORTH SEA & CHANNEL						WESTERN WATERS					
		AUTUMN & SPRING MIGRATION			NON-BREEDING SEASON			AUTUMN & SPRING MIGRATION			NON-BREEDING SEASON		
		LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
Shiant Isles	0.8950	0.0229%	0.0230%	0.0231%	0.0229%	0.0231%	0.0232%	0.0005%	0.0007%	0.0010%	0.0004%	0.0007%	0.0009%
Skomer, Skokholm and the Seas off Pembrokeshire	0.8950	0.0158%	0.0158%	0.0158%	0.0158%	0.0158%	0.0158%	0.0314%	0.0315%	0.0317%	0.0313%	0.0314%	0.0315%
St Abbs to Fast Castle	0.8950	0.6427%	0.6428%	0.6430%	0.6426%	0.6428%	0.6429%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%
St Kilda	0.8950	0.0277%	0.0277%	0.0277%	0.0277%	0.0277%	0.0278%	0.0002%	0.0003%	0.0005%	0.0001%	0.0002%	0.0004%
Troup, Pennan & Lions	0.8950	0.1987%	0.1989%	0.1991%	0.1986%	0.1988%	0.1990%	0.0003%	0.0004%	0.0005%	0.0003%	0.0004%	0.0005%
West Westray	0.8950	0.1330%	0.1333%	0.1335%	0.1330%	0.1333%	0.1335%	0.0017%	0.0019%	0.0021%	0.0017%	0.0019%	0.0021%

Puffin

The predicted change in adult survival of puffins from the Project alone and in-combination apportioned to each SPA in the breeding season, and non-breeding season are shown in Table C2-18.

Table C2-18 Predicted change on adult survival from the Project alone and in-combination on SPAs with puffin as a qualifying feature.

SPA	BASELINE ADULT SURVIVAL RATE	UK NORTH SEA & CHANNEL			WESTERN WATERS		
		LOW	MID	HIGH	LOW	MID	HIGH
Canna & Sanday	0.906	0.00001%	0.00002%	0.00002%	0.00061%	0.00122%	0.00183%
Cape Wrath	0.906	0.00253%	0.00265%	0.00276%	0.00341%	0.00441%	0.00541%
Coquet Island	0.906	0.00215%	0.00430%	0.00646%	0.00024%	0.00048%	0.00072%
Fair Isle	0.906	0.00229%	0.00436%	0.00644%	0.00110%	0.00199%	0.00287%
Farne Islands	0.906	0.02380%	0.02595%	0.02810%	0.00024%	0.00048%	0.00072%

SPA	BASELINE ADULT SURVIVAL RATE	UK NORTH SEA & CHANNEL			WESTERN WATERS		
		LOW	MID	HIGH	LOW	MID	HIGH
Flamborough & Filey Coast	0.906	0.00215%	0.00430%	0.00646%	0.00024%	0.00048%	0.00072%
Flannan Isles	0.906	0.00001%	0.00001%	0.00001%	0.00021%	0.00041%	0.00062%
Forth Islands	0.906	0.13022%	0.13238%	0.13453%	0.00024%	0.00048%	0.00072%
Foula	0.906	0.00469%	0.00926%	0.01384%	0.00206%	0.00402%	0.00597%
Hermaness, Saxa Vord and Valla Field	0.906	0.00065%	0.00129%	0.00194%	0.00028%	0.00055%	0.00083%
Hoy	0.906	0.00254%	0.00415%	0.00576%	0.00167%	0.00242%	0.00318%
Mingulay & Berneray	0.906	0.00000%	0.00001%	0.00001%	0.00062%	0.00124%	0.00186%

SPA	BASELINE ADULT SURVIVAL RATE	UK NORTH SEA & CHANNEL			WESTERN WATERS		
		LOW	MID	HIGH	LOW	MID	HIGH
North Caithness Cliffs	0.906	1.36985%	1.37035%	1.37085%	0.05942%	0.05969%	0.05997%
North Rona & Sula Sgeir	0.906	0.00004%	0.00006%	0.00009%	0.00240%	0.00479%	0.00718%
Noss	0.906	0.00088%	0.00177%	0.00265%	0.00038%	0.00075%	0.00113%
Rathlin Island	0.906	0.00000%	0.00001%	0.00001%	0.00066%	0.00128%	0.00190%
Shiant Isles	0.906	0.00002%	0.00003%	0.00003%	0.00064%	0.00127%	0.00190%
Skomer, Skokholm and the Seas off Pembrokeshire	0.906	0.00000%	0.00001%	0.00001%	0.03322%	0.03384%	0.03446%
St Kilda	0.906	0.00002%	0.00004%	0.00006%	0.00254%	0.00507%	0.00761%

SPA	BASELINE ADULT SURVIVAL RATE	UK NORTH SEA & CHANNEL			WESTERN WATERS		
		LOW	MID	HIGH	LOW	MID	HIGH
Sule Skerry & Sule Stack	0.906	0.06892%	0.09121%	0.11143%	0.06969%	0.09274%	0.11579%

Fulmar

The predicted change in adult survival of fulmar from the Project alone and in-combination apportioned to each SPA in the breeding season, and non-breeding season are shown in Table 19.

Table C2-19 Predicted change on adult survival from the Project alone and in-combination on SPAs with fulmar as a qualifying feature.

SPA	BASELINE ADULT SURVIVAL RATE	NON-BREEDING SEASON											
		UK NORTH SEA						WESTERN WATERS & CHANNEL					
		WINTER			MIGRATION			WINTER			MIGRATION		
		LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
Buchan Ness to Collieston Coast	0.9360	0.00063%	0.00126%	0.00189%	0.00089%	0.00178%	0.00267%	0.00007%	0.00015%	0.00022%	0.00002%	0.00003%	0.00005%
Calf of Eday	0.9360	0.00045%	0.00091%	0.00136%	0.00054%	0.00108%	0.00161%	0.00027%	0.00053%	0.00080%	0.00027%	0.00053%	0.00096%
Cape Wrath	0.9360	0.00125%	0.00240%	0.00355%	0.00124%	0.00237%	0.00351%	0.00128%	0.00248%	0.00368%	0.00145%	0.00283%	0.00585%
Copinsay	0.9360	0.00066%	0.00122%	0.00179%	0.00066%	0.00122%	0.00179%	0.00035%	0.00060%	0.00085%	0.00035%	0.00060%	0.00101%

SPA	BASELINE ADULT SURVIVAL RATE	NON-BREEDING SEASON											
		UK NORTH SEA						WESTERN WATERS & CHANNEL					
		WINTER			MIGRATION			WINTER			MIGRATION		
		LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
East Caithness Cliffs	0.9360	0.01256%	0.01312%	0.01368%	0.01273%	0.01344%	0.01416%	0.00030%	0.00053%	0.00076%	0.00024%	0.00041%	0.00058%
Fair Isle	0.9360	0.00039%	0.00077%	0.00115%	0.00049%	0.00096%	0.00144%	0.00012%	0.00023%	0.00034%	0.00012%	0.00023%	0.00050%
Fetlar	0.9360	0.00037%	0.00074%	0.00111%	0.00047%	0.00094%	0.00141%	0.00007%	0.00015%	0.00022%	0.00007%	0.00015%	0.00039%
Flamborough & Filey Coast	0.9360	0.00038%	0.00076%	0.00114%	0.00054%	0.00109%	0.00163%	0.00006%	0.00012%	0.00018%	0.00000%	0.00000%	0.00000%
Flannan Isles	0.9360	0.00004%	0.00008%	0.00013%	0.00002%	0.00003%	0.00005%	0.00042%	0.00084%	0.00126%	0.00060%	0.00119%	0.00342%
Forth Islands	0.9360	0.00043%	0.00086%	0.00129%	0.00061%	0.00122%	0.00184%	0.00006%	0.00012%	0.00018%	0.00000%	0.00000%	0.00000%
Foula	0.9360	0.00075%	0.00149%	0.00223%	0.00095%	0.00189%	0.00283%	0.00008%	0.00016%	0.00023%	0.00008%	0.00016%	0.00040%

SPA	BASELINE ADULT SURVIVAL RATE	NON-BREEDING SEASON											
		UK NORTH SEA						WESTERN WATERS & CHANNEL					
		WINTER			MIGRATION			WINTER			MIGRATION		
		LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
Fowlsheugh	0.9360	0.00015%	0.00030%	0.00046%	0.00021%	0.00042%	0.00063%	0.00011%	0.00021%	0.00032%	0.00005%	0.00010%	0.00014%
Handa	0.9360	0.00027%	0.00053%	0.00080%	0.00024%	0.00047%	0.00071%	0.00050%	0.00100%	0.00150%	0.00068%	0.00135%	0.00366%
Hermaness, Saxa Vord and Valla Field	0.9360	0.00021%	0.00041%	0.00062%	0.00026%	0.00052%	0.00079%	0.00008%	0.00017%	0.00025%	0.00008%	0.00017%	0.00041%
Hoy	0.9360	0.00215%	0.00390%	0.00564%	0.00225%	0.00409%	0.00593%	0.00201%	0.00358%	0.00515%	0.00201%	0.00358%	0.00532%
Mingulay and Berneray	0.9360	0.00002%	0.00004%	0.00006%	0.00001%	0.00002%	0.00002%	0.00042%	0.00084%	0.00125%	0.00059%	0.00119%	0.00342%
North Caithness Cliffs	0.9360	0.01054%	0.01204%	0.01355%	0.01063%	0.01224%	0.01384%	0.01106%	0.01238%	0.01370%	0.01106%	0.01238%	0.01386%

SPA	BASELINE ADULT SURVIVAL RATE	NON-BREEDING SEASON											
		UK NORTH SEA						WESTERN WATERS & CHANNEL					
		WINTER			MIGRATION			WINTER			MIGRATION		
		LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
North Rona and Sula Sgeir	0.9360	0.00013%	0.00026%	0.00038%	0.00010%	0.00021%	0.00031%	0.00046%	0.00092%	0.00137%	0.00063%	0.00127%	0.00354%
Noss	0.9360	0.00046%	0.00093%	0.00139%	0.00059%	0.00118%	0.00177%	0.00008%	0.00015%	0.00023%	0.00008%	0.00015%	0.00039%
Rathlin Island	0.9360	0.00002%	0.00003%	0.00005%	0.00000%	0.00000%	0.00000%	0.00092%	0.00082%	0.00124%	0.00109%	0.00118%	0.00340%
Rousay	0.9360	0.00059%	0.00111%	0.00163%	0.00064%	0.00121%	0.00178%	0.00022%	0.00175%	0.00255%	0.00022%	0.00175%	0.00272%
Shiant Isles	0.9360	0.00004%	0.00008%	0.00012%	0.00001%	0.00002%	0.00003%	0.00041%	0.00083%	0.00124%	0.00059%	0.00118%	0.00341%
St Kilda	0.9360	0.00005%	0.00010%	0.00016%	0.00003%	0.00006%	0.00008%	0.00042%	0.00085%	0.00127%	0.00060%	0.00120%	0.00344%
Sumburgh Head	0.9360	0.00005%	0.00009%	0.00014%	0.00005%	0.00010%	0.00015%	0.00115%	0.00229%	0.00344%	0.00115%	0.00229%	0.00360%

SPA	BASELINE ADULT SURVIVAL RATE	NON-BREEDING SEASON											
		UK NORTH SEA						WESTERN WATERS & CHANNEL					
		WINTER			MIGRATION			WINTER			MIGRATION		
		LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
Troup, Pennan and Lion's Heads	0.9360	0.00038%	0.00077%	0.00115%	0.00053%	0.00107%	0.00160%	0.00010%	0.00020%	0.00029%	0.00004%	0.00008%	0.00012%
West Westray	0.9360	0.00044%	0.00087%	0.00131%	0.00050%	0.00099%	0.00149%	0.00048%	0.00095%	0.00143%	0.00048%	0.00095%	0.00159%

Gannet

The predicted change in adult survival of gannets from the Project alone and in-combination apportioned to each SPA in the breeding season, and non-breeding season are shown in Table C2-.

Table C2-20 Predicted change on adult survival from the Project alone and in-combination on SPAs with gannet as a qualifying feature.

SPA	BASELINE ADULT SURVIVAL RATE	UK NORTH SEA & CHANNEL						WESTERN WATERS					
		AUTUMN			SPRING			AUTUMN			SPRING		
		LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
Ailsa Craig	0.9190	0.0003%	0.0003%	0.0003%	0.0003%	0.0003%	0.0003%	0.0519%	0.0532%	0.0535%	0.0514%	0.0524%	0.0534%
Fair Isle	0.9190	0.6607%	0.6624%	0.6641%	0.6618%	0.6641%	0.6667%	0.0027%	0.0030%	0.0031%	0.0029%	0.0033%	0.0037%
Flamborough & Filey Coast	0.9190	2.0966%	2.0986%	2.1006%	2.0968%	2.0988%	2.1012%	0.0000%	0.0000%	0.0000%	0.0009%	0.0012%	0.0016%
Forth Islands	0.9190	1.2609%	1.2629%	1.2648%	1.2611%	1.2631%	1.2655%	0.0003%	0.0003%	0.0003%	0.0012%	0.0015%	0.0019%
Grassholm	0.9190	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%	0.0416%	0.0431%	0.0435%	0.0409%	0.0421%	0.0433%

SPA	BASELINE ADULT SURVIVAL RATE	UK NORTH SEA & CHANNEL						WESTERN WATERS					
		AUTUMN			SPRING			AUTUMN			SPRING		
		LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH	LOW	MID	HIGH
Hermaness, Saxa Vord and Valla Field	0.9190	0.5727%	0.5742%	0.5757%	0.5737%	0.5757%	0.5779%	0.0011%	0.0014%	0.0014%	0.0012%	0.0016%	0.0019%
North Rona & Sula Sgeir	0.9190	0.0482%	0.0484%	0.0486%	0.0479%	0.0479%	0.0479%	0.0050%	0.0061%	0.0064%	0.0047%	0.0057%	0.0067%
Noss	0.9190	0.5015%	0.5028%	0.5041%	0.5024%	0.5041%	0.5061%	0.0010%	0.0013%	0.0014%	0.0012%	0.0015%	0.0018%
St Kilda	0.9190	0.0534%	0.0536%	0.0538%	0.0530%	0.0530%	0.0530%	0.0003%	0.0047%	0.0051%	0.0005%	0.0043%	0.0055%
Sule Skerry & Sule Stack	0.9190	0.2581%	0.2851%	0.3121%	0.2578%	0.2847%	0.3115%	0.2511%	0.2519%	0.2790%	0.2482%	0.2515%	0.2793%

APPENDIX D PVA METHODS, INPUTS AND RESULTS

D.1 Introduction

This Appendix provides a detailed description of the methods used to complete the Population Viability Analyses (PVA) for the West of Orkney Windfarm (the Project) Report to Inform the Appropriate Assessment (RIAA). Further PVA analyses for SPAs where the predicted impacts from the Project alone were considered de minimis are provided in Appendix E. The PVA is used to aid the assessment of significance of predicted impacts on populations of seabirds from Special Protection Areas (SPAs) using the offshore Project in the breeding season and non-breeding season.

The input values used to parameterise the PVA models are summarised in Table D3- and can be used to repeat these analyses if necessary.

The projected counterfactuals of population size, growth rate and quantile metrics from the PVA models run for those SPA qualifying features requiring them were output every five years from year 10 to year 35. The Project is applying for consent to construct and operate the wind farm from 2027 to 2062, so the PVA was run across these years with a 5-year burn-in and no recovery period.

An operational period of 35 years has been assumed as WTG will be present in the OAA and potentially turning ahead of first power.

D.2 PVA Methodology

PVA is an approach to assess projected future changes to populations using numerical population models. In the case of the RIAA for the Project, PVA is used to assess the possible effects on SPA qualifying feature populations from predicted impacts on breeding and non-breeding seabirds.

The PVA approach was to use Leslie Matrix models to project future population size and growth rates using the Natural England PVA tool[1]. The PVA tool is a suite of R functions that operate as an R package (nepva R package). The PVA tool was used only in the Shiny app[2], which provides a user-friendly interactive web-based mechanism and ensures the most recent version (Tool v 2 (Code: v 4.18 Interface: v 1.7)) was used.

The PVA were mostly run as stochastic models that allow the inclusion of environmental variability in the input parameters to provide outputs that incorporate this variability. Exceptions to this approach occurred where input demographic parameters resulted in zero values during the model burn-in, and the model failing to run. Therefore, to obtain outputs, in these circumstances only, the models were run with only demographic stochaticity, with no

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[1] *Tool v 2 (Code: v 4.18 Interface: v 1.7) - https://github.com/naturalengland/Seabird_PVA_Tool*

[2] *http://ec2-34-243-66-127.eu-west-1.compute.amazonaws.com/shiny/seabirds/PVATool_Nov2022/R/*

environmental stochasticity applied to the mean input parameters, and therefore a single population projection was obtained.

The PVA was used initially to estimate the stable age structure of each population, the values of which were then used to divide the predicted impacts (estimated across all age classes) in proportion between adult birds and immature birds (all sub-adult age classes combined). This approach was applied to the following species where impacts on the adult population required estimation:

- Kittiwake;
- Great black-backed gull;
- Great skua;
- Guillemot;
- Razorbill;
- Puffin; and
- Gannet.

Following this step, the PVA was only applied to SPA qualifying features where the predicted impacts were estimated to result in a 0.02% point ,or greater, decrease in adult survival. This was estimated for predicted impacts from the Project alone and in-combination with other reasonably foreseeable plans and projects. For those predicted impacts resulting in a reduction in adult survival of 0.02% or more a single PVA was run showing the baseline (no impacts), Project alone impacts, in-combination impacts without the Project impacts and in-combination impacts with the Project impacts included. PVA models were run for SPA qualifying features are summarised Table D2-1.

Table D2-1 Summary of SPA qualifying features that required a PVA.

SPA	QUALIFYING FEATURE	FULLY STOCHASTIC OR DEMOGRAPHIC STOCHASTICICTY ONLY
Calf of Eday	Kittiwake	Fully Stochastic
	Great black-backed gull	Demographic stochasticity only
Cape Wrath SPA	Kittiwake	Fully Stochastic
	Razorbill	Fully Stochastic
	Guillemot	Fully Stochastic
Copinsay SPA	Great black-backed gull	Fully Stochastic
East Caithness Cliffs SPA	Kittiwake	Fully Stochastic
	Great black-backed gull	Fully Stochastic
	Guillemot	Fully Stochastic
Handa SPA	Razorbill	Fully Stochastic
Hermaness, Saxa Vord and Valla Field SPA	Kittiwake	Demographic stochasticity only
	Gannet	Fully Stochastic

SPA	QUALIFYING FEATURE	FULLY STOCHASTIC OR DEMOGRAPHIC STOCHASTICICTY ONLY
Hoy SPA	Kittiwake	Demographic stochasticity only
	Great skua	Fully Stochastic
Marwick SPA	Kittiwake	Demographic stochasticity only
North Caithness Cliffs SPA	Kittiwake	Fully Stochastic
	Guillemot	Fully Stochastic
	Puffin	Fully Stochastic
	Razorbill	Fully Stochastic
North Rona and Sula Sgeir SPA	Great black-backed gull	Fully Stochastic
	Gannet	Fully Stochastic
	Razorbill	Fully Stochastic
Rousay SPA	Kittiwake	Demographic stochasticity only
St Kilda SPA	Gannet	Fully Stochastic
	Razorbill	Fully Stochastic
Sule Skerry and Sule Stack SPA	Guillemot	Fully Stochastic
	Puffin	Fully Stochastic
	Gannet	Fully Stochastic
West Westray SPA	Kittiwake	Fully Stochastic
	Razorbill	Fully Stochastic

D.3 Input Parameters

All the species demographic input parameters used in all models are summarised in Table D3-. The decision making for selection of key input parameters is described below.

D.3.1 Breeding success

A suitable input values for the mean breeding success and SD of that mean was selected in all cases as the default values in the NE PVA tool for "Region Type CRB, Sector NW.Scotland.Orkney.Shetland". This was the most suitable for the SPA qualifying features of populations assessed. This was discussed and agreed with NatureScot.

D.3.2 Adult survival rates

Adult survival rates were based on the "National" values in the NE PVA tool, which are those suggested in Horswill & Robinson (2015)[3]. Finally, there was no standard deviation (SD) value available for great black-backed gull, so the value available for herring gull was used (see Table D3-1).

Table D2-1 Adult survival rates used in PVA population models.

SPECIES	AGE	SOURCE	MEAN	SD
Kittiwake	Adult	National	0.854	0.077
Great black-backed gull	Adult	National	0.93	0.079
Great skua	Adult	Horswill & Robinson (2015)	0.882	0.038
Guillemot	Adult	National	0.94	0.025
Razorbill	Adult	National	0.895	0.067
Puffin	Adult	National	0.907	0.083
Gannet	Adult	National	0.919	0.042

D.3.3 Other baseline demographic rates

Other baseline demographic parameters that had to be defined were:

- Immature survival;
- Age at first breeding; and
- Maximum brood size per pair.

These values (summarised in Table D3-2) were mostly based on the default values available in the NE PVA tool.

[3] *Horswill, C. & Robinson R. A. 2015. Review of seabird demographic rates and density dependence. JNCC Report No. 552. Joint Nature Conservation Committee, Peterborough.*

Table D3-2 Summary of all PVA input parameters used in NE PVA tool

PARAMETER	SOURCE	METRIC	KITTIWAKE	GREAT BLACK-BACKED GULL	GREAT SKUA	GUILLEMOT	RAZORBILL	PUFFIN	GANNET
Breeding success (chicks per pair)	CRB	Mean	0.569	0.900	0.651	0.487	0.444	0.415	0.662
	NW Scotland Orkney Shetland	SD	0.390	0.420	0.308	0.210	0.179	0.212	0.082
Adult survival rate	National	Mean	0.854	0.930	0.882	0.940	0.895	0.907	0.919
		SD	0.077	0.079	0.038	0.025	0.067	0.083	0.042
Immature survival rate	National	Mean for age class 0-1	0.790	0.930	0.939	0.560	0.630	0.709	0.424
		SD for age class 0-1	0.077	0.050	0.038	0.058	0.067	0.108	0.045
		Mean for age class 1-2	0.854	0.930	0.939	0.792	0.630	0.709	0.829
		SD for age class 1-2	0.077	0.050	0.038	0.152	0.067	0.108	0.026
		Mean for age class 2-3	0.854	0.930	0.939	0.917	0.895	0.709	0.891
		SD for age class 2-3	0.077	0.050	0.038	0.098	0.067	0.108	0.019
		Mean for age class 3-4	0.854	0.930	0.939	0.938	0.895	0.760	0.895
		SD for age class 3-4	0.077	0.050	0.038	0.107	0.067	0.093	0.019
		Mean for age class 4-5	-	0.930	0.939	0.940	0.895	0.805	0.919
		SD for age class 4-5	-	0.050	0.038	0.025	0.067	0.083	0.042
		Mean for age class 5-6	-	-	0.882	0.940	-	-	-
		SD for age class 5-6	-	-	0.038	0.025	-	-	-

PARAMETER	SOURCE	METRIC	KITTIWAKE	GREAT BLACK-BACKED GULL	GREAT SKUA	GUILLEMOT	RAZORBILL	PUFFIN	GANNET
		Mean for age class 6-7	-	-	0.882	-	-	-	-
		SD for age class 6-7	-	-	0.038	-	-	-	-
		Mean for age class 7-8	-	-	-	-	-	-	-
		SD for age class 7-8	-	-	-	-	-	-	-
		Mean for age class 8-9	-	-	-	-	-	-	-
		SD for age class 8-9	-	-	-	-	-	-	-
Age at first breeding (years)	NE PVA tool input value	Years	4	5	7	6	5	5	5
Maximum brood size per pair	NE PVA tool input value	Number of chicks	2	3	2	1	1	1	1
Adult survival impacts – Calf of Eday SPA	NE PVA tool input value	Project alone	-	0.000693	-	-	-	-	-
		In-combination without the Project	-	0	-	-	-	-	-
		In-combination with the Project	-	0.000693	-	-	-	-	-
Adult survival impacts - Cape Wrath SPA	NE PVA tool input value	Project alone LOW	0.000532	-	-	-	0.000092	-	-
		Project alone MID	0.000609	-	-	-	0.000122	-	-
		Project alone HIGH	0.000687	-	-	-	0.000153	-	-
		In-combination without the Project	0.000030	-	-	-	0.000288	-	-
		In-combination with the Project LOW	0.000567	-	-	-	0.000379	-	-

PARAMETER	SOURCE	METRIC	KITTIWAKE	GREAT BLACK-BACKED GULL	GREAT SKUA	GUILLEMOT	RAZORBILL	PUFFIN	GANNET
		In-combination with the Project MID	0.000582	-	-	-	0.000410	-	-
		In-combination with the Project HIGH	0.000722	-	-	-	0.000440	-	-
Adult survival impacts – Copinsay SPA	NE PVA tool input value	Project alone LOW	0.000076	0.00053	-	-	-	-	-
		Project alone MID	0.000087	n/a	-	-	-	-	-
		Project alone HIGH	0.000097	n/a	-	-	-	-	-
		In-combination without the Project	0.001824	0	-	-	-	-	-
		In-combination with the Project LOW	0.001900	0.000005	-	-	-	-	-
		In-combination with the Project MID	0.001911	n/a	-	-	-	-	-
		In-combination with the Project HIGH	0.001921	n/a	-	-	-	-	-
Adult survival impacts – East Caithness Cliffs SPA	NE PVA tool input value	Project alone LOW	0.000123	0.00033	-	0.000009	-	-	-
		Project alone MID	0.000139	n/a	-	0.000013	-	-	-
		Project alone HIGH	0.000155	n/a	-	0.000017	-	-	-
		In-combination without the Project	0.006899	0.01955	-	0.001354	-	-	-
		In-combination with the Project LOW	0.007022	0.0199	-	0.001366	-	-	-
		In-combination with the Project MID	0.007037	n/a	-	0.001374	-	-	-

PARAMETER	SOURCE	METRIC	KITTIWAKE	GREAT BLACK-BACKED GULL	GREAT SKUA	GUILLEMOT	RAZORBILL	PUFFIN	GANNET
		In-combination with the Project HIGH	0.007053	n/a	-	0.001382	-	-	-
Adult survival impacts – Handa SPA	NE PVA tool input value	Project alone LOW	-	-	-	-	0.000023	-	-
		Project alone MID	-	-	-	-	0.000031	-	-
		Project alone HIGH	-	-	-	-	0.000039	-	-
		In-combination without the Project	-	-	-	-	0.000298	-	-
		In-combination with the Project LOW	-	-	-	-	0.000321	-	-
		In-combination with the Project MID	-	-	-	-	0.000329	-	-
		In-combination with the Project HIGH	-	-	-	-	0.000336	-	-
Adult survival impacts – Hermaness, Saxa Vord and Valla Field SPA	NE PVA tool input value	Project alone LOW	0.000058	-	-	-	-	-	-
		Project alone MID	0.000063	-	-	-	-	-	-
		Project alone HIGH	0.000068	-	-	-	-	-	-
		In-combination without the Project	0.003039	-	-	-	-	-	-
		In-combination with the Project LOW	0.003097	-	-	-	-	-	-
		In-combination with the Project MID	0.003102	-	-	-	-	-	-
		In-combination with the Project HIGH	0.003107	-	-	-	-	-	-

PARAMETER	SOURCE	METRIC	KITTIWAKE	GREAT BLACK-BACKED GULL	GREAT SKUA	GUILLEMOT	RAZORBILL	PUFFIN	GANNET
Adult survival impacts – Hoy SPA	NE PVA tool input value	Project alone LOW	0.000434	-	0.00024	-	-	-	-
		Project alone MID	0.000503	-	n/a	-	-	-	-
		Project alone HIGH	0.000571	-	n/a	-	-	-	-
		In-combination without the Project	0.003672	-	0	-	-	-	-
		In-combination with the Project LOW	0.004106	-	0.00024	-	-	-	-
		In-combination with the Project MID	0.004175	-	n/a	-	-	-	-
		In-combination with the Project HIGH	0.004244	-	n/a	-	-	-	-
Adult survival impacts – Marwick Head SPA	NE PVA tool input value	Project alone LOW	0.000197	-	-	-	-	-	-
		Project alone MID	0.000228	-	-	-	-	-	-
		Project alone HIGH	0.000259	-	-	-	-	-	-
		In-combination without the Project	0.001338	-	-	-	-	-	-
		In-combination with the Project LOW	0.001534	-	-	-	-	-	-
		In-combination with the Project MID	0.001566	-	-	-	-	-	-
		In-combination with the Project HIGH	0.001597	-	-	-	-	-	-
	NE PVA tool input value	Project alone LOW	0.000397	-	-	0.000042	-	0.0000070	-

PARAMETER	SOURCE	METRIC	KITTIWAKE	GREAT BLACK-BACKED GULL	GREAT SKUA	GUILLEMOT	RAZORBILL	PUFFIN	GANNET
Adult survival impacts – North Caithness Cliffs SPA		Project alone MID	0.000458	-	-	0.000060		0.0000121	-
		Project alone HIGH	0.000519	-	-	0.000078		0.0000124	-
		In-combination without the Project	0.005892	-	-	0.000919		0.013691	-
		In-combination with the Project LOW	0.006289	-	-	0.000924		0.013698	-
		In-combination with the Project MID	0.006350	-	-	0.000961		0.013704	-
		In-combination with the Project HIGH	0.006411	-	-	0.000997		0.013704	-
Adult survival impacts – North Rona and Sula Sgeir SPA	NE PVA tool input value	Project alone LOW	-	0.000328	-	-	-	-	0.000005
		Project alone MID	-	n/a	-	-	-	-	0.000006
		Project alone HIGH	-	n/a	-	-	-	-	0.000042
		In-combination without the Project	-	0	-	-	-	-	0.000478
		In-combination with the Project LOW	-	0.000328	-	-	-	-	0.000482
		In-combination with the Project MID	-	n/a	-	-	-	-	0.000484
		In-combination with the Project HIGH	-	n/a	-	-	-	-	0.000519
Adult survival impacts – Rousay SPA	NE PVA tool input value	Project alone LOW	0.000290	-	-	-	-	-	-
		Project alone MID	0.000323	-	-	-	-	-	-

PARAMETER	SOURCE	METRIC	KITTIWAKE	GREAT BLACK-BACKED GULL	GREAT SKUA	GUILLEMOT	RAZORBILL	PUFFIN	GANNET
		Project alone HIGH	0.000356	-	-	-	-	-	-
		In-combination without the Project	0.011093	-	-	-	-	-	-
		In-combination with the Project LOW	0.011383	-	-	-	-	-	-
		In-combination with the Project MID	0.011416	-	-	-	-	-	-
		In-combination with the Project HIGH	0.011449	-	-	-	-	-	-
Adult survival impacts – St Kilda SPA	NE PVA tool input value	Project alone LOW	-	-	-	-	-	-	0.0000001
		Project alone MID	-	-	-	-	-	-	0.000007
		Project alone HIGH	-	-	-	-	-	-	0.000049
		In-combination without the Project	-	-	-	-	-	-	0.000530
		In-combination with the Project LOW	-	-	-	-	-	-	0.000534
		In-combination with the Project MID	-	-	-	-	-	-	0.000536
		In-combination with the Project HIGH	-	-	-	-	-	-	0.000578
Adult survival impacts – Sule Skerry and Sule Stack SPA	NE PVA tool input value	Project alone LOW	-	-	-	0.007102		0.000669	0.002012
		Project alone MID	-	-	-	0.010204		0.000891	0.002286
		Project alone HIGH	-	-	-	0.013306		0.001137	0.002585

PARAMETER	SOURCE	METRIC	KITTIWAKE	GREAT BLACK-BACKED GULL	GREAT SKUA	GUILLEMOT	RAZORBILL	PUFFIN	GANNET
		In-combination without the Project	-	-	-	0.013316		0.000021	0.000566
		In-combination with the Project LOW	-	-	-	0.014214		0.000697	0.002581
		In-combination with the Project MID	-	-	-	0.020419		0.000927	0.002851
		In-combination with the Project HIGH	-	-	-	0.026623		0.001158	0.003151
Adult survival impacts – West Westray SPA	NE PVA tool input value	Project alone LOW	0.000222	-	-	-	-	-	-
		Project alone MID	0.000247	-	-	-	-	-	-
		Project alone HIGH	0.000271	-	-	-	-	-	-
		In-combination without the Project	0.011636	-	-	-	-	-	-
		In-combination with the Project LOW	0.011858	-	-	-	-	-	-
		In-combination with the Project MID	0.011883	-	-	-	-	-	-
		In-combination with the Project HIGH	0.011907	-	-	-	-	-	-

D.4 Results

D.4.1 Proportion of adults in the baseline population

Based on the input parameters described above, the proportion of adult birds in the regional population of each species was predicted using population models applied using the NE PVA tool (Table D4-1). These values were used to estimate the predicted proportion of adults in the baseline population. This proportion was based on the combined immature and adult populations predicted by the model, with the predicted population in the first age class (i.e., chicks) excluded as these birds are not at risk of impacts from the Project.

Table D4-1 Predicted proportion of adult birds in the baseline population

SPECIES	PROPORTION OF ADULTS
Kittiwake	0.681
Great black-backed gull	0.485
Great skua	0.369
Guillemot	0.680
Razorbill	0.723
Puffin	0.730
Gannet	0.691

D.4.2 Projected PVA metrics

Three PVA metrics were calculated by the NE PVA tool annually for each age class:

- The ratio of projected end population sizes of the baseline and impacted population size, referred to as the Counterfactual of Population Size (CPS);
- The ratio of projected population growth rates of the baseline and impacted populations, referred to as the Counterfactual of Growth Rate (CGR); and
- The quantile from the unimpacted population that matched the 50% quantile for the impacted population (U=50%I) and the quantile from the impacted population that match the 50% quantile for the unimpacted population (I=50%U).

The PVA metrics from years 10 to 35, in five-year increments, are provided for all the SPA qualifying features that needed PVA's for the Project alone and in-combination.

D.4.2.1 Calf of Eday SPA

D.4.2.1.1 Great black-backed gull

Table D4-2 PVA metrics from 10 to 35 years for great black-backed gull from the Calf of Eday SPA. (SD = standard deviation, LCI = lower confidence interval, UCI = upper confidence interval, U=50%I = the quantile from the unimpacted population that matched the 50% quantile for the impacted population, I=50%U = the quantile from the impacted population that match the 50% quantile for the unimpacted population)

YEAR	SCENARIO	CGR					CPS					QUANTILES	
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI	U=50%I	I=50%U
10	Project alone	0.9989	0.9991	0.0054	0.9892	1.0110	0.9953	0.9939	0.0800	0.8375	1.1565	47.5	53.1
	In-combination (without the Project)	1.0001	1.0001	0.0055	0.9899	1.0115	1.0000	1.0019	0.0833	0.8566	1.1794	49.1	51.2
	In-combination (with the Project)	0.9997	0.9995	0.0053	0.9891	1.0102	0.9925	0.9960	0.0836	0.8406	1.1668	48.7	51.8
15	Project alone	0.9991	0.9991	0.0038	0.9917	1.0068	0.9895	0.9901	0.0801	0.8420	1.1548	48.6	51.3
	In-combination (without the Project)	1.0001	1.0000	0.0038	0.9927	1.0079	0.9973	1.0014	0.0851	0.8488	1.1878	50.3	48.8
	In-combination (with the Project)	0.9995	0.9994	0.0038	0.9918	1.0067	0.9885	0.9917	0.0845	0.8322	1.1715	50.0	50.0
20	Project alone	0.9992	0.9992	0.0030	0.9935	1.0049	0.9857	0.9868	0.0802	0.8350	1.1553	48.4	51.2
	In-combination (without the Project)	1.0000	1.0000	0.0030	0.9944	1.0061	0.9948	1.0016	0.0863	0.8487	1.1968	51.1	49.1
	In-combination (with the Project)	0.9993	0.9993	0.0030	0.9938	1.0054	0.9836	0.9876	0.0848	0.8368	1.1740	48.4	51.7
25	Project alone	0.9991	0.9991	0.0024	0.9947	1.0042	0.9825	0.9819	0.0807	0.8316	1.1515	47.3	52.0
	In-combination (without the Project)	1.0000	1.0000	0.0024	0.9954	1.0049	0.9937	1.0004	0.0874	0.8427	1.1912	50.8	49.5
	In-combination (with the Project)	0.9994	0.9993	0.0024	0.9947	1.0041	0.9789	0.9834	0.0844	0.8291	1.1777	49.4	50.7

YEAR	SCENARIO	CGR					CPS					QUANTILES	
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI	U=50%I	I=50%U
30	Project alone	0.9992	0.9992	0.0021	0.9954	1.0034	0.9785	0.9784	0.0814	0.8272	1.1514	49.6	50.4
	In-combination (without the Project)	1.0000	1.0000	0.0021	0.9962	1.0041	0.9941	1.0005	0.0873	0.8435	1.1885	51.1	48.9
	In-combination (with the Project)	0.9993	0.9993	0.0020	0.9954	1.0033	0.9747	0.9793	0.0847	0.8220	1.1732	49.5	50.4
35	Project alone	0.9991	0.9992	0.0018	0.9960	1.0029	0.9730	0.9748	0.0813	0.8251	1.1455	47.9	51.5
	In-combination (without the Project)	1.0000	1.0000	0.0018	0.9966	1.0035	0.9939	1.0011	0.0876	0.8419	1.1884	50.3	49.8
	In-combination (with the Project)	0.9993	0.9993	0.0018	0.9961	1.0028	0.9699	0.9760	0.0847	0.8198	1.1679	48.2	51.7

D.4.2.2 Cape Wrath SPA

D.4.2.2.1 Kittiwake

Table D4-3 PVA metrics from 10 to 35 years for kittiwakes from the Cape Wrath SPA. (SD = standard deviation, LCI = lower confidence interval, UCI = upper confidence interval, U=50%I = the quantile from the unimpacted population that matched the 50% quantile for the impacted population, I=50%U = the quantile from the impacted population that match the 50% quantile for the unimpacted population)

YEAR	SCENARIO	CGR					CPS					QUANTILES	
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI	U=50%I	I=50%U
10	Project alone LOW	0.9996	0.9996	0.0021	0.9956	1.0039	0.9946	0.9965	0.0285	0.9432	1.0558	49.2	50.9
	Project alone MID	0.9996	0.9996	0.0020	0.9958	1.0033	0.9961	0.9960	0.0267	0.9428	1.0466	48.8	51.2
	Project alone HIGH	0.9995	0.9995	0.0020	0.9958	1.0034	0.9938	0.9955	0.0273	0.9404	1.0485	48.9	51.4
	In-combination without the Project	1.0001	1.0001	0.0020	0.9959	1.0042	1.0024	1.0016	0.0271	0.9487	1.0561	50.6	49.9
	In-combination with the Project LOW	0.9996	0.9997	0.0019	0.9960	1.0034	0.9968	0.9969	0.0267	0.9426	1.0502	49.5	50.3
	In-combination with the Project MID	0.9996	0.9996	0.0020	0.9955	1.0036	0.9963	0.9962	0.0272	0.9436	1.0519	49.5	50.4
	In-combination with the Project HIGH	0.9996	0.9995	0.0020	0.9956	1.0036	0.9968	0.9958	0.0273	0.9413	1.0497	50.3	49.9
15	Project alone LOW	0.9996	0.9996	0.0017	0.9964	1.0030	0.9932	0.9949	0.0319	0.9338	1.0607	48.8	51.0
	Project alone MID	0.9995	0.9996	0.0016	0.9965	1.0026	0.9936	0.9937	0.0298	0.9372	1.0527	49.6	50.3
	Project alone HIGH	0.9996	0.9995	0.0016	0.9965	1.0027	0.9940	0.9933	0.0302	0.9340	1.0529	49.2	50.6
	In-combination without the Project	1.0001	1.0001	0.0017	0.9968	1.0032	1.0025	1.0021	0.0308	0.9430	1.0695	50.3	49.8
	In-combination with the Project LOW	0.9996	0.9997	0.0016	0.9966	1.0029	0.9947	0.9954	0.0303	0.9349	1.0561	49.6	50.3

YEAR	SCENARIO	CGR					CPS					QUANTILES	
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI	U=50%I	I=50%U
	In-combination with the Project MID	0.9997	0.9996	0.0017	0.9961	1.0028	0.9946	0.9946	0.0308	0.9340	1.0542	49.2	50.4
	In-combination with the Project HIGH	0.9996	0.9995	0.0016	0.9966	1.0027	0.9944	0.9936	0.0299	0.9338	1.0560	49.2	50.6
20	Project alone LOW	0.9996	0.9996	0.0015	0.9968	1.0024	0.9925	0.9932	0.0349	0.9274	1.0656	48.7	51.4
	Project alone MID	0.9995	0.9996	0.0014	0.9969	1.0024	0.9907	0.9918	0.0339	0.9292	1.0631	48.8	51.9
	Project alone HIGH	0.9996	0.9995	0.0014	0.9968	1.0022	0.9921	0.9911	0.0339	0.9284	1.0591	48.6	51.4
	In-combination without the Project	1.0001	1.0000	0.0014	0.9972	1.0029	1.0017	1.0020	0.0339	0.9334	1.0727	49.6	50.8
	In-combination with the Project LOW	0.9996	0.9997	0.0014	0.9968	1.0023	0.9931	0.9934	0.0329	0.9256	1.0584	48.2	52.1
	In-combination with the Project MID	0.9996	0.9996	0.0014	0.9968	1.0024	0.9917	0.9926	0.0337	0.9267	1.0590	48.6	52.0
	In-combination with the Project HIGH	0.9995	0.9995	0.0014	0.9969	1.0026	0.9904	0.9910	0.0331	0.9269	1.0615	48.8	51.4
25	Project alone LOW	0.9997	0.9996	0.0013	0.9971	1.0022	0.9893	0.9914	0.0373	0.9202	1.0672	49.6	50.2
	Project alone MID	0.9996	0.9996	0.0013	0.9971	1.0021	0.9911	0.9906	0.0370	0.9209	1.0646	50.2	49.6
	Project alone HIGH	0.9996	0.9995	0.0013	0.9969	1.0019	0.9891	0.9886	0.0374	0.9143	1.0596	49.2	50.7
	In-combination without the Project	1.0000	1.0000	0.0013	0.9974	1.0027	1.0007	1.0024	0.0381	0.9321	1.0821	50.8	49.5
	In-combination with the Project LOW	0.9997	0.9997	0.0013	0.9972	1.0022	0.9896	0.9916	0.0364	0.9224	1.0634	49.9	50.0
	In-combination with the Project MID	0.9996	0.9996	0.0012	0.9973	1.0021	0.9885	0.9905	0.0361	0.9232	1.0608	50.5	49.7
	In-combination with the Project HIGH	0.9995	0.9995	0.0013	0.9970	1.0020	0.9880	0.9888	0.0366	0.9183	1.0699	48.7	51.0
30	Project alone LOW	0.9997	0.9996	0.0012	0.9972	1.0019	0.9879	0.9891	0.0401	0.9088	1.0679	49.1	50.7
	Project alone MID	0.9996	0.9996	0.0012	0.9973	1.0019	0.9885	0.9881	0.0395	0.9121	1.0650	49.5	50.3

YEAR	SCENARIO	CGR					CPS					QUANTILES	
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI	U=50%I	I=50%U
	Project alone HIGH	0.9995	0.9995	0.0012	0.9972	1.0018	0.9861	0.9863	0.0393	0.9102	1.0634	49.3	50.4
	In-combination without the Project	1.0001	1.0000	0.0012	0.9975	1.0024	1.0011	1.0017	0.0413	0.9227	1.0877	50.1	49.9
	In-combination with the Project LOW	0.9996	0.9996	0.0012	0.9972	1.0020	0.9885	0.9891	0.0398	0.9126	1.0669	49.5	50.7
	In-combination with the Project MID	0.9995	0.9996	0.0012	0.9973	1.0019	0.9865	0.9880	0.0393	0.9186	1.0697	49.2	51.0
	In-combination with the Project HIGH	0.9995	0.9995	0.0012	0.9972	1.0019	0.9864	0.9857	0.0402	0.9095	1.0677	49.2	50.8
35	Project alone LOW	0.9996	0.9996	0.0011	0.9974	1.0017	0.9875	0.9885	0.0439	0.9045	1.0753	49.6	50.3
	Project alone MID	0.9996	0.9996	0.0012	0.9975	1.0018	0.9859	0.9863	0.0439	0.9060	1.0757	48.9	50.6
	Project alone HIGH	0.9996	0.9995	0.0011	0.9974	1.0017	0.9827	0.9846	0.0437	0.9004	1.0745	49.2	50.5
	In-combination without the Project	1.0000	1.0000	0.0011	0.9976	1.0023	1.0015	1.0018	0.0438	0.9148	1.0978	50.1	49.9
	In-combination with the Project LOW	0.9996	0.9996	0.0011	0.9975	1.0018	0.9861	0.9871	0.0420	0.9061	1.0756	48.9	51.5
	In-combination with the Project MID	0.9996	0.9996	0.0011	0.9974	1.0017	0.9845	0.9866	0.0421	0.9095	1.0726	49.3	51.0
	In-combination with the Project HIGH	0.9995	0.9995	0.0012	0.9970	1.0019	0.9826	0.9838	0.0439	0.8980	1.0773	49.0	51.0

D.4.2.2.2 Razorbill

Table D4-4 PVA metrics from 10 to 35 years for razorbills from the Cape Wrath SPA. (SD = standard deviation, LCI = lower confidence interval, UCI = upper confidence interval, U=50%I = the quantile from the unimpacted population that matched the 50% quantile for the impacted population, I=50%U = the quantile from the impacted population that match the 50% quantile for the unimpacted population)

YEAR	SCENARIO	CGR					CPS					QUANTILES	
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI	U=50%I	I=50%U
10	Project alone LOW	1.0000	0.9999	0.0029	0.9943	1.0053	0.9996	0.9993	0.0379	0.9225	1.0719	49.6	50.5
	Project alone MID	1.0000	1.0000	0.0029	0.9945	1.0059	1.0000	1.0001	0.0376	0.9303	1.0748	49.7	50.2
	Project alone HIGH	0.9999	0.9998	0.0029	0.9936	1.0052	0.9986	0.9982	0.0378	0.9273	1.0668	49.4	50.7
	In-combination without the Project	0.9997	0.9997	0.0028	0.9937	1.0051	0.9955	0.9969	0.0376	0.9234	1.0718	49.1	51.7
	In-combination with the Project LOW	0.9997	0.9997	0.0028	0.9941	1.0053	0.9986	0.9984	0.0377	0.9287	1.0756	49.1	50.7
	In-combination with the Project MID	0.9996	0.9996	0.0029	0.9936	1.0052	0.9954	0.9956	0.0372	0.9221	1.0726	49.7	50.4
	In-combination with the Project HIGH	0.9996	0.9996	0.0029	0.9937	1.0052	0.9975	0.9964	0.0379	0.9269	1.0683	49.4	51.0
15	Project alone LOW	0.9999	0.9999	0.0025	0.9949	1.0049	0.9988	0.9993	0.0436	0.9173	1.0950	49.9	50.1
	Project alone MID	1.0000	1.0000	0.0025	0.9950	1.0046	0.9974	1.0000	0.0437	0.9132	1.0851	50.3	49.8
	Project alone HIGH	0.9998	0.9998	0.0025	0.9950	1.0046	0.9972	0.9979	0.0443	0.9151	1.0861	50.1	50.0
	In-combination without the Project	0.9997	0.9997	0.0024	0.9949	1.0043	0.9949	0.9965	0.0438	0.9121	1.0861	49.2	50.7
	In-combination with the Project LOW	0.9997	0.9997	0.0024	0.9949	1.0044	0.9974	0.9977	0.0437	0.9182	1.0833	49.9	50.3
	In-combination with the Project MID	0.9996	0.9996	0.0025	0.9947	1.0043	0.9938	0.9943	0.0431	0.9137	1.0836	48.3	51.3

YEAR	SCENARIO	CGR					CPS					QUANTILES	
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI	U=50%I	I=50%U
	In-combination with the Project HIGH	0.9995	0.9996	0.0025	0.9948	1.0046	0.9953	0.9944	0.0443	0.9093	1.0855	48.6	51.1
20	Project alone LOW	0.9999	0.9999	0.0022	0.9954	1.0043	0.9963	0.9988	0.0509	0.8998	1.1046	49.4	51.1
	Project alone MID	0.9999	0.9999	0.0023	0.9954	1.0044	0.9965	0.9991	0.0514	0.9032	1.1017	49.6	50.6
	Project alone HIGH	0.9998	0.9998	0.0023	0.9953	1.0040	0.9956	0.9957	0.0524	0.8989	1.0941	49.6	50.6
	In-combination without the Project	0.9998	0.9997	0.0022	0.9953	1.0040	0.9966	0.9956	0.0514	0.8955	1.0996	49.4	51.1
	In-combination with the Project LOW	0.9998	0.9997	0.0022	0.9952	1.0042	0.9986	0.9968	0.0514	0.9025	1.1007	49.4	50.6
	In-combination with the Project MID	0.9998	0.9997	0.0024	0.9948	1.0039	0.9941	0.9936	0.0533	0.8906	1.1021	49.1	51.2
	In-combination with the Project HIGH	0.9997	0.9996	0.0023	0.9948	1.0039	0.9934	0.9936	0.0522	0.8912	1.0917	49.4	51.0
25	Project alone LOW	0.9999	0.9999	0.0021	0.9958	1.0042	0.9977	0.9986	0.0585	0.8874	1.1223	50.3	49.6
	Project alone MID	0.9999	0.9999	0.0022	0.9957	1.0043	0.9965	0.9988	0.0593	0.8893	1.1256	49.8	50.2
	Project alone HIGH	0.9998	0.9998	0.0022	0.9954	1.0041	0.9950	0.9956	0.0602	0.8773	1.1146	49.8	50.2
	In-combination without the Project	0.9997	0.9997	0.0021	0.9956	1.0039	0.9896	0.9938	0.0587	0.8860	1.1139	49.6	50.5
	In-combination with the Project LOW	0.9997	0.9997	0.0021	0.9956	1.0039	0.9935	0.9947	0.0597	0.8810	1.1161	49.8	51.0
	In-combination with the Project MID	0.9996	0.9996	0.0023	0.9951	1.0041	0.9895	0.9901	0.0617	0.8759	1.1191	48.9	51.1
	In-combination with the Project HIGH	0.9996	0.9996	0.0022	0.9951	1.0041	0.9904	0.9920	0.0606	0.8759	1.1141	48.8	51.1
30	Project alone LOW	0.9999	0.9999	0.0021	0.9957	1.0041	0.9969	0.9987	0.0667	0.8704	1.1415	50.0	50.0
	Project alone MID	0.9999	0.9999	0.0021	0.9961	1.0041	0.9969	0.9984	0.0666	0.8799	1.1386	49.8	50.1
	Project alone HIGH	0.9999	0.9998	0.0020	0.9956	1.0036	0.9956	0.9961	0.0672	0.8579	1.1312	49.4	50.7

YEAR	SCENARIO	CGR					CPS					QUANTILES	
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI	U=50%I	I=50%U
	In-combination without the Project	0.9997	0.9997	0.0020	0.9957	1.0036	0.9900	0.9938	0.0669	0.8705	1.1232	49.9	50.4
	In-combination with the Project LOW	0.9997	0.9997	0.0020	0.9955	1.0037	0.9905	0.9936	0.0668	0.8708	1.1343	49.8	50.4
	In-combination with the Project MID	0.9996	0.9997	0.0021	0.9956	1.0039	0.9890	0.9910	0.0684	0.8660	1.1356	49.6	50.4
	In-combination with the Project HIGH	0.9997	0.9996	0.0021	0.9955	1.0037	0.9921	0.9916	0.0672	0.8657	1.1322	49.4	50.5
35	Project alone LOW	0.9999	0.9999	0.0020	0.9961	1.0039	0.9939	0.9985	0.0728	0.8625	1.1574	50.0	50.0
	Project alone MID	0.9999	0.9999	0.0020	0.9960	1.0039	0.9985	0.9993	0.0745	0.8628	1.1514	50.2	49.6
	Project alone HIGH	0.9999	0.9999	0.0020	0.9959	1.0036	0.9965	0.9978	0.0745	0.8475	1.1450	50.1	49.7
	In-combination without the Project	0.9998	0.9998	0.0020	0.9958	1.0037	0.9901	0.9943	0.0756	0.8583	1.1545	49.9	50.3
	In-combination with the Project LOW	0.9997	0.9998	0.0019	0.9960	1.0036	0.9896	0.9947	0.0743	0.8589	1.1472	50.0	50.0
	In-combination with the Project MID	0.9997	0.9997	0.0021	0.9957	1.0039	0.9897	0.9909	0.0757	0.8465	1.1539	50.1	49.8
	In-combination with the Project HIGH	0.9996	0.9996	0.0021	0.9956	1.0039	0.9858	0.9907	0.0772	0.8492	1.1569	49.4	50.5

D.4.2.3 Copinsay SPA

D.4.2.3.1 Great black-backed gull

Table D4-5 PVA metrics from 10 to 35 years for great black-backed gull from the Copinsay SPA. (SD = standard deviation, LCI = lower confidence interval, UCI = upper confidence interval, U=50%I = the quantile from the unimpacted population that matched the 50% quantile for the impacted population, I=50%U = the quantile from the impacted population that match the 50% quantile for the unimpacted population)

YEAR	SCENARIO	CGR					CPS					QUANTILES	
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI	U=50%I	I=50%U
10	Project alone	0.9992	0.9992	0.0056	0.9890	1.0101	0.9911	0.9917	0.0701	0.8626	1.1334	49.5	51.0
	In-combination (without the Project)	0.9999	0.9997	0.0058	0.9881	1.0111	0.9966	0.9987	0.0731	0.8631	1.1472	49.0	50.7
	In-combination (with the Project)	0.9990	0.9990	0.0058	0.9878	1.0106	0.9871	0.9902	0.0717	0.8533	1.1392	48.6	51.9
15	Project alone	0.9990	0.9992	0.0041	0.9914	1.0073	0.9882	0.9884	0.0731	0.8536	1.1392	46.2	53.2
	In-combination (without the Project)	0.9999	0.9997	0.0042	0.9912	1.0078	0.9984	0.9979	0.0753	0.8567	1.1520	48.5	51.7
	In-combination (with the Project)	0.9990	0.9991	0.0042	0.9911	1.0077	0.9856	0.9868	0.0733	0.8534	1.1358	47.5	52.9
20	Project alone	0.9991	0.9992	0.0033	0.9931	1.0055	0.9809	0.9839	0.0744	0.8440	1.1331	47.8	52.3
	In-combination (without the Project)	0.9999	0.9998	0.0032	0.9933	1.0062	0.9968	0.9977	0.0762	0.8610	1.1496	50.1	49.9
	In-combination (with the Project)	0.9989	0.9992	0.0033	0.9927	1.0057	0.9807	0.9836	0.0743	0.8484	1.1395	47.8	52.0
25	Project alone	0.9992	0.9992	0.0027	0.9941	1.0044	0.9801	0.9810	0.0754	0.8371	1.1285	47.2	52.8
	In-combination (without the Project)	0.9999	0.9998	0.0027	0.9944	1.0050	0.9954	0.9982	0.0775	0.8563	1.1541	49.2	50.5
	In-combination (with the Project)	0.9992	0.9992	0.0027	0.9941	1.0049	0.9794	0.9807	0.0752	0.8396	1.1471	47.8	52.1

YEAR	SCENARIO	CGR					CPS					QUANTILES	
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI	U=50%I	I=50%U
30	Project alone	0.9991	0.9992	0.0023	0.9950	1.0037	0.9746	0.9780	0.0759	0.8305	1.1337	46.2	53.1
	In-combination (without the Project)	0.9999	0.9999	0.0023	0.9954	1.0044	0.9955	0.9986	0.0782	0.8546	1.1585	49.8	50.0
	In-combination (with the Project)	0.9991	0.9992	0.0023	0.9949	1.0040	0.9773	0.9775	0.0752	0.8405	1.1468	46.8	52.6
35	Project alone	0.9992	0.9992	0.0020	0.9955	1.0029	0.9716	0.9741	0.0757	0.8291	1.1234	48.3	52.2
	In-combination (without the Project)	1.0000	0.9999	0.0019	0.9959	1.0038	0.9950	0.9983	0.0783	0.8495	1.1591	49.7	50.0
	In-combination (with the Project)	0.9992	0.9992	0.0020	0.9956	1.0034	0.9723	0.9738	0.0754	0.8397	1.1386	48.7	52.5

D.4.2.4 East Caithness Cliffs SPA

D.4.2.4.1 Kittiwake

Table D4-6 PVA metrics from 10 to 35 years for kittiwake from the East Caithness Cliffs SPA. (SD = standard deviation, LCI = lower confidence interval, UCI = upper confidence interval, U=50%I = the quantile from the unimpacted population that matched the 50% quantile for the impacted population, I=50%U = the quantile from the impacted population that match the 50% quantile for the unimpacted population)

YEAR	SCENARIO	CGR					CPS					QUANTILES	
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI	U=50%I	I=50%U
10	Project alone LOW	1.0000	0.9999	0.0008	0.9985	1.0014	0.9999	0.9997	0.0109	0.9782	1.0208	50.0	50.0
	Project alone MID	0.9999	0.9999	0.0008	0.9983	1.0014	0.9993	0.9990	0.0113	0.9771	1.0200	49.7	50.2
	Project alone HIGH	0.9999	0.9999	0.0007	0.9984	1.0014	0.9991	0.9990	0.0106	0.9789	1.0197	50.4	49.6
	In-combination without the Project	0.9949	0.9948	0.0008	0.9931	0.9964	0.9447	0.9450	0.0107	0.9228	0.9656	44.1	56.3
	In-combination with the Project LOW	0.9948	0.9948	0.0009	0.9931	0.9965	0.9436	0.9440	0.0109	0.9234	0.9652	44.0	56.3
	In-combination with the Project MID	0.9948	0.9947	0.0008	0.9929	0.9964	0.9437	0.9436	0.0113	0.9208	0.9666	44.0	56.2
	In-combination with the Project HIGH	0.9947	0.9947	0.0008	0.9931	0.9963	0.9437	0.9437	0.0109	0.9222	0.9657	44.0	56.0
15	Project alone LOW	0.9999	0.9999	0.0006	0.9987	1.0011	0.9998	0.9991	0.0120	0.9752	1.0223	50.0	50.1
	Project alone MID	0.9999	0.9999	0.0006	0.9987	1.0010	0.9988	0.9984	0.0125	0.9726	1.0233	50.0	49.9
	Project alone HIGH	0.9999	0.9999	0.0006	0.9987	1.0011	0.9982	0.9985	0.0117	0.9760	1.0206	50.1	49.7
	In-combination without the Project	0.9949	0.9949	0.0007	0.9936	0.9962	0.9216	0.9221	0.0116	0.9009	0.9446	42.1	57.5
	In-combination with the Project LOW	0.9949	0.9949	0.0007	0.9934	0.9962	0.9207	0.9207	0.0121	0.8978	0.9439	42.1	57.9

YEAR	SCENARIO	CGR					CPS					QUANTILES	
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI	U=50%I	I=50%U
	In-combination with the Project MID	0.9949	0.9948	0.0007	0.9934	0.9961	0.9201	0.9204	0.0126	0.8957	0.9446	41.7	58.2
	In-combination with the Project HIGH	0.9948	0.9948	0.0007	0.9935	0.9961	0.9207	0.9206	0.0118	0.8977	0.9433	41.5	57.8
20	Project alone LOW	0.9999	0.9999	0.0005	0.9989	1.0009	0.9994	0.9990	0.0133	0.9731	1.0238	49.9	50.5
	Project alone MID	0.9999	0.9999	0.0005	0.9988	1.0010	0.9986	0.9982	0.0138	0.9714	1.0250	49.4	50.8
	Project alone HIGH	0.9999	0.9999	0.0005	0.9988	1.0010	0.9987	0.9982	0.0132	0.9711	1.0230	49.6	50.6
	In-combination without the Project	0.9950	0.9950	0.0006	0.9938	0.9962	0.8999	0.9002	0.0131	0.8763	0.9254	41.7	58.9
	In-combination with the Project LOW	0.9949	0.9949	0.0006	0.9937	0.9961	0.8982	0.8981	0.0131	0.8735	0.9239	40.7	58.8
	In-combination with the Project MID	0.9949	0.9949	0.0006	0.9937	0.9960	0.8979	0.8981	0.0135	0.8725	0.9237	41.5	58.9
	In-combination with the Project HIGH	0.9948	0.9949	0.0006	0.9938	0.9960	0.8980	0.8978	0.0128	0.8718	0.9229	41.0	59.2
25	Project alone LOW	0.9999	0.9999	0.0005	0.9990	1.0009	0.9983	0.9982	0.0143	0.9709	1.0268	49.4	50.7
	Project alone MID	0.9999	0.9999	0.0005	0.9988	1.0009	0.9978	0.9976	0.0153	0.9676	1.0275	49.6	50.2
	Project alone HIGH	0.9999	0.9999	0.0005	0.9990	1.0009	0.9976	0.9977	0.0144	0.9701	1.0255	49.7	50.1
	In-combination without the Project	0.9950	0.9950	0.0005	0.9939	0.9961	0.8775	0.8781	0.0138	0.8508	0.9052	39.1	61.8
	In-combination with the Project LOW	0.9949	0.9949	0.0006	0.9937	0.9960	0.8754	0.8755	0.0139	0.8478	0.9023	39.0	62.1
	In-combination with the Project MID	0.9949	0.9949	0.0006	0.9938	0.9959	0.8754	0.8755	0.0144	0.8467	0.9022	39.1	62.0
	In-combination with the Project HIGH	0.9949	0.9949	0.0005	0.9938	0.9959	0.8749	0.8750	0.0136	0.8492	0.9012	39.1	61.8
30	Project alone LOW	0.9999	0.9999	0.0004	0.9991	1.0008	0.9981	0.9980	0.0156	0.9683	1.0279	50.2	49.8
	Project alone MID	0.9999	0.9999	0.0005	0.9989	1.0008	0.9968	0.9970	0.0161	0.9640	1.0278	49.9	50.1

YEAR	SCENARIO	CGR					CPS					QUANTILES	
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI	U=50%I	I=50%U
	Project alone HIGH	0.9999	0.9999	0.0005	0.9990	1.0008	0.9968	0.9970	0.0156	0.9667	1.0284	49.9	50.1
	In-combination without the Project	0.9950	0.9950	0.0005	0.9940	0.9959	0.8569	0.8569	0.0147	0.8262	0.8854	37.2	63.2
	In-combination with the Project LOW	0.9949	0.9949	0.0005	0.9938	0.9959	0.8538	0.8538	0.0148	0.8233	0.8820	37.1	64.0
	In-combination with the Project MID	0.9949	0.9949	0.0005	0.9939	0.9959	0.8539	0.8538	0.0154	0.8232	0.8837	37.1	63.6
	In-combination with the Project HIGH	0.9949	0.9949	0.0005	0.9938	0.9958	0.8534	0.8533	0.0146	0.8232	0.8829	37.1	63.9
35	Project alone LOW	0.9999	0.9999	0.0004	0.9991	1.0008	0.9981	0.9977	0.0166	0.9659	1.0307	49.4	50.6
	Project alone MID	0.9999	0.9999	0.0004	0.9990	1.0008	0.9971	0.9966	0.0175	0.9611	1.0308	49.0	50.8
	Project alone HIGH	0.9999	0.9999	0.0004	0.9990	1.0008	0.9966	0.9969	0.0170	0.9635	1.0342	49.8	50.5
	In-combination without the Project	0.9951	0.9950	0.0005	0.9940	0.9959	0.8365	0.8363	0.0160	0.8034	0.8665	36.5	64.6
	In-combination with the Project LOW	0.9949	0.9949	0.0005	0.9939	0.9958	0.8333	0.8328	0.0156	0.8011	0.8622	36.3	64.5
	In-combination with the Project MID	0.9950	0.9949	0.0005	0.9939	0.9958	0.8332	0.8328	0.0161	0.7988	0.8644	36.1	64.5
	In-combination with the Project HIGH	0.9949	0.9949	0.0005	0.9939	0.9958	0.8326	0.8325	0.0155	0.8003	0.8640	36.6	64.7

D.4.2.4.2 Great black-backed gull

Table D4-7 PVA metrics from 10 to 35 years for great black-backed gull from the East Caithness Cliffs SPA. (SD = standard deviation, LCI = lower confidence interval, UCI = upper confidence interval, U=50%I = the quantile from the unimpacted population that matched the 50% quantile for the impacted population, I=50%U = the quantile from the impacted population that match the 50% quantile for the unimpacted population)

YEAR	SCENARIO	CGR					CPS					QUANTILES	
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI	U=50%I	I=50%U
10	Project alone	0.9996	0.9996	0.0021	0.9956	1.0039	0.9944	0.9963	0.0381	0.9258	1.0751	49.0	51.3
	In-combination (without the Project)	0.9730	0.9730	0.0024	0.9683	0.9775	0.7398	0.7410	0.0305	0.6839	0.8059	15.9	84.4
	In-combination (with the Project)	0.9726	0.9725	0.0024	0.9677	0.9769	0.7349	0.7356	0.0311	0.6764	0.7999	15.9	84.9
15	Project alone	0.9995	0.9996	0.0015	0.9966	1.0025	0.9923	0.9937	0.0380	0.9247	1.0739	49.2	50.7
	In-combination (without the Project)	0.9728	0.9728	0.0017	0.9692	0.9760	0.6426	0.6438	0.0275	0.5920	0.7023	12.0	91.4
	In-combination (with the Project)	0.9724	0.9723	0.0017	0.9689	0.9757	0.6382	0.6384	0.0275	0.5848	0.6939	10.6	92.3
20	Project alone	0.9996	0.9996	0.0012	0.9972	1.0018	0.9912	0.9914	0.0386	0.9201	1.0724	49.9	50.2
	In-combination (without the Project)	0.9726	0.9727	0.0014	0.9699	0.9753	0.5587	0.5596	0.0245	0.5111	0.6108	7.2	93.3
	In-combination (with the Project)	0.9722	0.9722	0.0014	0.9695	0.9748	0.5532	0.5534	0.0239	0.5074	0.5995	6.5	94.0
25	Project alone	0.9995	0.9996	0.0010	0.9976	1.0014	0.9883	0.9891	0.0387	0.9185	1.0683	48.1	52.4
	In-combination (without the Project)	0.9727	0.9727	0.0011	0.9703	0.9748	0.4866	0.4870	0.0212	0.4454	0.5284	3.9	96.8
	In-combination (with the Project)	0.9722	0.9722	0.0011	0.9699	0.9743	0.4801	0.4804	0.0211	0.4397	0.5221	3.8	96.8
30	Project alone	0.9995	0.9995	0.0008	0.9978	1.0012	0.9859	0.9868	0.0387	0.9155	1.0644	48.4	51.0

YEAR	SCENARIO	CGR					CPS					QUANTILES	
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI	U=50%I	I=50%U
	In-combination (without the Project)	0.9727	0.9726	0.0010	0.9706	0.9744	0.4235	0.4236	0.0188	0.3860	0.4608	2.5	97.8
	In-combination (with the Project)	0.9722	0.9722	0.0010	0.9702	0.9740	0.4166	0.4168	0.0185	0.3833	0.4544	2.2	98.0
35	Project alone	0.9996	0.9995	0.0007	0.9981	1.0009	0.9834	0.9844	0.0387	0.9120	1.0625	48.3	50.9
	In-combination (without the Project)	0.9726	0.9726	0.0009	0.9709	0.9742	0.3682	0.3682	0.0165	0.3364	0.3996	1.9	98.7
	In-combination (with the Project)	0.9721	0.9721	0.0008	0.9703	0.9737	0.3612	0.3615	0.0159	0.3311	0.3937	1.6	98.8

D.4.2.4.3 Guillemot

Table D4-8 PVA metrics from 10 to 35 years for guillemot from the East Caithness Cliffs SPA. (SD = standard deviation, LCI = lower confidence interval, UCI = upper confidence interval, U=50%I = the quantile from the unimpacted population that matched the 50% quantile for the impacted population, I=50%U = the quantile from the impacted population that match the 50% quantile for the unimpacted population)

YEAR	SCENARIO	CGR					CPS					QUANTILES	
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI	U=50%I	I=50%U
10	Project alone LOW	1.0000	1.0000	0.0002	0.9995	1.0005	1.0001	1.0000	0.0034	0.9935	1.0068	49.9	50.0
	Project alone MID	1.0000	1.0000	0.0002	0.9995	1.0004	1.0000	0.9999	0.0034	0.9932	1.0064	49.5	50.3
	Project alone HIGH	1.0000	1.0000	0.0002	0.9996	1.0004	0.9999	0.9999	0.0034	0.9933	1.0068	49.5	50.4
	In-combination without the Project	0.9990	0.9990	0.0002	0.9985	0.9994	0.9887	0.9886	0.0032	0.9822	0.9948	47.5	54.1
	In-combination with the Project LOW	0.9989	0.9989	0.0002	0.9985	0.9994	0.9883	0.9884	0.0034	0.9820	0.9952	47.3	53.9
	In-combination with the Project MID	0.9990	0.9989	0.0002	0.9985	0.9994	0.9884	0.9884	0.0033	0.9819	0.9949	47.2	54.2

YEAR	SCENARIO	CGR					CPS					QUANTILES	
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI	U=50%I	I=50%U
	In-combination with the Project HIGH	0.9989	0.9989	0.0002	0.9985	0.9994	0.9882	0.9882	0.0034	0.9819	0.9950	47.5	53.6
15	Project alone LOW	1.0000	1.0000	0.0002	0.9996	1.0004	1.0000	1.0000	0.0037	0.9932	1.0072	49.9	50.2
	Project alone MID	1.0000	1.0000	0.0002	0.9996	1.0003	1.0000	0.9999	0.0037	0.9921	1.0072	50.3	50.0
	Project alone HIGH	1.0000	1.0000	0.0002	0.9996	1.0003	0.9999	0.9999	0.0037	0.9926	1.0074	50.0	49.9
	In-combination without the Project	0.9990	0.9990	0.0002	0.9986	0.9993	0.9839	0.9838	0.0036	0.9763	0.9904	44.8	55.4
	In-combination with the Project LOW	0.9990	0.9990	0.0002	0.9986	0.9993	0.9835	0.9836	0.0038	0.9762	0.9910	44.5	55.6
	In-combination with the Project MID	0.9990	0.9990	0.0002	0.9986	0.9993	0.9835	0.9837	0.0037	0.9766	0.9913	44.6	55.3
	In-combination with the Project HIGH	0.9990	0.9990	0.0002	0.9986	0.9993	0.9834	0.9834	0.0038	0.9759	0.9909	44.8	55.5
20	Project alone LOW	1.0000	1.0000	0.0002	0.9997	1.0003	0.9999	0.9999	0.0040	0.9928	1.0073	50.1	49.8
	Project alone MID	1.0000	1.0000	0.0002	0.9997	1.0003	0.9999	0.9998	0.0040	0.9917	1.0077	50.6	49.6
	Project alone HIGH	1.0000	1.0000	0.0001	0.9997	1.0003	0.9998	0.9998	0.0039	0.9922	1.0075	50.0	50.1
	In-combination without the Project	0.9990	0.9990	0.0002	0.9987	0.9993	0.9791	0.9790	0.0038	0.9713	0.9865	45.0	54.4
	In-combination with the Project LOW	0.9990	0.9990	0.0002	0.9987	0.9993	0.9788	0.9788	0.0040	0.9711	0.9865	44.9	54.7
	In-combination with the Project MID	0.9990	0.9990	0.0002	0.9987	0.9993	0.9788	0.9788	0.0039	0.9713	0.9866	45.3	54.8
	In-combination with the Project HIGH	0.9990	0.9990	0.0002	0.9987	0.9993	0.9784	0.9785	0.0040	0.9708	0.9866	44.7	54.8
25	Project alone LOW	1.0000	1.0000	0.0001	0.9997	1.0003	0.9998	0.9999	0.0041	0.9922	1.0079	50.3	49.8
	Project alone MID	1.0000	1.0000	0.0001	0.9997	1.0002	0.9999	0.9997	0.0042	0.9908	1.0075	49.6	50.3
	Project alone HIGH	1.0000	1.0000	0.0001	0.9997	1.0002	0.9997	0.9997	0.0042	0.9917	1.0080	49.9	50.1

YEAR	SCENARIO	CGR					CPS					QUANTILES	
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI	U=50%I	I=50%U
	In-combination without the Project	0.9990	0.9990	0.0001	0.9987	0.9992	0.9743	0.9742	0.0040	0.9660	0.9821	45.4	56.4
	In-combination with the Project LOW	0.9990	0.9990	0.0001	0.9987	0.9993	0.9741	0.9739	0.0042	0.9659	0.9820	45.5	56.6
	In-combination with the Project MID	0.9990	0.9990	0.0001	0.9987	0.9992	0.9740	0.9739	0.0041	0.9663	0.9819	45.5	56.5
	In-combination with the Project HIGH	0.9990	0.9990	0.0001	0.9987	0.9992	0.9735	0.9736	0.0042	0.9654	0.9820	45.3	56.3
30	Project alone LOW	1.0000	1.0000	0.0001	0.9998	1.0002	1.0000	0.9999	0.0044	0.9916	1.0083	50.6	49.7
	Project alone MID	1.0000	1.0000	0.0001	0.9997	1.0002	0.9999	0.9997	0.0045	0.9904	1.0086	50.7	49.3
	Project alone HIGH	1.0000	1.0000	0.0001	0.9998	1.0002	0.9996	0.9996	0.0044	0.9910	1.0084	50.2	49.6
	In-combination without the Project	0.9990	0.9990	0.0001	0.9988	0.9992	0.9695	0.9695	0.0042	0.9607	0.9778	44.0	56.5
	In-combination with the Project LOW	0.9990	0.9990	0.0001	0.9987	0.9992	0.9692	0.9692	0.0044	0.9606	0.9777	44.0	56.7
	In-combination with the Project MID	0.9990	0.9990	0.0001	0.9987	0.9992	0.9693	0.9692	0.0043	0.9611	0.9773	44.5	56.9
	In-combination with the Project HIGH	0.9990	0.9990	0.0001	0.9987	0.9992	0.9688	0.9688	0.0043	0.9602	0.9778	44.2	57.2
35	Project alone LOW	1.0000	1.0000	0.0001	0.9998	1.0002	0.9997	0.9998	0.0045	0.9911	1.0086	50.2	49.9
	Project alone MID	1.0000	1.0000	0.0001	0.9998	1.0002	0.9999	0.9997	0.0046	0.9900	1.0088	50.2	49.8
	Project alone HIGH	1.0000	1.0000	0.0001	0.9998	1.0002	0.9994	0.9996	0.0046	0.9908	1.0093	49.8	50.0
	In-combination without the Project	0.9990	0.9990	0.0001	0.9988	0.9992	0.9649	0.9649	0.0044	0.9561	0.9735	43.5	56.6
	In-combination with the Project LOW	0.9990	0.9990	0.0001	0.9988	0.9992	0.9644	0.9645	0.0046	0.9556	0.9735	43.4	56.5
	In-combination with the Project MID	0.9990	0.9990	0.0001	0.9988	0.9992	0.9645	0.9645	0.0045	0.9560	0.9730	42.9	56.8
	In-combination with the Project HIGH	0.9990	0.9990	0.0001	0.9988	0.9992	0.9639	0.9640	0.0045	0.9549	0.9730	43.3	56.8

D.4.2.5 Handa SPA

D.4.2.5.1 Razorbill

Table D4-9 PVA metrics from 10 to 35 years for razorbill from the Handa SPA. (SD = standard deviation, LCI = lower confidence interval, UCI = upper confidence interval, U=50%I = the quantile from the unimpacted population that matched the 50% quantile for the impacted population, I=50%U = the quantile from the impacted population that match the 50% quantile for the unimpacted population)

YEAR	SCENARIO	CGR					CPS					QUANTILES	
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI	U=50%I	I=50%U
10	Project alone LOW	0.9999	1.0000	0.0017	0.9967	1.0031	0.9997	0.9997	0.0213	0.9567	1.0407	49.5	50.2
	Project alone MID	0.9999	0.9999	0.0017	0.9967	1.0032	0.9992	0.9992	0.0214	0.9586	1.0433	49.7	50.2
	Project alone HIGH	1.0000	1.0000	0.0017	0.9966	1.0034	0.9992	0.9997	0.0220	0.9571	1.0441	50.1	49.8
	In-combination without the Project	0.9998	0.9998	0.0018	0.9962	1.0032	0.9974	0.9975	0.0225	0.9520	1.0432	49.5	50.1
	In-combination with the Project LOW	0.9997	0.9997	0.0018	0.9963	1.0030	0.9973	0.9974	0.0225	0.9524	1.0416	49.5	50.6
	In-combination with the Project MID	0.9997	0.9997	0.0017	0.9964	1.0030	0.9958	0.9971	0.0215	0.9556	1.0401	49.0	50.9
	In-combination with the Project HIGH	0.9996	0.9997	0.0017	0.9965	1.0032	0.9956	0.9965	0.0224	0.9546	1.0402	48.5	51.1
15	Project alone LOW	1.0001	1.0000	0.0014	0.9971	1.0027	1.0002	1.0000	0.0257	0.9497	1.0524	49.4	50.5
	Project alone MID	0.9999	0.9999	0.0014	0.9970	1.0026	0.9974	0.9990	0.0251	0.9526	1.0491	49.4	50.2
	Project alone HIGH	0.9999	1.0000	0.0015	0.9970	1.0030	0.9987	0.9996	0.0263	0.9491	1.0536	49.4	50.5
	In-combination without the Project	0.9998	0.9998	0.0015	0.9967	1.0026	0.9962	0.9965	0.0267	0.9455	1.0513	48.8	51.2
	In-combination with the Project LOW	0.9998	0.9998	0.0015	0.9966	1.0028	0.9959	0.9967	0.0268	0.9442	1.0493	48.8	51.4

YEAR	SCENARIO	CGR					CPS					QUANTILES	
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI	U=50%I	I=50%U
	In-combination with the Project MID	0.9997	0.9997	0.0015	0.9967	1.0027	0.9952	0.9960	0.0261	0.9473	1.0495	48.8	51.6
	In-combination with the Project HIGH	0.9997	0.9997	0.0015	0.9969	1.0026	0.9948	0.9954	0.0267	0.9446	1.0515	48.7	51.4
20	Project alone LOW	1.0000	1.0000	0.0013	0.9974	1.0027	1.0005	1.0003	0.0297	0.9445	1.0609	50.4	49.9
	Project alone MID	0.9999	1.0000	0.0014	0.9975	1.0027	0.9983	0.9998	0.0302	0.9466	1.0612	50.4	49.8
	Project alone HIGH	1.0000	1.0000	0.0014	0.9971	1.0027	0.9987	1.0001	0.0316	0.9359	1.0638	50.9	49.7
	In-combination without the Project	0.9998	0.9998	0.0014	0.9971	1.0026	0.9935	0.9958	0.0315	0.9351	1.0630	49.0	50.3
	In-combination with the Project LOW	0.9997	0.9998	0.0014	0.9970	1.0026	0.9948	0.9955	0.0317	0.9352	1.0574	49.8	50.6
	In-combination with the Project MID	0.9997	0.9997	0.0014	0.9970	1.0025	0.9932	0.9947	0.0304	0.9395	1.0583	49.0	50.6
	In-combination with the Project HIGH	0.9997	0.9997	0.0014	0.9969	1.0025	0.9934	0.9945	0.0314	0.9341	1.0615	49.2	51.0
25	Project alone LOW	1.0000	1.0000	0.0013	0.9975	1.0026	0.9986	0.9997	0.0355	0.9319	1.0712	49.7	50.2
	Project alone MID	1.0000	1.0000	0.0013	0.9977	1.0026	0.9995	1.0004	0.0349	0.9369	1.0785	49.1	50.7
	Project alone HIGH	1.0000	1.0000	0.0013	0.9974	1.0026	0.9987	1.0003	0.0366	0.9344	1.0734	49.7	50.2
	In-combination without the Project	0.9998	0.9998	0.0013	0.9973	1.0022	0.9948	0.9948	0.0352	0.9277	1.0634	48.9	51.2
	In-combination with the Project LOW	0.9997	0.9997	0.0014	0.9970	1.0024	0.9929	0.9941	0.0367	0.9241	1.0679	50.5	49.7
	In-combination with the Project MID	0.9997	0.9997	0.0013	0.9972	1.0022	0.9923	0.9935	0.0346	0.9293	1.0639	49.6	50.9
	In-combination with the Project HIGH	0.9997	0.9997	0.0013	0.9972	1.0022	0.9924	0.9932	0.0351	0.9258	1.0683	49.4	50.5
30	Project alone LOW	1.0000	1.0000	0.0012	0.9976	1.0024	0.9994	1.0004	0.0398	0.9206	1.0760	49.1	51.0
	Project alone MID	1.0000	1.0000	0.0012	0.9977	1.0026	0.9991	1.0005	0.0396	0.9288	1.0859	49.3	50.7

YEAR	SCENARIO	CGR					CPS					QUANTILES	
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI	U=50%I	I=50%U
	Project alone HIGH	1.0000	1.0000	0.0013	0.9975	1.0024	0.9988	0.9996	0.0405	0.9202	1.0803	49.3	50.8
	In-combination without the Project	0.9998	0.9998	0.0012	0.9974	1.0023	0.9928	0.9934	0.0393	0.9165	1.0749	49.3	50.7
	In-combination with the Project LOW	0.9997	0.9997	0.0013	0.9971	1.0022	0.9914	0.9920	0.0415	0.9154	1.0724	47.9	52.0
	In-combination with the Project MID	0.9997	0.9997	0.0012	0.9974	1.0021	0.9912	0.9919	0.0387	0.9203	1.0696	48.2	52.0
	In-combination with the Project HIGH	0.9997	0.9997	0.0012	0.9974	1.0022	0.9908	0.9921	0.0392	0.9217	1.0750	48.8	51.3
35	Project alone LOW	1.0000	1.0000	0.0012	0.9977	1.0024	0.9987	1.0014	0.0448	0.9165	1.0905	49.7	50.3
	Project alone MID	1.0000	1.0000	0.0012	0.9977	1.0024	0.9976	1.0000	0.0439	0.9207	1.0931	49.7	50.2
	Project alone HIGH	1.0000	1.0000	0.0012	0.9975	1.0024	1.0005	1.0010	0.0458	0.9124	1.0939	49.7	50.4
	In-combination without the Project	0.9998	0.9998	0.0012	0.9976	1.0021	0.9925	0.9933	0.0432	0.9056	1.0873	48.6	51.8
	In-combination with the Project LOW	0.9998	0.9997	0.0013	0.9972	1.0022	0.9920	0.9920	0.0463	0.8995	1.0889	48.9	51.3
	In-combination with the Project MID	0.9997	0.9998	0.0012	0.9974	1.0020	0.9893	0.9919	0.0437	0.9123	1.0833	49.0	51.2
	In-combination with the Project HIGH	0.9997	0.9997	0.0012	0.9975	1.0020	0.9903	0.9919	0.0434	0.9126	1.0809	48.9	51.9

D.4.2.6 Hermaness, Saxa Vord and Valla Field SPA

D.4.2.6.1 Kittiwake

Table D4-10 PVA metrics from 10 to 35 years for kittiwake from the Hermaness, Saxa Vord and Valla Field SPA. (SD = standard deviation, LCI = lower confidence interval, UCI = upper confidence interval, U=50%I = the quantile from the unimpacted population that matched the 50% quantile for the impacted population, I=50%U = the quantile from the impacted population that match the 50% quantile for the unimpacted population)

YEAR	SCENARIO	CGR					CPS					QUANTILES	
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI	U=50%I	I=50%U
10	Project alone LOW	0.9998	0.9999	0.0074	0.9856	1.0147	0.9971	1.0021	0.0963	0.8259	1.2028	50.7	49.4
	Project alone MID	0.9999	1.0000	0.0073	0.9860	1.0142	1.0008	1.0054	0.1001	0.8240	1.2173	50.1	50.0
	Project alone HIGH	0.9997	1.0000	0.0074	0.9857	1.0153	0.9986	1.0038	0.0999	0.8258	1.2139	50.5	49.8
	In-combination without the Project	0.9974	0.9973	0.0075	0.9829	1.0115	0.9751	0.9752	0.0996	0.7828	1.1710	46.2	52.8
	In-combination with the Project LOW	0.9978	0.9976	0.0072	0.9840	1.0118	0.9761	0.9782	0.0959	0.7878	1.1717	46.2	52.3
	In-combination with the Project MID	0.9976	0.9976	0.0075	0.9830	1.0129	0.9795	0.9801	0.0995	0.7956	1.1905	46.8	52.5
	In-combination with the Project HIGH	0.9977	0.9977	0.0069	0.9844	1.0113	0.9763	0.9797	0.0960	0.7979	1.1743	46.2	53.4
15	Project alone LOW	0.9999	1.0000	0.0059	0.9887	1.0121	0.9963	1.0045	0.1106	0.8153	1.2348	50.5	49.8
	Project alone MID	0.9999	1.0000	0.0060	0.9886	1.0123	1.0000	1.0064	0.1136	0.7951	1.2402	49.0	51.5
	Project alone HIGH	0.9997	0.9999	0.0063	0.9883	1.0123	0.9972	1.0046	0.1157	0.8051	1.2451	49.9	50.1
	In-combination without the Project	0.9972	0.9974	0.0062	0.9849	1.0095	0.9594	0.9643	0.1130	0.7676	1.2057	45.5	55.1
	In-combination with the Project LOW	0.9978	0.9977	0.0060	0.9859	1.0094	0.9680	0.9694	0.1100	0.7676	1.1962	46.1	53.4

YEAR	SCENARIO	CGR					CPS					QUANTILES	
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI	U=50%I	I=50%U
	In-combination with the Project MID	0.9979	0.9977	0.0062	0.9854	1.0104	0.9647	0.9716	0.1129	0.7711	1.2206	45.9	53.7
	In-combination with the Project HIGH	0.9977	0.9975	0.0060	0.9848	1.0091	0.9629	0.9676	0.1103	0.7585	1.1970	46.4	54.3
20	Project alone LOW	0.9998	0.9999	0.0054	0.9896	1.0104	0.9933	1.0050	0.1292	0.7813	1.2809	49.1	51.1
	Project alone MID	0.9995	0.9998	0.0053	0.9895	1.0105	0.9943	1.0034	0.1280	0.7742	1.2730	48.2	52.0
	Project alone HIGH	0.9996	0.9998	0.0056	0.9892	1.0110	0.9981	1.0036	0.1304	0.7680	1.2827	49.1	50.9
	In-combination without the Project	0.9974	0.9975	0.0054	0.9864	1.0086	0.9486	0.9554	0.1259	0.7327	1.2379	45.5	55.2
	In-combination with the Project LOW	0.9977	0.9977	0.0054	0.9867	1.0079	0.9532	0.9595	0.1241	0.7292	1.2229	44.8	55.5
	In-combination with the Project MID	0.9977	0.9976	0.0056	0.9861	1.0089	0.9514	0.9605	0.1276	0.7288	1.2275	44.0	56.5
	In-combination with the Project HIGH	0.9976	0.9975	0.0052	0.9866	1.0073	0.9530	0.9566	0.1204	0.7410	1.2074	45.0	55.9
25	Project alone LOW	0.9998	1.0000	0.0050	0.9903	1.0100	0.9944	1.0087	0.1449	0.7529	1.3217	49.9	50.3
	Project alone MID	0.9998	0.9999	0.0049	0.9901	1.0102	0.9985	1.0088	0.1445	0.7577	1.3403	50.3	49.9
	Project alone HIGH	0.9998	0.9999	0.0050	0.9902	1.0099	0.9960	1.0054	0.1454	0.7474	1.3197	50.1	50.0
	In-combination without the Project	0.9975	0.9975	0.0050	0.9874	1.0074	0.9345	0.9460	0.1398	0.6890	1.2528	45.0	55.5
	In-combination with the Project LOW	0.9977	0.9977	0.0050	0.9883	1.0076	0.9396	0.9514	0.1382	0.6937	1.2539	45.3	55.5
	In-combination with the Project MID	0.9978	0.9977	0.0051	0.9874	1.0082	0.9420	0.9528	0.1402	0.7058	1.2432	45.3	54.6
	In-combination with the Project HIGH	0.9977	0.9975	0.0047	0.9881	1.0066	0.9359	0.9466	0.1305	0.6985	1.2259	44.7	55.4
30	Project alone LOW	1.0000	1.0000	0.0046	0.9914	1.0090	0.9935	1.0109	0.1569	0.7314	1.3823	48.1	51.6
	Project alone MID	0.9999	1.0000	0.0046	0.9912	1.0099	0.9967	1.0120	0.1595	0.7294	1.3894	49.6	50.9

YEAR	SCENARIO	CGR					CPS					QUANTILES	
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI	U=50%I	I=50%U
	Project alone HIGH	0.9999	0.9999	0.0046	0.9911	1.0093	1.0000	1.0068	0.1556	0.7459	1.3577	49.2	51.3
	In-combination without the Project	0.9977	0.9975	0.0046	0.9885	1.0062	0.9279	0.9368	0.1513	0.6729	1.2718	44.0	56.2
	In-combination with the Project LOW	0.9977	0.9978	0.0048	0.9877	1.0077	0.9340	0.9443	0.1556	0.6590	1.2814	46.1	55.6
	In-combination with the Project MID	0.9978	0.9978	0.0046	0.9884	1.0075	0.9377	0.9451	0.1489	0.6880	1.2761	44.4	56.2
	In-combination with the Project HIGH	0.9976	0.9975	0.0043	0.9881	1.0061	0.9293	0.9360	0.1397	0.6865	1.2564	43.8	56.0
35	Project alone LOW	0.9999	1.0000	0.0042	0.9918	1.0084	1.0000	1.0108	0.1639	0.7241	1.3683	49.1	51.0
	Project alone MID	0.9998	0.9999	0.0042	0.9916	1.0083	0.9930	1.0099	0.1692	0.7334	1.3854	49.7	50.7
	Project alone HIGH	0.9997	0.9999	0.0042	0.9919	1.0082	0.9975	1.0083	0.1645	0.7240	1.3963	49.7	50.2
	In-combination without the Project	0.9975	0.9975	0.0042	0.9894	1.0057	0.9101	0.9242	0.1545	0.6488	1.2575	45.1	55.7
	In-combination with the Project LOW	0.9977	0.9977	0.0044	0.9892	1.0061	0.9217	0.9327	0.1593	0.6481	1.2858	44.8	54.4
	In-combination with the Project MID	0.9977	0.9978	0.0043	0.9894	1.0063	0.9245	0.9377	0.1579	0.6611	1.2610	45.8	55.6
	In-combination with the Project HIGH	0.9976	0.9975	0.0040	0.9888	1.0053	0.9194	0.9246	0.1458	0.6546	1.2170	43.3	56.8

D.4.2.6.2 Gannet

Table D4-11 PVA metrics from 10 to 35 years for gannet from the Hermaness, Saxa Vord and Valla Field SPA. (SD = standard deviation, LCI = lower confidence interval, UCI = upper confidence interval, U=50%I = the quantile from the unimpacted population that matched the 50% quantile for the impacted population, I=50%U = the quantile from the impacted population that match the 50% quantile for the unimpacted population)

YEAR	SCENARIO	CGR					CPS					QUANTILES	
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI	U=50%I	I=50%U
10	Project alone LOW	1.0000	1.0000	0.0006	0.9989	1.0010	1.0005	1.0001	0.0086	0.9836	1.0174	49.7	50.5
	Project alone MID	1.0000	1.0000	0.0006	0.9989	1.0011	0.9997	0.9996	0.0085	0.9841	1.0176	49.7	50.2
	Project alone HIGH	0.9999	0.9999	0.0006	0.9988	1.0011	0.9993	0.9993	0.0089	0.9816	1.0168	50.1	49.9
	In-combination without the Project	0.9955	0.9955	0.0006	0.9944	0.9966	0.9519	0.9518	0.0084	0.9357	0.9682	38.5	63.0
	In-combination with the Project LOW	0.9955	0.9955	0.0006	0.9944	0.9966	0.9513	0.9517	0.0082	0.9361	0.9683	38.5	63.0
	In-combination with the Project MID	0.9955	0.9955	0.0006	0.9944	0.9966	0.9510	0.9514	0.0083	0.9353	0.9683	38.3	63.2
	In-combination with the Project HIGH	0.9955	0.9955	0.0006	0.9943	0.9966	0.9513	0.9512	0.0083	0.9347	0.9672	38.5	63.2
15	Project alone LOW	1.0000	1.0000	0.0004	0.9991	1.0008	0.9998	0.9998	0.0094	0.9813	1.0180	49.7	50.2
	Project alone MID	1.0000	1.0000	0.0005	0.9990	1.0008	0.9992	0.9994	0.0095	0.9811	1.0185	49.5	50.8
	Project alone HIGH	0.9999	0.9999	0.0004	0.9991	1.0007	0.9983	0.9986	0.0094	0.9809	1.0173	49.4	50.8
	In-combination without the Project	0.9956	0.9956	0.0005	0.9947	0.9965	0.9313	0.9314	0.0090	0.9145	0.9490	36.0	66.8
	In-combination with the Project LOW	0.9956	0.9956	0.0005	0.9947	0.9965	0.9315	0.9315	0.0088	0.9140	0.9486	35.9	66.6
	In-combination with the Project MID	0.9956	0.9956	0.0005	0.9947	0.9964	0.9310	0.9312	0.0088	0.9146	0.9492	36.0	67.0

YEAR	SCENARIO	CGR MEDIAN	CGR MEAN	CGR SD	CGR LCI	CGR UCI	CPS MEDIAN	CPS MEAN	CPS SD	CPS LCI	CPS UCI	QUANTILES U=50%I	QUANTILES I=50%U
	In-combination with the Project HIGH	0.9955	0.9955	0.0004	0.9947	0.9964	0.9304	0.9308	0.0087	0.9141	0.9490	36.0	66.5
20	Project alone LOW	1.0000	1.0000	0.0004	0.9992	1.0007	0.9995	0.9996	0.0103	0.9798	1.0196	50.6	49.5
	Project alone MID	0.9999	1.0000	0.0004	0.9992	1.0007	0.9992	0.9993	0.0102	0.9806	1.0198	49.7	50.1
	Project alone HIGH	0.9999	0.9999	0.0004	0.9991	1.0007	0.9984	0.9984	0.0103	0.9778	1.0170	49.3	50.4
	In-combination without the Project	0.9956	0.9956	0.0004	0.9948	0.9964	0.9119	0.9119	0.0098	0.8938	0.9309	32.3	68.0
	In-combination with the Project LOW	0.9956	0.9956	0.0004	0.9948	0.9964	0.9118	0.9118	0.0095	0.8940	0.9308	32.0	68.0
	In-combination with the Project MID	0.9956	0.9956	0.0004	0.9948	0.9964	0.9117	0.9115	0.0095	0.8939	0.9304	32.6	68.2
	In-combination with the Project HIGH	0.9956	0.9956	0.0004	0.9948	0.9963	0.9109	0.9110	0.0096	0.8914	0.9290	32.1	68.7
25	Project alone LOW	1.0000	1.0000	0.0004	0.9993	1.0006	0.9995	0.9994	0.0110	0.9770	1.0202	49.5	50.2
	Project alone MID	1.0000	1.0000	0.0004	0.9992	1.0006	0.9990	0.9992	0.0109	0.9782	1.0208	49.2	50.6
	Project alone HIGH	0.9999	0.9999	0.0003	0.9992	1.0006	0.9980	0.9982	0.0112	0.9770	1.0202	49.4	50.7
	In-combination without the Project	0.9956	0.9957	0.0004	0.9949	0.9964	0.8928	0.8929	0.0106	0.8724	0.9141	29.9	71.6
	In-combination with the Project LOW	0.9956	0.9956	0.0004	0.9949	0.9963	0.8927	0.8926	0.0100	0.8724	0.9120	30.1	71.8
	In-combination with the Project MID	0.9956	0.9956	0.0004	0.9949	0.9963	0.8921	0.8922	0.0099	0.8728	0.9118	30.1	72.3
	In-combination with the Project HIGH	0.9956	0.9956	0.0004	0.9949	0.9963	0.8917	0.8918	0.0101	0.8721	0.9124	30.0	71.9
30	Project alone LOW	1.0000	1.0000	0.0003	0.9993	1.0006	0.9993	0.9993	0.0117	0.9764	1.0215	49.4	50.3
	Project alone MID	1.0000	1.0000	0.0003	0.9993	1.0006	0.9990	0.9992	0.0117	0.9769	1.0225	49.6	50.1
	Project alone HIGH	0.9999	0.9999	0.0003	0.9993	1.0005	0.9980	0.9980	0.0118	0.9748	1.0211	49.5	50.5

YEAR	SCENARIO	CGR					CPS					QUANTILES	
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI	U=50%I	I=50%U
	In-combination without the Project	0.9957	0.9957	0.0003	0.9950	0.9963	0.8741	0.8742	0.0110	0.8522	0.8966	28.1	73.1
	In-combination with the Project LOW	0.9957	0.9957	0.0003	0.9950	0.9963	0.8741	0.8738	0.0104	0.8530	0.8946	28.6	73.2
	In-combination with the Project MID	0.9957	0.9956	0.0003	0.9950	0.9962	0.8737	0.8735	0.0103	0.8530	0.8938	28.5	73.4
	In-combination with the Project HIGH	0.9956	0.9956	0.0003	0.9950	0.9963	0.8728	0.8728	0.0105	0.8529	0.8939	28.5	74.3
35	Project alone LOW	1.0000	1.0000	0.0003	0.9994	1.0005	0.9987	0.9989	0.0122	0.9750	1.0218	49.9	50.1
	Project alone MID	1.0000	1.0000	0.0003	0.9994	1.0006	0.9989	0.9989	0.0124	0.9759	1.0234	49.5	50.6
	Project alone HIGH	0.9999	0.9999	0.0003	0.9993	1.0005	0.9975	0.9975	0.0127	0.9732	1.0213	49.1	50.5
	In-combination without the Project	0.9957	0.9957	0.0003	0.9951	0.9963	0.8557	0.8558	0.0113	0.8337	0.8779	25.5	73.8
	In-combination with the Project LOW	0.9957	0.9957	0.0003	0.9951	0.9963	0.8554	0.8552	0.0107	0.8329	0.8772	24.4	73.7
	In-combination with the Project MID	0.9957	0.9957	0.0003	0.9951	0.9962	0.8551	0.8549	0.0105	0.8341	0.8759	25.0	74.1
	In-combination with the Project HIGH	0.9956	0.9956	0.0003	0.9951	0.9962	0.8543	0.8542	0.0107	0.8332	0.8752	25.1	73.9

D.4.2.7 Hoy SPA

D.4.2.7.1 Kittiwake

Table D4-12 PVA metrics from 10 to 35 years for kittiwake from the Hoy SPA. (SD = standard deviation, LCI = lower confidence interval, UCI = upper confidence interval, U=50%I = the quantile from the unimpacted population that matched the 50% quantile for the impacted population, I=50%U = the quantile from the impacted population that match the 50% quantile for the unimpacted population).

YEAR	SCENARIO	CGR					CPS					QUANTILES	
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI	U=50%I	I=50%U
10	Project alone LOW	1.0001	0.9999	0.0072	0.9859	1.0131	1.0000	0.9990	0.0956	0.8177	1.2007	48.1	50.9
	Project alone MID	0.9995	0.9995	0.0069	0.9860	1.0128	0.9881	0.9947	0.0939	0.8109	1.1896	48.3	51.5
	Project alone HIGH	0.9996	0.9998	0.0068	0.9871	1.0133	0.9945	0.9981	0.0895	0.8379	1.1735	49.5	50.8
	In-combination without the Project	0.9971	0.9972	0.0067	0.9847	1.0103	0.9646	0.9697	0.0892	0.8188	1.1544	45.7	53.9
	In-combination with the Project LOW	0.9964	0.9968	0.0069	0.9845	1.0116	0.9587	0.9652	0.0937	0.7853	1.1600	46.5	52.9
	In-combination with the Project MID	0.9968	0.9969	0.0071	0.9827	1.0107	0.9650	0.9678	0.0920	0.7990	1.1565	45.4	54.6
	In-combination with the Project HIGH	0.9969	0.9969	0.0069	0.9834	1.0105	0.9620	0.9661	0.0902	0.7993	1.1571	44.9	54.5
15	Project alone LOW	0.9999	0.9999	0.0061	0.9881	1.0124	0.9992	1.0002	0.1124	0.8018	1.2236	50.9	49.7
	Project alone MID	0.9997	0.9997	0.0059	0.9870	1.0113	0.9957	0.9965	0.1095	0.7813	1.2222	51.0	49.4
	Project alone HIGH	0.9999	0.9998	0.0058	0.9889	1.0117	0.9908	0.9981	0.1060	0.8129	1.2289	50.6	49.9
	In-combination without the Project	0.9973	0.9973	0.0057	0.9861	1.0084	0.9529	0.9583	0.1028	0.7715	1.1679	46.0	53.8
	In-combination with the Project LOW	0.9969	0.9968	0.0057	0.9857	1.0085	0.9457	0.9521	0.1045	0.7644	1.1717	46.3	53.2

YEAR	SCENARIO	CGR					CPS					QUANTILES	
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI	U=50%I	I=50%U
	In-combination with the Project MID	0.9969	0.9969	0.0059	0.9849	1.0077	0.9498	0.9541	0.1032	0.7604	1.1548	44.8	54.7
	In-combination with the Project HIGH	0.9969	0.9969	0.0056	0.9853	1.0077	0.9487	0.9526	0.0999	0.7673	1.1526	45.2	54.4
20	Project alone LOW	0.9999	0.9998	0.0051	0.9903	1.0098	0.9979	0.9999	0.1220	0.7854	1.2501	49.6	51.2
	Project alone MID	0.9996	0.9996	0.0051	0.9898	1.0101	0.9916	0.9958	0.1192	0.7766	1.2567	48.7	51.8
	Project alone HIGH	0.9997	0.9997	0.0050	0.9902	1.0092	0.9920	0.9959	0.1167	0.7967	1.2332	48.7	51.6
	In-combination without the Project	0.9974	0.9973	0.0050	0.9868	1.0071	0.9425	0.9473	0.1121	0.7473	1.1725	44.9	56.1
	In-combination with the Project LOW	0.9968	0.9969	0.0051	0.9869	1.0075	0.9307	0.9399	0.1161	0.7269	1.1833	46.4	55.1
	In-combination with the Project MID	0.9970	0.9969	0.0051	0.9862	1.0065	0.9389	0.9404	0.1130	0.7278	1.1779	43.9	57.0
	In-combination with the Project HIGH	0.9971	0.9969	0.0048	0.9866	1.0063	0.9362	0.9379	0.1075	0.7355	1.1543	44.8	54.9
25	Project alone LOW	0.9999	0.9999	0.0045	0.9907	1.0088	0.9982	1.0014	0.1309	0.7713	1.2739	48.6	51.5
	Project alone MID	0.9998	0.9997	0.0046	0.9901	1.0087	0.9925	0.9960	0.1323	0.7545	1.2778	48.9	51.7
	Project alone HIGH	0.9997	0.9996	0.0046	0.9902	1.0087	0.9900	0.9953	0.1300	0.7622	1.2784	48.9	51.0
	In-combination without the Project	0.9974	0.9973	0.0045	0.9877	1.0058	0.9287	0.9371	0.1220	0.7191	1.1929	42.8	57.5
	In-combination with the Project LOW	0.9972	0.9969	0.0045	0.9878	1.0061	0.9240	0.9275	0.1235	0.6962	1.1985	43.8	56.7
	In-combination with the Project MID	0.9969	0.9969	0.0045	0.9883	1.0059	0.9178	0.9272	0.1195	0.7200	1.1740	41.2	57.1
	In-combination with the Project HIGH	0.9970	0.9969	0.0044	0.9879	1.0052	0.9222	0.9255	0.1164	0.7147	1.1618	42.6	57.3
30	Project alone LOW	0.9999	0.9998	0.0042	0.9914	1.0080	0.9944	0.9998	0.1429	0.7555	1.3153	50.2	49.9
	Project alone MID	0.9997	0.9997	0.0043	0.9909	1.0079	0.9882	0.9960	0.1440	0.7403	1.2938	48.8	51.3

YEAR	SCENARIO	CGR					CPS					QUANTILES	
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI	U=50%I	I=50%U
	Project alone HIGH	0.9997	0.9996	0.0042	0.9913	1.0079	0.9904	0.9945	0.1435	0.7379	1.3049	49.1	50.8
	In-combination without the Project	0.9974	0.9972	0.0043	0.9884	1.0054	0.9153	0.9231	0.1356	0.6810	1.2114	43.3	56.0
	In-combination with the Project LOW	0.9969	0.9969	0.0043	0.9881	1.0054	0.9036	0.9135	0.1337	0.6730	1.1913	44.6	54.9
	In-combination with the Project MID	0.9968	0.9969	0.0042	0.9884	1.0054	0.9064	0.9142	0.1304	0.7019	1.1755	43.6	56.0
	In-combination with the Project HIGH	0.9969	0.9970	0.0041	0.9891	1.0048	0.9114	0.9141	0.1256	0.6883	1.1636	43.3	55.2
35	Project alone LOW	0.9998	0.9998	0.0040	0.9916	1.0074	0.9918	0.9989	0.1542	0.7398	1.3054	49.1	50.6
	Project alone MID	0.9996	0.9996	0.0039	0.9916	1.0069	0.9899	0.9949	0.1518	0.7280	1.3161	48.9	51.9
	Project alone HIGH	0.9996	0.9996	0.0039	0.9920	1.0074	0.9814	0.9921	0.1520	0.7339	1.3315	47.8	52.3
	In-combination without the Project	0.9973	0.9972	0.0040	0.9891	1.0048	0.8996	0.9120	0.1433	0.6618	1.2125	43.0	57.3
	In-combination with the Project LOW	0.9970	0.9969	0.0040	0.9888	1.0049	0.8937	0.9015	0.1407	0.6452	1.2087	42.7	56.4
	In-combination with the Project MID	0.9971	0.9969	0.0040	0.9885	1.0047	0.8897	0.9024	0.1383	0.6440	1.1833	42.7	57.8
	In-combination with the Project HIGH	0.9969	0.9969	0.0039	0.9891	1.0046	0.8902	0.9006	0.1339	0.6625	1.1848	43.1	57.0

D.4.2.7.2 Great skua

Table D4-13 PVA metrics from 10 to 35 years for great skua from the Hoy SPA. (SD = standard deviation, LCI = lower confidence interval, UCI = upper confidence interval, U=50%I = the quantile from the unimpacted population that matched the 50% quantile for the impacted population, I=50%U = the quantile from the impacted population that match the 50% quantile for the unimpacted population)

YEAR	SCENARIO	CGR					CPS					QUANTILES	
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI	U=50%I	I=50%U
10	Project alone	0.9999	0.9998	0.0035	0.9928	1.0067	0.9970	0.9983	0.0439	0.9160	1.0920	49.4	50.3
15	Project alone	0.9998	0.9997	0.0028	0.9946	1.0049	0.9949	0.9965	0.0484	0.9126	1.1063	50.8	48.8
20	Project alone	0.9996	0.9996	0.0022	0.9953	1.0040	0.9910	0.9932	0.0504	0.8976	1.0996	48.6	51.5
25	Project alone	0.9996	0.9996	0.0019	0.9957	1.0032	0.9898	0.9913	0.0525	0.8958	1.1063	47.5	52.4
30	Project alone	0.9996	0.9996	0.0016	0.9967	1.0027	0.9897	0.9898	0.0539	0.8925	1.1045	48.5	51.9
35	Project alone	0.9996	0.9996	0.0014	0.9968	1.0024	0.9859	0.9874	0.0553	0.8855	1.1042	47.3	52.0

D.4.2.8 Marwick Head SPA

D.4.2.8.1 Kittiwake

Table D4-14 PVA metrics from 10 to 35 years for kittiwake from the Marwick Head SPA. (SD = standard deviation, LCI = lower confidence interval, UCI = upper confidence interval, U=50%I = the quantile from the unimpacted population that matched the 50% quantile for the impacted population, I=50%U = the quantile from the impacted population that match the 50% quantile for the unimpacted population)

YEAR	SCENARIO	CGR					CPS					QUANTILES	
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI	U=50%I	I=50%U
10	Project alone LOW	0.9996	0.9996	0.0040	0.9918	1.0071	0.9943	0.9962	0.0528	0.8976	1.0986	50.3	49.7
	Project alone MID	0.9996	0.9997	0.0041	0.9920	1.0075	0.9934	0.9977	0.0532	0.9009	1.1048	50.4	49.1
	Project alone HIGH	0.9998	0.9997	0.0039	0.9925	1.0072	0.9954	0.9977	0.0549	0.8945	1.1118	49.8	50.2
	In-combination without the Project	0.9987	0.9987	0.0039	0.9908	1.0063	0.9882	0.9868	0.0514	0.8864	1.0891	48.8	51.6
	In-combination with the Project LOW	0.9987	0.9985	0.0040	0.9904	1.0062	0.9863	0.9844	0.0528	0.8787	1.0866	47.6	52.2
	In-combination with the Project MID	0.9986	0.9986	0.0039	0.9911	1.0066	0.9848	0.9865	0.0539	0.8841	1.1007	49.1	50.9
	In-combination with the Project HIGH	0.9987	0.9987	0.0038	0.9910	1.0060	0.9861	0.9853	0.0505	0.8899	1.0876	47.8	51.9
15	Project alone LOW	0.9999	0.9998	0.0032	0.9931	1.0060	0.9974	0.9990	0.0591	0.8827	1.1231	50.5	49.9
	Project alone MID	0.9996	0.9997	0.0034	0.9933	1.0067	0.9940	0.9973	0.0611	0.8909	1.1256	49.8	50.1
	Project alone HIGH	0.9998	0.9999	0.0032	0.9935	1.0064	0.9955	0.9993	0.0611	0.8823	1.1305	49.1	50.7
	In-combination without the Project	0.9989	0.9988	0.0033	0.9920	1.0052	0.9837	0.9829	0.0586	0.8741	1.0978	47.8	52.7
	In-combination with the Project LOW	0.9988	0.9987	0.0033	0.9924	1.0051	0.9779	0.9810	0.0602	0.8646	1.1009	49.0	51.6

YEAR	SCENARIO	CGR					CPS					QUANTILES	
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI	U=50%I	I=50%U
	In-combination with the Project MID	0.9988	0.9988	0.0033	0.9925	1.0059	0.9795	0.9832	0.0610	0.8690	1.1096	49.0	52.3
	In-combination with the Project HIGH	0.9988	0.9988	0.0032	0.9927	1.0050	0.9785	0.9807	0.0569	0.8755	1.0984	47.8	52.1
20	Project alone LOW	0.9999	0.9999	0.0028	0.9941	1.0054	1.0014	1.0000	0.0659	0.8690	1.1312	51.1	49.5
	Project alone MID	0.9996	0.9997	0.0029	0.9938	1.0057	0.9956	0.9968	0.0674	0.8748	1.1298	49.5	51.1
	Project alone HIGH	0.9998	0.9998	0.0028	0.9945	1.0053	0.9975	0.9985	0.0678	0.8675	1.1300	49.6	50.3
	In-combination without the Project	0.9990	0.9989	0.0029	0.9929	1.0039	0.9791	0.9789	0.0654	0.8546	1.1025	47.7	52.6
	In-combination with the Project LOW	0.9987	0.9987	0.0029	0.9932	1.0045	0.9733	0.9752	0.0660	0.8467	1.1088	48.0	53.3
	In-combination with the Project MID	0.9989	0.9988	0.0029	0.9935	1.0045	0.9753	0.9785	0.0666	0.8552	1.1078	48.2	52.7
	In-combination with the Project HIGH	0.9987	0.9988	0.0027	0.9937	1.0042	0.9745	0.9761	0.0627	0.8610	1.1049	47.9	53.0
25	Project alone LOW	0.9999	0.9999	0.0026	0.9947	1.0046	0.9998	0.9994	0.0728	0.8553	1.1426	49.8	50.4
	Project alone MID	0.9996	0.9998	0.0026	0.9948	1.0052	0.9923	0.9966	0.0733	0.8634	1.1420	50.1	49.8
	Project alone HIGH	0.9999	0.9999	0.0026	0.9947	1.0049	0.9964	0.9985	0.0740	0.8509	1.1508	50.2	49.9
	In-combination without the Project	0.9990	0.9989	0.0026	0.9936	1.0037	0.9764	0.9741	0.0711	0.8422	1.1066	47.6	52.7
	In-combination with the Project LOW	0.9987	0.9987	0.0026	0.9934	1.0042	0.9700	0.9696	0.0725	0.8297	1.1229	47.8	52.0
	In-combination with the Project MID	0.9989	0.9989	0.0026	0.9940	1.0041	0.9711	0.9742	0.0720	0.8424	1.1208	47.8	51.8
	In-combination with the Project HIGH	0.9987	0.9988	0.0025	0.9940	1.0040	0.9664	0.9709	0.0691	0.8422	1.1199	47.8	52.6
30	Project alone LOW	0.9999	0.9999	0.0024	0.9949	1.0044	1.0000	0.9995	0.0788	0.8513	1.1453	49.7	50.4
	Project alone MID	0.9997	0.9998	0.0024	0.9953	1.0048	0.9944	0.9978	0.0800	0.8512	1.1591	49.2	50.7

YEAR	SCENARIO	CGR					CPS					QUANTILES	
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI	U=50%I	I=50%U
	Project alone HIGH	0.9999	0.9999	0.0023	0.9953	1.0043	0.9990	0.9990	0.0793	0.8412	1.1661	49.2	50.7
	In-combination without the Project	0.9990	0.9989	0.0024	0.9940	1.0035	0.9683	0.9704	0.0775	0.8173	1.1229	48.2	51.9
	In-combination with the Project LOW	0.9988	0.9988	0.0024	0.9940	1.0036	0.9609	0.9647	0.0781	0.8171	1.1298	46.2	53.4
	In-combination with the Project MID	0.9989	0.9989	0.0023	0.9941	1.0033	0.9653	0.9683	0.0759	0.8241	1.1318	47.1	53.3
	In-combination with the Project HIGH	0.9988	0.9988	0.0024	0.9942	1.0036	0.9628	0.9663	0.0758	0.8209	1.1312	47.7	53.4
35	Project alone LOW	0.9999	0.9999	0.0022	0.9953	1.0042	0.9987	0.9997	0.0842	0.8340	1.1683	48.9	51.0
	Project alone MID	0.9998	0.9999	0.0022	0.9952	1.0045	0.9974	0.9982	0.0846	0.8408	1.1803	49.1	51.1
	Project alone HIGH	0.9999	0.9999	0.0022	0.9955	1.0040	0.9982	0.9994	0.0847	0.8370	1.1679	48.9	50.6
	In-combination without the Project	0.9990	0.9990	0.0022	0.9941	1.0032	0.9667	0.9674	0.0818	0.8003	1.1266	47.3	53.3
	In-combination with the Project LOW	0.9988	0.9988	0.0023	0.9940	1.0031	0.9618	0.9598	0.0841	0.7986	1.1170	46.0	54.3
	In-combination with the Project MID	0.9990	0.9989	0.0022	0.9946	1.0030	0.9648	0.9652	0.0817	0.8137	1.1403	46.8	54.5
	In-combination with the Project HIGH	0.9988	0.9988	0.0022	0.9946	1.0035	0.9593	0.9611	0.0795	0.8122	1.1407	46.5	53.8

D.4.2.9 North Caithness Cliffs SPA

D.4.2.9.1 Kittiwake

Table D4-15 PVA metrics from 10 to 35 years for kittiwake from the North Caithness Cliffs SPA. (SD = standard deviation, LCI = lower confidence interval, UCI = upper confidence interval, U=50%I = the quantile from the unimpacted population that matched the 50% quantile for the impacted population, I=50%U = the quantile from the impacted population that match the 50% quantile for the unimpacted population)

YEAR	SCENARIO	CGR					CPS					QUANTILES	
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI	U=50%I	I=50%U
10	Project alone LOW	0.9997	0.9997	0.0016	0.9966	1.0031	0.9964	0.9972	0.0223	0.9573	1.0411	49.8	50.5
	Project alone MID	0.9997	0.9997	0.0016	0.9966	1.0030	0.9970	0.9976	0.0231	0.9541	1.0437	49.0	51.2
	Project alone HIGH	0.9996	0.9997	0.0017	0.9963	1.0030	0.9978	0.9974	0.0226	0.9520	1.0426	49.2	51.5
	In-combination without the Project	0.9955	0.9956	0.0016	0.9924	0.9987	0.9529	0.9531	0.0214	0.9139	0.9943	44.8	56.8
	In-combination with the Project LOW	0.9953	0.9953	0.0017	0.9919	0.9989	0.9496	0.9498	0.0226	0.9073	0.9963	44.3	57.5
	In-combination with the Project MID	0.9954	0.9953	0.0017	0.9919	0.9985	0.9516	0.9505	0.0214	0.9081	0.9901	44.8	56.8
	In-combination with the Project HIGH	0.9952	0.9952	0.0017	0.9917	0.9986	0.9504	0.9496	0.0219	0.9073	0.9924	45.3	57.6
15	Project alone LOW	0.9997	0.9997	0.0014	0.9969	1.0023	0.9956	0.9958	0.0259	0.9454	1.0467	49.7	50.6
	Project alone MID	0.9997	0.9997	0.0014	0.9970	1.0022	0.9956	0.9956	0.0259	0.9463	1.0460	49.6	50.3
	Project alone HIGH	0.9996	0.9996	0.0014	0.9968	1.0022	0.9947	0.9951	0.0254	0.9446	1.0440	50.3	49.7
	In-combination without the Project	0.9956	0.9956	0.0014	0.9930	0.9982	0.9327	0.9326	0.0238	0.8885	0.9783	43.4	56.6
	In-combination with the Project LOW	0.9954	0.9953	0.0014	0.9928	0.9982	0.9279	0.9283	0.0245	0.8812	0.9775	43.4	56.7

YEAR	SCENARIO	CGR					CPS					QUANTILES	
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI	U=50%I	I=50%U
	In-combination with the Project MID	0.9953	0.9953	0.0014	0.9922	0.9979	0.9289	0.9287	0.0244	0.8800	0.9751	43.2	57.2
	In-combination with the Project HIGH	0.9953	0.9953	0.0014	0.9925	0.9981	0.9280	0.9281	0.0238	0.8825	0.9752	42.8	56.9
20	Project alone LOW	0.9997	0.9997	0.0012	0.9973	1.0019	0.9928	0.9940	0.0282	0.9401	1.0515	48.6	50.8
	Project alone MID	0.9997	0.9997	0.0011	0.9974	1.0020	0.9937	0.9943	0.0278	0.9443	1.0518	48.9	50.8
	Project alone HIGH	0.9996	0.9996	0.0012	0.9972	1.0020	0.9931	0.9931	0.0278	0.9348	1.0490	48.8	51.3
	In-combination without the Project	0.9957	0.9957	0.0012	0.9933	0.9979	0.9131	0.9133	0.0258	0.8621	0.9658	40.9	57.5
	In-combination with the Project LOW	0.9953	0.9953	0.0012	0.9929	0.9977	0.9069	0.9071	0.0261	0.8567	0.9574	40.7	58.1
	In-combination with the Project MID	0.9954	0.9954	0.0012	0.9928	0.9976	0.9083	0.9081	0.0259	0.8559	0.9576	40.5	58.2
	In-combination with the Project HIGH	0.9953	0.9953	0.0012	0.9929	0.9978	0.9077	0.9075	0.0265	0.8574	0.9602	40.2	58.4
25	Project alone LOW	0.9998	0.9997	0.0011	0.9975	1.0018	0.9931	0.9932	0.0306	0.9345	1.0537	50.0	50.0
	Project alone MID	0.9997	0.9997	0.0010	0.9976	1.0017	0.9918	0.9924	0.0304	0.9337	1.0547	49.8	50.2
	Project alone HIGH	0.9996	0.9996	0.0011	0.9974	1.0017	0.9913	0.9915	0.0306	0.9321	1.0528	49.8	50.3
	In-combination without the Project	0.9957	0.9957	0.0011	0.9936	0.9978	0.8954	0.8947	0.0281	0.8421	0.9510	42.1	57.2
	In-combination with the Project LOW	0.9954	0.9954	0.0011	0.9932	0.9974	0.8881	0.8871	0.0282	0.8318	0.9420	41.0	58.8
	In-combination with the Project MID	0.9955	0.9954	0.0011	0.9932	0.9975	0.8876	0.8880	0.0282	0.8335	0.9427	41.5	58.3
	In-combination with the Project HIGH	0.9953	0.9953	0.0011	0.9932	0.9974	0.8866	0.8870	0.0282	0.8365	0.9430	41.5	58.8
30	Project alone LOW	0.9997	0.9997	0.0010	0.9977	1.0017	0.9914	0.9918	0.0331	0.9249	1.0562	49.6	50.5
	Project alone MID	0.9997	0.9997	0.0010	0.9977	1.0016	0.9904	0.9909	0.0328	0.9300	1.0552	49.9	50.3

YEAR	SCENARIO	CGR					CPS					QUANTILES	
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI	U=50%I	I=50%U
	Project alone HIGH	0.9997	0.9996	0.0010	0.9976	1.0014	0.9900	0.9896	0.0326	0.9219	1.0527	49.9	50.1
	In-combination without the Project	0.9957	0.9957	0.0010	0.9938	0.9978	0.8761	0.8762	0.0297	0.8190	0.9330	38.9	59.3
	In-combination with the Project LOW	0.9954	0.9954	0.0010	0.9934	0.9973	0.8691	0.8675	0.0289	0.8107	0.9237	38.5	60.0
	In-combination with the Project MID	0.9955	0.9954	0.0010	0.9934	0.9974	0.8688	0.8680	0.0297	0.8112	0.9249	37.6	60.0
	In-combination with the Project HIGH	0.9954	0.9954	0.0010	0.9934	0.9973	0.8673	0.8670	0.0297	0.8122	0.9229	38.3	59.6
35	Project alone LOW	0.9997	0.9997	0.0009	0.9979	1.0015	0.9916	0.9910	0.0348	0.9222	1.0626	49.4	50.6
	Project alone MID	0.9997	0.9997	0.0009	0.9979	1.0015	0.9888	0.9899	0.0354	0.9251	1.0631	49.1	50.8
	Project alone HIGH	0.9997	0.9996	0.0009	0.9978	1.0014	0.9893	0.9883	0.0348	0.9199	1.0590	49.9	50.2
	In-combination without the Project	0.9958	0.9957	0.0009	0.9940	0.9976	0.8588	0.8585	0.0309	0.7998	0.9203	37.2	60.8
	In-combination with the Project LOW	0.9954	0.9954	0.0010	0.9936	0.9973	0.8478	0.8480	0.0310	0.7893	0.9107	36.9	62.9
	In-combination with the Project MID	0.9955	0.9954	0.0009	0.9935	0.9972	0.8491	0.8489	0.0309	0.7861	0.9086	36.5	62.3
	In-combination with the Project HIGH	0.9954	0.9954	0.0010	0.9933	0.9972	0.8479	0.8473	0.0312	0.7852	0.9061	36.6	62.1

D.4.2.9.2 Guillemot

Table D4-16 PVA metrics from 10 to 35 years for guillemot from the North Caithness Cliffs SPA. (SD = standard deviation, LCI = lower confidence interval, UCI = upper confidence interval, U=50%I = the quantile from the unimpacted population that matched the 50% quantile for the impacted population, I=50%U = the quantile from the impacted population that match the 50% quantile for the unimpacted population)

YEAR	SCENARIO	CGR					CPS					QUANTILES	
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI	U=50%I	I=50%U
10	Project alone LOW	1.0000	1.0000	0.0005	0.9991	1.0009	0.9997	0.9996	0.0069	0.9864	1.0137	51.2	49.0
	Project alone MID	1.0000	1.0000	0.0004	0.9991	1.0008	0.9993	0.9995	0.0064	0.9868	1.0123	50.7	49.5
	Project alone HIGH	0.9999	1.0000	0.0005	0.9991	1.0009	0.9997	0.9995	0.0065	0.9864	1.0124	50.6	49.2
	In-combination without the Project	0.9993	0.9993	0.0005	0.9984	1.0001	0.9922	0.9923	0.0065	0.9802	1.0054	47.3	52.1
	In-combination with the Project LOW	0.9993	0.9993	0.0005	0.9984	1.0002	0.9918	0.9922	0.0064	0.9805	1.0052	47.3	51.6
	In-combination with the Project MID	0.9993	0.9993	0.0005	0.9984	1.0002	0.9923	0.9921	0.0066	0.9789	1.0048	47.7	51.9
	In-combination with the Project HIGH	0.9992	0.9992	0.0005	0.9983	1.0001	0.9916	0.9917	0.0064	0.9802	1.0046	47.7	51.4
15	Project alone LOW	1.0000	1.0000	0.0004	0.9992	1.0007	0.9995	0.9996	0.0076	0.9843	1.0140	50.0	49.9
	Project alone MID	1.0000	1.0000	0.0004	0.9993	1.0007	0.9994	0.9995	0.0072	0.9853	1.0143	50.0	50.0
	Project alone HIGH	1.0000	1.0000	0.0004	0.9992	1.0007	0.9992	0.9993	0.0073	0.9852	1.0129	49.9	50.1
	In-combination without the Project	0.9993	0.9993	0.0004	0.9986	1.0000	0.9891	0.9891	0.0070	0.9757	1.0029	46.8	52.5
	In-combination with the Project LOW	0.9993	0.9993	0.0004	0.9986	1.0000	0.9888	0.9889	0.0072	0.9746	1.0031	46.7	52.9
	In-combination with the Project MID	0.9993	0.9993	0.0004	0.9986	1.0000	0.9889	0.9887	0.0074	0.9737	1.0024	46.5	52.4

YEAR	SCENARIO	CGR					CPS					QUANTILES	
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI	U=50%I	I=50%U
	In-combination with the Project HIGH	0.9993	0.9992	0.0004	0.9985	1.0000	0.9879	0.9882	0.0071	0.9744	1.0023	46.6	52.4
20	Project alone LOW	1.0000	1.0000	0.0003	0.9994	1.0006	0.9993	0.9994	0.0080	0.9839	1.0160	50.0	50.1
	Project alone MID	1.0000	1.0000	0.0003	0.9994	1.0006	0.9993	0.9991	0.0076	0.9849	1.0151	49.9	50.4
	Project alone HIGH	1.0000	1.0000	0.0003	0.9994	1.0006	0.9990	0.9990	0.0078	0.9842	1.0143	49.9	50.3
	In-combination without the Project	0.9993	0.9993	0.0003	0.9987	0.9999	0.9857	0.9858	0.0074	0.9713	1.0007	47.4	54.1
	In-combination with the Project LOW	0.9993	0.9993	0.0003	0.9987	0.9999	0.9854	0.9855	0.0076	0.9713	1.0005	47.0	53.9
	In-combination with the Project MID	0.9993	0.9993	0.0003	0.9987	0.9999	0.9851	0.9851	0.0079	0.9698	1.0000	47.1	53.9
	In-combination with the Project HIGH	0.9993	0.9993	0.0003	0.9987	0.9998	0.9847	0.9846	0.0075	0.9701	0.9995	47.0	54.0
25	Project alone LOW	1.0000	1.0000	0.0003	0.9994	1.0005	0.9992	0.9992	0.0085	0.9830	1.0161	49.3	51.0
	Project alone MID	1.0000	1.0000	0.0003	0.9994	1.0005	0.9989	0.9989	0.0082	0.9825	1.0154	50.0	50.1
	Project alone HIGH	1.0000	1.0000	0.0003	0.9994	1.0005	0.9990	0.9989	0.0082	0.9815	1.0151	49.8	50.3
	In-combination without the Project	0.9993	0.9993	0.0003	0.9988	0.9998	0.9826	0.9824	0.0080	0.9669	0.9991	46.3	54.4
	In-combination with the Project LOW	0.9993	0.9993	0.0003	0.9988	0.9998	0.9824	0.9823	0.0080	0.9674	0.9974	46.0	54.3
	In-combination with the Project MID	0.9993	0.9993	0.0003	0.9988	0.9999	0.9816	0.9817	0.0084	0.9646	0.9976	46.0	55.0
	In-combination with the Project HIGH	0.9993	0.9993	0.0003	0.9987	0.9998	0.9817	0.9813	0.0080	0.9657	0.9964	45.2	54.9
30	Project alone LOW	1.0000	1.0000	0.0002	0.9995	1.0004	0.9990	0.9991	0.0088	0.9824	1.0161	49.7	50.1
	Project alone MID	1.0000	1.0000	0.0002	0.9995	1.0004	0.9986	0.9987	0.0084	0.9821	1.0150	50.1	49.9
	Project alone HIGH	1.0000	1.0000	0.0002	0.9995	1.0004	0.9987	0.9987	0.0085	0.9817	1.0151	49.8	50.2

YEAR	SCENARIO	CGR					CPS					QUANTILES	
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI	U=50%I	I=50%U
	In-combination without the Project	0.9993	0.9993	0.0002	0.9988	0.9998	0.9795	0.9793	0.0084	0.9627	0.9956	44.9	54.2
	In-combination with the Project LOW	0.9993	0.9993	0.0002	0.9989	0.9998	0.9793	0.9792	0.0083	0.9633	0.9945	45.7	54.1
	In-combination with the Project MID	0.9993	0.9993	0.0002	0.9988	0.9998	0.9784	0.9784	0.0086	0.9614	0.9947	44.7	54.5
	In-combination with the Project HIGH	0.9993	0.9993	0.0002	0.9988	0.9998	0.9781	0.9778	0.0083	0.9616	0.9937	45.5	54.9
35	Project alone LOW	1.0000	1.0000	0.0002	0.9995	1.0004	0.9992	0.9989	0.0092	0.9815	1.0169	49.8	50.5
	Project alone MID	1.0000	1.0000	0.0002	0.9995	1.0004	0.9985	0.9985	0.0089	0.9806	1.0157	49.9	50.3
	Project alone HIGH	1.0000	0.9999	0.0002	0.9995	1.0004	0.9984	0.9983	0.0089	0.9803	1.0157	49.9	50.6
	In-combination without the Project	0.9993	0.9993	0.0002	0.9989	0.9997	0.9761	0.9761	0.0087	0.9585	0.9933	44.6	53.4
	In-combination with the Project LOW	0.9993	0.9993	0.0002	0.9989	0.9997	0.9760	0.9758	0.0087	0.9588	0.9927	44.7	54.9
	In-combination with the Project MID	0.9993	0.9993	0.0002	0.9989	0.9997	0.9752	0.9750	0.0091	0.9570	0.9920	44.4	54.8
	In-combination with the Project HIGH	0.9993	0.9993	0.0002	0.9988	0.9997	0.9744	0.9742	0.0087	0.9576	0.9914	44.4	54.6

D.4.2.9.3 Puffin

Table D4-17 PVA metrics from 10 to 35 years for puffin from the North Caithness Cliffs SPA. (SD = standard deviation, LCI = lower confidence interval, UCI = upper confidence interval, U=50%I = the quantile from the unimpacted population that matched the 50% quantile for the impacted population, I=50%U = the quantile from the impacted population that match the 50% quantile for the unimpacted population)

YEAR	SCENARIO	CGR					CPS					QUANTILES	
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI	U=50%I	I=50%U
10	Project alone LOW	0.9999	1.0001	0.0037	0.9928	1.0080	1.0010	1.0025	0.0491	0.9112	1.1047	49.5	50.1
	Project alone MID	0.9999	1.0000	0.0038	0.9927	1.0073	0.9970	1.0002	0.0504	0.9110	1.1087	50.4	49.9
	Project alone HIGH	0.9998	0.9999	0.0037	0.9928	1.0071	0.9985	1.0002	0.0497	0.9048	1.1065	50.7	49.6
	In-combination without the Project	0.9877	0.9876	0.0038	0.9799	0.9954	0.8716	0.8730	0.0441	0.7873	0.9721	35.9	63.9
	In-combination with the Project LOW	0.9876	0.9877	0.0040	0.9801	0.9959	0.8728	0.8733	0.0446	0.7920	0.9664	35.2	64.6
	In-combination with the Project MID	0.9877	0.9877	0.0039	0.9799	0.9954	0.8721	0.8735	0.0443	0.7912	0.9651	35.8	63.9
	In-combination with the Project HIGH	0.9877	0.9876	0.0038	0.9800	0.9947	0.8727	0.8733	0.0443	0.7892	0.9633	35.7	64.6
15	Project alone LOW	1.0001	1.0001	0.0033	0.9938	1.0073	0.9984	1.0035	0.0606	0.8940	1.1405	50.8	48.8
	Project alone MID	0.9999	1.0000	0.0033	0.9933	1.0071	0.9967	1.0004	0.0596	0.8950	1.1233	50.3	49.8
	Project alone HIGH	0.9998	0.9999	0.0032	0.9932	1.0062	0.9996	1.0006	0.0591	0.8871	1.1180	50.7	48.8
	In-combination without the Project	0.9879	0.9878	0.0034	0.9810	0.9942	0.8221	0.8235	0.0494	0.7253	0.9202	32.4	67.8
	In-combination with the Project LOW	0.9880	0.9878	0.0036	0.9808	0.9947	0.8240	0.8236	0.0517	0.7210	0.9301	32.5	67.2
	In-combination with the Project MID	0.9879	0.9879	0.0034	0.9811	0.9943	0.8227	0.8235	0.0511	0.7282	0.9262	32.7	67.5

YEAR	SCENARIO	CGR					CPS					QUANTILES	
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI	U=50%I	I=50%U
	In-combination with the Project HIGH	0.9879	0.9878	0.0035	0.9808	0.9945	0.8215	0.8238	0.0520	0.7243	0.9346	32.2	67.5
20	Project alone LOW	1.0000	1.0000	0.0031	0.9943	1.0064	0.9980	1.0035	0.0724	0.8661	1.1671	50.4	48.9
	Project alone MID	1.0000	0.9999	0.0030	0.9940	1.0058	0.9963	1.0003	0.0691	0.8670	1.1502	50.4	49.1
	Project alone HIGH	0.9998	0.9998	0.0031	0.9932	1.0060	0.9965	0.9985	0.0707	0.8577	1.1476	50.1	49.9
	In-combination without the Project	0.9879	0.9879	0.0032	0.9817	0.9947	0.7747	0.7761	0.0562	0.6710	0.8940	28.7	71.0
	In-combination with the Project LOW	0.9880	0.9879	0.0034	0.9810	0.9943	0.7756	0.7760	0.0577	0.6651	0.8896	28.9	71.1
	In-combination with the Project MID	0.9880	0.9879	0.0032	0.9812	0.9941	0.7750	0.7751	0.0571	0.6656	0.8962	29.1	71.9
	In-combination with the Project HIGH	0.9878	0.9879	0.0033	0.9812	0.9942	0.7732	0.7771	0.0596	0.6648	0.9028	30.0	71.3
25	Project alone LOW	1.0000	1.0000	0.0029	0.9943	1.0058	0.9977	1.0039	0.0828	0.8531	1.1719	49.9	50.4
	Project alone MID	0.9999	0.9999	0.0031	0.9941	1.0062	0.9971	1.0004	0.0850	0.8439	1.1853	50.6	49.9
	Project alone HIGH	0.9998	0.9998	0.0030	0.9936	1.0057	0.9942	0.9980	0.0839	0.8418	1.1717	49.4	50.4
	In-combination without the Project	0.9880	0.9879	0.0031	0.9812	0.9941	0.7289	0.7320	0.0630	0.6045	0.8651	27.1	75.7
	In-combination with the Project LOW	0.9881	0.9879	0.0031	0.9816	0.9939	0.7314	0.7310	0.0618	0.6105	0.8603	27.0	76.3
	In-combination with the Project MID	0.9880	0.9880	0.0031	0.9813	0.9940	0.7313	0.7318	0.0627	0.6074	0.8640	28.6	76.2
	In-combination with the Project HIGH	0.9880	0.9879	0.0033	0.9815	0.9944	0.7296	0.7331	0.0674	0.6046	0.8778	26.7	75.6
30	Project alone LOW	0.9999	0.9999	0.0029	0.9944	1.0057	0.9993	1.0031	0.0940	0.8388	1.2086	49.8	50.5
	Project alone MID	0.9998	0.9999	0.0029	0.9940	1.0057	0.9936	1.0003	0.0936	0.8218	1.1945	50.5	49.4
	Project alone HIGH	0.9999	0.9998	0.0029	0.9940	1.0053	0.9950	0.9994	0.0950	0.8267	1.1891	50.7	49.6

YEAR	SCENARIO	CGR					CPS					QUANTILES	
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI	U=50%I	I=50%U
	In-combination without the Project	0.9880	0.9879	0.0032	0.9811	0.9941	0.6854	0.6896	0.0694	0.5552	0.8391	24.4	77.0
	In-combination with the Project LOW	0.9879	0.9879	0.0031	0.9816	0.9940	0.6879	0.6891	0.0688	0.5631	0.8348	24.4	77.4
	In-combination with the Project MID	0.9879	0.9879	0.0031	0.9820	0.9941	0.6862	0.6880	0.0679	0.5607	0.8272	25.1	78.3
	In-combination with the Project HIGH	0.9881	0.9879	0.0032	0.9816	0.9941	0.6896	0.6909	0.0718	0.5616	0.8460	25.1	77.6
35	Project alone LOW	0.9999	0.9999	0.0029	0.9944	1.0055	0.9991	1.0033	0.1068	0.8101	1.2422	48.6	51.9
	Project alone MID	0.9999	0.9999	0.0028	0.9942	1.0054	0.9971	1.0025	0.1060	0.8135	1.2272	49.6	50.6
	Project alone HIGH	0.9998	0.9998	0.0029	0.9940	1.0056	0.9921	0.9983	0.1079	0.7965	1.2269	48.0	52.1
	In-combination without the Project	0.9880	0.9879	0.0031	0.9817	0.9937	0.6468	0.6493	0.0738	0.5120	0.7942	23.9	81.0
	In-combination with the Project LOW	0.9880	0.9879	0.0031	0.9816	0.9943	0.6464	0.6494	0.0756	0.5171	0.8140	23.5	80.2
	In-combination with the Project MID	0.9878	0.9878	0.0030	0.9817	0.9939	0.6414	0.6471	0.0738	0.5076	0.8088	22.7	80.8
	In-combination with the Project HIGH	0.9881	0.9879	0.0032	0.9817	0.9938	0.6460	0.6500	0.0764	0.5118	0.8150	23.6	80.8

D.4.2.10 North Rona and Sula Sgeir SPA

D.4.2.10.1 Great black-backed gull

Table D4-18 PVA metrics from 10 to 35 years for great black-backed gull from the North Rona and Sula Sgeir SPA. (SD = standard deviation, LCI = lower confidence interval, UCI = upper confidence interval, U=50%I = the quantile from the unimpacted population that matched the 50% quantile for the impacted population, I=50%U = the quantile from the impacted population that match the 50% quantile for the unimpacted population)

YEAR	SCENARIO	CGR					CPS					QUANTILES	
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI	U=50%I	I=50%U
10	Project alone	0.9996	0.9996	0.0036	0.9928	1.0072	0.9949	0.9959	0.0453	0.9098	1.0872	48.0	51.6
15	Project alone	0.9996	0.9996	0.0026	0.9945	1.0048	0.9912	0.9938	0.0462	0.9054	1.0873	49.3	51.1
20	Project alone	0.9995	0.9996	0.0020	0.9958	1.0036	0.9892	0.9911	0.0465	0.9015	1.0903	47.6	51.5
25	Project alone	0.9995	0.9996	0.0016	0.9965	1.0028	0.9867	0.9889	0.0466	0.8975	1.0888	48.6	51.0
30	Project alone	0.9995	0.9996	0.0014	0.9970	1.0023	0.9853	0.9868	0.0467	0.8982	1.0834	49.4	50.5
35	Project alone	0.9996	0.9996	0.0012	0.9973	1.0019	0.9838	0.9846	0.0464	0.8982	1.0772	48.1	51.3

D.4.2.10.1 Gannet

Table D4-19 PVA metrics from 10 to 35 years for gannet from the North Rona and Sula Sgeir SPA. (SD = standard deviation, LCI = lower confidence interval, UCI = upper confidence interval, U=50%I = the quantile from the unimpacted population that matched the 50% quantile for the impacted population, I=50%U = the quantile from the impacted population that match the 50% quantile for the unimpacted population).

YEAR	SCENARIO	CGR					CPS					QUANTILES	
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI	U=50%I	I=50%U
10	Project alone LOW	1.0000	1.0000	0.0009	0.9984	1.0017	1.0004	1.0002	0.0131	0.9758	1.0266	50.3	49.9
	Project alone MID	1.0000	1.0001	0.0009	0.9985	1.0018	1.0004	1.0009	0.0132	0.9747	1.0280	50.7	49.2
	Project alone HIGH	1.0000	1.0000	0.0009	0.9982	1.0017	0.9998	1.0001	0.0130	0.9762	1.0254	50.3	49.9
	In-combination without the Project	0.9997	0.9996	0.0009	0.9980	1.0015	0.9960	0.9960	0.0131	0.9704	1.0212	48.8	50.9
	In-combination with the Project LOW	0.9997	0.9997	0.0009	0.9980	1.0014	0.9964	0.9963	0.0128	0.9724	1.0207	49.0	50.9
	In-combination with the Project MID	0.9997	0.9997	0.0008	0.9981	1.0013	0.9956	0.9956	0.0132	0.9700	1.0219	48.6	50.3
	In-combination with the Project HIGH	0.9996	0.9996	0.0009	0.9979	1.0014	0.9960	0.9959	0.0127	0.9702	1.0201	49.2	50.3
15	Project alone LOW	1.0000	1.0000	0.0007	0.9988	1.0013	1.0000	1.0001	0.0140	0.9733	1.0283	50.6	49.2
	Project alone MID	1.0000	1.0000	0.0007	0.9988	1.0014	1.0004	1.0007	0.0141	0.9729	1.0292	50.4	49.5
	Project alone HIGH	1.0000	1.0000	0.0007	0.9985	1.0014	0.9999	0.9999	0.0140	0.9722	1.0261	50.6	48.9
	In-combination without the Project	0.9996	0.9996	0.0007	0.9982	1.0010	0.9943	0.9941	0.0142	0.9662	1.0232	49.4	50.6
	In-combination with the Project LOW	0.9996	0.9996	0.0007	0.9983	1.0010	0.9947	0.9944	0.0139	0.9684	1.0212	49.8	50.1
	In-combination with the Project MID	0.9996	0.9996	0.0007	0.9984	1.0009	0.9935	0.9933	0.0137	0.9671	1.0216	48.6	51.4

YEAR	SCENARIO	CGR					CPS					QUANTILES	
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI	U=50%I	I=50%U
	In-combination with the Project HIGH	0.9996	0.9996	0.0007	0.9983	1.0009	0.9940	0.9940	0.0137	0.9660	1.0208	49.4	50.8
20	Project alone LOW	1.0000	1.0000	0.0006	0.9989	1.0013	0.9996	1.0001	0.0155	0.9711	1.0328	51.2	48.6
	Project alone MID	1.0000	1.0000	0.0006	0.9989	1.0012	1.0009	1.0005	0.0157	0.9714	1.0312	51.6	48.8
	Project alone HIGH	1.0000	1.0000	0.0006	0.9988	1.0012	0.9994	0.9999	0.0153	0.9698	1.0305	50.3	49.9
	In-combination without the Project	0.9996	0.9996	0.0006	0.9984	1.0008	0.9925	0.9921	0.0153	0.9616	1.0218	49.6	50.6
	In-combination with the Project LOW	0.9996	0.9996	0.0006	0.9985	1.0009	0.9926	0.9925	0.0151	0.9633	1.0233	49.7	50.4
	In-combination with the Project MID	0.9996	0.9996	0.0006	0.9985	1.0008	0.9913	0.9916	0.0152	0.9620	1.0222	49.3	51.0
	In-combination with the Project HIGH	0.9996	0.9996	0.0006	0.9985	1.0008	0.9917	0.9920	0.0148	0.9638	1.0212	48.8	51.5
25	Project alone LOW	1.0000	1.0000	0.0005	0.9990	1.0010	0.9996	1.0001	0.0166	0.9691	1.0347	50.1	49.5
	Project alone MID	1.0000	1.0000	0.0005	0.9990	1.0011	0.9996	1.0003	0.0165	0.9700	1.0329	50.3	49.2
	Project alone HIGH	1.0000	1.0000	0.0005	0.9989	1.0010	0.9993	0.9998	0.0162	0.9678	1.0321	50.5	49.3
	In-combination without the Project	0.9996	0.9996	0.0005	0.9985	1.0006	0.9902	0.9906	0.0164	0.9600	1.0238	49.0	50.9
	In-combination with the Project LOW	0.9996	0.9996	0.0005	0.9987	1.0007	0.9905	0.9909	0.0161	0.9613	1.0242	49.2	50.9
	In-combination with the Project MID	0.9996	0.9996	0.0005	0.9986	1.0007	0.9892	0.9897	0.0162	0.9584	1.0222	48.0	51.8
	In-combination with the Project HIGH	0.9996	0.9996	0.0005	0.9986	1.0006	0.9899	0.9900	0.0156	0.9605	1.0222	48.9	51.2
30	Project alone LOW	1.0000	1.0000	0.0005	0.9992	1.0009	0.9993	1.0000	0.0176	0.9677	1.0359	50.5	49.8
	Project alone MID	1.0000	1.0000	0.0005	0.9991	1.0010	1.0001	1.0004	0.0175	0.9665	1.0343	51.1	49.6
	Project alone HIGH	1.0000	1.0000	0.0005	0.9991	1.0010	0.9992	0.9996	0.0171	0.9665	1.0343	50.6	49.9

YEAR	SCENARIO	CGR					CPS					QUANTILES	
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI	U=50%I	I=50%U
	In-combination without the Project	0.9996	0.9996	0.0005	0.9987	1.0005	0.9894	0.9889	0.0172	0.9539	1.0238	48.5	51.0
	In-combination with the Project LOW	0.9996	0.9997	0.0005	0.9988	1.0006	0.9896	0.9893	0.0167	0.9591	1.0235	48.4	51.5
	In-combination with the Project MID	0.9996	0.9996	0.0005	0.9987	1.0006	0.9878	0.9879	0.0169	0.9562	1.0211	48.2	51.7
	In-combination with the Project HIGH	0.9996	0.9996	0.0005	0.9987	1.0005	0.9874	0.9877	0.0165	0.9559	1.0202	48.4	51.2
35	Project alone LOW	1.0000	1.0000	0.0004	0.9992	1.0009	0.9998	1.0001	0.0186	0.9658	1.0402	50.1	49.8
	Project alone MID	1.0000	1.0000	0.0004	0.9992	1.0009	1.0007	1.0003	0.0183	0.9634	1.0383	50.1	49.7
	Project alone HIGH	1.0000	1.0000	0.0004	0.9991	1.0008	0.9991	0.9993	0.0181	0.9639	1.0367	49.1	51.2
	In-combination without the Project	0.9996	0.9996	0.0004	0.9988	1.0005	0.9867	0.9870	0.0178	0.9519	1.0224	47.9	52.5
	In-combination with the Project LOW	0.9997	0.9997	0.0004	0.9989	1.0005	0.9879	0.9877	0.0178	0.9543	1.0230	48.1	52.2
	In-combination with the Project MID	0.9996	0.9996	0.0004	0.9988	1.0005	0.9857	0.9861	0.0179	0.9525	1.0216	48.1	52.4
	In-combination with the Project HIGH	0.9996	0.9996	0.0004	0.9988	1.0005	0.9853	0.9859	0.0174	0.9525	1.0210	48.2	51.9

D.4.2.11 Rousay SPA

D.4.2.11.1 Kittiwake

Table D4-20 PVA metrics from 10 to 35 years for kittiwake from the Rousay SPA. (SD = standard deviation, LCI = lower confidence interval, UCI = upper confidence interval, U=50%I = the quantile from the unimpacted population that matched the 50% quantile for the impacted population, I=50%U = the quantile from the impacted population that match the 50% quantile for the unimpacted population)

YEAR	SCENARIO	CGR					CPS					QUANTILES	
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI	U=50%I	I=50%U
10	Project alone LOW	0.9997	0.9996	0.0069	0.9852	1.0127	0.9993	1.0030	0.0948	0.8235	1.1883	49.9	50.3
	Project alone MID	0.9995	0.9996	0.0070	0.9857	1.0136	0.9976	1.0002	0.0968	0.8194	1.2074	49.2	51.0
	Project alone HIGH	0.9998	0.9996	0.0071	0.9857	1.0130	1.0000	1.0000	0.0933	0.8179	1.1890	49.6	50.6
	In-combination without the Project	0.9916	0.9915	0.0068	0.9780	1.0050	0.9167	0.9153	0.0877	0.7506	1.1056	41.1	60.3
	In-combination with the Project LOW	0.9915	0.9913	0.0071	0.9773	1.0045	0.9103	0.9149	0.0888	0.7506	1.0979	41.7	62.2
	In-combination with the Project MID	0.9915	0.9914	0.0069	0.9771	1.0045	0.9095	0.9124	0.0848	0.7500	1.0810	39.4	59.9
	In-combination with the Project HIGH	0.9917	0.9916	0.0070	0.9774	1.0050	0.9093	0.9138	0.0868	0.7456	1.0992	40.8	59.6
15	Project alone LOW	0.9996	0.9996	0.0054	0.9889	1.0099	0.9935	1.0011	0.1021	0.8193	1.2127	48.8	51.7
	Project alone MID	0.9997	0.9997	0.0055	0.9887	1.0112	0.9932	1.0008	0.1054	0.8111	1.2354	49.2	50.9
	Project alone HIGH	1.0000	0.9998	0.0056	0.9885	1.0108	0.9988	1.0022	0.1044	0.8062	1.2169	50.0	50.1
	In-combination without the Project	0.9918	0.9916	0.0055	0.9800	1.0028	0.8763	0.8794	0.0924	0.7052	1.0822	36.9	64.1
	In-combination with the Project LOW	0.9915	0.9915	0.0057	0.9808	1.0028	0.8705	0.8806	0.0957	0.7120	1.0843	36.9	62.6

YEAR	SCENARIO	CGR					CPS					QUANTILES	
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI	U=50%I	I=50%U
	In-combination with the Project MID	0.9918	0.9915	0.0059	0.9789	1.0024	0.8745	0.8767	0.0948	0.6991	1.0745	36.0	63.5
	In-combination with the Project HIGH	0.9918	0.9917	0.0057	0.9799	1.0021	0.8760	0.8786	0.0948	0.6943	1.0673	36.5	62.6
20	Project alone LOW	0.9993	0.9995	0.0049	0.9901	1.0092	0.9914	0.9990	0.1154	0.7995	1.2544	47.8	52.4
	Project alone MID	0.9996	0.9996	0.0049	0.9896	1.0100	0.9898	0.9994	0.1188	0.7966	1.2501	48.5	52.5
	Project alone HIGH	0.9996	0.9997	0.0049	0.9903	1.0094	1.0000	1.0010	0.1159	0.7903	1.2611	49.0	51.1
	In-combination without the Project	0.9918	0.9916	0.0050	0.9814	1.0013	0.8385	0.8445	0.1019	0.6603	1.0658	34.9	65.9
	In-combination with the Project LOW	0.9916	0.9915	0.0051	0.9812	1.0017	0.8390	0.8453	0.1037	0.6673	1.0729	33.6	66.2
	In-combination with the Project MID	0.9917	0.9915	0.0052	0.9805	1.0018	0.8388	0.8415	0.1037	0.6446	1.0659	34.9	65.4
	In-combination with the Project HIGH	0.9916	0.9916	0.0051	0.9812	1.0009	0.8430	0.8416	0.1018	0.6537	1.0362	34.0	66.4
25	Project alone LOW	0.9995	0.9996	0.0045	0.9906	1.0087	0.9950	1.0010	0.1272	0.7814	1.2784	48.8	51.1
	Project alone MID	0.9996	0.9997	0.0044	0.9904	1.0082	0.9955	1.0005	0.1286	0.7718	1.2800	47.9	52.0
	Project alone HIGH	0.9997	0.9997	0.0044	0.9908	1.0088	0.9941	1.0008	0.1279	0.7764	1.2709	48.6	51.2
	In-combination without the Project	0.9918	0.9917	0.0046	0.9820	1.0006	0.8096	0.8120	0.1086	0.6130	1.0318	33.2	67.3
	In-combination with the Project LOW	0.9917	0.9916	0.0048	0.9817	1.0005	0.8067	0.8129	0.1108	0.6162	1.0522	33.7	67.6
	In-combination with the Project MID	0.9917	0.9916	0.0048	0.9818	1.0004	0.8028	0.8098	0.1104	0.6006	1.0455	33.2	67.2
	In-combination with the Project HIGH	0.9918	0.9916	0.0046	0.9824	1.0006	0.8064	0.8096	0.1070	0.6107	1.0357	33.9	67.6
30	Project alone LOW	0.9997	0.9996	0.0043	0.9914	1.0078	0.9906	1.0014	0.1419	0.7500	1.3109	49.6	50.6
	Project alone MID	0.9996	0.9997	0.0041	0.9919	1.0081	0.9907	1.0016	0.1437	0.7519	1.3322	48.8	51.4

YEAR	SCENARIO	CGR					CPS					QUANTILES	
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI	U=50%I	I=50%U
	Project alone HIGH	0.9997	0.9997	0.0041	0.9918	1.0081	0.9877	1.0014	0.1419	0.7539	1.3104	49.8	50.4
	In-combination without the Project	0.9916	0.9917	0.0043	0.9831	1.0004	0.7744	0.7809	0.1142	0.5760	1.0413	30.3	68.7
	In-combination with the Project LOW	0.9918	0.9917	0.0045	0.9827	1.0007	0.7761	0.7837	0.1199	0.5769	1.0538	29.7	68.6
	In-combination with the Project MID	0.9917	0.9916	0.0044	0.9823	0.9999	0.7744	0.7784	0.1159	0.5639	1.0323	29.7	69.4
	In-combination with the Project HIGH	0.9916	0.9916	0.0043	0.9834	1.0001	0.7707	0.7773	0.1115	0.5830	1.0096	29.7	67.6
35	Project alone LOW	0.9997	0.9997	0.0040	0.9920	1.0075	0.9930	1.0043	0.1526	0.7366	1.3415	48.4	51.5
	Project alone MID	0.9998	0.9998	0.0039	0.9921	1.0074	0.9939	1.0056	0.1549	0.7372	1.3379	49.4	50.9
	Project alone HIGH	0.9998	0.9999	0.0038	0.9921	1.0076	0.9943	1.0074	0.1495	0.7458	1.3286	49.7	50.7
	In-combination without the Project	0.9918	0.9918	0.0040	0.9835	0.9997	0.7422	0.7534	0.1164	0.5419	1.0081	27.7	72.3
	In-combination with the Project LOW	0.9920	0.9918	0.0042	0.9834	1.0000	0.7455	0.7549	0.1234	0.5241	1.0194	28.4	72.0
	In-combination with the Project MID	0.9918	0.9917	0.0042	0.9828	0.9993	0.7384	0.7496	0.1220	0.5267	1.0035	28.0	71.3
	In-combination with the Project HIGH	0.9919	0.9918	0.0040	0.9832	0.9996	0.7452	0.7516	0.1154	0.5388	0.9907	28.6	70.2

D.4.2.12 St Kilda SPA

D.4.2.12.1 Gannet

Table D4-21 PVA metrics from 10 to 35 years for gannet from the St Kilda SPA. (SD = standard deviation, LCI = lower confidence interval, UCI = upper confidence interval, U=50%I = the quantile from the unimpacted population that matched the 50% quantile for the impacted population, I=50%U = the quantile from the impacted population that match the 50% quantile for the unimpacted population)

YEAR	SCENARIO	CGR					CPS					QUANTILES	
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI	U=50%I	I=50%U
10	Project alone LOW	1.0000	1.0000	0.0004	0.9993	1.0007	1.0002	1.0001	0.0056	0.9892	1.0118	50.6	49.3
	Project alone MID	1.0000	1.0000	0.0004	0.9993	1.0007	1.0001	1.0001	0.0055	0.9891	1.0103	50.3	49.3
	Project alone HIGH	1.0000	1.0000	0.0004	0.9993	1.0007	0.9996	0.9995	0.0056	0.9887	1.0102	50.0	50.0
	In-combination without the Project	0.9996	0.9996	0.0004	0.9989	1.0003	0.9955	0.9956	0.0054	0.9851	1.0060	48.9	50.8
	In-combination with the Project LOW	0.9996	0.9996	0.0003	0.9989	1.0003	0.9955	0.9955	0.0055	0.9851	1.0071	48.7	51.1
	In-combination with the Project MID	0.9996	0.9996	0.0004	0.9988	1.0003	0.9955	0.9954	0.0056	0.9838	1.0059	48.8	51.1
	In-combination with the Project HIGH	0.9996	0.9996	0.0004	0.9989	1.0002	0.9953	0.9952	0.0055	0.9843	1.0057	48.8	51.1
15	Project alone LOW	1.0000	1.0000	0.0003	0.9994	1.0006	1.0003	1.0001	0.0061	0.9883	1.0120	49.8	50.1
	Project alone MID	1.0000	1.0000	0.0003	0.9994	1.0006	1.0000	1.0000	0.0061	0.9876	1.0115	50.1	49.9
	Project alone HIGH	1.0000	1.0000	0.0003	0.9994	1.0005	0.9993	0.9993	0.0060	0.9876	1.0110	49.9	50.1
	In-combination without the Project	0.9996	0.9996	0.0003	0.9991	1.0002	0.9934	0.9937	0.0060	0.9821	1.0054	48.6	51.8
	In-combination with the Project LOW	0.9996	0.9996	0.0003	0.9990	1.0002	0.9936	0.9936	0.0060	0.9824	1.0055	49.0	51.5

YEAR	SCENARIO	CGR					CPS					QUANTILES	
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI	U=50%I	I=50%U
	In-combination with the Project MID	0.9996	0.9996	0.0003	0.9990	1.0002	0.9933	0.9934	0.0061	0.9817	1.0049	48.9	52.0
	In-combination with the Project HIGH	0.9996	0.9996	0.0003	0.9990	1.0001	0.9929	0.9930	0.0059	0.9811	1.0042	49.0	52.5
20	Project alone LOW	1.0000	1.0000	0.0003	0.9995	1.0005	1.0004	1.0003	0.0066	0.9875	1.0135	50.4	49.9
	Project alone MID	1.0000	1.0000	0.0003	0.9995	1.0005	1.0000	1.0002	0.0066	0.9871	1.0131	50.3	49.5
	Project alone HIGH	1.0000	1.0000	0.0003	0.9994	1.0005	0.9991	0.9992	0.0066	0.9860	1.0121	50.9	49.7
	In-combination without the Project	0.9996	0.9996	0.0003	0.9991	1.0001	0.9918	0.9918	0.0064	0.9790	1.0044	48.7	51.1
	In-combination with the Project LOW	0.9996	0.9996	0.0002	0.9991	1.0001	0.9918	0.9919	0.0064	0.9798	1.0057	48.6	51.2
	In-combination with the Project MID	0.9996	0.9996	0.0003	0.9991	1.0001	0.9916	0.9915	0.0066	0.9783	1.0039	48.7	50.8
	In-combination with the Project HIGH	0.9996	0.9996	0.0003	0.9990	1.0000	0.9909	0.9909	0.0064	0.9784	1.0030	48.5	51.8
25	Project alone LOW	1.0000	1.0000	0.0002	0.9996	1.0004	1.0004	1.0003	0.0070	0.9864	1.0142	50.2	49.8
	Project alone MID	1.0000	1.0000	0.0002	0.9995	1.0005	1.0003	1.0002	0.0072	0.9857	1.0142	50.1	49.9
	Project alone HIGH	1.0000	1.0000	0.0002	0.9995	1.0004	0.9987	0.9989	0.0071	0.9849	1.0135	49.9	50.0
	In-combination without the Project	0.9996	0.9996	0.0002	0.9992	1.0000	0.9895	0.9897	0.0068	0.9768	1.0029	48.5	52.0
	In-combination with the Project LOW	0.9996	0.9996	0.0002	0.9992	1.0000	0.9899	0.9898	0.0069	0.9764	1.0037	48.1	52.0
	In-combination with the Project MID	0.9996	0.9996	0.0002	0.9992	1.0000	0.9895	0.9896	0.0070	0.9755	1.0025	48.6	52.6
	In-combination with the Project HIGH	0.9996	0.9996	0.0002	0.9991	1.0000	0.9886	0.9887	0.0068	0.9754	1.0018	48.5	52.0
30	Project alone LOW	1.0000	1.0000	0.0002	0.9996	1.0004	1.0004	1.0004	0.0076	0.9854	1.0158	49.9	50.0
	Project alone MID	1.0000	1.0000	0.0002	0.9996	1.0004	1.0002	1.0001	0.0076	0.9846	1.0144	49.7	50.1

YEAR	SCENARIO	CGR					CPS					QUANTILES	
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI	U=50%I	I=50%U
	Project alone HIGH	1.0000	1.0000	0.0002	0.9995	1.0004	0.9989	0.9988	0.0075	0.9841	1.0138	50.4	49.7
	In-combination without the Project	0.9996	0.9996	0.0002	0.9992	1.0000	0.9876	0.9878	0.0073	0.9743	1.0018	47.8	52.2
	In-combination with the Project LOW	0.9996	0.9996	0.0002	0.9992	1.0000	0.9880	0.9878	0.0073	0.9733	1.0022	47.9	52.0
	In-combination with the Project MID	0.9996	0.9996	0.0002	0.9992	1.0000	0.9880	0.9877	0.0075	0.9729	1.0022	48.0	52.4
	In-combination with the Project HIGH	0.9996	0.9996	0.0002	0.9992	1.0000	0.9868	0.9867	0.0073	0.9724	1.0013	47.9	51.8
35	Project alone LOW	1.0000	1.0000	0.0002	0.9996	1.0004	1.0004	1.0003	0.0080	0.9850	1.0166	50.0	50.0
	Project alone MID	1.0000	1.0000	0.0002	0.9996	1.0004	1.0005	1.0001	0.0080	0.9848	1.0151	50.0	50.0
	Project alone HIGH	1.0000	1.0000	0.0002	0.9996	1.0003	0.9985	0.9986	0.0079	0.9831	1.0145	49.9	50.3
	In-combination without the Project	0.9996	0.9996	0.0002	0.9992	1.0000	0.9853	0.9858	0.0075	0.9716	1.0003	47.0	52.2
	In-combination with the Project LOW	0.9996	0.9996	0.0002	0.9992	1.0000	0.9858	0.9859	0.0078	0.9708	1.0018	47.0	52.2
	In-combination with the Project MID	0.9996	0.9996	0.0002	0.9992	1.0000	0.9856	0.9857	0.0077	0.9705	1.0005	47.0	51.8
	In-combination with the Project HIGH	0.9996	0.9996	0.0002	0.9992	0.9999	0.9844	0.9846	0.0075	0.9698	0.9997	46.7	52.9

D.4.2.13 Sule Skerry and Sule Stack SPA

D.4.2.13.1 Guillemot

Table D4-22 PVA metrics from 10 to 35 years for guillemot from the Sule Skerry and Sule Stack SPA. (SD = standard deviation, LCI = lower confidence interval, UCI = upper confidence interval, U=50%I = the quantile from the unimpacted population that matched the 50% quantile for the impacted population, I=50%U = the quantile from the impacted population that match the 50% quantile for the unimpacted population)

YEAR	SCENARIO	CGR					CPS					QUANTILES	
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI	U=50%I	I=50%U
10	Project alone LOW	0.9945	0.9945	0.0009	0.9927	0.9963	0.9412	0.9413	0.0118	0.9193	0.9646	31.1	68.9
	Project alone MID	0.9922	0.9921	0.0010	0.9902	0.9939	0.9169	0.9169	0.0118	0.8933	0.9400	23.0	74.9
	Project alone HIGH	0.9898	0.9898	0.0010	0.9877	0.9918	0.8936	0.8932	0.0121	0.8693	0.9161	18.1	80.8
	In-combination without the Project	0.9897	0.9898	0.0010	0.9877	0.9917	0.8928	0.8928	0.0120	0.8702	0.9173	17.3	81.1
	In-combination with the Project LOW	0.9891	0.9891	0.0010	0.9871	0.9910	0.8866	0.8864	0.0119	0.8637	0.9088	16.9	82.6
	In-combination with the Project MID	0.9844	0.9844	0.0011	0.9820	0.9865	0.8414	0.8408	0.0125	0.8163	0.8649	8.3	91.9
	In-combination with the Project HIGH	0.9797	0.9797	0.0012	0.9773	0.9820	0.7975	0.7977	0.0127	0.7732	0.8230	3.6	96.1
15	Project alone LOW	0.9947	0.9946	0.0007	0.9932	0.9960	0.9180	0.9177	0.0125	0.8924	0.9409	29.7	73.1
	Project alone MID	0.9923	0.9923	0.0008	0.9908	0.9937	0.8841	0.8841	0.0126	0.8605	0.9090	20.1	81.8
	Project alone HIGH	0.9900	0.9900	0.0008	0.9884	0.9915	0.8512	0.8516	0.0126	0.8273	0.8769	14.3	88.1
	In-combination without the Project	0.9900	0.9900	0.0008	0.9884	0.9916	0.8510	0.8512	0.0126	0.8274	0.8768	13.9	88.1
	In-combination with the Project LOW	0.9893	0.9893	0.0008	0.9878	0.9909	0.8420	0.8424	0.0126	0.8190	0.8682	11.9	89.1

YEAR	SCENARIO	CGR					CPS					QUANTILES	
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI	U=50%I	I=50%U
	In-combination with the Project MID	0.9848	0.9847	0.0009	0.9828	0.9864	0.7820	0.7816	0.0130	0.7555	0.8072	4.3	95.9
	In-combination with the Project HIGH	0.9802	0.9801	0.0010	0.9782	0.9821	0.7253	0.7256	0.0129	0.7005	0.7519	1.1	98.2
20	Project alone LOW	0.9947	0.9947	0.0006	0.9934	0.9959	0.8948	0.8943	0.0132	0.8670	0.9200	22.9	75.9
	Project alone MID	0.9924	0.9924	0.0007	0.9911	0.9936	0.8523	0.8521	0.0132	0.8259	0.8768	17.4	84.3
	Project alone HIGH	0.9901	0.9901	0.0007	0.9887	0.9914	0.8116	0.8119	0.0132	0.7858	0.8374	10.7	91.7
	In-combination without the Project	0.9901	0.9901	0.0007	0.9887	0.9914	0.8109	0.8112	0.0132	0.7861	0.8382	11.0	92.4
	In-combination with the Project LOW	0.9895	0.9894	0.0007	0.9880	0.9908	0.8005	0.8003	0.0131	0.7758	0.8267	9.3	93.1
	In-combination with the Project MID	0.9849	0.9849	0.0008	0.9833	0.9863	0.7270	0.7265	0.0134	0.6987	0.7524	2.6	97.4
	In-combination with the Project HIGH	0.9804	0.9804	0.0008	0.9786	0.9819	0.6600	0.6597	0.0129	0.6340	0.6836	0.6	99.9
25	Project alone LOW	0.9947	0.9947	0.0005	0.9937	0.9958	0.8723	0.8717	0.0137	0.8444	0.8978	23.3	80.1
	Project alone MID	0.9925	0.9924	0.0006	0.9913	0.9934	0.8208	0.8211	0.0137	0.7935	0.8469	15.6	87.9
	Project alone HIGH	0.9902	0.9902	0.0006	0.9890	0.9913	0.7737	0.7739	0.0134	0.7480	0.7994	8.7	93.8
	In-combination without the Project	0.9902	0.9902	0.0006	0.9890	0.9914	0.7737	0.7733	0.0133	0.7471	0.7997	8.7	93.4
	In-combination with the Project LOW	0.9895	0.9895	0.0006	0.9882	0.9907	0.7599	0.7603	0.0134	0.7347	0.7870	7.0	94.6
	In-combination with the Project MID	0.9850	0.9850	0.0007	0.9836	0.9863	0.6752	0.6753	0.0134	0.6484	0.7009	1.1	99.3
	In-combination with the Project HIGH	0.9805	0.9805	0.0008	0.9790	0.9819	0.6003	0.5997	0.0130	0.5737	0.6254	0.1	100.0
30	Project alone LOW	0.9948	0.9948	0.0005	0.9938	0.9957	0.8501	0.8501	0.0141	0.8228	0.8770	20.7	81.7
	Project alone MID	0.9925	0.9925	0.0005	0.9915	0.9935	0.7917	0.7918	0.0138	0.7650	0.8174	10.9	89.8

YEAR	SCENARIO	CGR					CPS					QUANTILES	
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI	U=50%I	I=50%U
	Project alone HIGH	0.9902	0.9902	0.0005	0.9892	0.9912	0.7376	0.7379	0.0135	0.7122	0.7634	6.0	95.0
	In-combination without the Project	0.9902	0.9902	0.0005	0.9892	0.9912	0.7376	0.7373	0.0131	0.7111	0.7630	5.8	95.0
	In-combination with the Project LOW	0.9896	0.9896	0.0006	0.9885	0.9907	0.7228	0.7227	0.0134	0.6972	0.7491	4.5	96.3
	In-combination with the Project MID	0.9851	0.9851	0.0006	0.9838	0.9862	0.6280	0.6278	0.0131	0.6016	0.6525	0.6	99.6
	In-combination with the Project HIGH	0.9806	0.9806	0.0007	0.9792	0.9819	0.5454	0.5453	0.0125	0.5211	0.5695	0.0	100.0
35	Project alone LOW	0.9948	0.9948	0.0004	0.9940	0.9956	0.8286	0.8285	0.0145	0.8009	0.8566	18.8	82.5
	Project alone MID	0.9925	0.9925	0.0005	0.9916	0.9934	0.7631	0.7633	0.0143	0.7365	0.7904	9.5	91.3
	Project alone HIGH	0.9903	0.9903	0.0005	0.9892	0.9912	0.7034	0.7034	0.0135	0.6757	0.7287	4.1	96.1
	In-combination without the Project	0.9903	0.9903	0.0005	0.9893	0.9912	0.7025	0.7027	0.0136	0.6763	0.7289	4.1	96.1
	In-combination with the Project LOW	0.9896	0.9896	0.0005	0.9886	0.9905	0.6864	0.6866	0.0134	0.6596	0.7128	3.2	97.0
	In-combination with the Project MID	0.9851	0.9851	0.0006	0.9840	0.9862	0.5832	0.5833	0.0130	0.5579	0.6086	0.2	99.9
	In-combination with the Project HIGH	0.9807	0.9807	0.0006	0.9793	0.9818	0.4958	0.4956	0.0122	0.4706	0.5182	0.0	100.0

D.4.2.13.2 Puffin

Table D4-23 PVA metrics from 10 to 35 years for puffin from the Sule Skerry and Sule Stack SPA. (SD = standard deviation, LCI = lower confidence interval, UCI = upper confidence interval, U=50%I = the quantile from the unimpacted population that matched the 50% quantile for the impacted population, I=50%U = the quantile from the impacted population that match the 50% quantile for the unimpacted population)

YEAR	SCENARIO	CGR					CPS					QUANTILES	
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI	U=50%I	I=50%U
10	Project alone LOW	0.9994	0.9994	0.0006	0.9982	1.0005	0.9935	0.9935	0.0079	0.9770	1.0091	49.0	51.0
	Project alone MID	0.9992	0.9992	0.0006	0.9980	1.0004	0.9919	0.9916	0.0079	0.9748	1.0061	48.6	51.0
	Project alone HIGH	0.9990	0.9990	0.0006	0.9977	1.0003	0.9892	0.9889	0.0082	0.9726	1.0051	48.7	51.5
	In-combination without the Project	1.0000	1.0000	0.0006	0.9988	1.0013	1.0005	1.0003	0.0080	0.9849	1.0154	49.9	50.1
	In-combination with the Project LOW	0.9994	0.9994	0.0006	0.9982	1.0007	0.9935	0.9937	0.0078	0.9780	1.0091	49.4	51.3
	In-combination with the Project MID	0.9992	0.9992	0.0006	0.9979	1.0004	0.9917	0.9913	0.0080	0.9750	1.0074	49.2	51.2
	In-combination with the Project HIGH	0.9990	0.9990	0.0006	0.9977	1.0002	0.9889	0.9890	0.0080	0.9731	1.0056	48.6	51.8
15	Project alone LOW	0.9994	0.9994	0.0005	0.9984	1.0005	0.9912	0.9909	0.0095	0.9717	1.0098	49.4	50.5
	Project alone MID	0.9992	0.9992	0.0005	0.9981	1.0003	0.9879	0.9880	0.0095	0.9689	1.0064	49.5	50.8
	Project alone HIGH	0.9990	0.9990	0.0006	0.9978	1.0001	0.9840	0.9841	0.0097	0.9650	1.0040	49.0	51.1
	In-combination without the Project	1.0000	1.0000	0.0005	0.9989	1.0011	1.0005	1.0003	0.0095	0.9818	1.0188	50.1	49.9
	In-combination with the Project LOW	0.9994	0.9994	0.0005	0.9982	1.0004	0.9907	0.9904	0.0091	0.9718	1.0088	49.5	50.8
	In-combination with the Project MID	0.9992	0.9992	0.0006	0.9980	1.0003	0.9873	0.9874	0.0097	0.9672	1.0066	49.0	50.8

YEAR	SCENARIO	CGR					CPS					QUANTILES	
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI	U=50%I	I=50%U
	In-combination with the Project HIGH	0.9990	0.9990	0.0006	0.9979	1.0001	0.9838	0.9841	0.0095	0.9660	1.0041	48.8	51.4
20	Project alone LOW	0.9994	0.9994	0.0005	0.9985	1.0004	0.9880	0.9883	0.0113	0.9665	1.0125	48.9	50.7
	Project alone MID	0.9992	0.9992	0.0005	0.9983	1.0002	0.9839	0.9843	0.0112	0.9636	1.0054	48.5	51.2
	Project alone HIGH	0.9990	0.9990	0.0005	0.9980	1.0000	0.9797	0.9798	0.0113	0.9582	1.0016	47.2	51.5
	In-combination without the Project	1.0000	1.0000	0.0005	0.9990	1.0011	1.0009	1.0004	0.0115	0.9782	1.0238	49.6	50.3
	In-combination with the Project LOW	0.9994	0.9994	0.0005	0.9984	1.0004	0.9880	0.9879	0.0110	0.9662	1.0095	48.8	51.1
	In-combination with the Project MID	0.9992	0.9992	0.0005	0.9982	1.0002	0.9839	0.9837	0.0114	0.9603	1.0054	48.3	51.4
	In-combination with the Project HIGH	0.9990	0.9990	0.0005	0.9980	1.0001	0.9791	0.9796	0.0111	0.9579	1.0019	47.5	51.3
25	Project alone LOW	0.9994	0.9995	0.0005	0.9985	1.0004	0.9860	0.9859	0.0132	0.9609	1.0125	48.4	51.6
	Project alone MID	0.9992	0.9992	0.0005	0.9983	1.0003	0.9807	0.9807	0.0134	0.9554	1.0088	47.1	52.2
	Project alone HIGH	0.9990	0.9990	0.0005	0.9981	1.0000	0.9750	0.9755	0.0132	0.9500	1.0030	47.2	52.0
	In-combination without the Project	1.0000	1.0000	0.0005	0.9990	1.0011	1.0011	1.0007	0.0141	0.9729	1.0280	49.7	50.1
	In-combination with the Project LOW	0.9994	0.9994	0.0005	0.9984	1.0004	0.9852	0.9851	0.0131	0.9586	1.0116	48.4	51.4
	In-combination with the Project MID	0.9992	0.9992	0.0005	0.9982	1.0001	0.9805	0.9801	0.0135	0.9532	1.0045	47.5	52.0
	In-combination with the Project HIGH	0.9990	0.9990	0.0005	0.9980	1.0001	0.9743	0.9749	0.0132	0.9486	1.0020	46.7	52.3
30	Project alone LOW	0.9994	0.9994	0.0005	0.9985	1.0004	0.9826	0.9829	0.0151	0.9535	1.0142	48.0	51.3
	Project alone MID	0.9992	0.9992	0.0005	0.9983	1.0002	0.9769	0.9770	0.0154	0.9463	1.0060	47.5	51.7
	Project alone HIGH	0.9990	0.9990	0.0005	0.9980	1.0000	0.9708	0.9709	0.0155	0.9394	1.0001	47.5	51.9

YEAR	SCENARIO	CGR					CPS					QUANTILES	
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI	U=50%I	I=50%U
	In-combination without the Project	1.0000	1.0000	0.0005	0.9990	1.0011	1.0000	1.0006	0.0160	0.9704	1.0334	50.1	50.0
	In-combination with the Project LOW	0.9994	0.9994	0.0005	0.9984	1.0005	0.9815	0.9820	0.0156	0.9505	1.0140	48.7	51.1
	In-combination with the Project MID	0.9992	0.9992	0.0005	0.9981	1.0001	0.9760	0.9755	0.0157	0.9406	1.0034	47.2	52.0
	In-combination with the Project HIGH	0.9990	0.9990	0.0005	0.9980	0.9999	0.9692	0.9694	0.0153	0.9398	0.9976	47.6	52.2
35	Project alone LOW	0.9994	0.9994	0.0005	0.9985	1.0004	0.9802	0.9802	0.0177	0.9457	1.0175	48.7	51.3
	Project alone MID	0.9992	0.9992	0.0005	0.9983	1.0002	0.9722	0.9728	0.0175	0.9393	1.0080	48.2	51.9
	Project alone HIGH	0.9990	0.9990	0.0005	0.9981	1.0000	0.9660	0.9660	0.0175	0.9304	1.0011	47.8	52.4
	In-combination without the Project	1.0000	1.0000	0.0005	0.9990	1.0011	1.0001	1.0003	0.0181	0.9641	1.0374	50.0	50.1
	In-combination with the Project LOW	0.9994	0.9994	0.0005	0.9984	1.0004	0.9786	0.9786	0.0180	0.9436	1.0149	48.1	51.5
	In-combination with the Project MID	0.9992	0.9992	0.0005	0.9983	1.0001	0.9718	0.9719	0.0184	0.9378	1.0052	47.9	51.6
	In-combination with the Project HIGH	0.9990	0.9990	0.0005	0.9980	0.9999	0.9637	0.9643	0.0176	0.9292	0.9980	47.5	52.3

D.4.2.13.3 Gannet

Table D4-24 PVA metrics from 10 to 35 years for gannet from the Sule Skerry and Sule Stack SPA. (SD = standard deviation, LCI = lower confidence interval, UCI = upper confidence interval, U=50%I = the quantile from the unimpacted population that matched the 50% quantile for the impacted population, I=50%U = the quantile from the impacted population that match the 50% quantile for the unimpacted population)

YEAR	SCENARIO	CGR					CPS					QUANTILES	
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI	U=50%I	I=50%U
10	Project alone LOW	0.9984	0.9984	0.0011	0.9962	1.0006	0.9833	0.9824	0.0171	0.9485	1.0128	46.0	54.7
	Project alone MID	0.9982	0.9982	0.0011	0.9961	1.0005	0.9806	0.9804	0.0171	0.9481	1.0149	46.1	55.0
	Project alone HIGH	0.9980	0.9980	0.0011	0.9958	1.0001	0.9775	0.9778	0.0166	0.9443	1.0109	44.7	55.7
	In-combination without the Project	0.9996	0.9996	0.0011	0.9975	1.0018	0.9955	0.9952	0.0170	0.9607	1.0284	49.0	50.8
	In-combination with the Project LOW	0.9980	0.9979	0.0011	0.9958	1.0002	0.9777	0.9773	0.0171	0.9438	1.0105	45.2	56.3
	In-combination with the Project MID	0.9977	0.9978	0.0012	0.9955	1.0000	0.9756	0.9757	0.0170	0.9423	1.0098	44.4	56.1
	In-combination with the Project HIGH	0.9975	0.9975	0.0011	0.9954	0.9997	0.9731	0.9730	0.0165	0.9434	1.0053	42.6	57.3
15	Project alone LOW	0.9985	0.9985	0.0009	0.9966	1.0003	0.9762	0.9753	0.0187	0.9388	1.0095	44.2	55.3
	Project alone MID	0.9982	0.9982	0.0009	0.9965	1.0000	0.9723	0.9720	0.0183	0.9377	1.0059	44.0	56.2
	Project alone HIGH	0.9980	0.9980	0.0009	0.9962	0.9998	0.9683	0.9686	0.0182	0.9314	1.0044	43.5	57.8
	In-combination without the Project	0.9996	0.9996	0.0009	0.9979	1.0014	0.9924	0.9930	0.0185	0.9564	1.0289	48.7	51.3
	In-combination with the Project LOW	0.9980	0.9980	0.0009	0.9963	0.9997	0.9684	0.9680	0.0185	0.9328	1.0029	43.3	57.1
	In-combination with the Project MID	0.9978	0.9978	0.0009	0.9960	0.9996	0.9652	0.9652	0.0188	0.9299	1.0034	41.9	58.3

YEAR	SCENARIO	CGR					CPS					QUANTILES	
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI	U=50%I	I=50%U
	In-combination with the Project HIGH	0.9976	0.9976	0.0009	0.9958	0.9994	0.9615	0.9616	0.0179	0.9278	0.9966	41.9	59.2
20	Project alone LOW	0.9984	0.9985	0.0008	0.9969	1.0000	0.9683	0.9679	0.0198	0.9272	1.0042	43.8	56.5
	Project alone MID	0.9983	0.9983	0.0008	0.9968	0.9999	0.9645	0.9641	0.0199	0.9279	1.0039	42.1	56.7
	Project alone HIGH	0.9980	0.9980	0.0008	0.9965	0.9995	0.9586	0.9594	0.0196	0.9207	0.9956	42.1	57.9
	In-combination without the Project	0.9995	0.9996	0.0008	0.9980	1.0011	0.9899	0.9906	0.0202	0.9521	1.0291	48.4	52.1
	In-combination with the Project LOW	0.9980	0.9980	0.0008	0.9964	0.9996	0.9587	0.9584	0.0195	0.9196	0.9958	41.8	58.5
	In-combination with the Project MID	0.9978	0.9978	0.0008	0.9962	0.9994	0.9542	0.9551	0.0199	0.9164	0.9933	41.1	59.0
	In-combination with the Project HIGH	0.9976	0.9976	0.0008	0.9961	0.9992	0.9507	0.9507	0.0195	0.9147	0.9892	39.8	59.6
25	Project alone LOW	0.9984	0.9984	0.0007	0.9971	0.9998	0.9605	0.9603	0.0211	0.9195	0.9992	42.4	58.4
	Project alone MID	0.9982	0.9983	0.0007	0.9969	0.9998	0.9549	0.9557	0.0214	0.9173	0.9984	41.7	59.0
	Project alone HIGH	0.9980	0.9980	0.0007	0.9967	0.9993	0.9492	0.9495	0.0209	0.9084	0.9892	40.1	60.1
	In-combination without the Project	0.9995	0.9995	0.0007	0.9981	1.0010	0.9870	0.9879	0.0217	0.9448	1.0318	47.3	53.0
	In-combination with the Project LOW	0.9980	0.9980	0.0007	0.9965	0.9994	0.9495	0.9490	0.0211	0.9080	0.9905	40.3	60.0
	In-combination with the Project MID	0.9978	0.9978	0.0007	0.9965	0.9992	0.9450	0.9447	0.0212	0.9055	0.9877	39.6	61.2
	In-combination with the Project HIGH	0.9976	0.9976	0.0007	0.9962	0.9990	0.9394	0.9392	0.0206	0.8997	0.9808	38.5	61.6
30	Project alone LOW	0.9984	0.9985	0.0006	0.9972	0.9997	0.9530	0.9530	0.0224	0.9087	0.9951	42.0	57.6
	Project alone MID	0.9982	0.9983	0.0007	0.9970	0.9996	0.9462	0.9474	0.0225	0.9070	0.9907	40.8	59.1
	Project alone HIGH	0.9980	0.9980	0.0006	0.9968	0.9993	0.9400	0.9409	0.0218	0.8988	0.9842	39.5	59.8

YEAR	SCENARIO	CGR					CPS					QUANTILES	
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI	U=50%I	I=50%U
	In-combination without the Project	0.9995	0.9995	0.0007	0.9983	1.0009	0.9849	0.9855	0.0227	0.9432	1.0322	47.1	52.5
	In-combination with the Project LOW	0.9980	0.9980	0.0006	0.9968	0.9993	0.9394	0.9398	0.0221	0.8984	0.9852	39.7	59.8
	In-combination with the Project MID	0.9978	0.9978	0.0006	0.9966	0.9991	0.9341	0.9348	0.0219	0.8938	0.9778	38.8	60.8
	In-combination with the Project HIGH	0.9976	0.9976	0.0007	0.9963	0.9988	0.9280	0.9283	0.0218	0.8853	0.9703	37.2	62.1
35	Project alone LOW	0.9985	0.9984	0.0006	0.9973	0.9995	0.9459	0.9455	0.0235	0.9000	0.9902	41.2	59.1
	Project alone MID	0.9982	0.9983	0.0006	0.9972	0.9995	0.9386	0.9394	0.0234	0.8948	0.9860	39.1	60.8
	Project alone HIGH	0.9980	0.9980	0.0006	0.9968	0.9991	0.9314	0.9315	0.0228	0.8867	0.9759	37.3	61.7
	In-combination without the Project	0.9995	0.9995	0.0006	0.9984	1.0007	0.9826	0.9832	0.0238	0.9365	1.0300	45.9	53.0
	In-combination with the Project LOW	0.9980	0.9980	0.0006	0.9969	0.9992	0.9302	0.9307	0.0232	0.8866	0.9795	37.3	62.7
	In-combination with the Project MID	0.9978	0.9978	0.0006	0.9967	0.9990	0.9236	0.9247	0.0232	0.8818	0.9718	36.8	63.4
	In-combination with the Project HIGH	0.9976	0.9976	0.0006	0.9964	0.9988	0.9165	0.9172	0.0227	0.8713	0.9630	35.4	65.1

D.4.2.14 West Westray SPA

D.4.2.14.1 Kittiwake

Table D4-25 PVA metrics from 10 to 35 years for kittiwake from the West Westray SPA. (SD = standard deviation, LCI = lower confidence interval, UCI = upper confidence interval, U=50%I = the quantile from the unimpacted population that matched the 50% quantile for the impacted population, I=50%U = the quantile from the impacted population that match the 50% quantile for the unimpacted population)

YEAR	SCENARIO	CGR					CPS					QUANTILES	
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI	U=50%I	I=50%U
10	Project alone LOW	0.9997	0.9998	0.0023	0.9953	1.0043	0.9976	0.9983	0.0314	0.9401	1.0655	51.1	49.2
	Project alone MID	0.9998	0.9998	0.0023	0.9954	1.0045	0.9984	0.9990	0.0334	0.9320	1.0672	51.1	49.0
	Project alone HIGH	0.9998	0.9998	0.0024	0.9949	1.0043	0.9988	1.0000	0.0316	0.9376	1.0627	51.1	49.1
	In-combination without the Project	0.9913	0.9912	0.0026	0.9861	0.9961	0.9088	0.9092	0.0301	0.8480	0.9676	40.1	59.0
	In-combination with the Project LOW	0.9911	0.9910	0.0024	0.9860	0.9955	0.9069	0.9065	0.0300	0.8496	0.9656	40.1	59.9
	In-combination with the Project MID	0.9911	0.9911	0.0025	0.9863	0.9958	0.9070	0.9078	0.0291	0.8492	0.9619	40.4	59.2
	In-combination with the Project HIGH	0.9911	0.9910	0.0024	0.9859	0.9957	0.9066	0.9066	0.0293	0.8490	0.9621	39.6	58.6
15	Project alone LOW	0.9999	0.9999	0.0018	0.9964	1.0036	0.9970	0.9983	0.0345	0.9315	1.0679	50.2	49.4
	Project alone MID	0.9998	0.9998	0.0019	0.9963	1.0036	0.9991	0.9993	0.0367	0.9298	1.0722	50.2	49.9
	Project alone HIGH	0.9999	0.9998	0.0019	0.9960	1.0035	0.9988	0.9998	0.0357	0.9341	1.0718	49.8	50.4
	In-combination without the Project	0.9915	0.9914	0.0021	0.9871	0.9952	0.8740	0.8730	0.0331	0.8102	0.9370	37.6	63.3
	In-combination with the Project LOW	0.9911	0.9912	0.0020	0.9872	0.9953	0.8687	0.8691	0.0324	0.8089	0.9365	37.6	63.7

YEAR	SCENARIO	CGR					CPS					QUANTILES	
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI	U=50%I	I=50%U
	In-combination with the Project MID	0.9913	0.9912	0.0020	0.9873	0.9951	0.8700	0.8705	0.0318	0.8080	0.9341	37.7	63.4
	In-combination with the Project HIGH	0.9913	0.9913	0.0020	0.9869	0.9951	0.8693	0.8699	0.0320	0.8037	0.9350	36.9	63.0
20	Project alone LOW	0.9999	0.9999	0.0016	0.9965	1.0030	0.9951	0.9975	0.0382	0.9277	1.0735	50.3	49.3
	Project alone MID	0.9998	0.9999	0.0016	0.9966	1.0031	0.9985	0.9990	0.0396	0.9244	1.0818	50.2	49.9
	Project alone HIGH	0.9998	0.9999	0.0017	0.9968	1.0032	0.9986	0.9994	0.0394	0.9279	1.0797	49.9	50.2
	In-combination without the Project	0.9916	0.9915	0.0018	0.9879	0.9949	0.8383	0.8375	0.0349	0.7680	0.9056	35.9	66.2
	In-combination with the Project LOW	0.9913	0.9913	0.0017	0.9880	0.9947	0.8341	0.8334	0.0345	0.7686	0.9064	35.1	66.1
	In-combination with the Project MID	0.9914	0.9913	0.0017	0.9878	0.9945	0.8359	0.8343	0.0338	0.7700	0.8980	34.9	65.7
	In-combination with the Project HIGH	0.9914	0.9913	0.0017	0.9879	0.9946	0.8334	0.8338	0.0342	0.7678	0.9003	35.2	65.8
25	Project alone LOW	0.9999	0.9999	0.0015	0.9969	1.0026	0.9962	0.9970	0.0427	0.9212	1.0825	50.1	49.9
	Project alone MID	0.9999	0.9999	0.0015	0.9971	1.0030	0.9981	0.9995	0.0439	0.9159	1.0942	50.4	49.4
	Project alone HIGH	0.9999	0.9999	0.0015	0.9971	1.0028	0.9988	0.9996	0.0434	0.9178	1.0862	49.6	50.6
	In-combination without the Project	0.9916	0.9916	0.0017	0.9881	0.9945	0.8055	0.8038	0.0380	0.7266	0.8752	32.8	67.1
	In-combination with the Project LOW	0.9913	0.9913	0.0016	0.9880	0.9944	0.7990	0.7990	0.0375	0.7281	0.8747	32.2	67.3
	In-combination with the Project MID	0.9913	0.9913	0.0016	0.9880	0.9942	0.8001	0.7988	0.0360	0.7300	0.8622	32.3	67.6
	In-combination with the Project HIGH	0.9914	0.9914	0.0016	0.9880	0.9945	0.7987	0.7990	0.0369	0.7261	0.8712	32.5	67.4
30	Project alone LOW	0.9998	0.9998	0.0014	0.9972	1.0026	0.9951	0.9955	0.0456	0.9158	1.0898	49.8	50.4
	Project alone MID	0.9998	0.9999	0.0014	0.9973	1.0027	0.9986	0.9987	0.0479	0.9111	1.1036	50.1	49.6

YEAR	SCENARIO	CGR					CPS					QUANTILES	
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI	U=50%I	I=50%U
	Project alone HIGH	0.9999	0.9999	0.0014	0.9974	1.0026	0.9993	0.9994	0.0459	0.9150	1.0928	50.0	50.0
	In-combination without the Project	0.9916	0.9916	0.0015	0.9885	0.9944	0.7715	0.7715	0.0398	0.6936	0.8527	32.4	68.5
	In-combination with the Project LOW	0.9914	0.9914	0.0015	0.9884	0.9941	0.7668	0.7666	0.0379	0.6927	0.8424	31.8	69.0
	In-combination with the Project MID	0.9914	0.9914	0.0015	0.9883	0.9941	0.7660	0.7662	0.0376	0.6937	0.8396	31.6	69.9
	In-combination with the Project HIGH	0.9915	0.9914	0.0015	0.9883	0.9941	0.7655	0.7659	0.0371	0.6919	0.8384	31.9	69.8
35	Project alone LOW	0.9998	0.9998	0.0013	0.9974	1.0024	0.9943	0.9944	0.0492	0.9084	1.1003	49.9	50.6
	Project alone MID	0.9999	0.9999	0.0013	0.9973	1.0026	0.9975	0.9982	0.0514	0.9005	1.1105	49.9	50.2
	Project alone HIGH	0.9999	0.9999	0.0013	0.9975	1.0025	0.9994	0.9982	0.0493	0.9061	1.0963	49.8	50.2
	In-combination without the Project	0.9917	0.9916	0.0014	0.9887	0.9943	0.7425	0.7410	0.0404	0.6598	0.8196	30.9	71.4
	In-combination with the Project LOW	0.9914	0.9914	0.0014	0.9887	0.9941	0.7335	0.7346	0.0391	0.6603	0.8091	30.3	71.8
	In-combination with the Project MID	0.9915	0.9914	0.0014	0.9886	0.9940	0.7350	0.7351	0.0392	0.6586	0.8109	29.4	71.9
	In-combination with the Project HIGH	0.9915	0.9914	0.0014	0.9885	0.9940	0.7363	0.7347	0.0389	0.6553	0.8078	29.5	71.6

D.4.3 Projected population plots

The NE PVA tool provides plots of the projected baseline and impacted populations for each population model run. These plots are provided below for the impacts from the Project alone, in-combination without the Project and in-combination with the Project. However, it is important to note that these population projections are not representative projections of future population trends. This is due to the assumptions, used in the model; that populations are density independent, and that population are closed (there is no immigration or emigration). It is highly unlikely that any populations act in a density independent manner (Horswill & Robinson 2015) or is closed. The population models are a useful tool in the assessment of risk to populations from the Project alone and in-combination, rather than a tool for predicting future population size. Therefore, the plots below are only illustrative and were requested by NatureScot.

D.4.3.1 Calf of Eday

D.4.3.1.1 Great black-backed gull

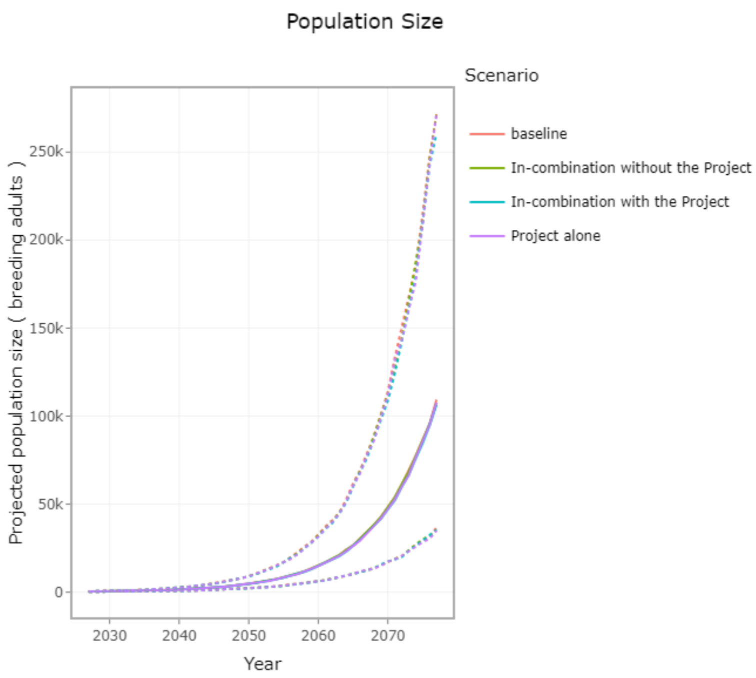

Figure D4-1 Projected population size plots for great black-backed gull from the Calf of Eday SPA from the Project alone, in-combination without the Project and in-combination with the Project

D.4.3.2 Cape Wrath SPA

D.4.3.2.1 Kittiwake

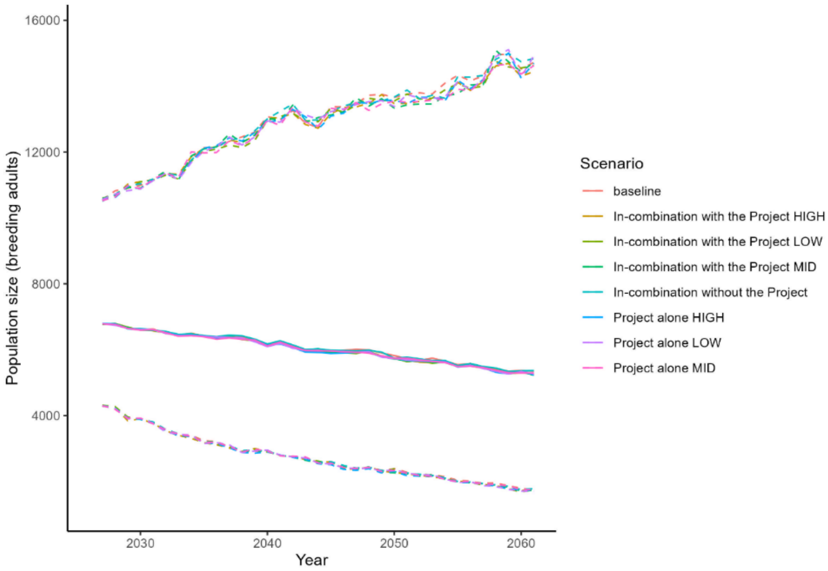

Figure D4-2 Projected population size plots for kittiwake from the Cape Wrath SPA from the Project alone, in-combination without the Project and in-combination with the Project

D.4.3.2.2 Razorbill

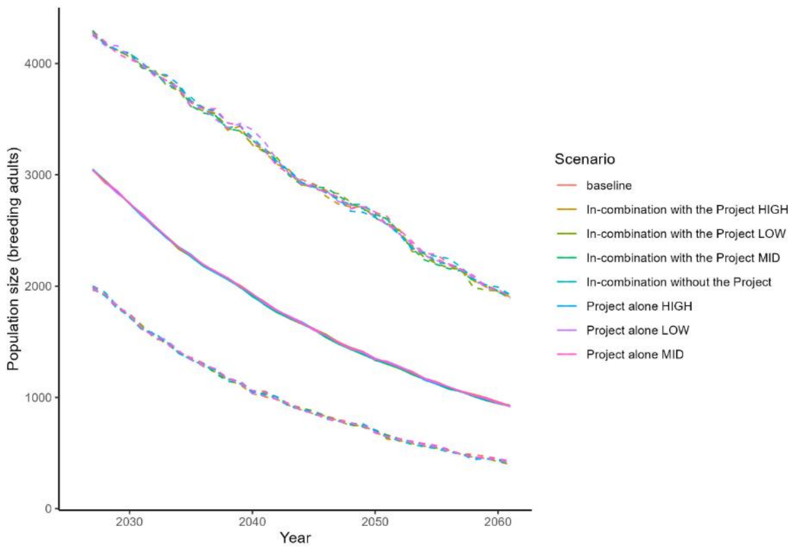

Figure D4-3 Projected population size plots for razorbill from the Cape Wrath SPA from the Project alone, in-combination without the Project and in-combination with the Project

D.4.3.3 Copinsay SPA

D.4.3.3.1 Great black-backed gull

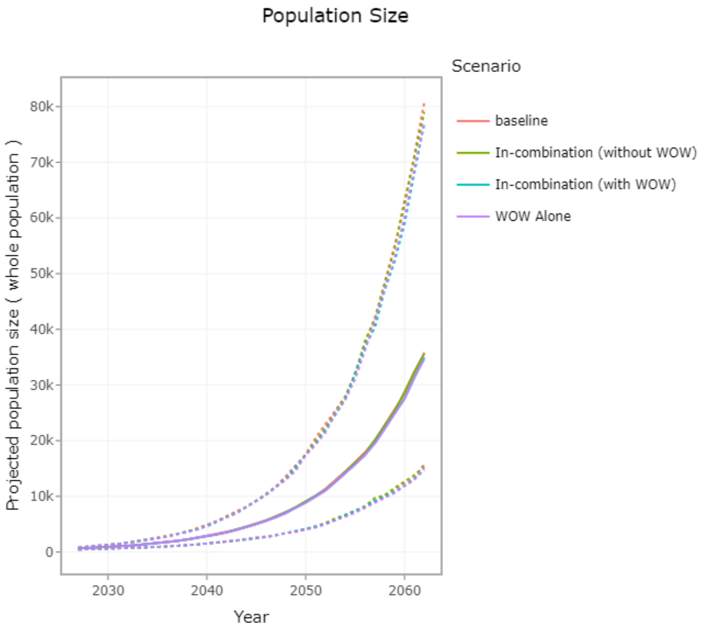

Figure D4-4 Projected population size plots for great black-backed gull from the Copinsay SPA from the Project alone, in-combination without the Project and in-combination with the Project

D.4.3.4 East Caithness Cliffs SPA

D.4.3.4.1 Kittiwake

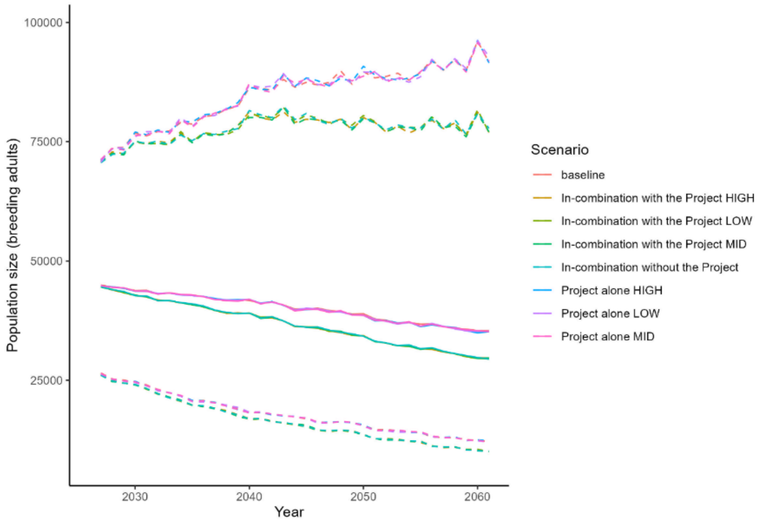

Figure D4-5 Projected population size plots for kittiwake from the East Caithness Cliffs SPA from the Project alone, in-combination without the Project and in-combination with the Project

D.4.3.4.2 Great black-backed gull

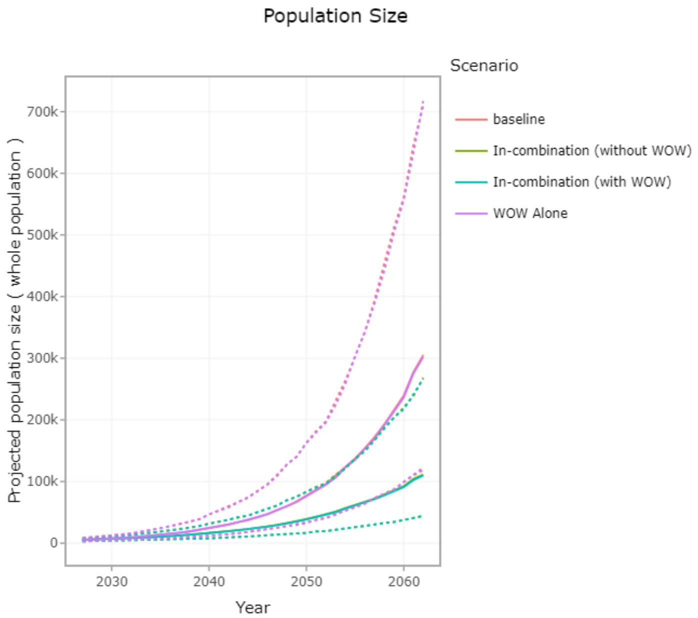

Figure D4-6 Projected population size plots for great black-backed gull from the East Caithness Cliffs SPA from the Project alone, in-combination without the Project and in-combination with the Project

D.4.3.4.3 Guillemot

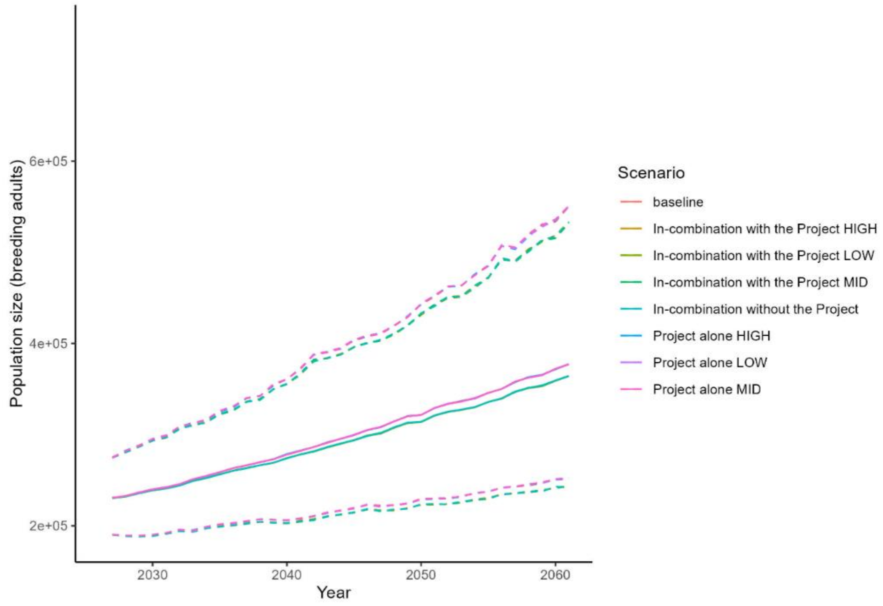

Figure D4-7 Projected population size plots for guillemot from the East Caithness Cliffs SPA from the Project alone, in-combination without the Project and in-combination with the Project

D.4.3.5 Handa SPA

5.4.3.5.1 Razorbill

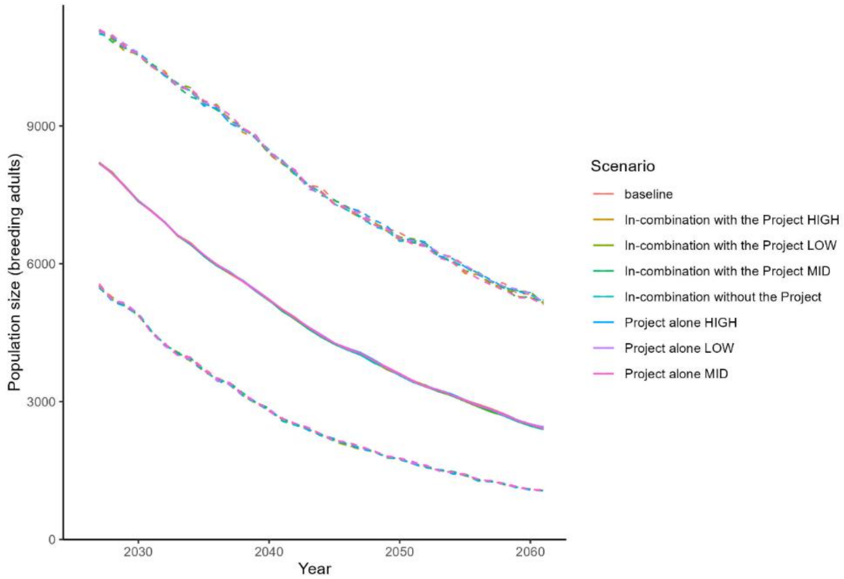

Figure D4-8 Projected population size plots for razorbill from the Handa SPA from the Project alone, in-combination without the Project and in-combination with the Project

D.4.3.6 Hermaness, Saxa Vord and Valla Field SPA

D.4.3.6.1 Kittiwake

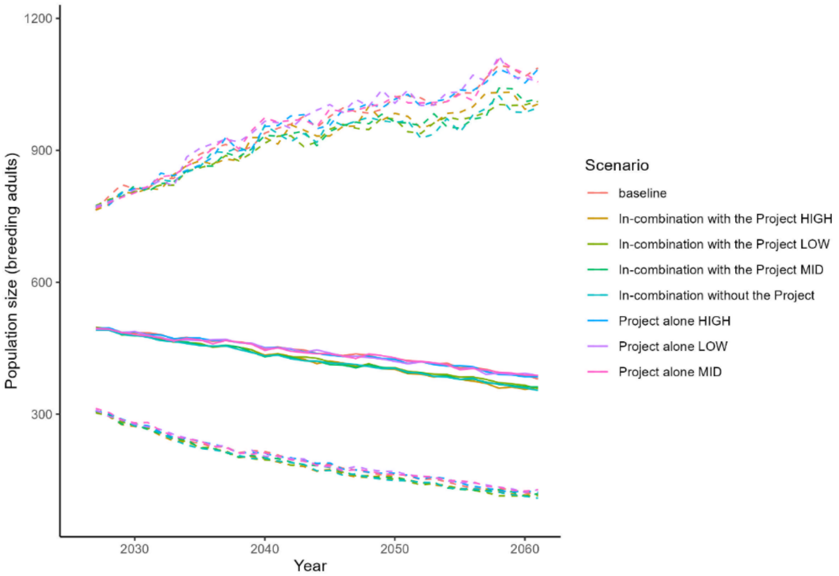

Figure D4-9 Projected population size plots for kittiwake from the Hermaness, Saxa Vord and Valla Field SPA from the Project alone, in-combination without the Project and in-combination with the Project

D.4.3.6.2 Gannet

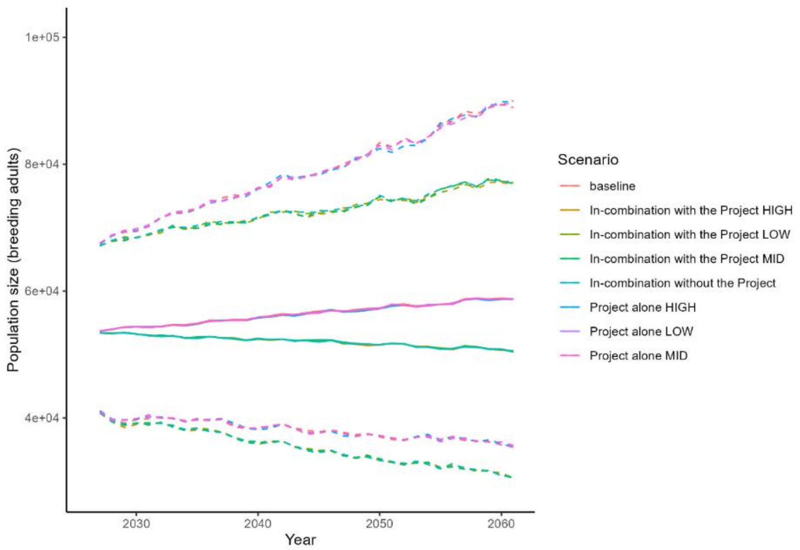

Figure D4-10 Projected population size plots for gannet from the Hermaness, Saxa Vord and Valla Field SPA from the Project alone, in-combination without the Project and in-combination with the Project

D..4.3.7 Hoy SPA

D.4.3.7.1 Kittiwake

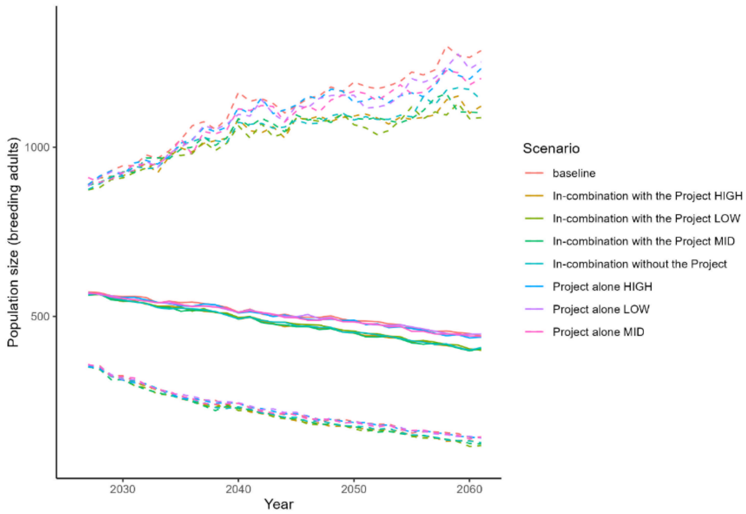

Figure D4-11 Projected population size plots for kittiwake from the Hoy SPA from the Project alone, in-combination without the Project and in-combination with the Project

D.4.3.7.2 Great skua

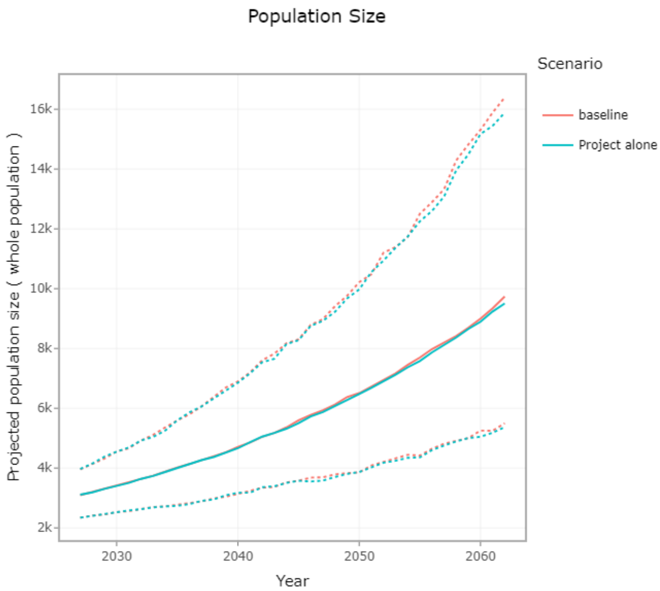

Figure D4-12 Projected population size plots for great skua from the Hoy SPA from the Project alone, in-combination without the Project and in-combination with the Project

D.4.3.8 Marwick Head SPA

D.4.3.8.1 Kittiwake

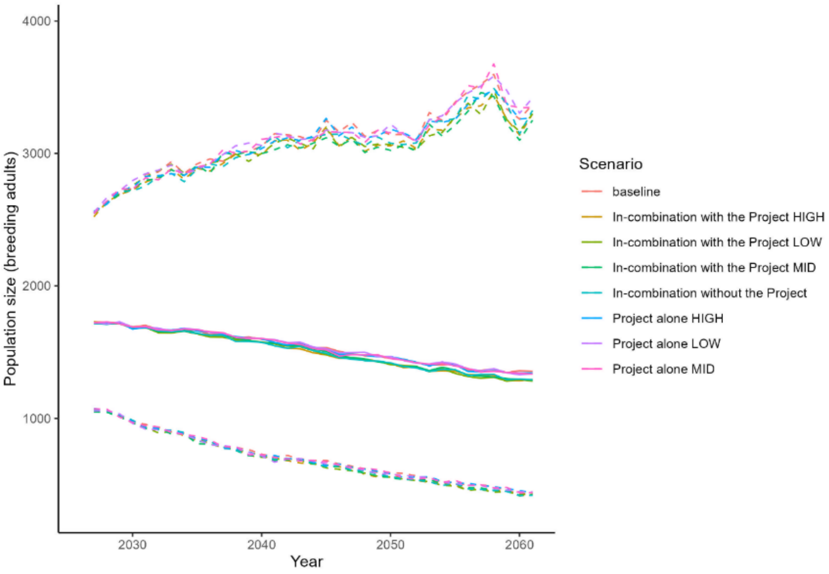

Figure D4-13 Projected population size plots for kittiwake from the Marwick Head SPA from the Project alone, in-combination without the Project and in-combination with the Project

D.4.3.9 North Caithness Cliffs SPA

D.4.3.9.1 Kittiwake

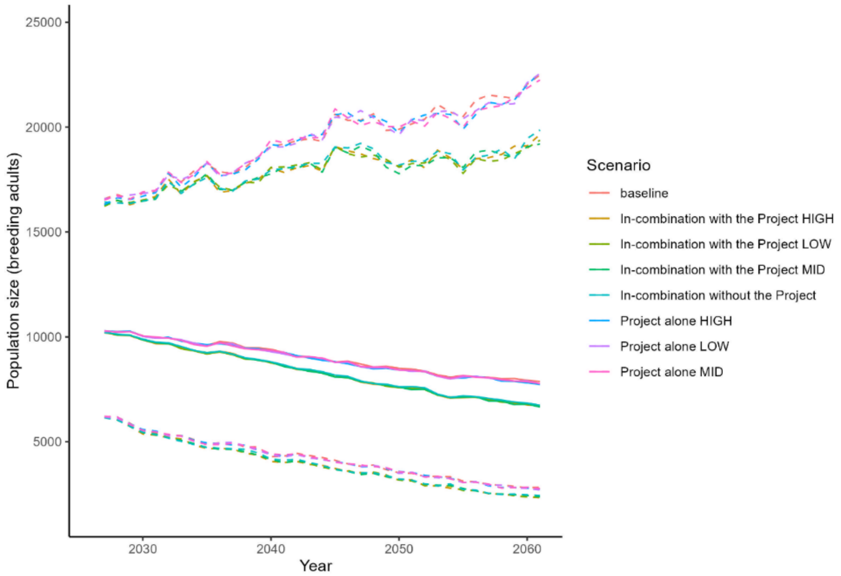

Figure D4-14 Projected population size plots for kittiwake from the North Caithness Cliffs SPA from the Project alone, in-combination without the Project and in-combination with the Project

D.4.3.9.2 Guillemot

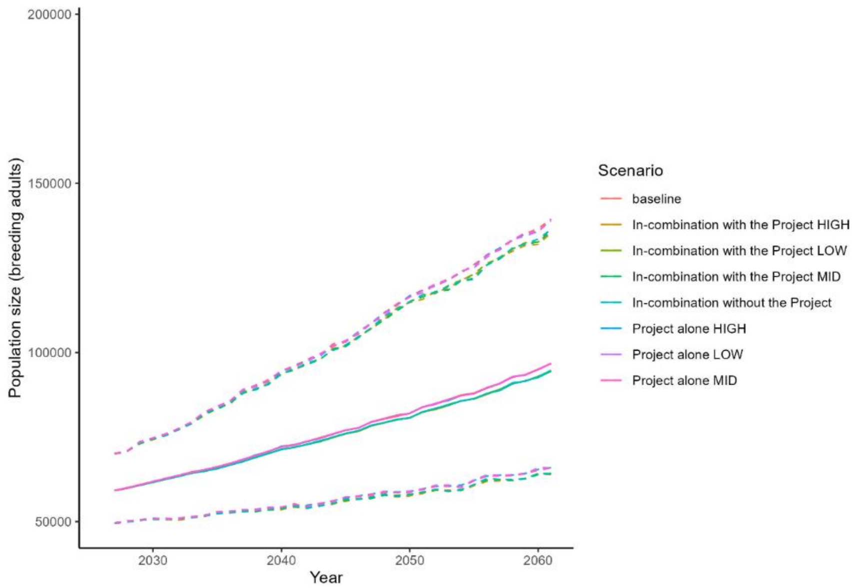

Figure D4-15 Projected population size plots for guillemot from the North Caithness Cliffs SPA from the Project alone, in-combination without the Project and in-combination with the Project

D.4.3.9.3 Puffin

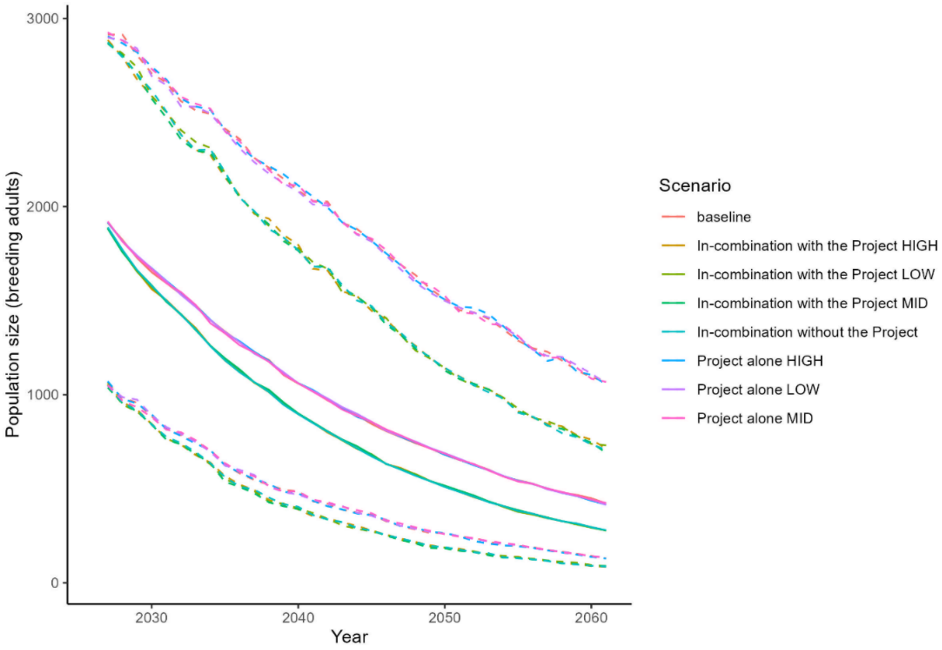

Figure D4-16 Projected population size plots for puffin from the North Caithness Cliffs SPA from the Project alone, in-combination without the Project and in-combination with the Project

D.4.3.10 North Rona and Sula Sgeir SPA

D.4.3.10.1 Great black-backed gull

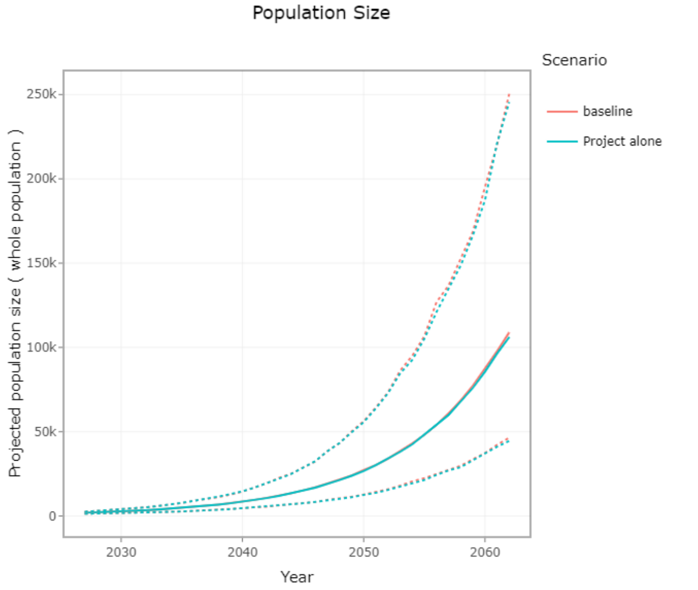

Figure D4-17 Projected population size plots for great black-backed gull from the North Rona and Sula Sgeir SPA from the Project alone, in-combination without the Project and in-combination with the Project

D.4.3.10.2 Gannet

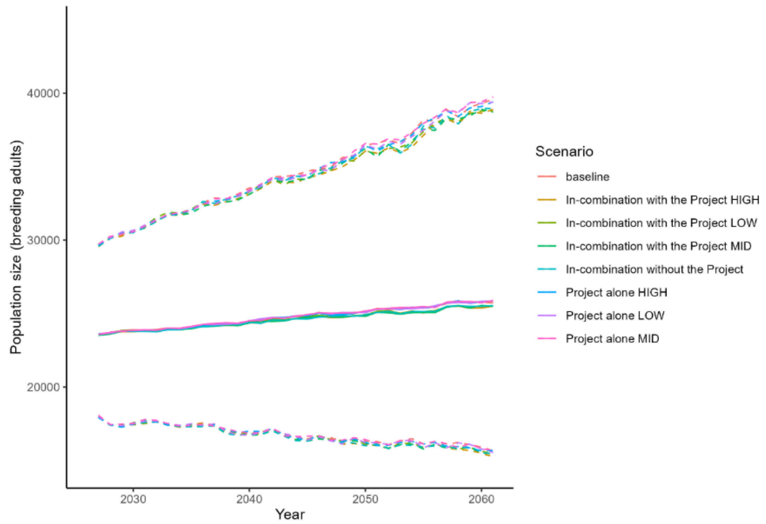

Figure D4-18 Projected population size plots for gannet from the North Rona and Sula Sgeir SPA from the Project alone, in-combination without the Project and in-combination with the Project

D.4.3.11 Rousay SPA

D.4.3.11.1 Kittiwake

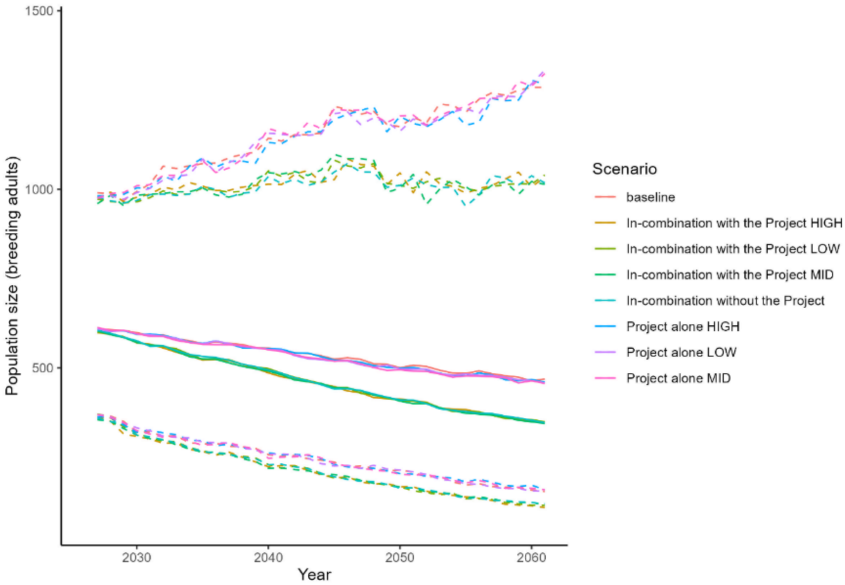

Figure D4-19 Projected population size plots for kittiwake from the Rousay SPA from the Project alone, in-combination without the Project and in-combination with the Project

D.4.3.12 St Kilda SPA

D.4.3.12.1 Gannet

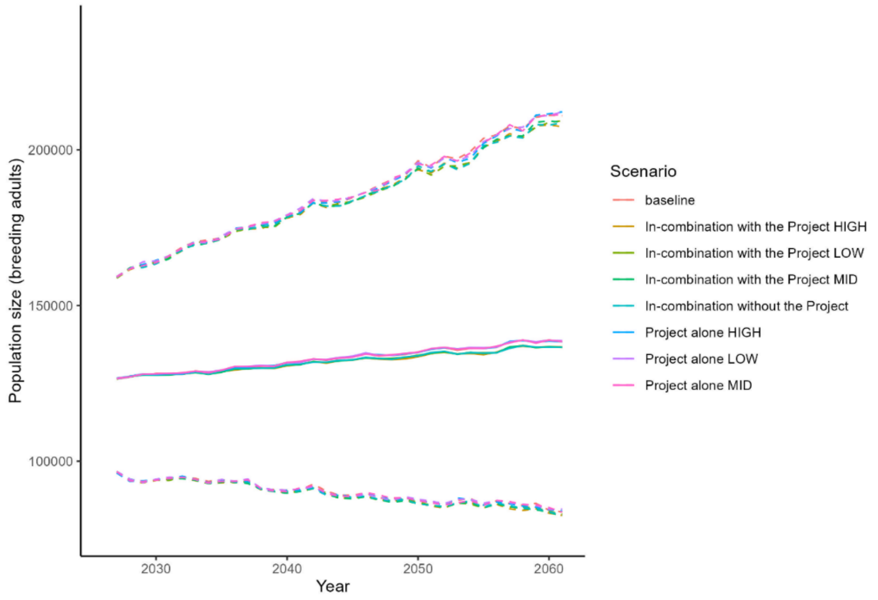

Figure D4-20 Projected population size plots for gannet from the St Kilda SPA from the Project alone, in-combination without the Project and in-combination with the Project

D.4.3.13 Sule Skerry and Sule Stack SPA

D.4.3.13.1 Guillemot

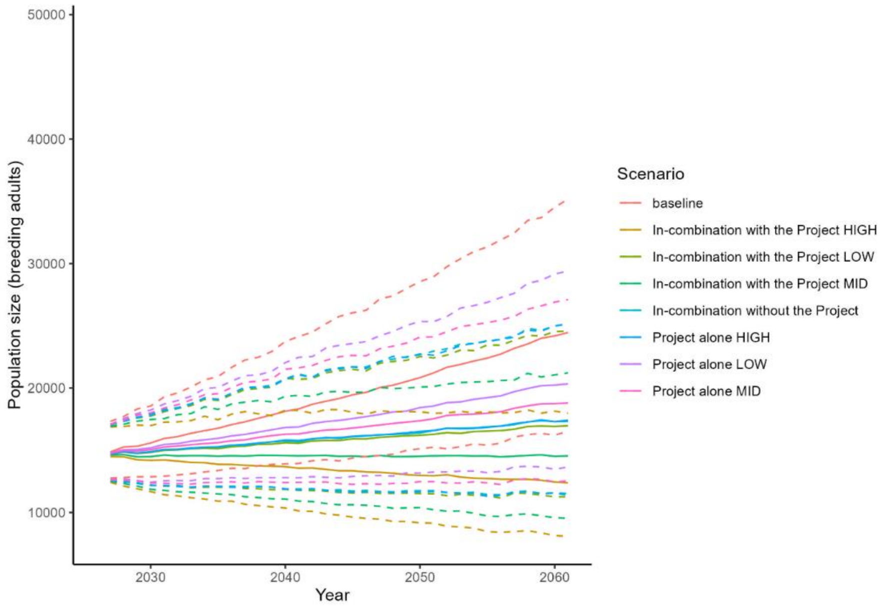

Figure D4-21 Projected population size plots for guillemot from the Sule Skerry and Sule Stack SPA from the Project alone, in-combination without the Project and in-combination with the Project

D.4.3.13.2 Puffin

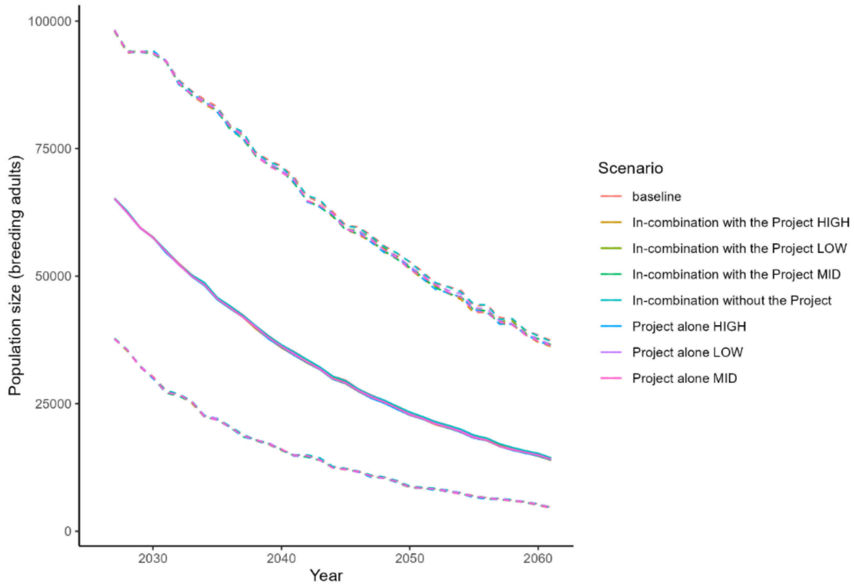

Figure D4-22 Projected population size plots for puffin from the Sule Skerry and Sule Stack SPA from the Project alone, in-combination without the Project and in-combination with the Project

D.4.3.13.3 Gannet

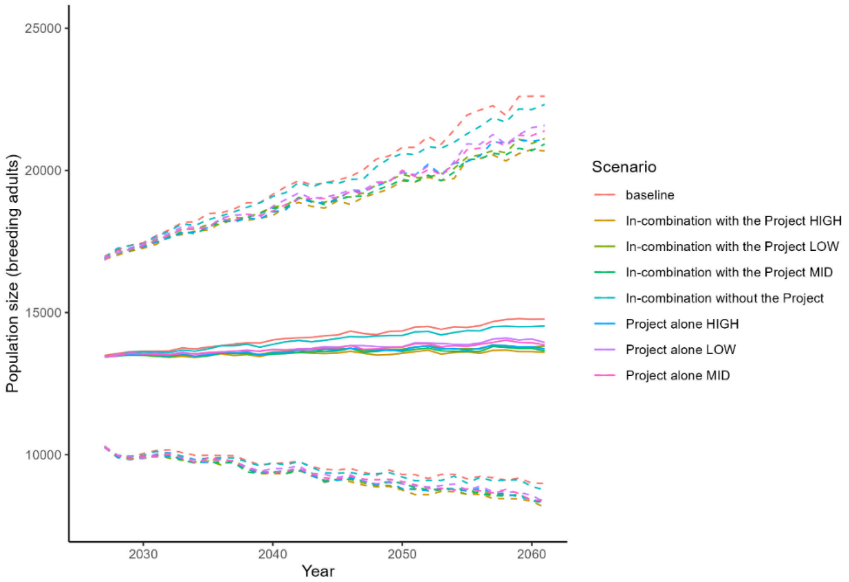

Figure D4-23 Projected population size plots for gannet from the Sule Skerry and Sule Stack SPA from the Project alone, in-combination without the Project and in-combination with the Project

D.4.3.14 West Westray SPA

D.4.3.14.1 Kittiwake

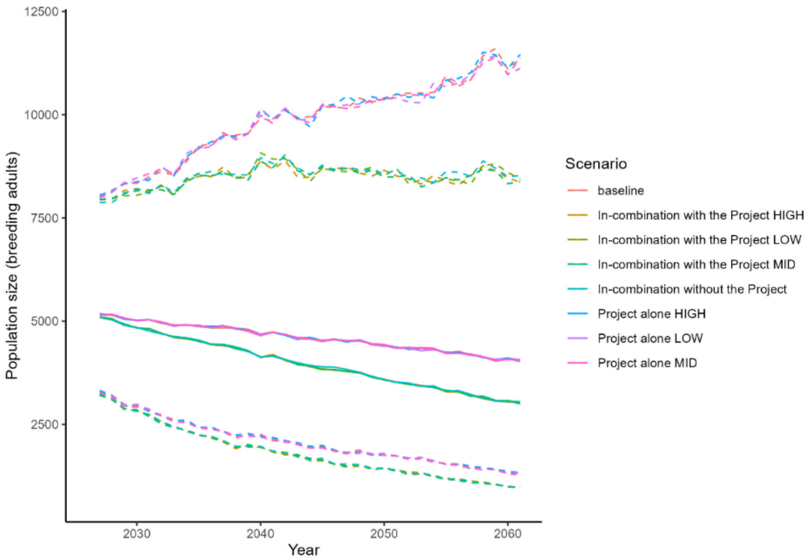

Figure D4-24 Projected population size plots for kittiwake from the West Westray SPA from the Project alone, in-combination without the Project and in-combination with the Project

APPENDIX E POPULATION VIABILITY ANALYSIS OF SPAS WITH DE MINIMIS IMPACTS FROM THE PROJECT ALONE

E.1 Ailsa Craig SPA

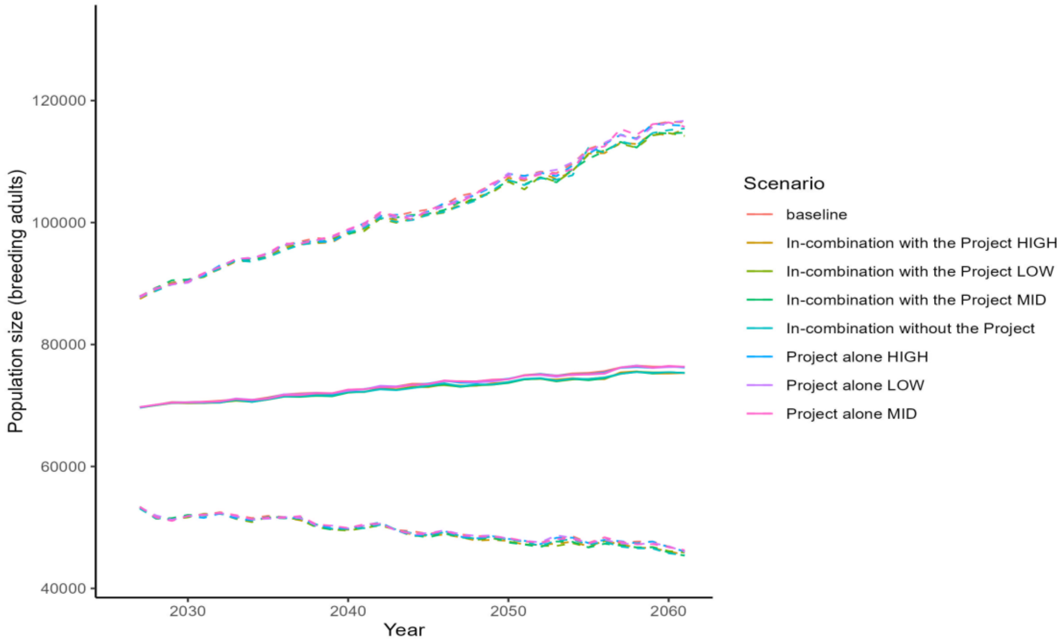

Figure E1-1 Projected population size of the breeding gannet feature of the Ailsa Craig SPA for the baseline (unimpacted), Project alone, in-combination impacts without the Project and in-combination with the Project from 2027 to 2062. Solid line = mean, dashed line = S.D.

Table E1-1 Summary of PVA metrics for the gannet population from Sule Skerry and Sule Stack SPA for the Project alone, in-combination without the Project and in-combination including the Project. Based on the assessment of in-combination impacts and population sizes for the BDMPS UK western waters & Channel during Spring migration (January to April) SD = standard deviation, LCI = lower confidence interval, UCI = upper confidence interval.

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone LOW	10	0.9999	0.9999	0.0005	0.9990	1.0009	0.9992	0.9995	0.0076	0.9849	1.0140	49.7	50.6
Project alone MID	10	1.0000	0.9999	0.0005	0.9990	1.0009	0.9991	0.9994	0.0076	0.9849	1.0148	49.5	51.0
Project alone HIGH	10	1.0000	1.0000	0.0005	0.9990	1.0009	0.9998	0.9996	0.0073	0.9856	1.0136	49.7	51.0
In-combination without the Project	10	0.9996	0.9996	0.0005	0.9986	1.0006	0.9956	0.9956	0.0073	0.9808	1.0103	49.1	51.5
In-combination with the Project LOW	10	0.9996	0.9996	0.0005	0.9986	1.0006	0.9954	0.9955	0.0077	0.9809	1.0109	49.1	51.8

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project MID	10	0.9996	0.9996	0.0005	0.9986	1.0005	0.9954	0.9953	0.0075	0.9807	1.0106	48.6	51.6
In-combination with the Project HIGH	10	0.9996	0.9996	0.0005	0.9986	1.0006	0.9953	0.9954	0.0076	0.9809	1.0095	48.8	51.8
Project alone LOW	20	1.0000	1.0000	0.0004	0.9992	1.0007	0.9990	0.9993	0.0082	0.9838	1.0158	50.3	49.9
Project alone MID	20	1.0000	1.0000	0.0004	0.9992	1.0007	0.9989	0.9993	0.0083	0.9834	1.0158	49.6	50.4
Project alone HIGH	20	1.0000	1.0000	0.0004	0.9992	1.0007	0.9994	0.9993	0.0080	0.9840	1.0152	50.1	49.9
In-combination without the Project	20	0.9996	0.9996	0.0004	0.9988	1.0004	0.9936	0.9936	0.0081	0.9778	1.0092	48.5	50.9

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project LOW	20	0.9996	0.9996	0.0004	0.9988	1.0004	0.9935	0.9933	0.0084	0.9771	1.0109	48.7	50.6
In-combination with the Project MID	20	0.9996	0.9996	0.0004	0.9988	1.0004	0.9932	0.9933	0.0082	0.9764	1.0091	48.8	51.1
In-combination with the Project HIGH	20	0.9996	0.9996	0.0004	0.9987	1.0004	0.9931	0.9933	0.0083	0.9768	1.0093	48.9	50.8
Project alone LOW	30	1.0000	1.0000	0.0003	0.9993	1.0006	0.9987	0.9991	0.0089	0.9819	1.0167	49.9	50.2
Project alone MID	30	1.0000	1.0000	0.0003	0.9993	1.0006	0.9988	0.9991	0.0090	0.9822	1.0176	49.9	50.4
Project alone HIGH	30	0.9999	1.0000	0.0003	0.9993	1.0006	0.9989	0.9991	0.0086	0.9825	1.0163	49.6	50.4

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination without the Project	30	0.9996	0.9996	0.0004	0.9990	1.0003	0.9917	0.9918	0.0088	0.9748	1.0095	48.5	51.4
In-combination with the Project LOW	30	0.9996	0.9996	0.0004	0.9989	1.0003	0.9915	0.9915	0.0091	0.9731	1.0097	48.1	52.0
In-combination with the Project MID	30	0.9996	0.9996	0.0003	0.9989	1.0003	0.9909	0.9910	0.0089	0.9737	1.0079	48.0	52.0
In-combination with the Project HIGH	30	0.9996	0.9996	0.0004	0.9989	1.0002	0.9912	0.9914	0.0091	0.9743	1.0093	48.6	51.9
Project alone LOW	35	0.9999	1.0000	0.0003	0.9994	1.0006	0.9987	0.9990	0.0095	0.9803	1.0187	49.3	50.4
Project alone MID	35	1.0000	1.0000	0.0003	0.9993	1.0005	0.9988	0.9989	0.0094	0.9819	1.0189	49.6	50.3

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone HIGH	35	1.0000	1.0000	0.0003	0.9994	1.0005	0.9990	0.9989	0.0093	0.9811	1.0171	50.0	50.1
In-combination without the Project	35	0.9996	0.9996	0.0003	0.9990	1.0002	0.9899	0.9900	0.0093	0.9720	1.0088	48.5	52.0
In-combination with the Project LOW	35	0.9996	0.9996	0.0003	0.9989	1.0002	0.9894	0.9895	0.0097	0.9707	1.0091	48.4	52.3
In-combination with the Project MID	35	0.9996	0.9996	0.0003	0.9989	1.0002	0.9892	0.9890	0.0097	0.9708	1.0080	48.5	52.3
In-combination with the Project HIGH	35	0.9996	0.9996	0.0003	0.9989	1.0002	0.9893	0.9894	0.0095	0.9718	1.0088	48.4	51.8

E.2 Buchan Ness to Collieston Coast SPA

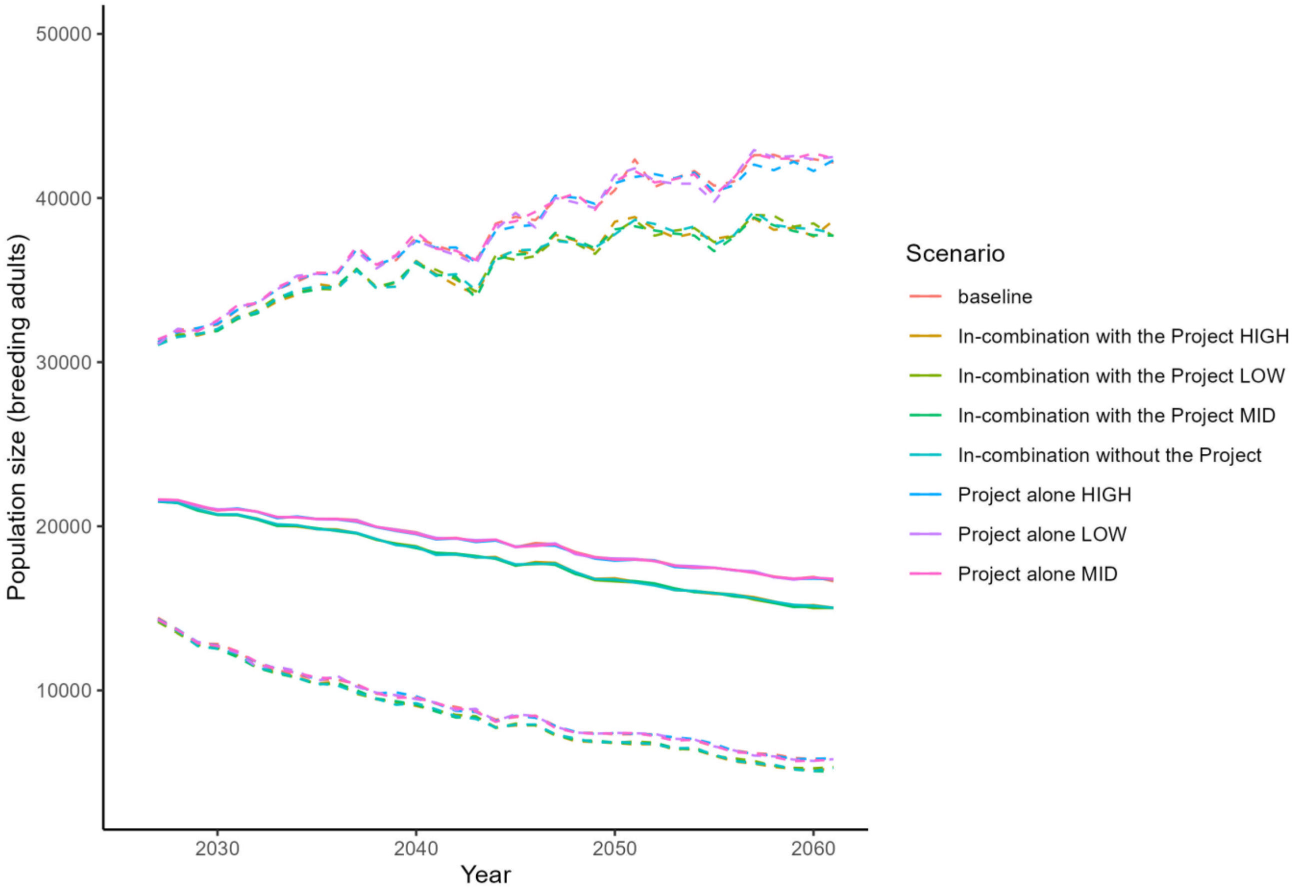

Figure E2-1 Projected population size of the breeding kittiwake feature of the Buchan Ness to Collieston Coast SPA for the baseline (unimpacted), Project alone, in-combination impacts without the Project and in-combination with the Project from 2027 to 2062. Solid line = mean, dashed line = S.D.

Table E2-1 Summary of PVA metrics for the kittiwake population from Buchan Ness to Collieston Coast SPA for the Project alone, in-combination without the Project and in-combination including the Project. Based on the assessment of in-combination impacts and population sizes for the BDMPS UK western waters & Channel during Spring migration (January to April) SD = standard deviation, LCI = lower confidence interval, UCI = upper confidence interval.

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone LOW	10	1.0000	1.0000	0.0011	0.9977	1.0022	0.9991	0.9992	0.0146	0.9715	1.0285	49.8	50.3
Project alone MID	10	1.0000	1.0000	0.0011	0.9978	1.0021	0.9998	0.9998	0.0148	0.9714	1.0292	49.6	50.9
Project alone HIGH	10	1.0000	1.0000	0.0012	0.9976	1.0024	0.9992	0.9993	0.0150	0.9704	1.0291	49.4	50.5
In-combination without the Project	10	0.9968	0.9968	0.0011	0.9946	0.9991	0.9652	0.9651	0.0143	0.9359	0.9941	46.0	56.2
In-combination with the Project LOW	10	0.9967	0.9967	0.0012	0.9943	0.9989	0.9644	0.9645	0.0142	0.9353	0.9926	45.8	56.0

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project MID	10	0.9968	0.9967	0.0012	0.9942	0.9989	0.9644	0.9646	0.0140	0.9358	0.9911	45.8	56.6
In-combination with the Project HIGH	10	0.9967	0.9968	0.0012	0.9946	0.9991	0.9652	0.9650	0.0140	0.9369	0.9934	46.0	56.5
Project alone LOW	20	1.0000	1.0000	0.0009	0.9982	1.0019	0.9993	0.9996	0.0171	0.9660	1.0328	49.3	50.5
Project alone MID	20	1.0000	1.0000	0.0009	0.9982	1.0018	0.9999	0.9998	0.0167	0.9682	1.0315	49.8	50.0
Project alone HIGH	20	1.0000	1.0000	0.0010	0.9981	1.0018	0.9996	0.9993	0.0169	0.9656	1.0330	49.4	50.2
In-combination without the Project	20	0.9969	0.9969	0.0010	0.9951	0.9987	0.9509	0.9508	0.0166	0.9183	0.9836	44.3	56.2

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project LOW	20	0.9968	0.9968	0.0010	0.9949	0.9987	0.9498	0.9500	0.0163	0.9166	0.9830	44.3	55.8
In-combination with the Project MID	20	0.9969	0.9968	0.0010	0.9949	0.9986	0.9499	0.9499	0.0159	0.9183	0.9799	44.6	56.2
In-combination with the Project HIGH	20	0.9968	0.9968	0.0010	0.9949	0.9985	0.9501	0.9501	0.0158	0.9181	0.9802	44.7	56.4
Project alone LOW	30	0.9999	1.0000	0.0008	0.9984	1.0017	0.9982	0.9989	0.0191	0.9626	1.0384	50.3	49.9
Project alone MID	30	0.9999	1.0000	0.0008	0.9984	1.0014	0.9990	0.9994	0.0177	0.9651	1.0351	49.9	50.1
Project alone HIGH	30	1.0000	1.0000	0.0008	0.9983	1.0016	0.9987	0.9989	0.0188	0.9614	1.0375	49.7	50.7

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination without the Project	30	0.9969	0.9969	0.0008	0.9953	0.9985	0.9359	0.9366	0.0181	0.9028	0.9743	45.6	57.8
In-combination with the Project LOW	30	0.9969	0.9968	0.0008	0.9952	0.9984	0.9356	0.9352	0.0171	0.9021	0.9675	45.7	57.7
In-combination with the Project MID	30	0.9969	0.9968	0.0008	0.9952	0.9984	0.9355	0.9354	0.0175	0.9009	0.9697	45.5	57.5
In-combination with the Project HIGH	30	0.9968	0.9968	0.0008	0.9952	0.9983	0.9349	0.9353	0.0173	0.9005	0.9679	45.8	57.2
Project alone LOW	35	0.9999	1.0000	0.0008	0.9985	1.0015	0.9988	0.9988	0.0210	0.9580	1.0412	49.7	50.2
Project alone MID	35	0.9999	1.0000	0.0007	0.9985	1.0014	0.9986	0.9991	0.0197	0.9615	1.0392	49.9	50.2

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone HIGH	35	1.0000	1.0000	0.0008	0.9985	1.0014	0.9984	0.9985	0.0209	0.9567	1.0398	50.0	50.1
In-combination without the Project	35	0.9969	0.9969	0.0008	0.9954	0.9984	0.9223	0.9224	0.0198	0.8828	0.9614	42.7	56.8
In-combination with the Project LOW	35	0.9969	0.9968	0.0007	0.9954	0.9982	0.9207	0.9209	0.0186	0.8857	0.9579	43.2	56.4
In-combination with the Project MID	35	0.9968	0.9969	0.0008	0.9953	0.9983	0.9209	0.9212	0.0188	0.8825	0.9587	43.3	56.7
In-combination with the Project HIGH	35	0.9968	0.9968	0.0008	0.9952	0.9983	0.9217	0.9213	0.0190	0.8818	0.9581	43.2	56.5

E.3 Fair Isle SPA

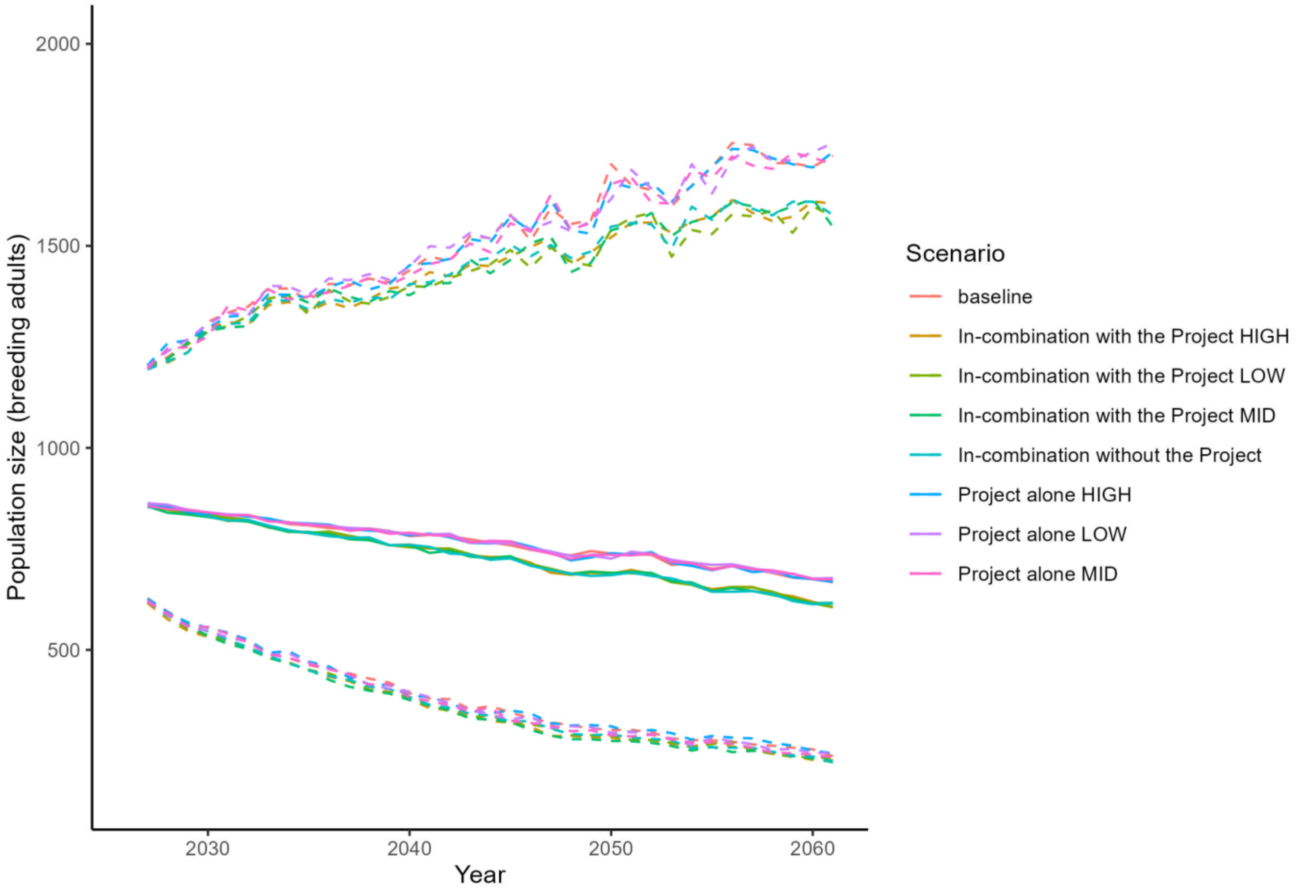

Figure E3-1 Projected population size of the breeding kittiwake feature of the Fair Isle SPA for the baseline (unimpacted), Project alone, in-combination impacts without the Project and in-combination with the Project from 2027 to 2062. Solid line = mean, dashed line = S.D.

Table E3-1 Summary of PVA metrics for the kittiwake population from Fair Isle SPA for the Project alone, in-combination without the Project and in-combination including the Project. Based on the assessment of in-combination impacts and population sizes for the BDMPS UK western waters & Channel during Spring migration (January to April) SD = standard deviation, LCI = lower confidence interval, UCI = upper confidence interval.

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone LOW	10	0.9998	0.9999	0.0057	0.9894	1.0114	0.9984	1.0007	0.0709	0.8660	1.1532	50.9	49.4
Project alone MID	10	1.0001	1.0000	0.0057	0.9890	1.0115	0.9981	0.9999	0.0701	0.8727	1.1356	49.5	50.6
Project alone HIGH	10	1.0001	1.0000	0.0055	0.9893	1.0103	1.0029	1.0017	0.0682	0.8729	1.1438	49.9	50.2
In-combination without the Project	10	0.9974	0.9975	0.0056	0.9867	1.0083	0.9703	0.9733	0.0671	0.8487	1.1105	45.7	53.8
In-combination with the Project LOW	10	0.9973	0.9974	0.0057	0.9864	1.0088	0.9719	0.9733	0.0685	0.8454	1.1188	46.9	53.2

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project MID	10	0.9970	0.9970	0.0055	0.9861	1.0075	0.9668	0.9680	0.0672	0.8391	1.1049	45.1	53.4
In-combination with the Project HIGH	10	0.9974	0.9973	0.0055	0.9868	1.0092	0.9693	0.9712	0.0647	0.8523	1.1084	45.7	52.2
Project alone LOW	20	0.9999	0.9999	0.0046	0.9907	1.0093	0.9950	1.0012	0.0811	0.8536	1.1722	50.6	49.4
Project alone MID	20	1.0000	1.0000	0.0047	0.9910	1.0096	0.9984	0.9997	0.0808	0.8531	1.1758	50.0	50.1
Project alone HIGH	20	1.0000	0.9999	0.0046	0.9906	1.0084	0.9986	1.0004	0.0798	0.8467	1.1597	49.5	50.5
In-combination without the Project	20	0.9973	0.9973	0.0047	0.9880	1.0062	0.9563	0.9601	0.0775	0.8223	1.1197	44.3	56.0

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project LOW	20	0.9974	0.9974	0.0047	0.9884	1.0070	0.9591	0.9607	0.0779	0.8249	1.1285	45.8	54.0
In-combination with the Project MID	20	0.9972	0.9971	0.0046	0.9879	1.0060	0.9543	0.9561	0.0751	0.8164	1.1082	44.8	55.6
In-combination with the Project HIGH	20	0.9974	0.9972	0.0047	0.9877	1.0070	0.9533	0.9581	0.0771	0.8178	1.1332	45.0	54.8
Project alone LOW	30	0.9999	1.0000	0.0041	0.9922	1.0083	0.9962	1.0027	0.0924	0.8289	1.1931	50.6	49.7
Project alone MID	30	0.9999	1.0000	0.0041	0.9919	1.0086	0.9937	1.0006	0.0911	0.8343	1.2043	49.9	50.6
Project alone HIGH	30	1.0000	1.0000	0.0041	0.9922	1.0080	1.0012	1.0025	0.0914	0.8363	1.1864	50.5	49.5

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination without the Project	30	0.9974	0.9975	0.0042	0.9892	1.0059	0.9447	0.9505	0.0879	0.7870	1.1478	43.9	55.2
In-combination with the Project LOW	30	0.9974	0.9975	0.0041	0.9896	1.0060	0.9496	0.9506	0.0864	0.7959	1.1221	44.5	55.7
In-combination with the Project MID	30	0.9974	0.9972	0.0041	0.9888	1.0049	0.9422	0.9456	0.0864	0.7865	1.1182	44.1	54.9
In-combination with the Project HIGH	30	0.9975	0.9974	0.0041	0.9892	1.0060	0.9420	0.9483	0.0860	0.7943	1.1426	42.8	55.0
Project alone LOW	35	1.0000	1.0000	0.0035	0.9934	1.0074	0.9953	1.0046	0.0994	0.8273	1.2201	50.2	49.7
Project alone MID	35	0.9998	0.9999	0.0037	0.9928	1.0073	0.9939	1.0005	0.1015	0.8217	1.2121	50.2	49.6

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone HIGH	35	1.0001	1.0000	0.0037	0.9926	1.0072	1.0011	1.0039	0.1012	0.8225	1.2272	50.7	49.1
In-combination without the Project	35	0.9973	0.9974	0.0037	0.9902	1.0051	0.9315	0.9391	0.0954	0.7748	1.1533	42.2	57.2
In-combination with the Project LOW	35	0.9973	0.9974	0.0037	0.9903	1.0049	0.9326	0.9388	0.0965	0.7624	1.1350	43.1	55.8
In-combination with the Project MID	35	0.9973	0.9972	0.0036	0.9903	1.0039	0.9319	0.9340	0.0920	0.7652	1.1162	43.3	57.6
In-combination with the Project HIGH	35	0.9974	0.9974	0.0036	0.9906	1.0046	0.9339	0.9384	0.0937	0.7713	1.1270	43.2	56.2

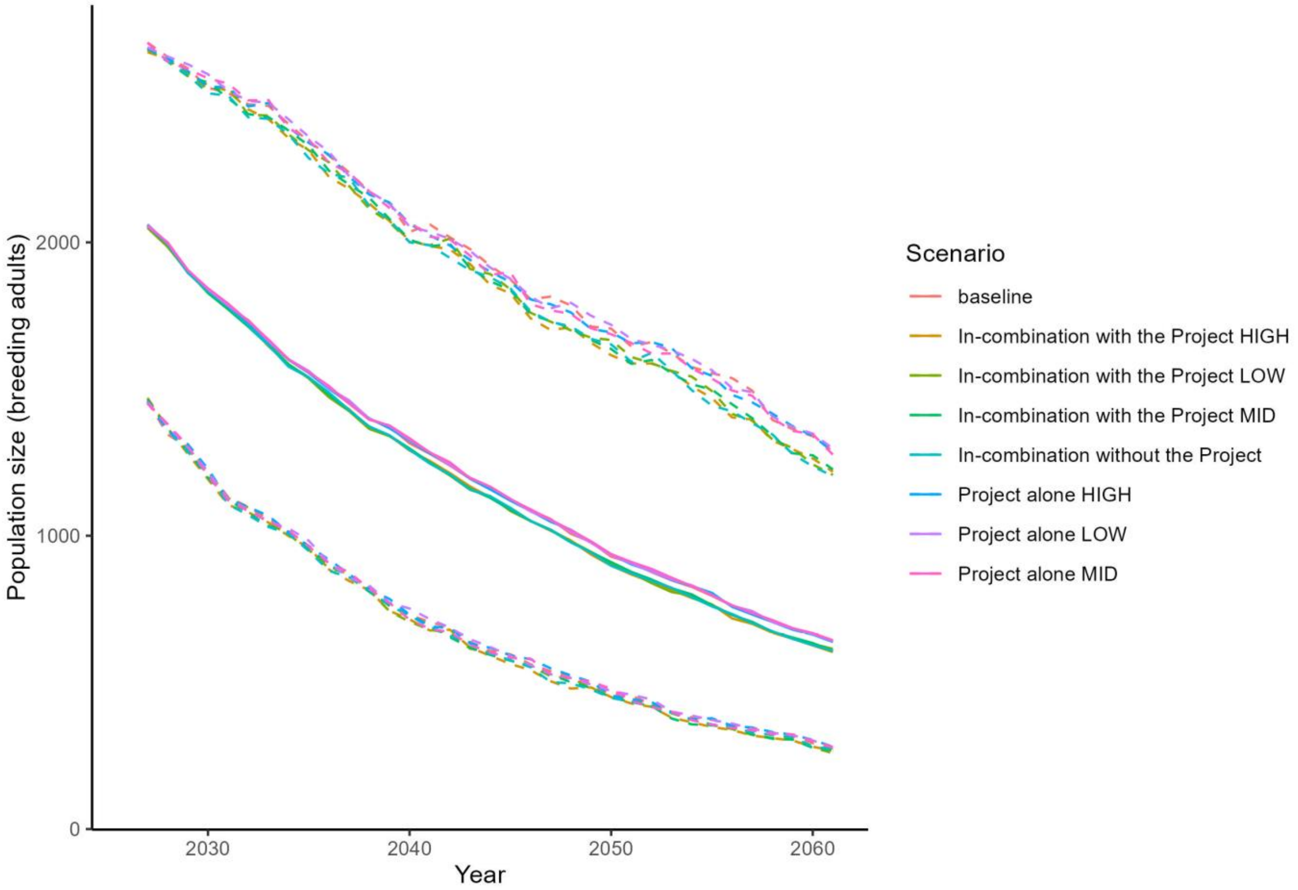

Figure E3-2 Projected population size of the breeding razorbill feature of the Fair Isle SPA for the baseline (unimpacted), Project alone, in-combination impacts without the Project and in-combination with the Project from 2027 to 2062. Solid line = mean, dashed line = S.D.

Table E3-2 Summary of PVA metrics for the razorbill population from Fair Isle SPA for the Project alone, in-combination without the Project and in-combination including the Project. Based on the assessment of in-combination impacts and population sizes for the BDMPS UK western waters & Channel during Spring migration (January to April) SD = standard deviation, LCI = lower confidence interval, UCI = upper confidence interval.

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone LOW	10	0.9999	1.0001	0.0035	0.9936	1.0068	1.0000	1.0010	0.0429	0.9209	1.0856	51.5	48.6
Project alone MID	10	0.9997	1.0000	0.0034	0.9936	1.0070	0.9987	1.0007	0.0421	0.9236	1.0895	50.1	49.8
Project alone HIGH	10	1.0000	1.0000	0.0035	0.9933	1.0074	1.0012	1.0006	0.0432	0.9198	1.0901	50.8	49.3
In-combination without the Project	10	0.9984	0.9984	0.0035	0.9912	1.0056	0.9829	0.9838	0.0414	0.8984	1.0668	47.1	51.7
In-combination with the Project LOW	10	0.9985	0.9985	0.0034	0.9918	1.0051	0.9840	0.9840	0.0407	0.9075	1.0672	46.7	53.2

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project MID	10	0.9984	0.9985	0.0035	0.9918	1.0055	0.9829	0.9844	0.0416	0.9082	1.0671	46.9	52.7
In-combination with the Project HIGH	10	0.9985	0.9984	0.0035	0.9915	1.0053	0.9829	0.9836	0.0425	0.8970	1.0680	47.6	52.7
Project alone LOW	20	1.0000	1.0001	0.0030	0.9947	1.0061	0.9997	1.0022	0.0516	0.9087	1.1043	50.3	49.6
Project alone MID	20	0.9999	1.0000	0.0030	0.9946	1.0062	0.9992	1.0014	0.0517	0.9073	1.1111	51.0	48.9
Project alone HIGH	20	0.9999	1.0000	0.0030	0.9947	1.0060	0.9994	1.0013	0.0518	0.9082	1.1091	50.6	49.6
In-combination without the Project	20	0.9985	0.9985	0.0030	0.9928	1.0046	0.9775	0.9776	0.0500	0.8861	1.0856	46.5	53.6

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project LOW	20	0.9986	0.9985	0.0031	0.9927	1.0047	0.9748	0.9769	0.0506	0.8873	1.0824	45.6	53.3
In-combination with the Project MID	20	0.9986	0.9986	0.0030	0.9923	1.0041	0.9770	0.9783	0.0492	0.8866	1.0770	46.1	54.1
In-combination with the Project HIGH	20	0.9984	0.9984	0.0030	0.9925	1.0042	0.9725	0.9757	0.0507	0.8807	1.0761	47.2	53.4
Project alone LOW	30	1.0001	1.0001	0.0027	0.9950	1.0056	1.0015	1.0042	0.0609	0.8929	1.1336	49.7	51.0
Project alone MID	30	1.0000	1.0001	0.0027	0.9951	1.0056	1.0004	1.0032	0.0604	0.8926	1.1279	49.7	50.3
Project alone HIGH	30	0.9999	1.0000	0.0027	0.9950	1.0056	0.9990	1.0026	0.0603	0.8981	1.1257	49.3	51.4

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination without the Project	30	0.9984	0.9985	0.0027	0.9935	1.0040	0.9666	0.9701	0.0576	0.8663	1.0879	46.6	55.2
In-combination with the Project LOW	30	0.9986	0.9986	0.0028	0.9928	1.0039	0.9696	0.9713	0.0598	0.8625	1.0922	46.6	55.7
In-combination with the Project MID	30	0.9986	0.9986	0.0026	0.9935	1.0037	0.9707	0.9717	0.0553	0.8727	1.0846	46.6	55.6
In-combination with the Project HIGH	30	0.9983	0.9984	0.0027	0.9932	1.0040	0.9660	0.9689	0.0591	0.8574	1.0909	46.3	55.3
Project alone LOW	35	1.0001	1.0001	0.0025	0.9954	1.0052	1.0032	1.0048	0.0695	0.8855	1.1487	50.3	50.0
Project alone MID	35	0.9999	1.0000	0.0026	0.9949	1.0054	0.9996	1.0036	0.0705	0.8696	1.1580	52.0	48.8

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone HIGH	35	1.0000	1.0000	0.0025	0.9952	1.0050	0.9985	1.0026	0.0684	0.8834	1.1453	50.9	49.8
In-combination without the Project	35	0.9985	0.9985	0.0025	0.9939	1.0035	0.9607	0.9637	0.0639	0.8448	1.0989	45.0	54.8
In-combination with the Project LOW	35	0.9986	0.9986	0.0026	0.9935	1.0037	0.9626	0.9653	0.0665	0.8374	1.1008	43.5	54.2
In-combination with the Project MID	35	0.9986	0.9986	0.0025	0.9938	1.0034	0.9645	0.9667	0.0653	0.8433	1.0975	46.1	53.4
In-combination with the Project HIGH	35	0.9985	0.9985	0.0026	0.9931	1.0039	0.9621	0.9628	0.0684	0.8284	1.1070	44.3	54.6

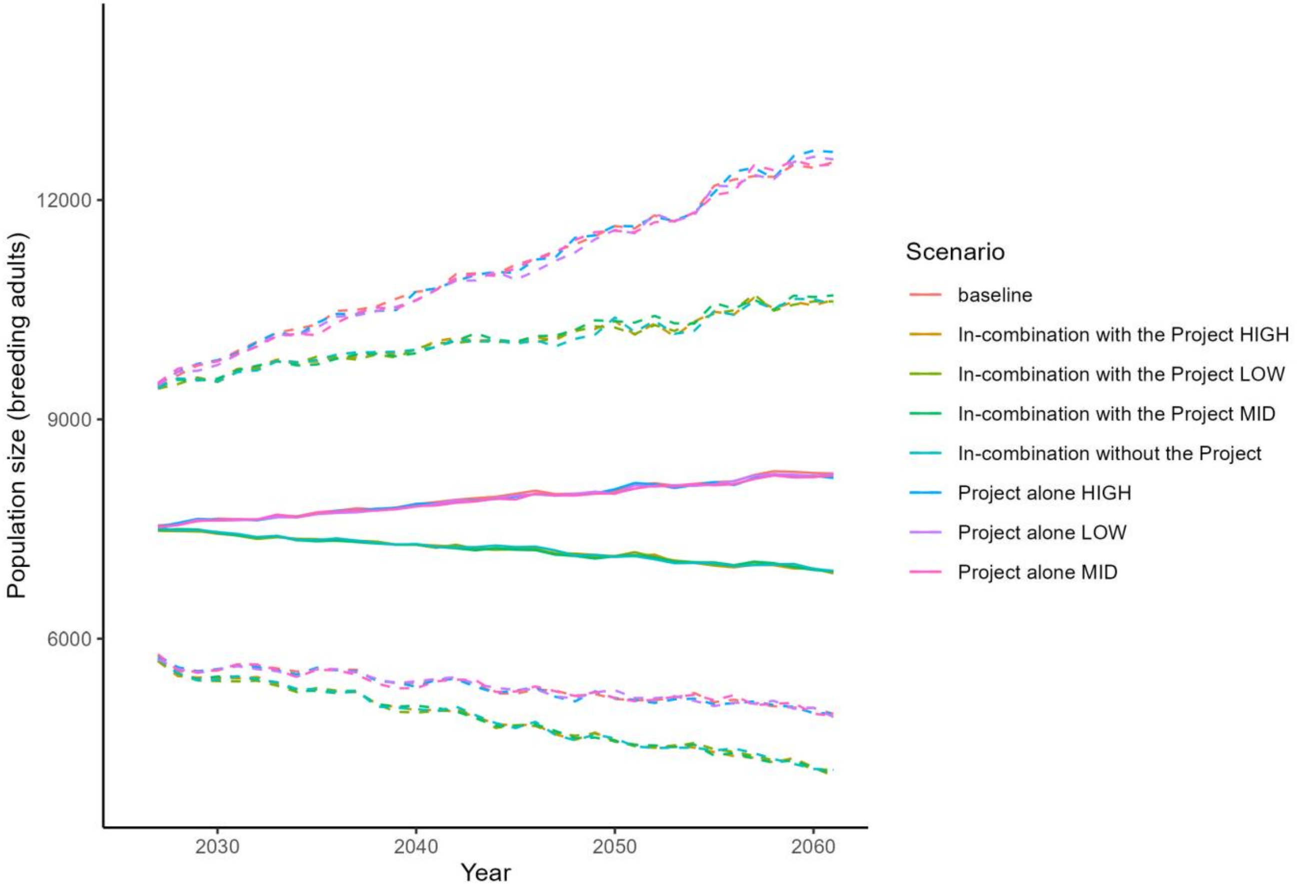

Figure E3-3 Projected population size of the breeding gannet feature of the Fair Isle SPA for the baseline (unimpacted), Project alone, in-combination impacts without the Project and in-combination with the Project from 2027 to 2062. Solid line = mean, dashed line = S.D.

Table E3-3 Summary of PVA metrics for the gannet population from Fair Isle SPA for the Project alone, in-combination without the Project and in-combination including the Project. Based on the assessment of in-combination impacts and population sizes for the BDMPS UK western waters & Channel during Spring migration (January to April) SD = standard deviation, LCI = lower confidence interval, UCI = upper confidence interval.

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone LOW	10	1.0000	0.9999	0.0014	0.9972	1.0027	0.9980	0.9990	0.0220	0.9575	1.0419	48.8	51.5
Project alone MID	10	0.9999	0.9999	0.0015	0.9970	1.0029	0.9975	0.9988	0.0232	0.9549	1.0441	49.2	51.3
Project alone HIGH	10	0.9999	0.9999	0.0015	0.9969	1.0026	0.9991	0.9991	0.0213	0.9571	1.0414	49.2	51.1
In-combination without the Project	10	0.9948	0.9948	0.0015	0.9920	0.9978	0.9449	0.9453	0.0209	0.9055	0.9905	36.8	64.7
In-combination with the Project LOW	10	0.9948	0.9948	0.0015	0.9918	0.9978	0.9438	0.9442	0.0208	0.9053	0.9865	36.5	64.2

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project MID	10	0.9947	0.9947	0.0015	0.9918	0.9977	0.9437	0.9440	0.0214	0.9026	0.9841	36.3	65.3
In-combination with the Project HIGH	10	0.9947	0.9947	0.0015	0.9918	0.9977	0.9435	0.9436	0.0206	0.9021	0.9842	36.8	64.7
Project alone LOW	20	1.0000	1.0000	0.0012	0.9976	1.0025	0.9984	0.9994	0.0243	0.9531	1.0452	49.7	50.8
Project alone MID	20	0.9999	0.9999	0.0012	0.9975	1.0024	0.9979	0.9987	0.0249	0.9513	1.0484	48.8	50.7
Project alone HIGH	20	0.9999	0.9999	0.0012	0.9974	1.0022	0.9990	0.9989	0.0232	0.9541	1.0441	49.5	50.6
In-combination without the Project	20	0.9949	0.9949	0.0012	0.9927	0.9973	0.9215	0.9224	0.0228	0.8792	0.9721	34.4	68.2

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project LOW	20	0.9949	0.9949	0.0012	0.9925	0.9973	0.9216	0.9220	0.0223	0.8797	0.9652	35.0	68.1
In-combination with the Project MID	20	0.9948	0.9948	0.0012	0.9924	0.9973	0.9205	0.9214	0.0231	0.8775	0.9688	33.9	68.3
In-combination with the Project HIGH	20	0.9949	0.9948	0.0012	0.9925	0.9972	0.9208	0.9207	0.0225	0.8757	0.9647	34.4	68.7
Project alone LOW	30	0.9999	0.9999	0.0010	0.9979	1.0019	0.9988	0.9986	0.0257	0.9508	1.0493	49.5	50.6
Project alone MID	30	0.9999	0.9999	0.0010	0.9979	1.0019	0.9967	0.9980	0.0269	0.9496	1.0542	49.5	50.2
Project alone HIGH	30	0.9999	0.9999	0.0010	0.9980	1.0019	0.9982	0.9981	0.0249	0.9506	1.0484	49.4	50.8

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination without the Project	30	0.9949	0.9949	0.0011	0.9930	0.9970	0.8994	0.8997	0.0247	0.8523	0.9497	31.1	70.5
In-combination with the Project LOW	30	0.9950	0.9949	0.0011	0.9929	0.9970	0.8990	0.8992	0.0235	0.8549	0.9441	30.0	71.0
In-combination with the Project MID	30	0.9948	0.9948	0.0010	0.9928	0.9969	0.8972	0.8980	0.0241	0.8503	0.9448	29.8	70.4
In-combination with the Project HIGH	30	0.9948	0.9949	0.0010	0.9929	0.9969	0.8968	0.8978	0.0238	0.8500	0.9465	30.3	71.1
Project alone LOW	35	0.9999	0.9999	0.0009	0.9980	1.0018	0.9981	0.9986	0.0276	0.9485	1.0534	49.0	50.5
Project alone MID	35	0.9999	0.9999	0.0009	0.9982	1.0017	0.9957	0.9978	0.0287	0.9458	1.0542	49.5	50.9

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone HIGH	35	0.9999	0.9999	0.0009	0.9982	1.0018	0.9978	0.9975	0.0268	0.9452	1.0524	49.9	50.3
In-combination without the Project	35	0.9950	0.9950	0.0009	0.9930	0.9968	0.8786	0.8781	0.0256	0.8290	0.9319	26.1	74.0
In-combination with the Project LOW	35	0.9950	0.9950	0.0009	0.9931	0.9969	0.8775	0.8777	0.0249	0.8315	0.9289	27.2	74.5
In-combination with the Project MID	35	0.9949	0.9949	0.0009	0.9932	0.9966	0.8764	0.8763	0.0247	0.8275	0.9280	26.9	74.5
In-combination with the Project HIGH	35	0.9949	0.9949	0.0009	0.9931	0.9966	0.8752	0.8761	0.0247	0.8286	0.9235	27.6	73.6

E.4 Farne Islands SPA

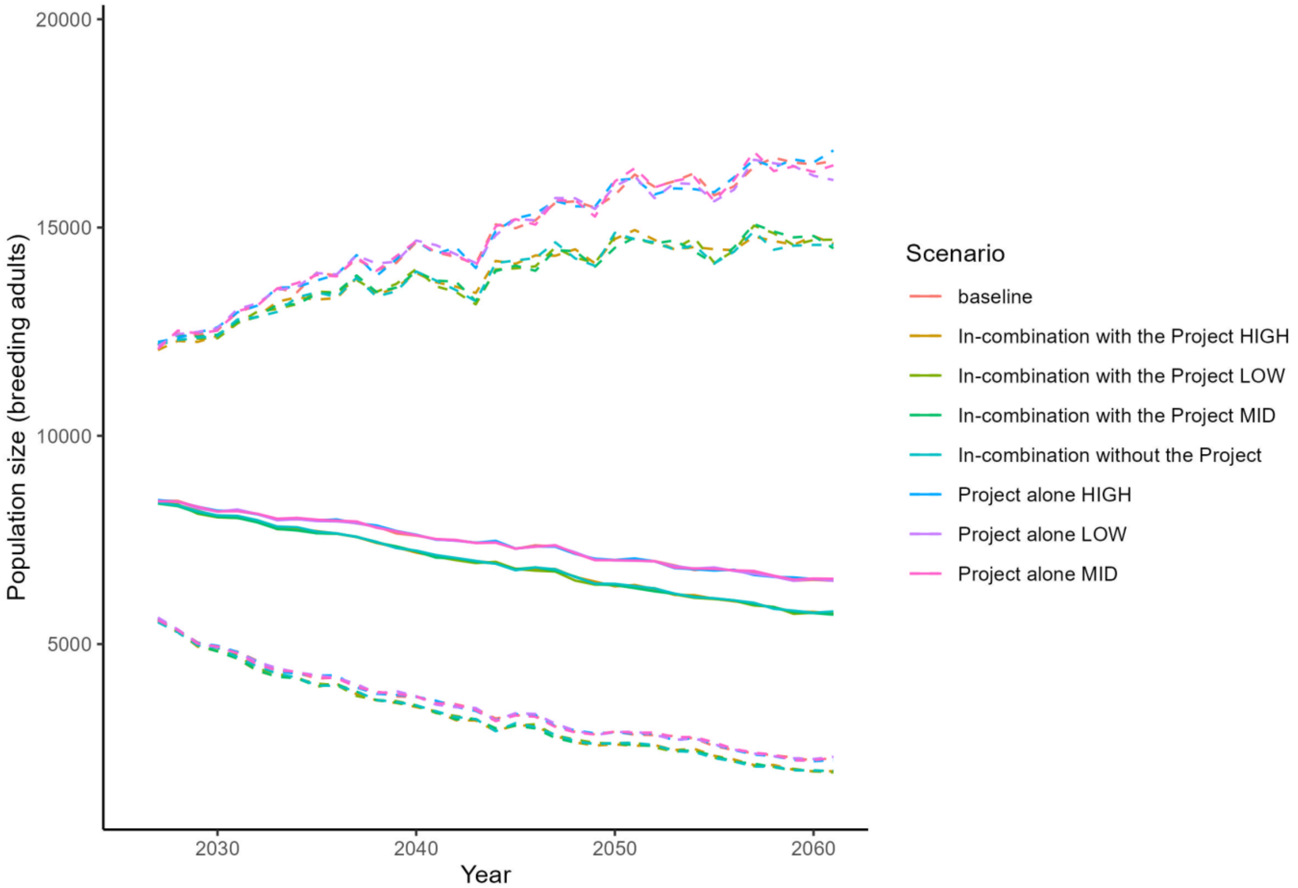

Figure E4-1 Projected population size of the breeding kittiwake feature of the Farne Islands SPA for the baseline (unimpacted), Project alone, in-combination impacts without the Project and in-combination with the Project from 2027 to 2062. Solid line = mean, dashed line = S.D.

Table E4-1 Summary of PVA metrics for the kittiwake population from Farne Islands SPA for the Project alone, in-combination without the Project and in-combination including the Project. Based on the assessment of in-combination impacts and population sizes for the BDMPS UK western waters & Channel during Spring migration (January to April) SD = standard deviation, LCI = lower confidence interval, UCI = upper confidence interval.

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone LOW	10	1.0000	1.0000	0.0018	0.9964	1.0035	1.0017	1.0012	0.0230	0.9559	1.0464	50.3	49.9
Project alone MID	10	1.0000	1.0000	0.0017	0.9968	1.0033	1.0013	1.0013	0.0225	0.9580	1.0461	50.7	49.6
Project alone HIGH	10	1.0000	1.0000	0.0018	0.9964	1.0037	1.0006	1.0008	0.0236	0.9545	1.0481	50.1	49.8
In-combination without the Project	10	0.9961	0.9961	0.0018	0.9926	0.9995	0.9590	0.9594	0.0217	0.9182	1.0031	43.9	55.9
In-combination with the Project LOW	10	0.9960	0.9961	0.0018	0.9926	0.9997	0.9583	0.9589	0.0224	0.9162	1.0033	43.9	56.0

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project MID	10	0.9961	0.9962	0.0018	0.9926	0.9996	0.9585	0.9586	0.0224	0.9118	1.0024	44.0	56.2
In-combination with the Project HIGH	10	0.9963	0.9961	0.0018	0.9924	0.9997	0.9589	0.9593	0.0227	0.9167	1.0047	43.9	56.4
Project alone LOW	20	1.0000	1.0000	0.0015	0.9971	1.0028	1.0009	1.0014	0.0270	0.9507	1.0554	49.8	50.0
Project alone MID	20	1.0000	1.0000	0.0015	0.9972	1.0030	1.0017	1.0018	0.0268	0.9488	1.0523	50.2	49.8
Project alone HIGH	20	1.0000	1.0000	0.0015	0.9971	1.0034	1.0008	1.0013	0.0271	0.9493	1.0554	50.1	49.8
In-combination without the Project	20	0.9962	0.9962	0.0015	0.9931	0.9992	0.9419	0.9423	0.0251	0.8936	0.9921	43.6	57.0

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project LOW	20	0.9962	0.9962	0.0015	0.9932	0.9990	0.9411	0.9411	0.0253	0.8920	0.9922	42.9	56.6
In-combination with the Project MID	20	0.9961	0.9962	0.0015	0.9932	0.9991	0.9402	0.9408	0.0259	0.8910	0.9938	43.4	57.0
In-combination with the Project HIGH	20	0.9962	0.9962	0.0016	0.9930	0.9991	0.9420	0.9418	0.0260	0.8914	0.9949	43.4	56.9
Project alone LOW	30	1.0000	1.0000	0.0013	0.9974	1.0026	1.0003	1.0008	0.0301	0.9452	1.0631	50.2	49.8
Project alone MID	30	1.0001	1.0001	0.0013	0.9975	1.0026	1.0027	1.0031	0.0300	0.9474	1.0608	50.6	49.4
Project alone HIGH	30	1.0000	1.0000	0.0013	0.9974	1.0027	1.0023	1.0020	0.0306	0.9417	1.0629	49.6	50.2

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination without the Project	30	0.9963	0.9963	0.0013	0.9936	0.9988	0.9254	0.9260	0.0279	0.8717	0.9852	43.9	58.1
In-combination with the Project LOW	30	0.9963	0.9962	0.0013	0.9937	0.9989	0.9248	0.9251	0.0281	0.8723	0.9823	43.8	58.4
In-combination with the Project MID	30	0.9963	0.9963	0.0013	0.9936	0.9988	0.9235	0.9245	0.0280	0.8707	0.9813	43.8	58.3
In-combination with the Project HIGH	30	0.9963	0.9963	0.0014	0.9936	0.9989	0.9258	0.9255	0.0287	0.8727	0.9848	43.9	58.7
Project alone LOW	35	1.0000	1.0000	0.0012	0.9977	1.0022	0.9995	1.0005	0.0322	0.9400	1.0664	49.8	50.1
Project alone MID	35	1.0001	1.0001	0.0011	0.9978	1.0023	1.0047	1.0037	0.0325	0.9412	1.0643	50.0	50.1

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone HIGH	35	1.0001	1.0000	0.0012	0.9976	1.0025	1.0026	1.0019	0.0340	0.9361	1.0698	50.0	50.1
In-combination without the Project	35	0.9963	0.9963	0.0012	0.9938	0.9986	0.9091	0.9090	0.0304	0.8487	0.9702	42.0	57.9
In-combination with the Project LOW	35	0.9963	0.9963	0.0012	0.9936	0.9986	0.9078	0.9081	0.0308	0.8451	0.9717	42.1	58.2
In-combination with the Project MID	35	0.9963	0.9963	0.0012	0.9939	0.9986	0.9073	0.9077	0.0301	0.8501	0.9719	41.1	58.5
In-combination with the Project HIGH	35	0.9963	0.9963	0.0012	0.9938	0.9986	0.9089	0.9088	0.0309	0.8489	0.9709	41.6	58.2

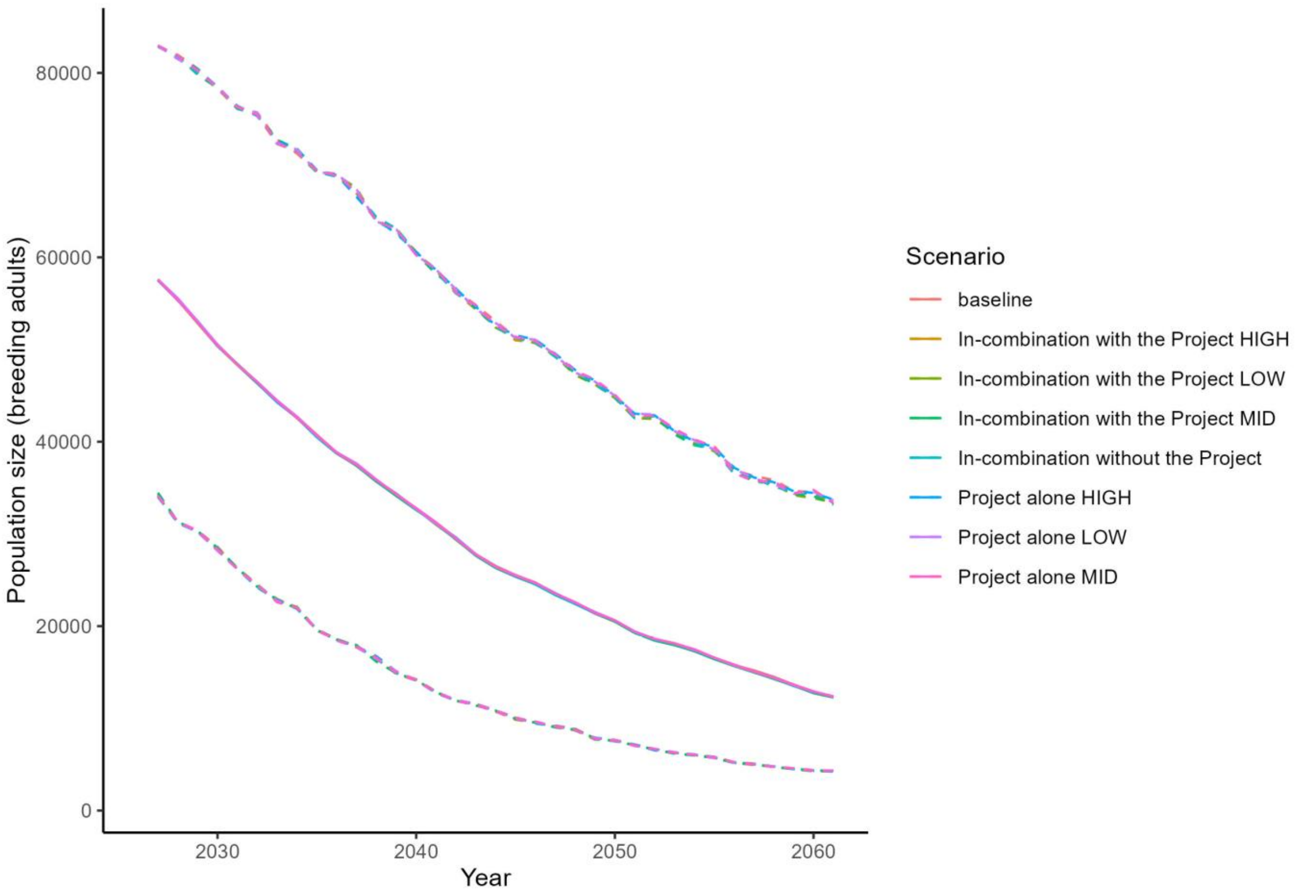

Figure E4-2 Projected population size of the breeding puffin feature of the Farne Islands SPA for the baseline (unimpacted), Project alone, in-combination impacts without the Project and in-combination with the Project from 2027 to 2062. Solid line = mean, dashed line = S.D.

Table E4-2 Summary of PVA metrics for the puffin population from Farne Islands SPA for the Project alone, in-combination without the Project and in-combination including the Project. Based on the assessment of in-combination impacts and population sizes for the BDMPS UK western waters & Channel during Spring migration (January to April) SD = standard deviation, LCI = lower confidence interval, UCI = upper confidence interval.

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone LOW	10	1.0000	1.0000	0.0007	0.9987	1.0013	0.9999	0.9998	0.0085	0.9826	1.0165	50.0	50.0
Project alone MID	10	1.0000	1.0000	0.0007	0.9987	1.0013	0.9996	0.9995	0.0086	0.9824	1.0172	49.6	50.7
Project alone HIGH	10	0.9999	0.9999	0.0007	0.9986	1.0014	0.9991	0.9992	0.0085	0.9831	1.0170	49.6	50.3
In-combination without the Project	10	0.9998	0.9998	0.0006	0.9986	1.0011	0.9977	0.9979	0.0080	0.9816	1.0144	49.6	50.7
In-combination with the Project LOW	10	0.9998	0.9998	0.0007	0.9985	1.0010	0.9976	0.9975	0.0085	0.9816	1.0138	49.6	50.5

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project MID	10	0.9998	0.9998	0.0006	0.9986	1.0011	0.9973	0.9974	0.0082	0.9819	1.0138	49.3	50.9
In-combination with the Project HIGH	10	0.9997	0.9997	0.0007	0.9984	1.0010	0.9971	0.9973	0.0084	0.9809	1.0144	49.4	50.7
Project alone LOW	20	1.0000	1.0000	0.0006	0.9989	1.0011	1.0000	0.9999	0.0104	0.9789	1.0195	50.0	50.0
Project alone MID	20	1.0000	1.0000	0.0006	0.9988	1.0010	0.9994	0.9993	0.0105	0.9773	1.0197	49.8	50.2
Project alone HIGH	20	0.9999	0.9999	0.0006	0.9988	1.0011	0.9987	0.9990	0.0107	0.9786	1.0214	50.2	49.9
In-combination without the Project	20	0.9998	0.9998	0.0006	0.9987	1.0010	0.9972	0.9969	0.0101	0.9766	1.0169	49.7	50.2

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project LOW	20	0.9998	0.9998	0.0006	0.9986	1.0009	0.9963	0.9965	0.0103	0.9744	1.0167	49.4	50.6
In-combination with the Project MID	20	0.9998	0.9998	0.0006	0.9986	1.0009	0.9965	0.9962	0.0103	0.9752	1.0168	49.6	50.4
In-combination with the Project HIGH	20	0.9998	0.9998	0.0006	0.9986	1.0009	0.9965	0.9964	0.0104	0.9757	1.0175	49.7	50.7
Project alone LOW	30	1.0000	1.0000	0.0006	0.9989	1.0012	1.0003	1.0002	0.0127	0.9751	1.0253	50.3	49.7
Project alone MID	30	0.9999	1.0000	0.0005	0.9989	1.0011	0.9989	0.9992	0.0126	0.9743	1.0239	50.3	49.9
Project alone HIGH	30	1.0000	1.0000	0.0006	0.9989	1.0012	0.9986	0.9989	0.0130	0.9751	1.0250	50.4	49.7

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination without the Project	30	0.9998	0.9998	0.0005	0.9988	1.0009	0.9961	0.9963	0.0121	0.9730	1.0202	49.4	50.4
In-combination with the Project LOW	30	0.9998	0.9998	0.0006	0.9987	1.0009	0.9956	0.9956	0.0125	0.9690	1.0199	49.4	50.4
In-combination with the Project MID	30	0.9998	0.9998	0.0006	0.9987	1.0009	0.9952	0.9954	0.0126	0.9710	1.0201	50.3	49.8
In-combination with the Project HIGH	30	0.9998	0.9998	0.0005	0.9987	1.0009	0.9954	0.9957	0.0123	0.9734	1.0214	49.6	50.2
Project alone LOW	35	1.0000	1.0000	0.0005	0.9990	1.0010	0.9997	1.0000	0.0147	0.9716	1.0311	50.3	49.9
Project alone MID	35	1.0000	1.0000	0.0005	0.9989	1.0011	0.9993	0.9992	0.0145	0.9691	1.0278	50.0	49.6

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone HIGH	35	0.9999	0.9999	0.0005	0.9990	1.0011	0.9984	0.9985	0.0144	0.9712	1.0294	50.0	50.0
In-combination without the Project	35	0.9998	0.9998	0.0005	0.9988	1.0009	0.9946	0.9951	0.0140	0.9675	1.0237	49.3	50.3
In-combination with the Project LOW	35	0.9998	0.9998	0.0005	0.9987	1.0009	0.9938	0.9946	0.0142	0.9673	1.0235	49.6	50.1
In-combination with the Project MID	35	0.9998	0.9998	0.0005	0.9988	1.0008	0.9937	0.9942	0.0142	0.9674	1.0243	48.4	50.9
In-combination with the Project HIGH	35	0.9998	0.9998	0.0005	0.9988	1.0008	0.9938	0.9943	0.0142	0.9683	1.0239	49.1	50.9

E.5 Flamborough and Filey Coast SPA

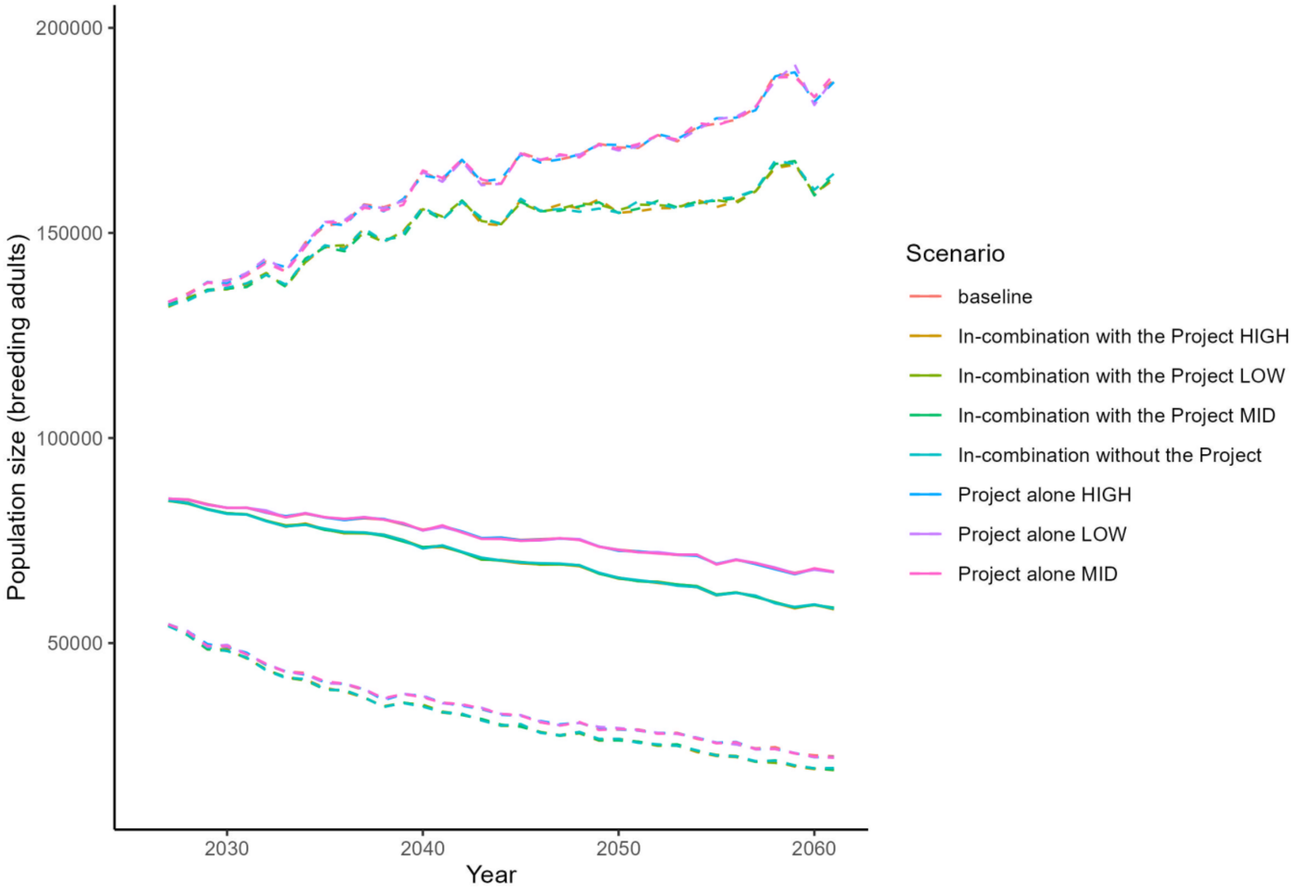

Figure E5-1 Projected population size of the breeding kittiwake feature of the Flamborough and Filey CoastSPA for the baseline (unimpacted), Project alone, in-combination impacts without the Project and in-combination with the Project from 2027 to 2062. Solid line = mean, dashed line = S.D.

Table E5-1 Summary of PVA metrics for the kittiwake population from Flamborough and Filey CoastSPA for the Project alone, in-combination without the Project and in-combination including the Project. Based on the assessment of in-combination impacts and population sizes for the BDMPS UK western waters & Channel during Spring migration (January to April) SD = standard deviation, LCI = lower confidence interval, UCI = upper confidence interval.

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone LOW	10	1.0000	1.0000	0.0006	0.9988	1.0012	0.9998	0.9999	0.0079	0.9839	1.0159	50.1	49.5
Project alone MID	10	1.0000	1.0000	0.0005	0.9989	1.0011	1.0002	1.0002	0.0078	0.9847	1.0151	50.1	49.9
Project alone HIGH	10	1.0000	1.0000	0.0006	0.9988	1.0011	1.0000	0.9999	0.0076	0.9844	1.0149	50.1	49.7
In-combination without the Project	10	0.9959	0.9958	0.0006	0.9945	0.9970	0.9559	0.9554	0.0080	0.9390	0.9700	44.7	54.7
In-combination with the Project LOW	10	0.9958	0.9958	0.0006	0.9945	0.9970	0.9555	0.9552	0.0080	0.9387	0.9699	44.3	54.6

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project MID	10	0.9958	0.9958	0.0006	0.9946	0.9969	0.9552	0.9550	0.0078	0.9383	0.9701	44.6	54.7
In-combination with the Project HIGH	10	0.9958	0.9958	0.0006	0.9945	0.9970	0.9551	0.9549	0.0078	0.9402	0.9697	44.7	54.7
Project alone LOW	20	1.0000	1.0000	0.0005	0.9990	1.0009	0.9995	0.9998	0.0087	0.9829	1.0181	49.8	50.1
Project alone MID	20	1.0000	1.0000	0.0005	0.9991	1.0010	1.0000	1.0001	0.0089	0.9828	1.0182	49.8	50.3
Project alone HIGH	20	1.0000	1.0000	0.0005	0.9991	1.0009	0.9999	0.9999	0.0087	0.9827	1.0164	50.1	49.9
In-combination without the Project	20	0.9959	0.9959	0.0005	0.9948	0.9969	0.9366	0.9366	0.0090	0.9177	0.9536	43.3	56.9

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project LOW	20	0.9959	0.9959	0.0005	0.9948	0.9969	0.9366	0.9363	0.0088	0.9183	0.9522	43.3	57.0
In-combination with the Project MID	20	0.9959	0.9959	0.0005	0.9948	0.9968	0.9365	0.9361	0.0088	0.9178	0.9526	43.3	57.0
In-combination with the Project HIGH	20	0.9959	0.9959	0.0005	0.9948	0.9968	0.9361	0.9359	0.0085	0.9185	0.9517	43.3	56.9
Project alone LOW	30	1.0000	1.0000	0.0004	0.9992	1.0008	0.9994	0.9997	0.0097	0.9814	1.0199	49.9	50.0
Project alone MID	30	1.0000	1.0000	0.0004	0.9992	1.0008	1.0002	1.0002	0.0097	0.9798	1.0195	50.1	49.8
Project alone HIGH	30	1.0000	1.0000	0.0004	0.9992	1.0008	0.9999	0.9998	0.0095	0.9808	1.0185	49.9	50.3

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination without the Project	30	0.9959	0.9959	0.0005	0.9950	0.9968	0.9183	0.9184	0.0097	0.8989	0.9359	44.4	59.2
In-combination with the Project LOW	30	0.9959	0.9959	0.0005	0.9949	0.9968	0.9183	0.9180	0.0098	0.8980	0.9367	44.1	59.6
In-combination with the Project MID	30	0.9959	0.9959	0.0004	0.9950	0.9968	0.9177	0.9177	0.0095	0.8984	0.9353	44.2	59.4
In-combination with the Project HIGH	30	0.9959	0.9959	0.0004	0.9950	0.9968	0.9176	0.9176	0.0094	0.8988	0.9363	44.1	59.6
Project alone LOW	35	1.0000	1.0000	0.0004	0.9992	1.0007	0.9995	0.9996	0.0106	0.9785	1.0213	50.3	49.5
Project alone MID	35	1.0000	1.0000	0.0004	0.9993	1.0008	0.9998	1.0000	0.0105	0.9790	1.0228	49.9	50.1

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone HIGH	35	1.0000	1.0000	0.0004	0.9993	1.0007	0.9996	0.9997	0.0105	0.9797	1.0210	50.2	49.9
In-combination without the Project	35	0.9960	0.9960	0.0004	0.9951	0.9967	0.9010	0.9007	0.0105	0.8794	0.9200	39.5	58.6
In-combination with the Project LOW	35	0.9960	0.9959	0.0004	0.9951	0.9968	0.9006	0.8999	0.0106	0.8791	0.9193	40.0	58.5
In-combination with the Project MID	35	0.9959	0.9959	0.0004	0.9951	0.9967	0.8992	0.8996	0.0104	0.8785	0.9195	39.5	58.5
In-combination with the Project HIGH	35	0.9959	0.9959	0.0004	0.9951	0.9967	0.8996	0.8995	0.0101	0.8786	0.9190	39.5	58.6

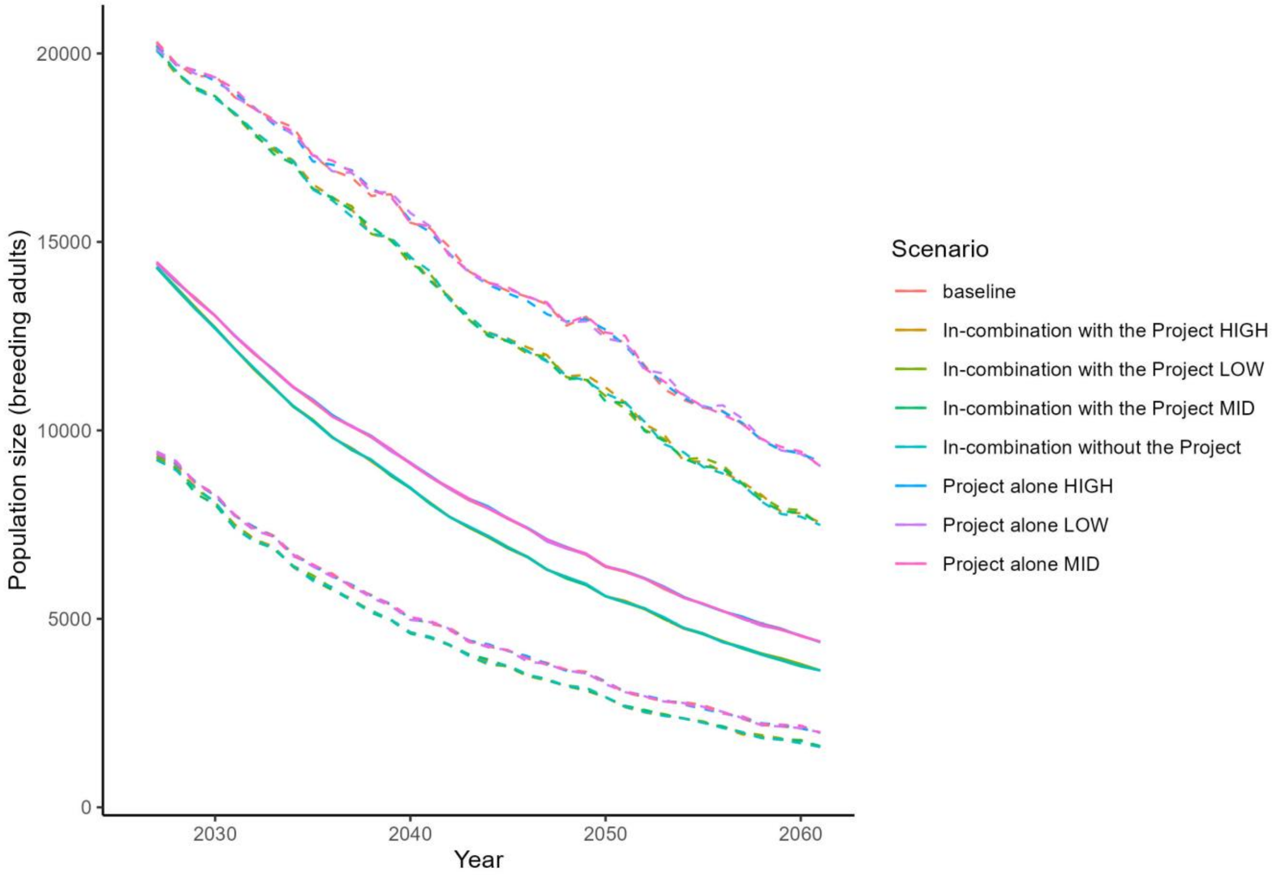

Figure E5-2 Projected population size of the breeding razorbill feature of the Flamborough and Filey Coast SPA for the baseline (unimpacted), Project alone, in-combination impacts without the Project and in-combination with the Project from 2027 to 2062. Solid line = mean, dashed line = S.D.

Table E5-2 Summary of PVA metrics for the razorbill population from Flamborough and Filey Coast SPA for the Project alone, in-combination without the Project and in-combination including the Project. Based on the assessment of in-combination impacts and population sizes for the BDMPS UK western waters & Channel during Spring migration (January to April) SD = standard deviation, LCI = lower confidence interval, UCI = upper confidence interval.

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone LOW	10	0.9999	0.9999	0.0013	0.9975	1.0027	0.9994	1.0001	0.0176	0.9687	1.0358	50.3	49.8
Project alone MID	10	1.0000	1.0000	0.0013	0.9973	1.0028	1.0004	1.0008	0.0177	0.9675	1.0366	49.8	50.1
Project alone HIGH	10	1.0000	1.0000	0.0013	0.9974	1.0025	1.0003	1.0007	0.0174	0.9660	1.0359	50.3	49.9
In-combination without the Project	10	0.9943	0.9943	0.0014	0.9916	0.9970	0.9399	0.9395	0.0170	0.9065	0.9736	40.8	59.7
In-combination with the Project LOW	10	0.9943	0.9943	0.0013	0.9915	0.9969	0.9403	0.9398	0.0166	0.9058	0.9725	40.7	59.1

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project MID	10	0.9943	0.9943	0.0014	0.9916	0.9972	0.9388	0.9393	0.0172	0.9074	0.9743	40.6	59.4
In-combination with the Project HIGH	10	0.9943	0.9943	0.0013	0.9916	0.9970	0.9393	0.9400	0.0170	0.9074	0.9755	41.3	59.3
Project alone LOW	20	1.0000	1.0000	0.0010	0.9979	1.0022	1.0005	1.0002	0.0236	0.9568	1.0515	49.3	50.2
Project alone MID	20	1.0000	1.0000	0.0010	0.9980	1.0022	1.0007	1.0015	0.0239	0.9558	1.0499	50.6	49.6
Project alone HIGH	20	1.0001	1.0001	0.0010	0.9980	1.0021	1.0024	1.0019	0.0233	0.9559	1.0488	50.6	49.3
In-combination without the Project	20	0.9945	0.9945	0.0011	0.9925	0.9967	0.8905	0.8912	0.0220	0.8498	0.9357	36.0	62.0

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project LOW	20	0.9945	0.9945	0.0011	0.9924	0.9967	0.8915	0.8918	0.0211	0.8495	0.9368	36.2	62.2
In-combination with the Project MID	20	0.9945	0.9945	0.0011	0.9925	0.9967	0.8899	0.8909	0.0220	0.8495	0.9343	36.2	62.1
In-combination with the Project HIGH	20	0.9945	0.9945	0.0011	0.9924	0.9966	0.8902	0.8908	0.0220	0.8474	0.9368	35.9	62.3
Project alone LOW	30	1.0000	1.0000	0.0009	0.9982	1.0019	0.9990	1.0003	0.0299	0.9414	1.0635	48.9	50.6
Project alone MID	30	1.0000	1.0000	0.0009	0.9981	1.0018	1.0007	1.0016	0.0306	0.9436	1.0638	49.4	50.4
Project alone HIGH	30	1.0001	1.0001	0.0009	0.9983	1.0019	1.0028	1.0025	0.0305	0.9468	1.0614	50.2	49.9

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination without the Project	30	0.9946	0.9946	0.0010	0.9926	0.9964	0.8449	0.8447	0.0270	0.7917	0.8964	33.8	67.7
In-combination with the Project LOW	30	0.9945	0.9945	0.0010	0.9925	0.9965	0.8440	0.8450	0.0267	0.7929	0.9029	33.8	67.8
In-combination with the Project MID	30	0.9945	0.9945	0.0010	0.9926	0.9964	0.8430	0.8437	0.0270	0.7943	0.8967	33.0	68.1
In-combination with the Project HIGH	30	0.9945	0.9945	0.0010	0.9925	0.9965	0.8435	0.8441	0.0271	0.7941	0.8986	33.0	68.0
Project alone LOW	35	1.0000	1.0000	0.0009	0.9981	1.0018	1.0000	1.0004	0.0348	0.9324	1.0718	49.5	50.4
Project alone MID	35	1.0000	1.0000	0.0009	0.9982	1.0017	1.0017	1.0016	0.0334	0.9386	1.0675	50.5	49.5

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone HIGH	35	1.0000	1.0001	0.0009	0.9982	1.0019	1.0019	1.0028	0.0349	0.9384	1.0757	50.2	50.0
In-combination without the Project	35	0.9946	0.9946	0.0010	0.9927	0.9964	0.8219	0.8220	0.0298	0.7617	0.8821	32.3	68.2
In-combination with the Project LOW	35	0.9946	0.9946	0.0010	0.9924	0.9964	0.8226	0.8228	0.0297	0.7636	0.8819	32.4	68.7
In-combination with the Project MID	35	0.9946	0.9946	0.0009	0.9928	0.9964	0.8218	0.8224	0.0294	0.7664	0.8834	31.8	68.1
In-combination with the Project HIGH	35	0.9945	0.9945	0.0010	0.9926	0.9964	0.8211	0.8218	0.0302	0.7658	0.8812	32.3	68.3

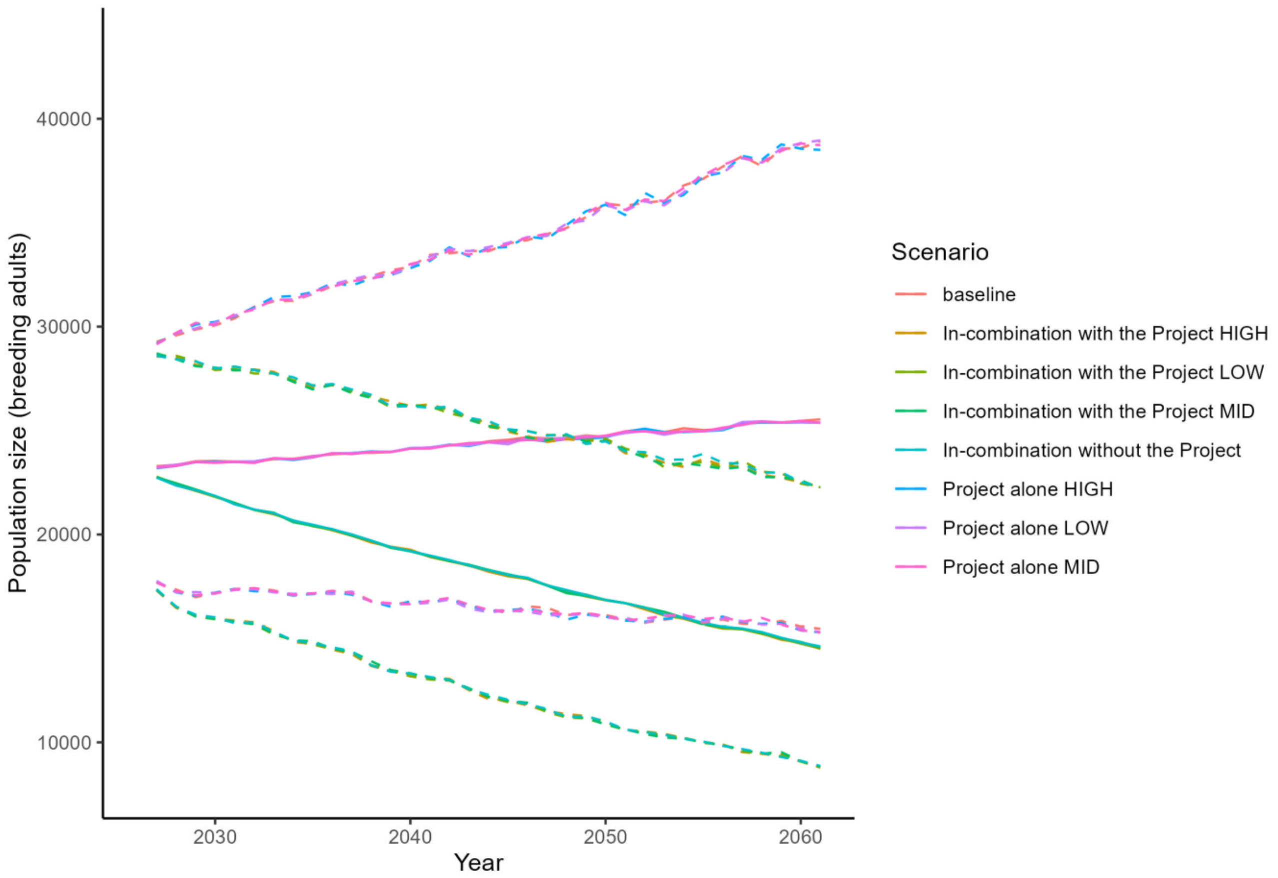

Figure E5-3 Projected population size of the breeding gannet feature of the Flamborough and Filey Coast SPA for the baseline (unimpacted), Project alone, in-combination impacts without the Project and in-combination with the Project from 2027 to 2062. Solid line = mean, dashed line = S.D.

Table E5-3 Summary of PVA metrics for the gannet population from Flamborough and Filey Coast SPA for the Project alone, in-combination without the Project and in-combination including the Project. Based on the assessment of in-combination impacts and population sizes for the BDMPS UK western waters & Channel during Spring migration (January to April) SD = standard deviation, LCI = lower confidence interval, UCI = upper confidence interval.

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone LOW	10	1.0000	1.0000	0.0009	0.9984	1.0017	0.9996	1.0001	0.0128	0.9744	1.0250	49.9	50.1
Project alone MID	10	1.0000	1.0000	0.0008	0.9983	1.0016	1.0000	0.9999	0.0132	0.9723	1.0258	49.6	50.8
Project alone HIGH	10	1.0000	1.0000	0.0009	0.9983	1.0017	0.9997	0.9998	0.0133	0.9748	1.0256	49.9	50.1
In-combination without the Project	10	0.9837	0.9837	0.0009	0.9820	0.9854	0.8344	0.8346	0.0114	0.8129	0.8577	14.3	87.4
In-combination with the Project LOW	10	0.9836	0.9836	0.0009	0.9818	0.9853	0.8338	0.8335	0.0113	0.8110	0.8553	13.8	87.0

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project MID	10	0.9836	0.9836	0.0009	0.9820	0.9854	0.8342	0.8341	0.0114	0.8120	0.8556	13.8	87.0
In-combination with the Project HIGH	10	0.9836	0.9836	0.0009	0.9818	0.9855	0.8336	0.8337	0.0113	0.8119	0.8554	13.8	87.0
Project alone LOW	20	1.0000	1.0000	0.0006	0.9989	1.0012	0.9998	0.9999	0.0149	0.9703	1.0292	49.7	50.3
Project alone MID	20	1.0000	1.0000	0.0006	0.9988	1.0012	0.9993	0.9995	0.0152	0.9702	1.0303	49.4	50.8
Project alone HIGH	20	1.0000	1.0000	0.0006	0.9988	1.0010	0.9993	0.9992	0.0153	0.9699	1.0289	49.1	50.6
In-combination without the Project	20	0.9841	0.9841	0.0007	0.9828	0.9854	0.7138	0.7140	0.0119	0.6897	0.7385	5.5	97.2

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project LOW	20	0.9841	0.9840	0.0007	0.9827	0.9853	0.7128	0.7131	0.0119	0.6877	0.7358	5.7	97.2
In-combination with the Project MID	20	0.9840	0.9841	0.0006	0.9828	0.9853	0.7138	0.7137	0.0115	0.6902	0.7348	5.5	97.5
In-combination with the Project HIGH	20	0.9840	0.9840	0.0007	0.9827	0.9853	0.7129	0.7131	0.0118	0.6905	0.7355	5.5	97.6
Project alone LOW	30	1.0000	1.0000	0.0005	0.9991	1.0009	0.9995	0.9998	0.0170	0.9681	1.0350	50.5	49.4
Project alone MID	30	1.0000	1.0000	0.0005	0.9990	1.0009	0.9985	0.9990	0.0175	0.9659	1.0334	49.5	50.4
Project alone HIGH	30	0.9999	0.9999	0.0005	0.9990	1.0008	0.9984	0.9985	0.0171	0.9657	1.0320	50.0	50.1

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination without the Project	30	0.9842	0.9842	0.0006	0.9831	0.9853	0.6109	0.6110	0.0122	0.5860	0.6341	1.9	99.0
In-combination with the Project LOW	30	0.9842	0.9842	0.0005	0.9831	0.9852	0.6099	0.6099	0.0118	0.5857	0.6327	1.8	99.0
In-combination with the Project MID	30	0.9842	0.9842	0.0005	0.9831	0.9852	0.6098	0.6101	0.0115	0.5870	0.6317	1.9	99.0
In-combination with the Project HIGH	30	0.9841	0.9842	0.0005	0.9831	0.9852	0.6098	0.6096	0.0117	0.5863	0.6326	1.9	99.0
Project alone LOW	35	1.0000	1.0000	0.0004	0.9991	1.0009	0.9990	0.9996	0.0179	0.9654	1.0355	49.0	50.4
Project alone MID	35	1.0000	1.0000	0.0004	0.9991	1.0009	0.9983	0.9987	0.0185	0.9649	1.0357	50.0	50.0

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone HIGH	35	0.9999	0.9999	0.0004	0.9991	1.0007	0.9984	0.9982	0.0181	0.9628	1.0344	49.7	50.0
In-combination without the Project	35	0.9843	0.9843	0.0005	0.9833	0.9852	0.5649	0.5652	0.0119	0.5417	0.5883	1.2	99.7
In-combination with the Project LOW	35	0.9842	0.9842	0.0005	0.9832	0.9852	0.5641	0.5641	0.0117	0.5397	0.5866	1.2	99.7
In-combination with the Project MID	35	0.9842	0.9842	0.0005	0.9833	0.9852	0.5642	0.5641	0.0116	0.5424	0.5871	1.2	99.7
In-combination with the Project HIGH	35	0.9842	0.9842	0.0005	0.9833	0.9852	0.5640	0.5640	0.0113	0.5411	0.5871	1.2	99.6

E.6 Flannan Islands SPA

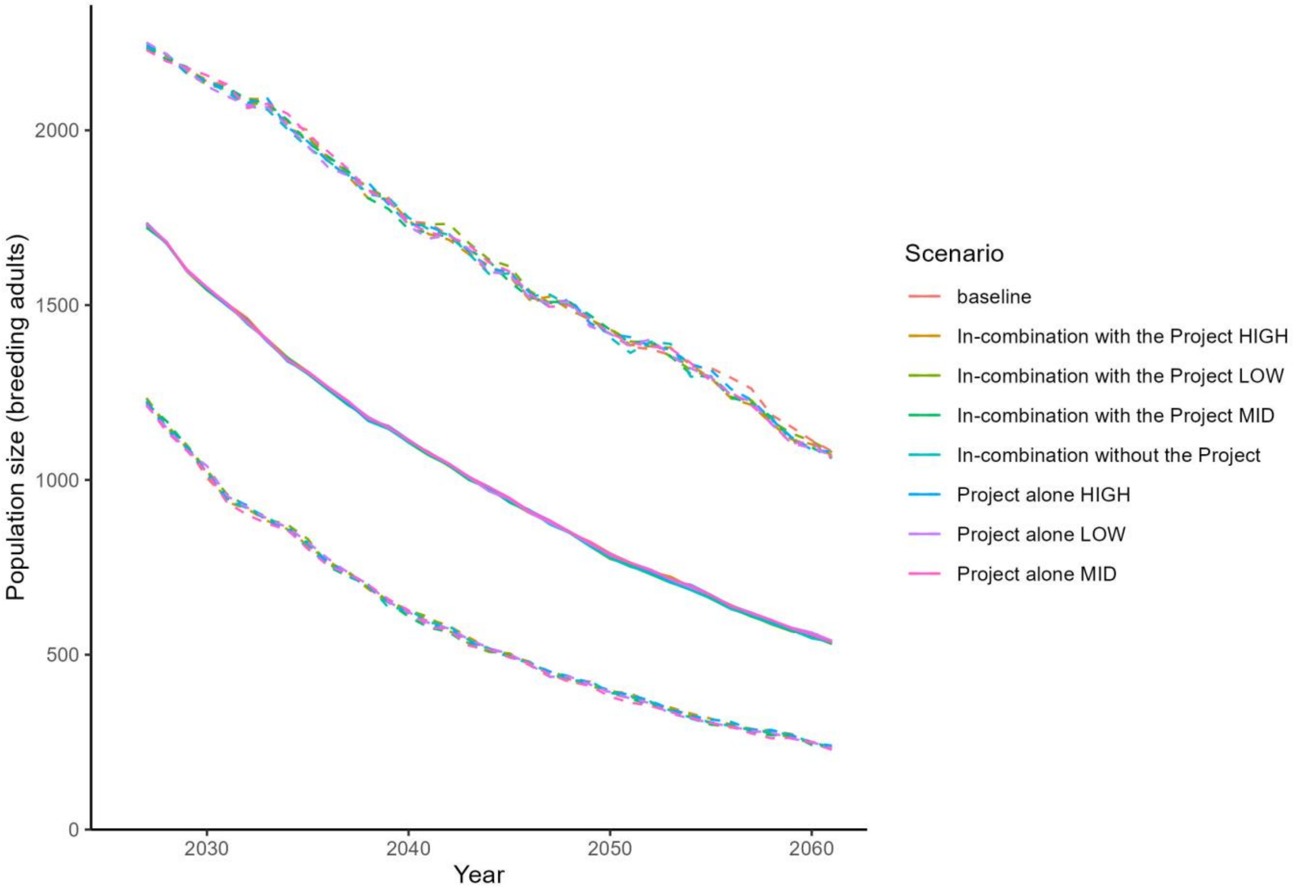

Figure E6-1 Projected population size of the breeding razorbill feature of the Flannan Islands SPA for the baseline (unimpacted), Project alone, in-combination impacts without the Project and in-combination with the Project from 2027 to 2062. Solid line = mean, dashed line = S.D.

Table E6-1 Summary of PVA metrics for the razorbill population from Flannan Islands SPA for the Project alone, in-combination without the Project and in-combination including the Project. Based on the assessment of in-combination impacts and population sizes for the BDMPS UK western waters & Channel during Spring migration (January to April) SD = standard deviation, LCI = lower confidence interval, UCI = upper confidence interval.

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone LOW	10	1.0000	1.0001	0.0038	0.9925	1.0077	0.9984	1.0011	0.0464	0.9151	1.0969	50.4	49.7
Project alone MID	10	1.0003	1.0003	0.0039	0.9930	1.0083	1.0015	1.0028	0.0470	0.9152	1.1009	51.0	49.0
Project alone HIGH	10	0.9999	1.0001	0.0038	0.9928	1.0077	0.9990	1.0006	0.0464	0.9164	1.0967	49.9	50.6
In-combination without the Project	10	1.0001	1.0000	0.0037	0.9925	1.0065	1.0007	0.9997	0.0443	0.9114	1.0845	50.2	49.9
In-combination with the Project LOW	10	1.0000	1.0000	0.0038	0.9928	1.0077	0.9985	1.0004	0.0464	0.9133	1.0920	50.2	49.8

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project MID	10	0.9997	0.9998	0.0038	0.9925	1.0074	0.9952	0.9979	0.0467	0.9134	1.0949	49.0	51.0
In-combination with the Project HIGH	10	0.9999	0.9999	0.0037	0.9929	1.0075	0.9964	0.9988	0.0455	0.9161	1.0968	49.9	50.1
Project alone LOW	20	1.0001	1.0001	0.0033	0.9935	1.0066	1.0011	1.0020	0.0564	0.8955	1.1136	50.1	49.8
Project alone MID	20	1.0001	1.0002	0.0033	0.9936	1.0067	1.0014	1.0027	0.0559	0.8997	1.1151	50.2	49.5
Project alone HIGH	20	1.0000	1.0002	0.0032	0.9939	1.0067	0.9988	1.0023	0.0553	0.9000	1.1245	50.1	49.9
In-combination without the Project	20	0.9999	0.9999	0.0032	0.9935	1.0064	0.9961	0.9989	0.0560	0.8908	1.1190	49.4	50.2

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project LOW	20	1.0000	1.0000	0.0032	0.9937	1.0062	0.9980	1.0006	0.0552	0.8940	1.1055	49.2	50.6
In-combination with the Project MID	20	0.9998	0.9998	0.0031	0.9936	1.0059	0.9956	0.9976	0.0547	0.8933	1.1083	49.4	50.6
In-combination with the Project HIGH	20	1.0000	1.0000	0.0032	0.9942	1.0064	0.9974	0.9998	0.0550	0.9001	1.1135	49.2	50.8
Project alone LOW	30	1.0002	1.0001	0.0031	0.9942	1.0060	1.0000	1.0024	0.0670	0.8781	1.1388	49.3	50.9
Project alone MID	30	1.0000	1.0001	0.0030	0.9944	1.0061	1.0018	1.0032	0.0667	0.8811	1.1331	50.9	49.5
Project alone HIGH	30	1.0001	1.0002	0.0029	0.9942	1.0064	0.9997	1.0041	0.0653	0.8880	1.1455	50.9	49.3

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination without the Project	30	0.9998	0.9998	0.0030	0.9940	1.0058	0.9958	0.9978	0.0662	0.8717	1.1337	48.4	51.0
In-combination with the Project LOW	30	1.0000	1.0000	0.0029	0.9940	1.0058	0.9990	1.0007	0.0653	0.8743	1.1386	49.3	50.3
In-combination with the Project MID	30	0.9998	0.9998	0.0029	0.9940	1.0055	0.9931	0.9968	0.0656	0.8718	1.1331	50.0	50.1
In-combination with the Project HIGH	30	0.9998	0.9999	0.0029	0.9947	1.0061	0.9976	0.9997	0.0660	0.8854	1.1423	50.1	49.9
Project alone LOW	35	1.0001	1.0001	0.0029	0.9948	1.0055	1.0000	1.0033	0.0768	0.8634	1.1639	50.0	50.0
Project alone MID	35	1.0002	1.0001	0.0028	0.9946	1.0060	1.0028	1.0037	0.0763	0.8614	1.1647	49.5	50.7

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone HIGH	35	1.0001	1.0001	0.0027	0.9950	1.0059	1.0000	1.0037	0.0750	0.8657	1.1726	48.7	50.7
In-combination without the Project	35	0.9997	0.9998	0.0028	0.9946	1.0052	0.9910	0.9965	0.0762	0.8564	1.1538	48.0	51.9
In-combination with the Project LOW	35	1.0000	0.9999	0.0028	0.9944	1.0056	0.9985	0.9998	0.0760	0.8554	1.1579	47.7	51.4
In-combination with the Project MID	35	0.9996	0.9997	0.0028	0.9945	1.0051	0.9905	0.9944	0.0760	0.8503	1.1533	47.1	52.6
In-combination with the Project HIGH	35	0.9999	0.9999	0.0028	0.9946	1.0057	0.9963	1.0003	0.0759	0.8591	1.1548	48.7	50.7

E.7 Forth Islands SPA

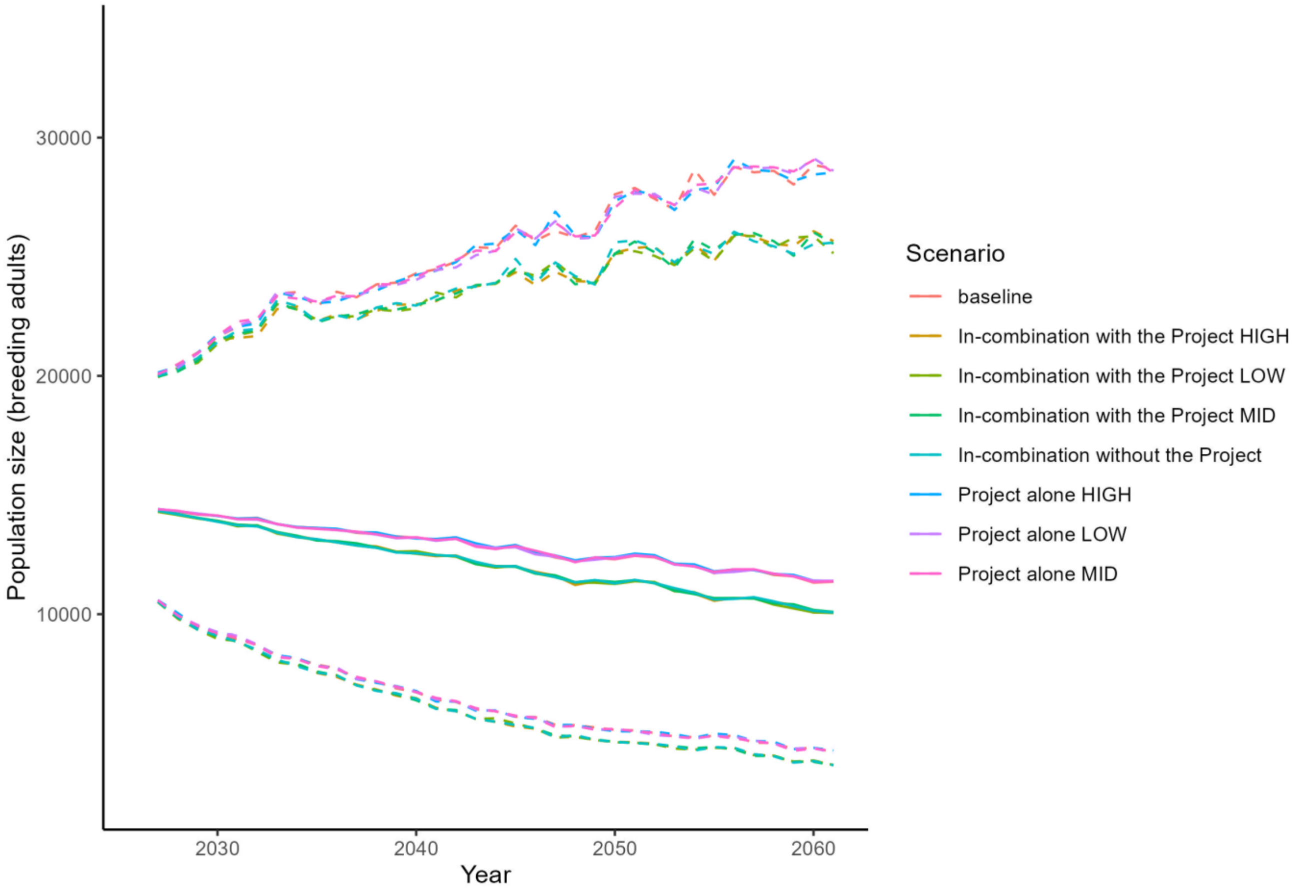

Figure E7-1 Projected population size of the breeding kittiwake feature of the Forth Islands SPA for the baseline (unimpacted), Project alone, in-combination impacts without the Project and in-combination with the Project from 2027 to 2062. Solid line = mean, dashed line = S.D.

Table E7-1 Summary of PVA metrics for the kittiwake population from Forth Islands SPA for the Project alone, in-combination without the Project and in-combination including the Project. Based on the assessment of in-combination impacts and population sizes for the BDMPS UK western waters & Channel during Spring migration (January to April) SD = standard deviation, LCI = lower confidence interval, UCI = upper confidence interval.

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone LOW	10	1.0000	1.0000	0.0013	0.9974	1.0025	1.0002	1.0000	0.0159	0.9697	1.0309	50.1	49.8
Project alone MID	10	1.0000	1.0000	0.0013	0.9975	1.0023	0.9999	0.9998	0.0158	0.9689	1.0307	50.1	49.2
Project alone HIGH	10	1.0000	1.0000	0.0013	0.9973	1.0026	1.0007	1.0005	0.0160	0.9671	1.0313	50.1	49.6
In-combination without the Project	10	0.9964	0.9964	0.0014	0.9936	0.9992	0.9615	0.9611	0.0163	0.9274	0.9933	44.0	55.3
In-combination with the Project LOW	10	0.9964	0.9963	0.0014	0.9935	0.9991	0.9606	0.9604	0.0163	0.9282	0.9912	44.0	55.4

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project MID	10	0.9965	0.9964	0.0014	0.9938	0.9991	0.9620	0.9614	0.0160	0.9293	0.9919	45.1	54.8
In-combination with the Project HIGH	10	0.9963	0.9964	0.0014	0.9937	0.9991	0.9600	0.9608	0.0165	0.9302	0.9936	44.1	55.2
Project alone LOW	20	0.9999	1.0000	0.0011	0.9979	1.0021	0.9991	0.9993	0.0187	0.9635	1.0357	49.6	50.7
Project alone MID	20	1.0000	1.0000	0.0011	0.9978	1.0021	0.9992	0.9995	0.0188	0.9624	1.0379	49.6	50.4
Project alone HIGH	20	1.0000	1.0000	0.0011	0.9978	1.0022	1.0000	1.0005	0.0188	0.9649	1.0377	50.0	50.0
In-combination without the Project	20	0.9965	0.9965	0.0012	0.9941	0.9987	0.9454	0.9450	0.0189	0.9093	0.9809	45.2	56.8

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project LOW	20	0.9964	0.9964	0.0012	0.9940	0.9986	0.9432	0.9436	0.0187	0.9073	0.9789	44.9	57.1
In-combination with the Project MID	20	0.9965	0.9965	0.0011	0.9941	0.9986	0.9451	0.9449	0.0185	0.9075	0.9808	45.1	57.1
In-combination with the Project HIGH	20	0.9964	0.9964	0.0011	0.9942	0.9986	0.9436	0.9436	0.0188	0.9062	0.9806	45.2	56.5
Project alone LOW	30	1.0000	1.0000	0.0009	0.9982	1.0019	0.9996	0.9996	0.0210	0.9600	1.0432	50.2	49.6
Project alone MID	30	1.0000	1.0000	0.0010	0.9980	1.0019	0.9987	0.9999	0.0215	0.9572	1.0427	50.6	49.2
Project alone HIGH	30	1.0000	1.0000	0.0010	0.9982	1.0019	1.0010	1.0014	0.0215	0.9596	1.0440	50.8	49.2

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination without the Project	30	0.9965	0.9965	0.0010	0.9944	0.9984	0.9293	0.9288	0.0207	0.8886	0.9695	41.7	56.8
In-combination with the Project LOW	30	0.9964	0.9964	0.0010	0.9945	0.9984	0.9275	0.9274	0.0214	0.8864	0.9692	41.5	57.1
In-combination with the Project MID	30	0.9965	0.9965	0.0010	0.9945	0.9985	0.9296	0.9292	0.0209	0.8895	0.9700	42.9	57.0
In-combination with the Project HIGH	30	0.9965	0.9964	0.0010	0.9944	0.9983	0.9275	0.9278	0.0208	0.8873	0.9685	42.7	57.5
Project alone LOW	35	0.9999	1.0000	0.0009	0.9984	1.0018	0.9986	0.9991	0.0235	0.9555	1.0492	50.2	50.0
Project alone MID	35	1.0000	1.0000	0.0009	0.9982	1.0017	0.9994	0.9996	0.0238	0.9524	1.0476	50.2	49.5

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone HIGH	35	1.0000	1.0000	0.0009	0.9984	1.0018	1.0012	1.0017	0.0235	0.9569	1.0513	50.6	48.9
In-combination without the Project	35	0.9965	0.9965	0.0009	0.9948	0.9984	0.9134	0.9135	0.0225	0.8710	0.9589	40.6	58.4
In-combination with the Project LOW	35	0.9964	0.9965	0.0009	0.9946	0.9981	0.9120	0.9119	0.0232	0.8652	0.9555	40.9	59.1
In-combination with the Project MID	35	0.9965	0.9965	0.0009	0.9946	0.9983	0.9142	0.9137	0.0224	0.8694	0.9611	40.6	58.5
In-combination with the Project HIGH	35	0.9965	0.9965	0.0009	0.9947	0.9982	0.9112	0.9123	0.0225	0.8714	0.9578	40.8	59.0

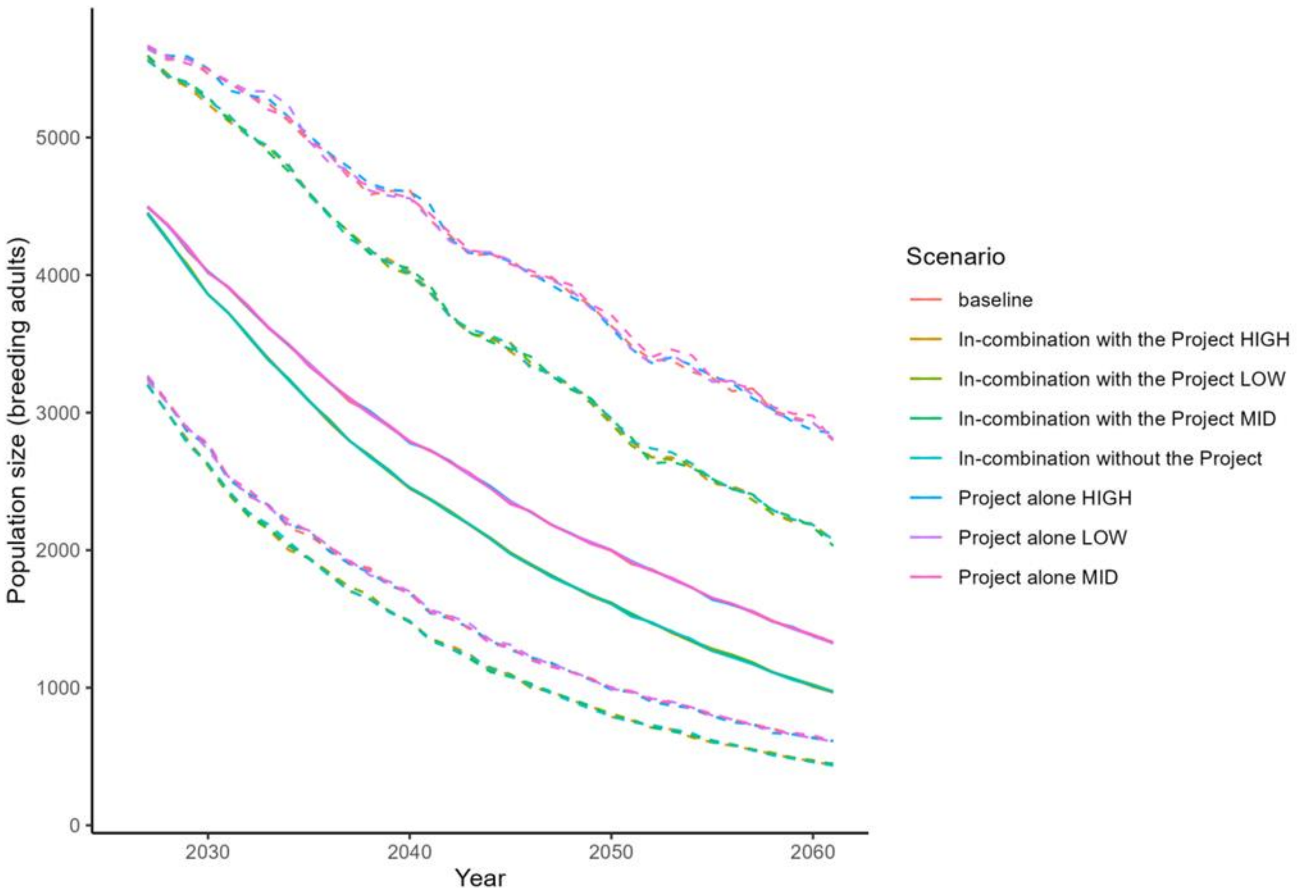

Figure E7-2 Projected population size of the breeding razorbill feature of the Forth Islands SPA for the baseline (unimpacted), Project alone, in-combination impacts without the Project and in-combination with the Project from 2027 to 2062. Solid line = mean, dashed line = S.D.

Table E7-2 Summary of PVA metrics for the razorbill population from Forth Islands SPA for the Project alone, in-combination without the Project and in-combination including the Project. Based on the assessment of in-combination impacts and population sizes for the BDMPS UK western waters & Channel during Spring migration (January to April) SD = standard deviation, LCI = lower confidence interval, UCI = upper confidence interval.

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone LOW	10	1.0001	1.0001	0.0025	0.9951	1.0051	1.0000	1.0015	0.0292	0.9441	1.0588	50.8	48.0
Project alone MID	10	0.9999	1.0000	0.0023	0.9957	1.0048	0.9990	1.0010	0.0275	0.9512	1.0591	51.0	49.2
Project alone HIGH	10	1.0001	1.0001	0.0024	0.9954	1.0048	1.0004	1.0010	0.0287	0.9478	1.0589	50.8	48.9
In-combination without the Project	10	0.9908	0.9908	0.0025	0.9860	0.9956	0.9033	0.9039	0.0267	0.8507	0.9597	32.9	65.0
In-combination with the Project LOW	10	0.9910	0.9909	0.0023	0.9861	0.9954	0.9049	0.9047	0.0255	0.8541	0.9581	32.9	64.8

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project MID	10	0.9908	0.9908	0.0024	0.9859	0.9954	0.9038	0.9040	0.0263	0.8507	0.9580	32.9	65.2
In-combination with the Project HIGH	10	0.9908	0.9908	0.0024	0.9861	0.9954	0.9042	0.9041	0.0261	0.8533	0.9542	32.4	65.1
Project alone LOW	20	1.0001	1.0001	0.0020	0.9962	1.0041	1.0014	1.0022	0.0346	0.9400	1.0695	49.8	50.9
Project alone MID	20	1.0000	1.0001	0.0020	0.9966	1.0042	1.0005	1.0022	0.0327	0.9429	1.0700	49.8	51.0
Project alone HIGH	20	1.0001	1.0001	0.0020	0.9962	1.0043	1.0031	1.0026	0.0347	0.9374	1.0737	49.9	50.6
In-combination without the Project	20	0.9909	0.9909	0.0022	0.9866	0.9953	0.8658	0.8650	0.0317	0.8036	0.9269	28.5	72.9

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project LOW	20	0.9912	0.9911	0.0021	0.9869	0.9951	0.8673	0.8669	0.0314	0.8033	0.9310	28.9	72.2
In-combination with the Project MID	20	0.9910	0.9910	0.0021	0.9871	0.9952	0.8662	0.8661	0.0312	0.8060	0.9290	28.1	72.1
In-combination with the Project HIGH	20	0.9910	0.9910	0.0020	0.9869	0.9951	0.8652	0.8656	0.0305	0.8063	0.9279	28.5	72.3
Project alone LOW	30	1.0001	1.0001	0.0018	0.9966	1.0040	1.0008	1.0017	0.0402	0.9261	1.0835	50.2	49.7
Project alone MID	30	1.0000	1.0000	0.0018	0.9967	1.0036	1.0005	1.0006	0.0386	0.9300	1.0804	50.0	50.0
Project alone HIGH	30	1.0001	1.0000	0.0018	0.9963	1.0037	1.0010	1.0016	0.0401	0.9243	1.0831	50.2	49.8

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination without the Project	30	0.9909	0.9910	0.0019	0.9872	0.9946	0.8255	0.8271	0.0351	0.7629	0.8962	27.0	71.5
In-combination with the Project LOW	30	0.9912	0.9911	0.0019	0.9872	0.9948	0.8287	0.8288	0.0350	0.7608	0.9007	27.8	70.9
In-combination with the Project MID	30	0.9911	0.9910	0.0019	0.9874	0.9946	0.8293	0.8290	0.0350	0.7619	0.9004	27.7	72.1
In-combination with the Project HIGH	30	0.9911	0.9910	0.0019	0.9874	0.9946	0.8292	0.8290	0.0344	0.7650	0.8966	27.2	71.4
Project alone LOW	35	1.0001	1.0000	0.0017	0.9965	1.0035	1.0007	1.0010	0.0464	0.9109	1.0931	49.6	50.3
Project alone MID	35	0.9999	1.0000	0.0017	0.9969	1.0034	0.9987	1.0009	0.0448	0.9228	1.0927	48.8	50.5

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone HIGH	35	1.0001	1.0000	0.0017	0.9967	1.0034	1.0010	1.0011	0.0463	0.9147	1.0933	49.6	50.3
In-combination without the Project	35	0.9909	0.9910	0.0018	0.9874	0.9946	0.7894	0.7911	0.0383	0.7137	0.8732	26.2	74.9
In-combination with the Project LOW	35	0.9911	0.9911	0.0018	0.9874	0.9945	0.7933	0.7931	0.0387	0.7167	0.8698	26.0	75.0
In-combination with the Project MID	35	0.9911	0.9910	0.0018	0.9871	0.9946	0.7920	0.7929	0.0392	0.7188	0.8732	25.5	74.5
In-combination with the Project HIGH	35	0.9911	0.9910	0.0018	0.9875	0.9944	0.7921	0.7923	0.0379	0.7210	0.8688	26.0	74.1

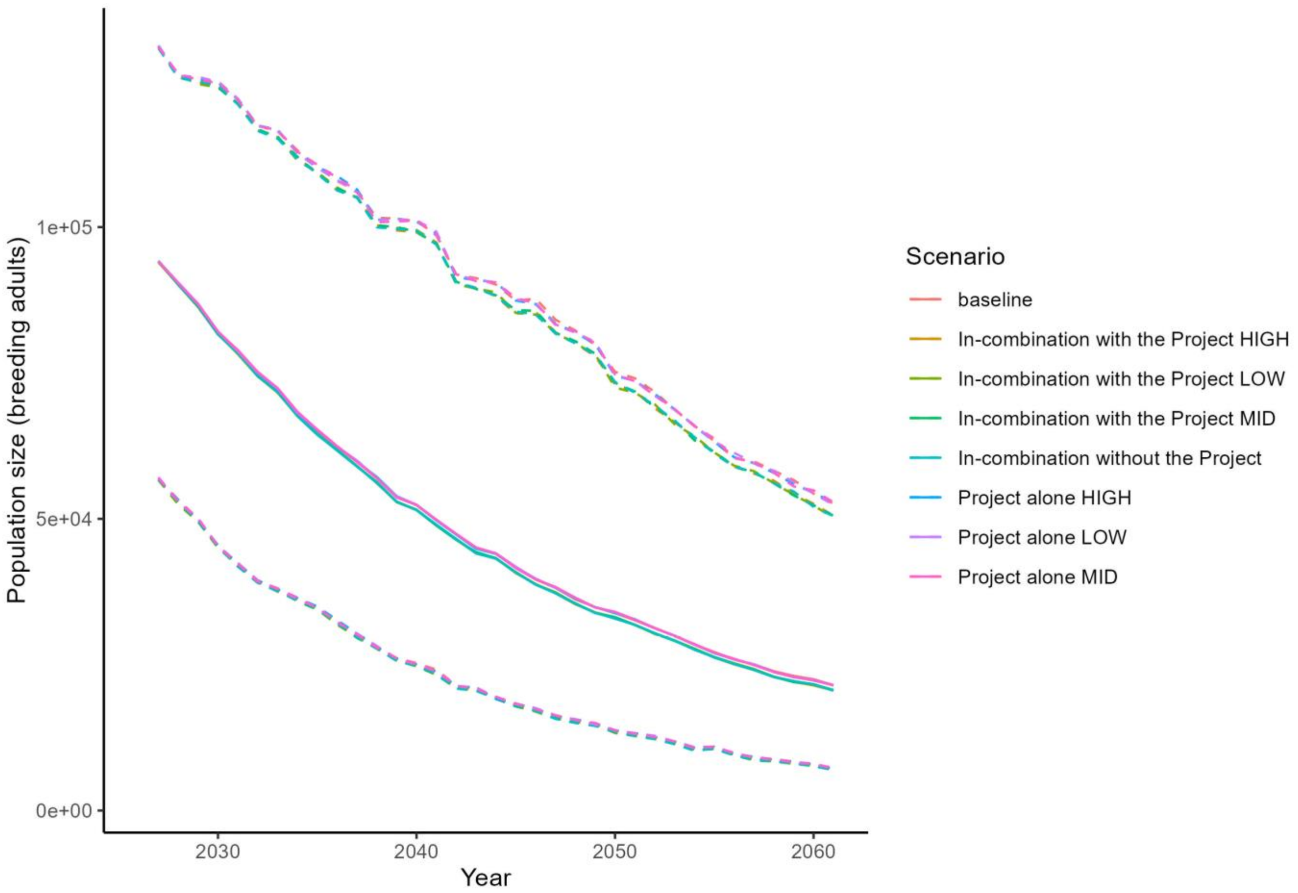

Figure E7-3 Projected population size of the breeding puffin feature of the Forth Islands SPA for the baseline (unimpacted), Project alone, in-combination impacts without the Project and in-combination with the Project from 2027 to 2062. Solid line = mean, dashed line = S.D.

Table E7-3 Summary of PVA metrics for the puffin population from Forth Islands SPA for the Project alone, in-combination without the Project and in-combination including the Project. Based on the assessment of in-combination impacts and population sizes for the BDMPS UK western waters & Channel during Spring migration (January to April) SD = standard deviation, LCI = lower confidence interval, UCI = upper confidence interval.

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone LOW	10	1.0000	1.0000	0.0006	0.9989	1.0011	1.0002	1.0001	0.0068	0.9868	1.0132	50.3	49.9
Project alone MID	10	1.0000	1.0000	0.0006	0.9988	1.0010	0.9996	0.9994	0.0067	0.9856	1.0130	50.0	50.3
Project alone HIGH	10	0.9999	0.9999	0.0005	0.9989	1.0010	0.9994	0.9994	0.0066	0.9862	1.0123	50.0	50.1
In-combination without the Project	10	0.9989	0.9989	0.0005	0.9978	0.9999	0.9877	0.9875	0.0064	0.9748	1.0000	48.4	51.7
In-combination with the Project LOW	10	0.9988	0.9988	0.0005	0.9978	0.9999	0.9870	0.9871	0.0063	0.9750	1.0003	48.4	51.6

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project MID	10	0.9988	0.9988	0.0005	0.9978	1.0000	0.9873	0.9872	0.0065	0.9738	0.9994	48.6	51.5
In-combination with the Project HIGH	10	0.9988	0.9988	0.0006	0.9978	0.9999	0.9872	0.9871	0.0067	0.9746	1.0006	48.6	51.7
Project alone LOW	20	1.0000	1.0000	0.0005	0.9991	1.0009	1.0003	1.0002	0.0079	0.9852	1.0149	50.2	49.9
Project alone MID	20	1.0000	1.0000	0.0005	0.9989	1.0008	0.9991	0.9993	0.0083	0.9822	1.0156	50.4	49.9
Project alone HIGH	20	0.9999	0.9999	0.0004	0.9991	1.0008	0.9991	0.9992	0.0077	0.9835	1.0137	49.8	50.2
In-combination without the Project	20	0.9989	0.9989	0.0004	0.9980	0.9998	0.9821	0.9823	0.0076	0.9678	0.9977	47.7	52.4

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project LOW	20	0.9989	0.9989	0.0004	0.9980	0.9997	0.9819	0.9819	0.0076	0.9679	0.9971	47.5	52.5
In-combination with the Project MID	20	0.9989	0.9989	0.0005	0.9979	0.9998	0.9823	0.9820	0.0080	0.9668	0.9967	47.5	52.7
In-combination with the Project HIGH	20	0.9988	0.9988	0.0005	0.9980	0.9998	0.9816	0.9817	0.0078	0.9668	0.9974	47.7	52.5
Project alone LOW	30	1.0000	1.0000	0.0004	0.9991	1.0008	1.0004	1.0001	0.0096	0.9804	1.0181	50.1	49.9
Project alone MID	30	1.0000	1.0000	0.0004	0.9990	1.0009	0.9989	0.9991	0.0099	0.9781	1.0187	50.4	49.7
Project alone HIGH	30	1.0000	0.9999	0.0004	0.9990	1.0008	0.9990	0.9989	0.0097	0.9794	1.0178	50.0	50.0

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination without the Project	30	0.9989	0.9989	0.0004	0.9980	0.9997	0.9767	0.9767	0.0095	0.9593	0.9957	47.1	52.8
In-combination with the Project LOW	30	0.9989	0.9989	0.0004	0.9980	0.9998	0.9768	0.9766	0.0094	0.9579	0.9953	47.5	52.3
In-combination with the Project MID	30	0.9989	0.9989	0.0004	0.9980	0.9997	0.9767	0.9765	0.0093	0.9582	0.9946	47.2	52.8
In-combination with the Project HIGH	30	0.9988	0.9988	0.0004	0.9980	0.9996	0.9763	0.9760	0.0095	0.9578	0.9940	47.1	52.4
Project alone LOW	35	1.0000	1.0000	0.0004	0.9991	1.0008	1.0003	1.0000	0.0112	0.9764	1.0218	49.9	50.1
Project alone MID	35	1.0000	1.0000	0.0004	0.9992	1.0008	0.9987	0.9990	0.0113	0.9765	1.0200	50.2	49.6

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone HIGH	35	1.0000	0.9999	0.0004	0.9991	1.0007	0.9986	0.9987	0.0113	0.9750	1.0199	49.9	50.1
In-combination without the Project	35	0.9989	0.9989	0.0004	0.9981	0.9997	0.9715	0.9714	0.0109	0.9508	0.9928	47.3	52.9
In-combination with the Project LOW	35	0.9989	0.9989	0.0004	0.9980	0.9997	0.9709	0.9713	0.0111	0.9493	0.9935	47.1	53.2
In-combination with the Project MID	35	0.9989	0.9989	0.0004	0.9980	0.9996	0.9713	0.9710	0.0109	0.9478	0.9911	47.5	53.1
In-combination with the Project HIGH	35	0.9988	0.9988	0.0004	0.9980	0.9997	0.9707	0.9705	0.0107	0.9502	0.9916	47.3	53.3

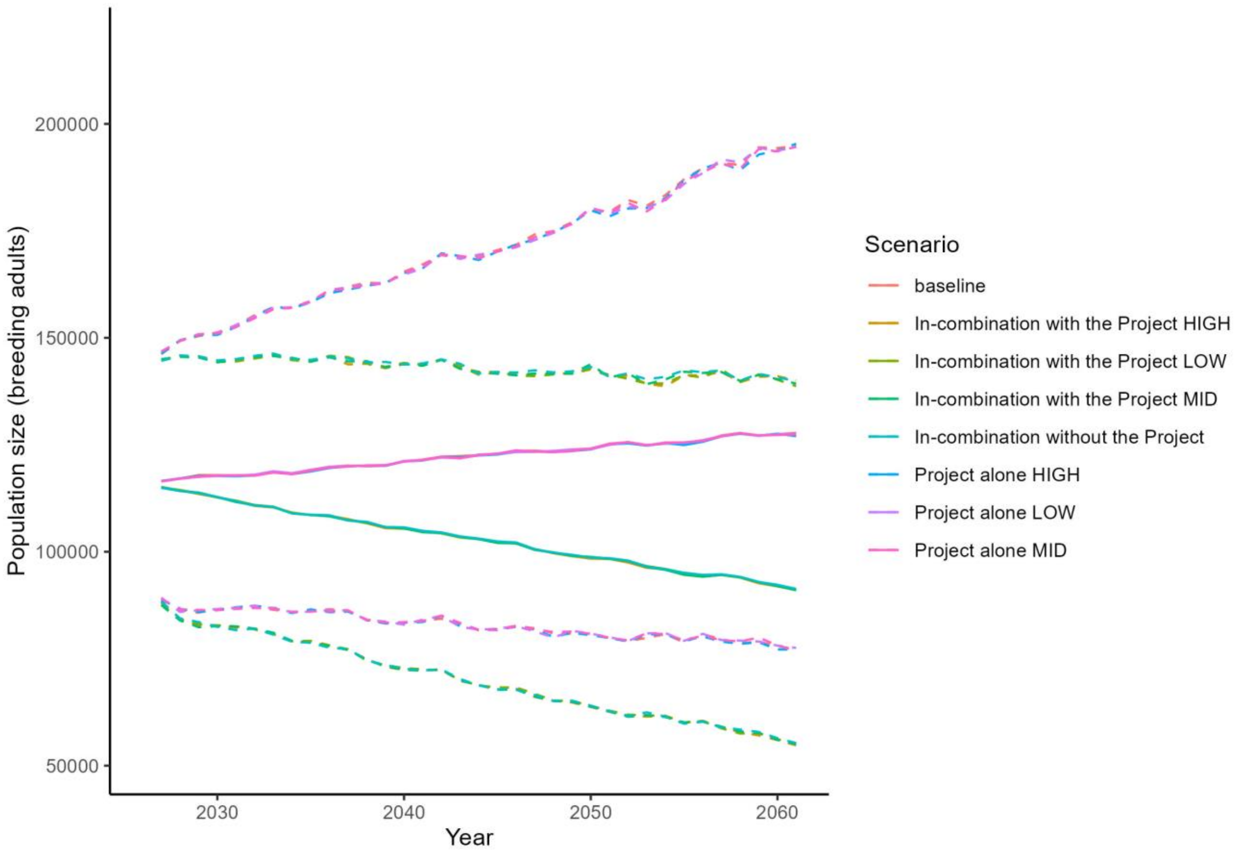

Figure E7-4 Projected population size of the breeding gannet feature of the Forth Islands SPA for the baseline (unimpacted), Project alone, in-combination impacts without the Project and in-combination with the Project from 2027 to 2062. Solid line = mean, dashed line = S.D.

Table E7-4 Summary of PVA metrics for the gannet population from Forth Islands SPA for the Project alone, in-combination without the Project and in-combination including the Project. Based on the assessment of in-combination impacts and population sizes for the BDMPS UK western waters & Channel during Spring migration (January to April) SD = standard deviation, LCI = lower confidence interval, UCI = upper confidence interval.

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone LOW	10	1.0000	1.0000	0.0004	0.9992	1.0007	0.9997	0.9998	0.0057	0.9892	1.0115	49.8	50.7
Project alone MID	10	0.9999	1.0000	0.0004	0.9992	1.0007	0.9996	0.9995	0.0059	0.9878	1.0109	49.7	50.7
Project alone HIGH	10	1.0000	0.9999	0.0004	0.9992	1.0007	0.9992	0.9993	0.0058	0.9879	1.0110	49.7	50.7
In-combination without the Project	10	0.9902	0.9902	0.0004	0.9893	0.9909	0.8967	0.8967	0.0055	0.8864	0.9077	25.6	75.5
In-combination with the Project LOW	10	0.9901	0.9901	0.0004	0.9893	0.9909	0.8965	0.8964	0.0057	0.8846	0.9076	26.1	75.8

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project MID	10	0.9901	0.9901	0.0004	0.9893	0.9909	0.8959	0.8960	0.0055	0.8855	0.9070	25.6	75.5
In-combination with the Project HIGH	10	0.9901	0.9901	0.0004	0.9893	0.9909	0.8959	0.8961	0.0052	0.8861	0.9065	26.2	75.7
Project alone LOW	20	1.0000	1.0000	0.0003	0.9994	1.0006	0.9996	0.9996	0.0062	0.9876	1.0122	49.6	50.5
Project alone MID	20	1.0000	1.0000	0.0003	0.9993	1.0006	0.9994	0.9994	0.0065	0.9864	1.0120	49.8	50.4
Project alone HIGH	20	0.9999	0.9999	0.0003	0.9994	1.0005	0.9989	0.9990	0.0063	0.9872	1.0121	49.9	50.1
In-combination without the Project	20	0.9903	0.9903	0.0003	0.9897	0.9910	0.8557	0.8558	0.0057	0.8443	0.8679	21.5	82.6

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project LOW	20	0.9903	0.9903	0.0004	0.9896	0.9910	0.8554	0.8554	0.0059	0.8436	0.8665	21.1	82.7
In-combination with the Project MID	20	0.9903	0.9903	0.0003	0.9896	0.9909	0.8548	0.8548	0.0058	0.8437	0.8654	21.1	82.4
In-combination with the Project HIGH	20	0.9902	0.9902	0.0003	0.9896	0.9909	0.8548	0.8548	0.0056	0.8440	0.8664	21.3	82.7
Project alone LOW	30	1.0000	1.0000	0.0003	0.9995	1.0005	0.9997	0.9996	0.0066	0.9868	1.0120	49.5	50.5
Project alone MID	30	1.0000	1.0000	0.0003	0.9994	1.0005	0.9994	0.9993	0.0069	0.9863	1.0130	49.6	50.5
Project alone HIGH	30	0.9999	0.9999	0.0003	0.9994	1.0005	0.9984	0.9987	0.0067	0.9861	1.0122	49.6	50.7

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination without the Project	30	0.9904	0.9904	0.0003	0.9898	0.9910	0.8166	0.8167	0.0060	0.8047	0.8289	15.9	87.1
In-combination with the Project LOW	30	0.9904	0.9904	0.0003	0.9898	0.9910	0.8161	0.8162	0.0061	0.8045	0.8280	15.9	87.5
In-combination with the Project MID	30	0.9903	0.9903	0.0003	0.9898	0.9909	0.8153	0.8154	0.0059	0.8043	0.8269	15.9	87.1
In-combination with the Project HIGH	30	0.9903	0.9903	0.0003	0.9898	0.9909	0.8156	0.8156	0.0059	0.8047	0.8274	15.9	87.2
Project alone LOW	35	1.0000	1.0000	0.0002	0.9995	1.0004	0.9996	0.9995	0.0070	0.9853	1.0128	50.0	50.0
Project alone MID	35	1.0000	1.0000	0.0002	0.9995	1.0004	0.9989	0.9991	0.0073	0.9848	1.0134	50.1	49.9

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone HIGH	35	0.9999	0.9999	0.0002	0.9995	1.0004	0.9982	0.9983	0.0071	0.9844	1.0127	49.6	50.2
In-combination without the Project	35	0.9905	0.9905	0.0003	0.9899	0.9910	0.7792	0.7794	0.0062	0.7676	0.7923	13.7	90.1
In-combination with the Project LOW	35	0.9904	0.9904	0.0003	0.9899	0.9910	0.7786	0.7786	0.0063	0.7672	0.7909	13.5	90.3
In-combination with the Project MID	35	0.9904	0.9904	0.0003	0.9899	0.9909	0.7779	0.7781	0.0062	0.7657	0.7894	13.5	90.1
In-combination with the Project HIGH	35	0.9904	0.9904	0.0003	0.9899	0.9909	0.7781	0.7780	0.0061	0.7668	0.7913	13.2	90.5

E.8 Foula SPA

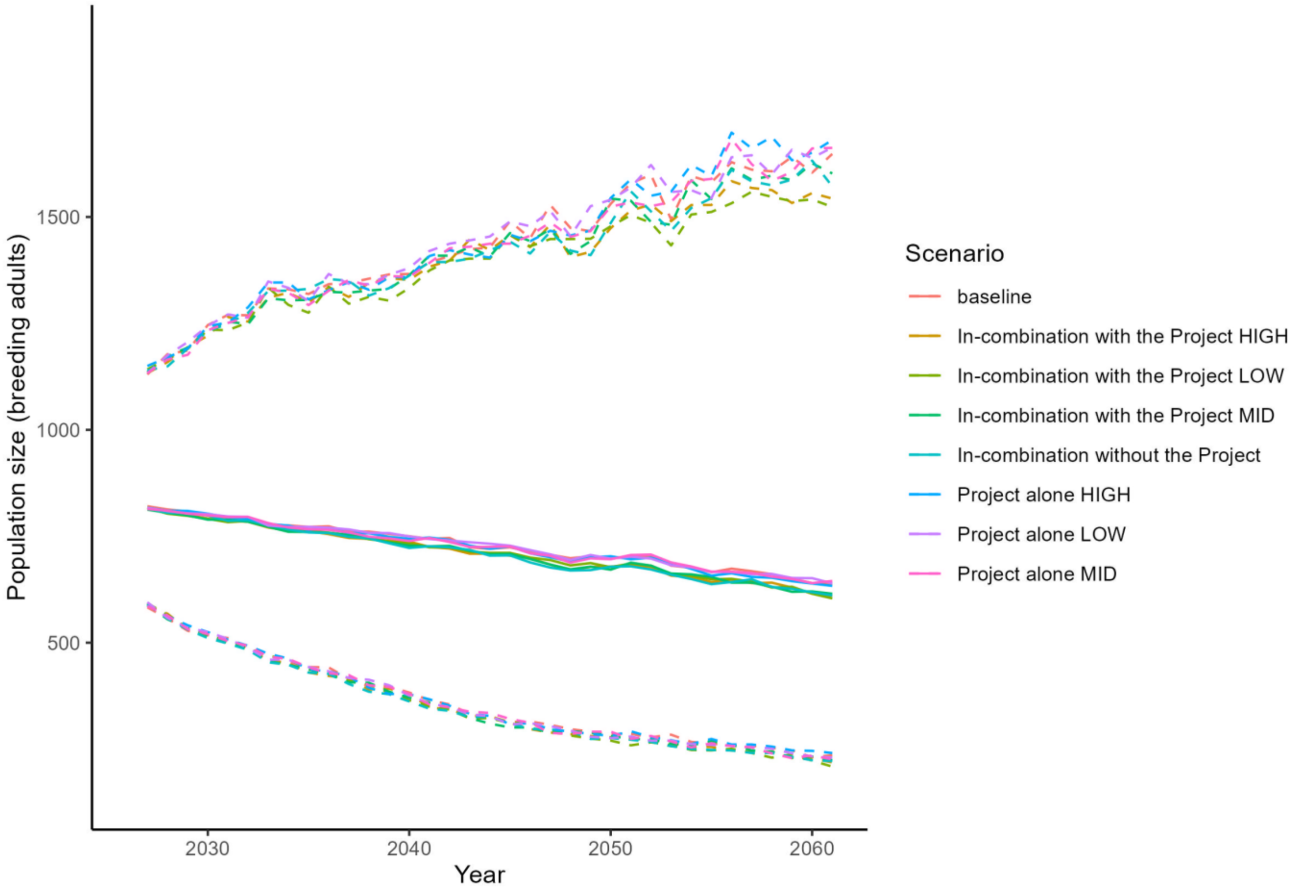

Figure E8-1 Projected population size of the breeding kittiwake feature of the Foula SPA for the baseline (unimpacted), Project alone, in-combination impacts without the Project and in-combination with the Project from 2027 to 2062. Solid line = mean, dashed line = S.D.

Table E8-1 Summary of PVA metrics for the kittiwake population from Foula SPA for the Project alone, in-combination without the Project and in-combination including the Project. Based on the assessment of in-combination impacts and population sizes for the BDMPS UK western waters & Channel during Spring migration (January to April) SD = standard deviation, LCI = lower confidence interval, UCI = upper confidence interval.

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone LOW	10	0.9999	1.0000	0.0056	0.9889	1.0111	0.9977	1.0021	0.0691	0.8766	1.1380	50.9	49.5
Project alone MID	10	0.9996	0.9998	0.0057	0.9891	1.0114	0.9941	0.9989	0.0702	0.8750	1.1385	49.6	50.3
Project alone HIGH	10	0.9997	0.9999	0.0057	0.9887	1.0116	0.9982	1.0017	0.0700	0.8722	1.1494	49.3	51.0
In-combination without the Project	10	0.9989	0.9987	0.0058	0.9872	1.0100	0.9878	0.9875	0.0721	0.8473	1.1263	48.1	52.9
In-combination with the Project LOW	10	0.9984	0.9986	0.0056	0.9875	1.0097	0.9832	0.9861	0.0674	0.8585	1.1284	48.6	52.1

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project MID	10	0.9990	0.9988	0.0059	0.9869	1.0101	0.9870	0.9873	0.0707	0.8548	1.1285	48.6	51.5
In-combination with the Project HIGH	10	0.9986	0.9989	0.0055	0.9881	1.0095	0.9856	0.9891	0.0676	0.8661	1.1314	48.0	52.5
Project alone LOW	20	0.9999	1.0001	0.0047	0.9911	1.0088	0.9990	1.0045	0.0814	0.8532	1.1679	49.1	50.5
Project alone MID	20	1.0000	1.0000	0.0049	0.9907	1.0100	0.9973	1.0013	0.0845	0.8487	1.1987	48.6	51.2
Project alone HIGH	20	1.0001	1.0000	0.0046	0.9909	1.0085	0.9938	1.0039	0.0804	0.8533	1.1698	49.2	50.6
In-combination without the Project	20	0.9990	0.9987	0.0048	0.9889	1.0078	0.9822	0.9829	0.0831	0.8282	1.1479	47.4	53.6

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project LOW	20	0.9987	0.9987	0.0048	0.9888	1.0082	0.9767	0.9812	0.0815	0.8259	1.1457	47.4	53.7
In-combination with the Project MID	20	0.9988	0.9989	0.0048	0.9896	1.0086	0.9806	0.9838	0.0809	0.8376	1.1538	47.7	52.9
In-combination with the Project HIGH	20	0.9988	0.9988	0.0047	0.9900	1.0083	0.9804	0.9841	0.0805	0.8389	1.1535	46.8	53.3
Project alone LOW	30	1.0001	1.0001	0.0041	0.9919	1.0080	1.0000	1.0057	0.0922	0.8449	1.1910	50.1	49.4
Project alone MID	30	0.9999	1.0000	0.0044	0.9913	1.0085	0.9963	1.0021	0.0967	0.8260	1.2186	49.6	50.6
Project alone HIGH	30	1.0000	0.9999	0.0042	0.9919	1.0081	0.9988	1.0032	0.0930	0.8238	1.1902	48.5	50.9

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination without the Project	30	0.9986	0.9986	0.0043	0.9904	1.0071	0.9726	0.9757	0.0943	0.8032	1.1759	45.3	54.7
In-combination with the Project LOW	30	0.9987	0.9987	0.0042	0.9907	1.0066	0.9705	0.9760	0.0921	0.8034	1.1759	47.7	51.4
In-combination with the Project MID	30	0.9989	0.9989	0.0042	0.9908	1.0073	0.9743	0.9789	0.0908	0.8073	1.1723	46.3	52.8
In-combination with the Project HIGH	30	0.9988	0.9989	0.0041	0.9907	1.0071	0.9747	0.9803	0.0908	0.8205	1.1780	46.3	52.2
Project alone LOW	35	1.0002	1.0001	0.0037	0.9926	1.0076	1.0000	1.0079	0.1007	0.8239	1.2257	49.2	51.1
Project alone MID	35	0.9998	0.9999	0.0040	0.9920	1.0081	0.9964	1.0022	0.1073	0.8079	1.2396	50.3	49.7

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone HIGH	35	1.0001	1.0000	0.0038	0.9928	1.0071	1.0000	1.0045	0.1042	0.8138	1.2198	49.3	50.7
In-combination without the Project	35	0.9988	0.9987	0.0039	0.9912	1.0062	0.9684	0.9723	0.1049	0.7829	1.1951	46.3	53.9
In-combination with the Project LOW	35	0.9986	0.9987	0.0038	0.9912	1.0059	0.9669	0.9707	0.0999	0.7830	1.1707	47.2	54.0
In-combination with the Project MID	35	0.9990	0.9990	0.0038	0.9917	1.0065	0.9687	0.9766	0.1016	0.7959	1.1888	47.2	54.0
In-combination with the Project HIGH	35	0.9989	0.9990	0.0037	0.9918	1.0060	0.9716	0.9771	0.0992	0.8010	1.1865	47.0	53.8

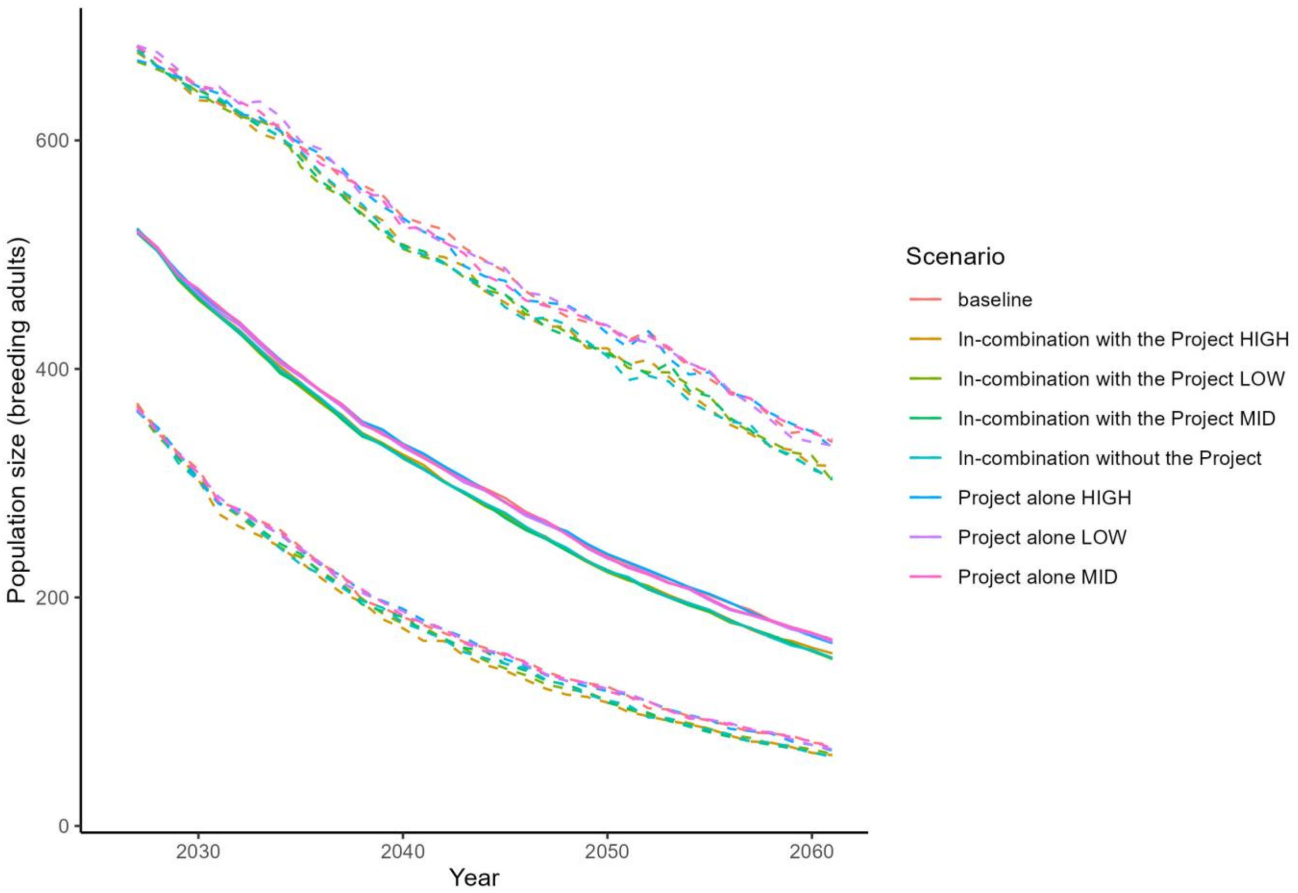

Figure E8-2 Projected population size of the breeding razorbill feature of the Foula SPA for the baseline (unimpacted), Project alone, in-combination impacts without the Project and in-combination with the Project from 2027 to 2062. Solid line = mean, dashed line = S.D.

Table E8-2 Summary of PVA metrics for the razorbill population from Foula SPA for the Project alone, in-combination without the Project and in-combination including the Project. Based on the assessment of in-combination impacts and population sizes for the BDMPS UK western waters & Channel during Spring migration (January to April) SD = standard deviation, LCI = lower confidence interval, UCI = upper confidence interval.

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone LOW	10	1.0001	1.0001	0.0068	0.9865	1.0131	1.0000	1.0031	0.0833	0.8488	1.1709	48.9	51.1
Project alone MID	10	0.9999	0.9999	0.0072	0.9854	1.0142	0.9954	1.0015	0.0863	0.8379	1.1748	50.0	50.4
Project alone HIGH	10	1.0002	1.0002	0.0068	0.9870	1.0140	0.9972	1.0035	0.0834	0.8547	1.1662	50.0	50.1
In-combination without the Project	10	0.9976	0.9975	0.0070	0.9831	1.0104	0.9722	0.9761	0.0837	0.8197	1.1586	45.9	55.4
In-combination with the Project LOW	10	0.9973	0.9974	0.0071	0.9840	1.0115	0.9690	0.9735	0.0848	0.8145	1.1436	44.8	55.5

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project MID	10	0.9970	0.9973	0.0068	0.9843	1.0110	0.9699	0.9729	0.0805	0.8248	1.1382	44.5	55.5
In-combination with the Project HIGH	10	0.9974	0.9972	0.0071	0.9829	1.0111	0.9712	0.9732	0.0830	0.8150	1.1405	46.1	54.5
Project alone LOW	20	1.0000	1.0000	0.0058	0.9889	1.0110	1.0025	1.0035	0.1011	0.8232	1.2269	48.9	51.3
Project alone MID	20	1.0000	0.9999	0.0060	0.9880	1.0113	1.0000	1.0015	0.1002	0.8147	1.2040	48.9	51.0
Project alone HIGH	20	1.0003	1.0002	0.0059	0.9891	1.0121	1.0000	1.0053	0.1024	0.8298	1.2168	50.4	49.9
In-combination without the Project	20	0.9973	0.9974	0.0060	0.9856	1.0093	0.9587	0.9649	0.0992	0.7792	1.1751	43.5	56.7

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project LOW	20	0.9975	0.9976	0.0059	0.9858	1.0091	0.9586	0.9649	0.0996	0.7798	1.1767	44.0	54.9
In-combination with the Project MID	20	0.9973	0.9973	0.0057	0.9860	1.0085	0.9557	0.9615	0.0934	0.7844	1.1541	43.5	56.2
In-combination with the Project HIGH	20	0.9974	0.9974	0.0061	0.9845	1.0085	0.9633	0.9648	0.1003	0.7737	1.1681	44.0	55.8
Project alone LOW	30	1.0001	1.0000	0.0053	0.9891	1.0101	1.0045	1.0049	0.1177	0.7795	1.2487	48.8	50.7
Project alone MID	30	0.9999	0.9999	0.0055	0.9885	1.0105	0.9967	1.0026	0.1208	0.7707	1.2659	50.3	49.6
Project alone HIGH	30	1.0000	1.0001	0.0054	0.9899	1.0111	1.0000	1.0065	0.1193	0.7880	1.2531	48.8	51.3

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination without the Project	30	0.9975	0.9974	0.0054	0.9863	1.0080	0.9526	0.9544	0.1146	0.7457	1.2052	44.2	57.8
In-combination with the Project LOW	30	0.9975	0.9976	0.0054	0.9872	1.0080	0.9489	0.9554	0.1141	0.7524	1.1958	44.6	57.3
In-combination with the Project MID	30	0.9975	0.9975	0.0055	0.9864	1.0081	0.9493	0.9537	0.1127	0.7506	1.1838	44.1	58.0
In-combination with the Project HIGH	30	0.9977	0.9975	0.0055	0.9858	1.0074	0.9513	0.9551	0.1149	0.7267	1.1795	44.2	56.7
Project alone LOW	35	1.0000	0.9998	0.0051	0.9895	1.0095	1.0000	1.0044	0.1386	0.7566	1.2901	49.2	51.0
Project alone MID	35	0.9997	0.9998	0.0052	0.9894	1.0102	0.9905	1.0019	0.1401	0.7500	1.3164	49.0	52.3

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone HIGH	35	1.0000	1.0000	0.0053	0.9900	1.0098	1.0000	1.0078	0.1438	0.7624	1.3200	51.3	49.6
In-combination without the Project	35	0.9974	0.9974	0.0052	0.9870	1.0081	0.9297	0.9445	0.1337	0.7033	1.2501	42.1	58.5
In-combination with the Project LOW	35	0.9975	0.9976	0.0052	0.9876	1.0080	0.9368	0.9462	0.1341	0.7162	1.2339	43.3	57.5
In-combination with the Project MID	35	0.9974	0.9973	0.0052	0.9874	1.0078	0.9366	0.9408	0.1289	0.7113	1.2180	41.7	59.0
In-combination with the Project HIGH	35	0.9975	0.9975	0.0052	0.9873	1.0074	0.9373	0.9465	0.1336	0.7119	1.2344	43.3	59.0

E.9 Fowlsheugh SPA

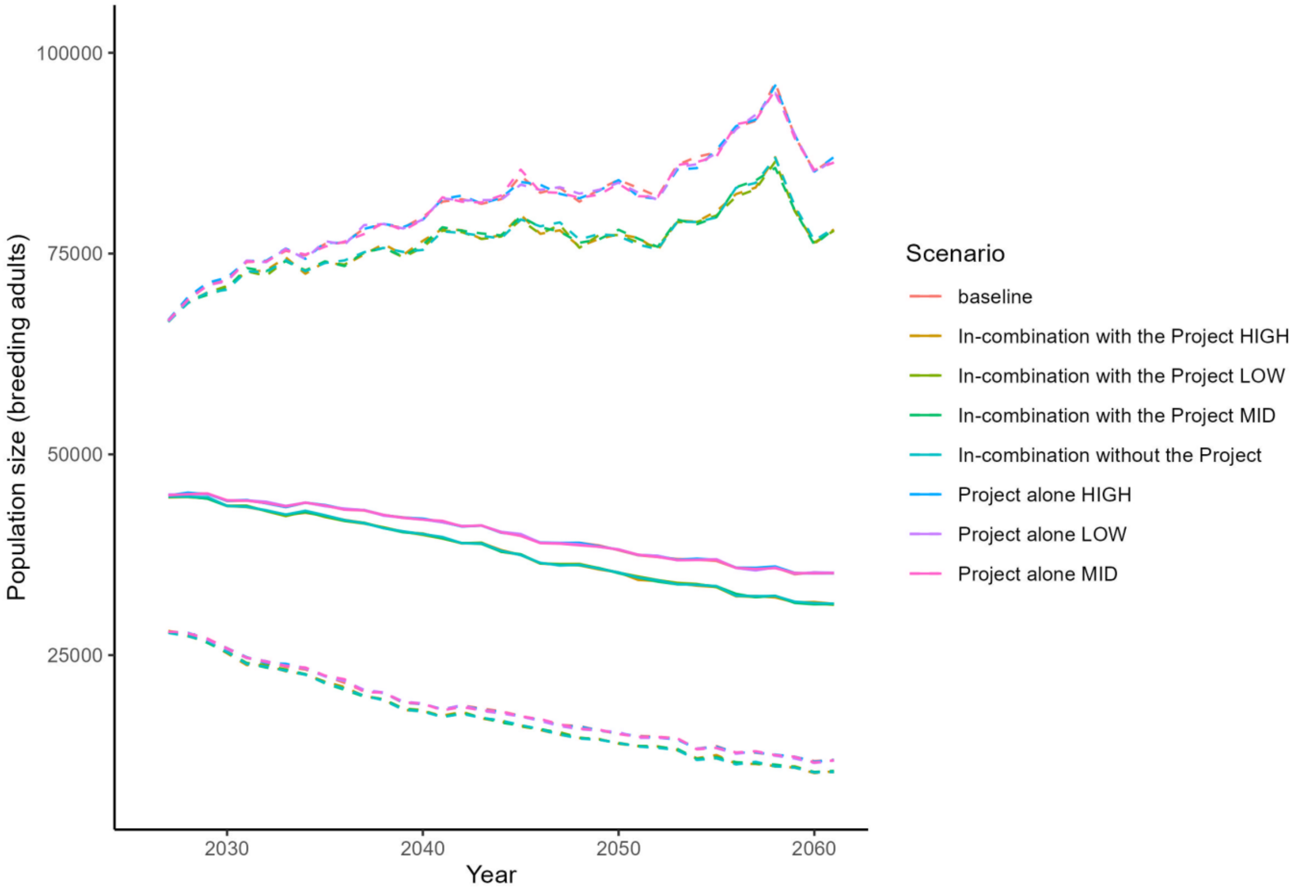

Figure E9-1 Projected population size of the breeding kittiwake feature of the Fowlsheugh SPA for the baseline (unimpacted), Project alone, in-combination impacts without the Project and in-combination with the Project from 2027 to 2062. Solid line = mean, dashed line = S.D.

Table E9-1 Summary of PVA metrics for the kittiwake population from Fowlsheugh SPA for the Project alone, in-combination without the Project and in-combination including the Project. Based on the assessment of in-combination impacts and population sizes for the BDMPS UK western waters & Channel during Spring migration (January to April) SD = standard deviation, LCI = lower confidence interval, UCI = upper confidence interval.

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone LOW	10	0.999990858	0.999985073	0.000823215	0.998341823	1.001685259	1.000252585	0.999899425	0.010674411	0.979762672	1.021629471	0.999990858	0.999985073
Project alone MID	10	0.999944125	0.999968056	0.000817849	0.998342772	1.001702042	0.999627902	0.999734485	0.010553851	0.978409944	1.021813209	0.999944125	0.999968056
Project alone HIGH	10	0.999987026	0.999992869	0.00076661	0.998522163	1.001492389	0.999832144	1.000288617	0.010256746	0.980527547	1.021254469	0.999987026	0.999992869
In-combination without the Project	10	0.996665163	0.996618603	0.000840901	0.994897199	0.99822756	0.963911282	0.963755695	0.010582132	0.942781947	0.984518756	0.996665163	0.996618603
In-combination with the Project LOW	10	0.996607284	0.996572266	0.0008495	0.99485886	0.998174249	0.963312095	0.963236084	0.010289326	0.941669082	0.98321118	0.996607284	0.996572266

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project MID	10	0.996596749	0.996623658	0.000840363	0.994971614	0.998220372	0.963868564	0.963651614	0.010600958	0.942149847	0.984585533	0.996596749	0.996623658
In-combination with the Project HIGH	10	0.996636244	0.996607046	0.000833948	0.994917659	0.998180677	0.963274643	0.963333717	0.010248503	0.943218928	0.983356861	0.996636244	0.996607046
Project alone LOW	20	0.999955564	0.999973961	0.000655788	0.998668865	1.001284963	0.999964325	0.999660497	0.01184334	0.976654871	1.02440695	0.999955564	0.999973961
Project alone MID	20	0.999966022	0.999962305	0.000651665	0.998694672	1.0012055	0.999617433	0.99949814	0.011886534	0.975417819	1.023276113	0.999966022	0.999962305
Project alone HIGH	20	1.000005954	0.999999664	0.000617046	0.998780207	1.001252017	1.000282716	1.000372459	0.011239118	0.977613591	1.023006815	1.000005954	0.999999664
In-combination without the Project	20	0.99665875	0.996656736	0.00069648	0.995200041	0.998019967	0.948261394	0.948171287	0.012069498	0.923942815	0.972511334	0.99665875	0.996656736

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project LOW	20	0.996667611	0.996645822	0.000662534	0.995241608	0.997952186	0.94800214	0.947972133	0.011247875	0.92372576	0.969959263	0.996667611	0.996645822
In-combination with the Project MID	20	0.996674745	0.996660526	0.000657998	0.99532058	0.997925172	0.948294934	0.948065751	0.0114172	0.925093287	0.971166163	0.996674745	0.996660526
In-combination with the Project HIGH	20	0.99664456	0.996637122	0.000674189	0.995191059	0.997889808	0.947575314	0.947578046	0.011722333	0.924469035	0.969626679	0.99664456	0.996637122
Project alone LOW	30	0.99998458	0.999976571	0.000562637	0.998889957	1.001057397	0.99958462	0.999598066	0.012882743	0.975296238	1.025750351	0.99998458	0.999976571
Project alone MID	30	0.999965444	0.999964704	0.000564629	0.998903219	1.00108076	0.999379031	0.999375913	0.013140154	0.973290122	1.026410294	0.999965444	0.999964704
Project alone HIGH	30	1.000005926	0.999996065	0.000546942	0.998886516	1.00102976	1.000226387	1.000312893	0.012724387	0.976211704	1.025836281	1.000005926	0.999996065

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination without the Project	30	0.996699739	0.996685465	0.000601652	0.995458767	0.997831788	0.933682069	0.93300912	0.013176774	0.906393969	0.958312132	0.996699739	0.996685465
In-combination with the Project LOW	30	0.996691813	0.996683995	0.0005928	0.995417801	0.997787514	0.932971765	0.932949357	0.012597371	0.907607845	0.957217989	0.996691813	0.996683995
In-combination with the Project MID	30	0.996701072	0.996684718	0.000559197	0.995553901	0.997713078	0.932799306	0.932828511	0.012187225	0.908251089	0.956781851	0.996701072	0.996684718
In-combination with the Project HIGH	30	0.996704773	0.996674837	0.000595624	0.995450457	0.997820272	0.932651325	0.932510832	0.012937089	0.9069902	0.957810889	0.996704773	0.996674837
Project alone LOW	35	0.999978148	0.999963249	0.000514504	0.998966847	1.000950815	0.998900066	0.999154878	0.014359316	0.970812821	1.027822773	0.999978148	0.999963249
Project alone MID	35	0.999973885	0.999967805	0.000514455	0.999018673	1.000994007	0.999023143	0.999296134	0.014317679	0.97291011	1.028703123	0.999973885	0.999967805

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone HIGH	35	1.000002672	0.999991369	0.000499737	0.998945535	1.000946136	0.9999513	1.000186388	0.0138812	0.971966536	1.02795653	1.000002672	0.999991369
In-combination without the Project	35	0.996738428	0.99670872	0.000546336	0.995549589	0.997709107	0.918452587	0.918223061	0.014144323	0.889656428	0.94619028	0.996738428	0.99670872
In-combination with the Project LOW	35	0.996712522	0.996695087	0.00054443	0.995534332	0.99776222	0.918154705	0.91787159	0.013987789	0.888444283	0.946379282	0.996712522	0.996695087
In-combination with the Project MID	35	0.996726129	0.996702234	0.000517729	0.995679768	0.997685464	0.918045592	0.91790502	0.01330765	0.892310256	0.943779004	0.996726129	0.996702234
In-combination with the Project HIGH	35	0.99670332	0.996689948	0.000526565	0.995638478	0.99775375	0.917852865	0.917484771	0.013650152	0.891326552	0.944939487	0.99670332	0.996689948

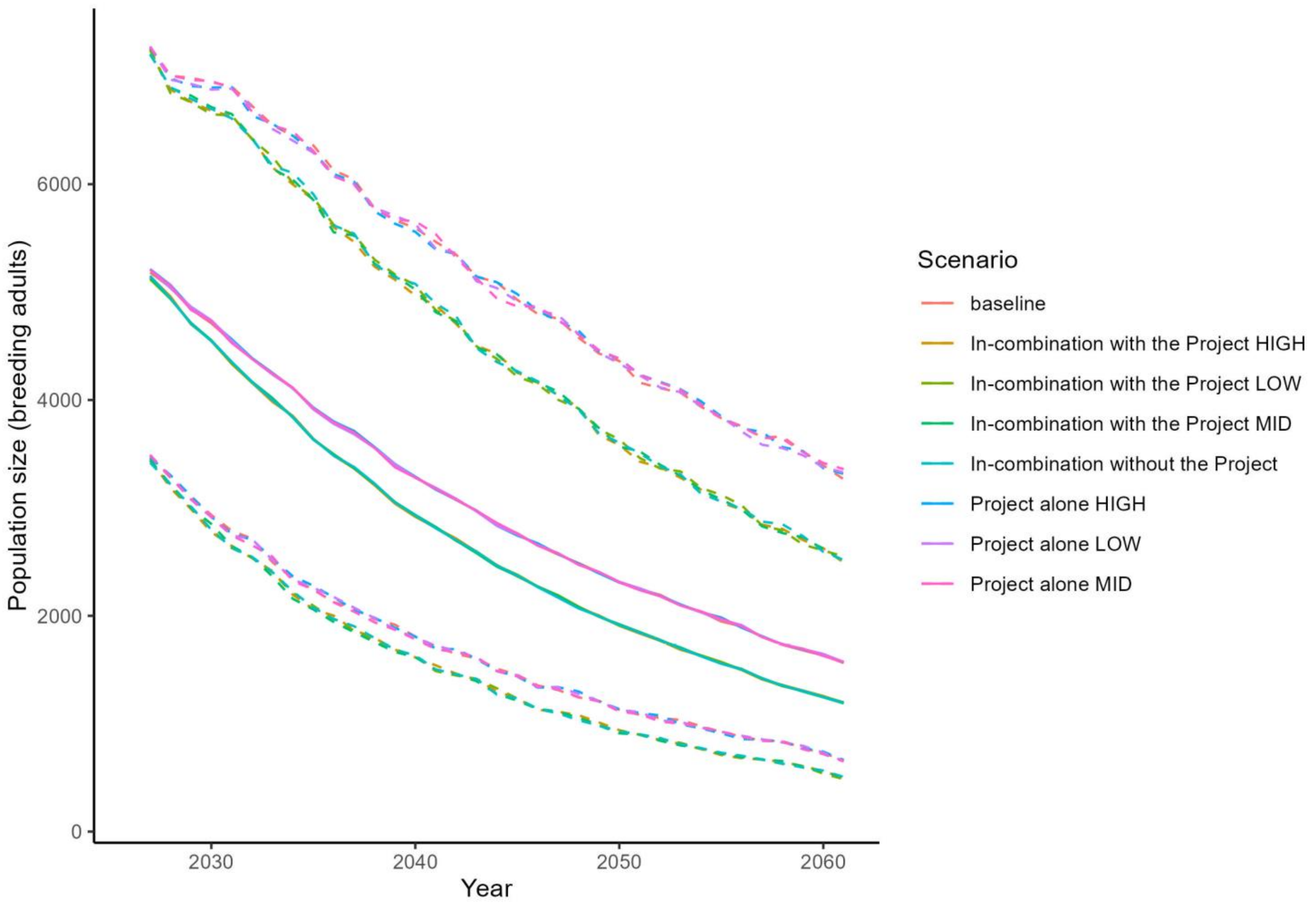

Figure E9-2 Projected population size of the breeding razorbill feature of the Fowlsheugh SPA for the baseline (unimpacted), Project alone, in-combination impacts without the Project and in-combination with the Project from 2027 to 2062. Solid line = mean, dashed line = S.D.

Table E9-2 Summary of PVA metrics for the razorbill population from Fowlsheugh SPA for the Project alone, in-combination without the Project and in-combination including the Project. Based on the assessment of in-combination impacts and population sizes for the BDMPS UK western waters & Channel during Spring migration (January to April) SD = standard deviation, LCI = lower confidence interval, UCI = upper confidence interval.

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone LOW	10	1.0000	1.0001	0.0021	0.9960	1.0043	1.0010	1.0008	0.0277	0.9507	1.0618	49.0	51.8
Project alone MID	10	1.0000	1.0000	0.0022	0.9957	1.0040	0.9996	1.0005	0.0281	0.9467	1.0583	49.4	51.0
Project alone HIGH	10	1.0001	1.0001	0.0022	0.9957	1.0045	1.0020	1.0026	0.0289	0.9485	1.0601	49.9	50.4
In-combination without the Project	10	0.9918	0.9919	0.0022	0.9875	0.9963	0.9149	0.9148	0.0269	0.8639	0.9684	37.4	64.7
In-combination with the Project LOW	10	0.9920	0.9919	0.0023	0.9872	0.9963	0.9143	0.9151	0.0270	0.8631	0.9710	36.6	63.9

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project MID	10	0.9918	0.9918	0.0023	0.9867	0.9961	0.9128	0.9139	0.0273	0.8586	0.9678	36.7	64.8
In-combination with the Project HIGH	10	0.9919	0.9920	0.0022	0.9877	0.9963	0.9147	0.9153	0.0272	0.8626	0.9706	36.6	64.7
Project alone LOW	20	1.0000	1.0001	0.0017	0.9968	1.0038	0.9997	1.0016	0.0385	0.9305	1.0814	51.0	49.7
Project alone MID	20	1.0000	1.0000	0.0017	0.9966	1.0035	1.0015	1.0011	0.0390	0.9304	1.0770	50.9	49.4
Project alone HIGH	20	1.0001	1.0000	0.0017	0.9965	1.0032	1.0021	1.0029	0.0385	0.9269	1.0775	50.3	49.8
In-combination without the Project	20	0.9920	0.9920	0.0018	0.9885	0.9954	0.8454	0.8458	0.0338	0.7812	0.9133	30.2	70.1

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project LOW	20	0.9920	0.9920	0.0018	0.9886	0.9955	0.8463	0.8464	0.0339	0.7823	0.9132	30.5	70.1
In-combination with the Project MID	20	0.9921	0.9920	0.0017	0.9885	0.9953	0.8459	0.8454	0.0335	0.7790	0.9120	30.5	69.8
In-combination with the Project HIGH	20	0.9921	0.9921	0.0017	0.9888	0.9956	0.8460	0.8474	0.0335	0.7860	0.9146	30.4	70.1
Project alone LOW	30	1.0000	1.0000	0.0016	0.9971	1.0033	1.0007	1.0021	0.0503	0.9068	1.1102	50.1	49.8
Project alone MID	30	1.0000	1.0000	0.0016	0.9967	1.0031	1.0012	1.0009	0.0511	0.9012	1.1043	50.2	49.9
Project alone HIGH	30	1.0001	1.0000	0.0016	0.9969	1.0031	1.0026	1.0035	0.0506	0.9090	1.1135	50.2	49.2

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination without the Project	30	0.9921	0.9921	0.0017	0.9885	0.9955	0.7828	0.7832	0.0429	0.7002	0.8703	27.1	74.1
In-combination with the Project LOW	30	0.9922	0.9921	0.0016	0.9890	0.9953	0.7823	0.7838	0.0408	0.7051	0.8671	26.8	74.3
In-combination with the Project MID	30	0.9921	0.9921	0.0017	0.9889	0.9953	0.7817	0.7835	0.0422	0.7035	0.8677	26.9	73.9
In-combination with the Project HIGH	30	0.9922	0.9922	0.0016	0.9889	0.9952	0.7851	0.7846	0.0410	0.7065	0.8628	26.5	73.6
Project alone LOW	35	1.0001	1.0001	0.0015	0.9972	1.0031	1.0008	1.0036	0.0565	0.9005	1.1194	49.6	50.5
Project alone MID	35	1.0000	1.0000	0.0016	0.9966	1.0030	1.0023	1.0018	0.0573	0.8870	1.1174	50.1	49.9

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone HIGH	35	1.0001	1.0001	0.0015	0.9970	1.0028	1.0050	1.0052	0.0571	0.8931	1.1227	48.8	52.1
In-combination without the Project	35	0.9921	0.9921	0.0016	0.9889	0.9953	0.7516	0.7540	0.0460	0.6717	0.8435	23.8	77.3
In-combination with the Project LOW	35	0.9922	0.9921	0.0017	0.9889	0.9953	0.7542	0.7544	0.0456	0.6690	0.8469	23.7	77.0
In-combination with the Project MID	35	0.9922	0.9921	0.0016	0.9891	0.9954	0.7539	0.7546	0.0457	0.6699	0.8480	24.2	77.3
In-combination with the Project HIGH	35	0.9922	0.9922	0.0016	0.9893	0.9952	0.7554	0.7560	0.0446	0.6736	0.8488	24.4	77.0

E.10 Grassholm SPA

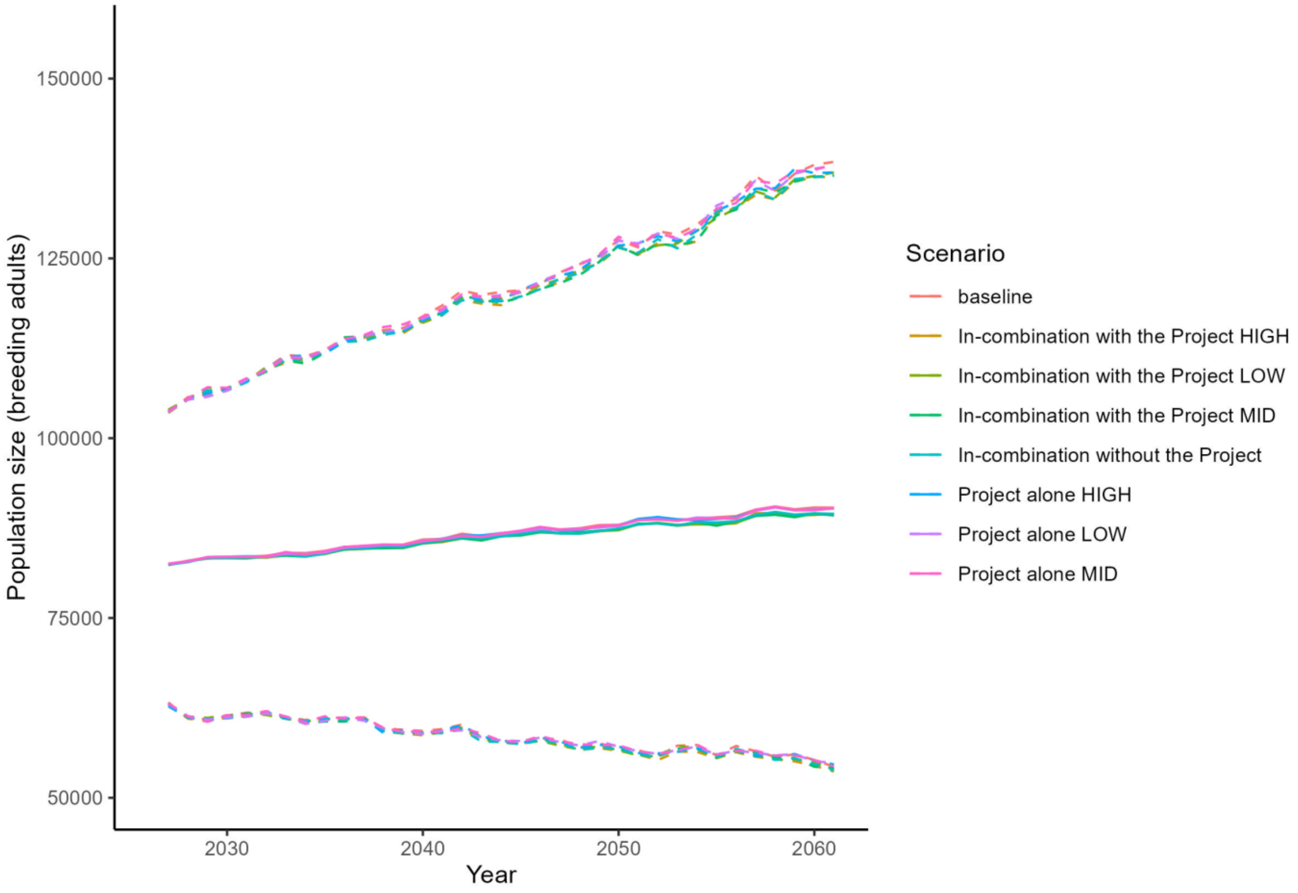

Figure E10-1 Projected population size of the breeding gannet feature of the Grassholm SPA for the baseline (unimpacted), Project alone, in-combination impacts without the Project and in-combination with the Project from 2027 to 2062. Solid line = mean, dashed line = S.D.

Table E10-1 Summary of PVA metrics for the gannet population from Grassholm SPA for the Project alone, in-combination without the Project and in-combination including the Project. Based on the assessment of in-combination impacts and population sizes for the BDMPS UK western waters & Channel during Spring migration (January to April) SD = standard deviation, LCI = lower confidence interval, UCI = upper confidence interval.

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone LOW	10	1.0000	1.0000	0.0005	0.9991	1.0009	0.9995	0.9998	0.0069	0.9859	1.0130	49.5	50.3
Project alone MID	10	1.0000	1.0000	0.0004	0.9991	1.0008	1.0002	0.9998	0.0067	0.9858	1.0127	50.1	50.0
Project alone HIGH	10	1.0000	1.0000	0.0004	0.9992	1.0008	0.9992	0.9995	0.0067	0.9874	1.0127	49.1	51.1
In-combination without the Project	10	0.9997	0.9997	0.0004	0.9988	1.0006	0.9969	0.9967	0.0068	0.9836	1.0099	48.8	51.2
In-combination with the Project LOW	10	0.9997	0.9997	0.0005	0.9988	1.0006	0.9965	0.9965	0.0070	0.9826	1.0101	48.7	51.2

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project MID	10	0.9997	0.9997	0.0005	0.9988	1.0006	0.9966	0.9964	0.0069	0.9828	1.0096	48.8	51.3
In-combination with the Project HIGH	10	0.9996	0.9997	0.0004	0.9988	1.0005	0.9963	0.9963	0.0066	0.9825	1.0090	48.7	51.2
Project alone LOW	20	1.0000	1.0000	0.0004	0.9992	1.0007	0.9990	0.9994	0.0078	0.9837	1.0140	49.5	50.7
Project alone MID	20	1.0000	1.0000	0.0004	0.9993	1.0007	0.9997	0.9995	0.0075	0.9838	1.0140	49.8	50.6
Project alone HIGH	20	0.9999	1.0000	0.0004	0.9992	1.0007	0.9989	0.9991	0.0075	0.9849	1.0134	49.8	50.6
In-combination without the Project	20	0.9997	0.9997	0.0004	0.9990	1.0004	0.9951	0.9951	0.0074	0.9805	1.0095	49.3	51.4

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project LOW	20	0.9997	0.9997	0.0004	0.9990	1.0004	0.9952	0.9950	0.0077	0.9799	1.0097	49.3	51.6
In-combination with the Project MID	20	0.9997	0.9997	0.0004	0.9990	1.0004	0.9946	0.9947	0.0075	0.9804	1.0093	49.3	52.1
In-combination with the Project HIGH	20	0.9997	0.9996	0.0004	0.9990	1.0004	0.9942	0.9944	0.0074	0.9794	1.0088	49.3	51.9
Project alone LOW	30	0.9999	1.0000	0.0003	0.9994	1.0006	0.9993	0.9992	0.0083	0.9823	1.0155	49.9	50.2
Project alone MID	30	1.0000	1.0000	0.0003	0.9994	1.0006	0.9995	0.9994	0.0081	0.9824	1.0160	50.0	50.0
Project alone HIGH	30	1.0000	0.9999	0.0003	0.9994	1.0006	0.9991	0.9989	0.0080	0.9829	1.0144	49.3	50.4

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination without the Project	30	0.9997	0.9997	0.0003	0.9991	1.0003	0.9936	0.9938	0.0079	0.9775	1.0098	48.4	51.2
In-combination with the Project LOW	30	0.9997	0.9997	0.0003	0.9990	1.0004	0.9933	0.9934	0.0081	0.9773	1.0098	48.4	51.5
In-combination with the Project MID	30	0.9997	0.9997	0.0003	0.9990	1.0003	0.9929	0.9931	0.0082	0.9771	1.0089	48.6	51.4
In-combination with the Project HIGH	30	0.9997	0.9997	0.0003	0.9991	1.0002	0.9931	0.9929	0.0079	0.9767	1.0086	48.6	51.5
Project alone LOW	35	1.0000	1.0000	0.0003	0.9994	1.0005	0.9990	0.9991	0.0087	0.9815	1.0158	49.8	50.5
Project alone MID	35	1.0000	1.0000	0.0003	0.9995	1.0005	0.9991	0.9991	0.0086	0.9820	1.0153	49.7	50.8

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone HIGH	35	1.0000	0.9999	0.0003	0.9994	1.0005	0.9989	0.9986	0.0086	0.9820	1.0150	50.1	49.9
In-combination without the Project	35	0.9997	0.9997	0.0003	0.9992	1.0003	0.9920	0.9923	0.0085	0.9754	1.0084	48.9	51.6
In-combination with the Project LOW	35	0.9997	0.9997	0.0003	0.9992	1.0002	0.9918	0.9918	0.0086	0.9754	1.0085	49.1	51.7
In-combination with the Project MID	35	0.9997	0.9997	0.0003	0.9991	1.0002	0.9915	0.9914	0.0087	0.9748	1.0075	48.8	51.6
In-combination with the Project HIGH	35	0.9996	0.9997	0.0003	0.9991	1.0002	0.9911	0.9912	0.0085	0.9742	1.0077	48.9	51.5

E.11 Mingulay & Berneray SPA

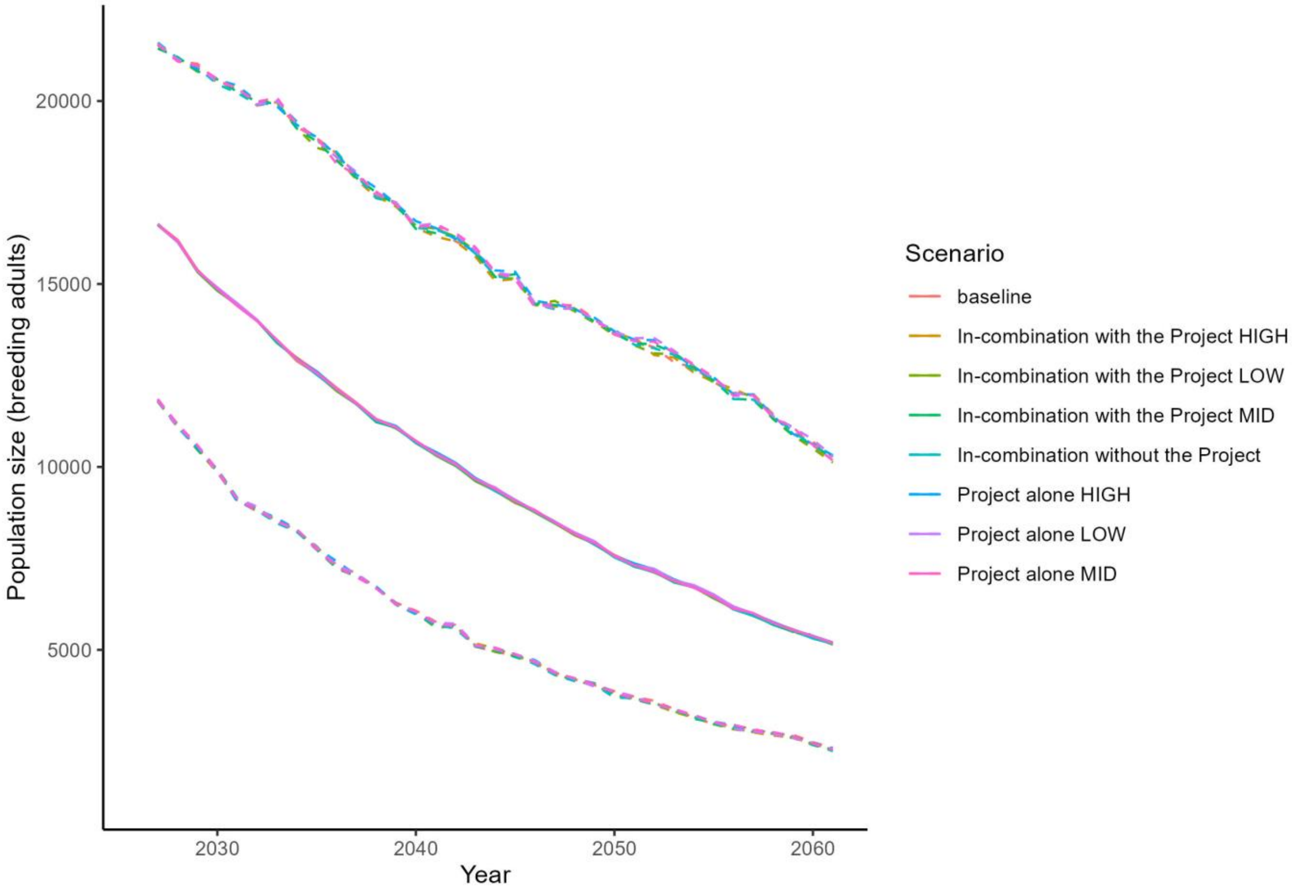

Figure E11-1 Projected population size of the breeding razorbill feature of the Mingulay & Berneray SPA for the baseline (unimpacted), Project alone, in-combination impacts without the Project and in-combination with the Project from 2027 to 2062. Solid line = mean, dashed line = S.D.

Table E11-1 Summary of PVA metrics for the razorbill population from Mingulay & Berneray SPA for the Project alone, in-combination without the Project and in-combination including the Project. Based on the assessment of in-combination impacts and population sizes for the BDMPS UK western waters & Channel during Spring migration (January to April) SD = standard deviation, LCI = lower confidence interval, UCI = upper confidence interval.

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone LOW	10	1.0000	1.0000	0.0012	0.9975	1.0023	1.0001	1.0000	0.0149	0.9711	1.0300	49.6	50.1
Project alone MID	10	1.0000	1.0000	0.0012	0.9976	1.0023	0.9998	0.9998	0.0150	0.9705	1.0293	49.5	50.3
Project alone HIGH	10	1.0000	1.0000	0.0012	0.9976	1.0023	0.9995	1.0000	0.0145	0.9724	1.0282	49.5	50.5
In-combination without the Project	10	0.9998	0.9998	0.0013	0.9972	1.0021	0.9979	0.9976	0.0151	0.9691	1.0263	49.2	50.9
In-combination with the Project LOW	10	0.9998	0.9997	0.0012	0.9973	1.0021	0.9971	0.9971	0.0146	0.9689	1.0254	49.2	51.0

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project MID	10	0.9998	0.9998	0.0012	0.9973	1.0020	0.9977	0.9976	0.0148	0.9677	1.0282	49.3	50.8
In-combination with the Project HIGH	10	0.9997	0.9998	0.0012	0.9975	1.0022	0.9969	0.9973	0.0151	0.9677	1.0276	49.5	51.0
Project alone LOW	20	1.0001	1.0000	0.0011	0.9979	1.0020	1.0009	1.0004	0.0180	0.9654	1.0352	49.7	50.3
Project alone MID	20	1.0000	1.0000	0.0011	0.9979	1.0022	1.0005	1.0004	0.0183	0.9636	1.0379	50.1	49.9
Project alone HIGH	20	1.0000	1.0000	0.0011	0.9979	1.0020	1.0004	1.0004	0.0178	0.9665	1.0345	50.7	49.4
In-combination without the Project	20	0.9998	0.9998	0.0011	0.9976	1.0020	0.9974	0.9972	0.0181	0.9602	1.0324	49.7	50.8

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project LOW	20	0.9998	0.9997	0.0011	0.9976	1.0018	0.9958	0.9959	0.0181	0.9604	1.0329	49.2	50.7
In-combination with the Project MID	20	0.9998	0.9998	0.0011	0.9975	1.0017	0.9972	0.9969	0.0179	0.9617	1.0316	49.7	51.3
In-combination with the Project HIGH	20	0.9998	0.9998	0.0011	0.9977	1.0019	0.9965	0.9967	0.0184	0.9624	1.0327	49.7	50.9
Project alone LOW	30	1.0000	1.0000	0.0009	0.9983	1.0018	0.9999	1.0008	0.0204	0.9612	1.0412	49.9	50.5
Project alone MID	30	1.0001	1.0000	0.0010	0.9982	1.0019	1.0011	1.0008	0.0216	0.9571	1.0414	49.5	50.1
Project alone HIGH	30	1.0001	1.0000	0.0009	0.9982	1.0018	1.0004	1.0007	0.0201	0.9598	1.0396	50.0	50.0

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination without the Project	30	0.9999	0.9998	0.0010	0.9978	1.0016	0.9970	0.9963	0.0208	0.9556	1.0374	49.4	51.5
In-combination with the Project LOW	30	0.9998	0.9998	0.0009	0.9980	1.0016	0.9954	0.9954	0.0207	0.9573	1.0362	48.9	51.1
In-combination with the Project MID	30	0.9998	0.9998	0.0009	0.9978	1.0014	0.9957	0.9953	0.0206	0.9523	1.0375	49.2	50.5
In-combination with the Project HIGH	30	0.9998	0.9998	0.0010	0.9977	1.0016	0.9962	0.9958	0.0216	0.9525	1.0393	49.2	50.9
Project alone LOW	35	1.0000	1.0000	0.0009	0.9982	1.0017	1.0004	1.0005	0.0238	0.9528	1.0460	50.7	49.1
Project alone MID	35	1.0000	1.0000	0.0009	0.9983	1.0018	1.0009	1.0012	0.0247	0.9553	1.0501	49.8	50.2

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone HIGH	35	1.0000	1.0000	0.0009	0.9983	1.0017	1.0006	1.0006	0.0234	0.9564	1.0466	50.6	49.4
In-combination without the Project	35	0.9998	0.9998	0.0009	0.9979	1.0014	0.9952	0.9951	0.0237	0.9474	1.0422	49.4	50.2
In-combination with the Project LOW	35	0.9998	0.9998	0.0009	0.9980	1.0015	0.9935	0.9941	0.0234	0.9496	1.0405	50.4	49.6
In-combination with the Project MID	35	0.9998	0.9997	0.0009	0.9980	1.0015	0.9946	0.9938	0.0238	0.9475	1.0452	50.0	50.3
In-combination with the Project HIGH	35	0.9998	0.9998	0.0009	0.9979	1.0014	0.9945	0.9943	0.0245	0.9448	1.0438	49.4	50.5

E.12 Noss SPA

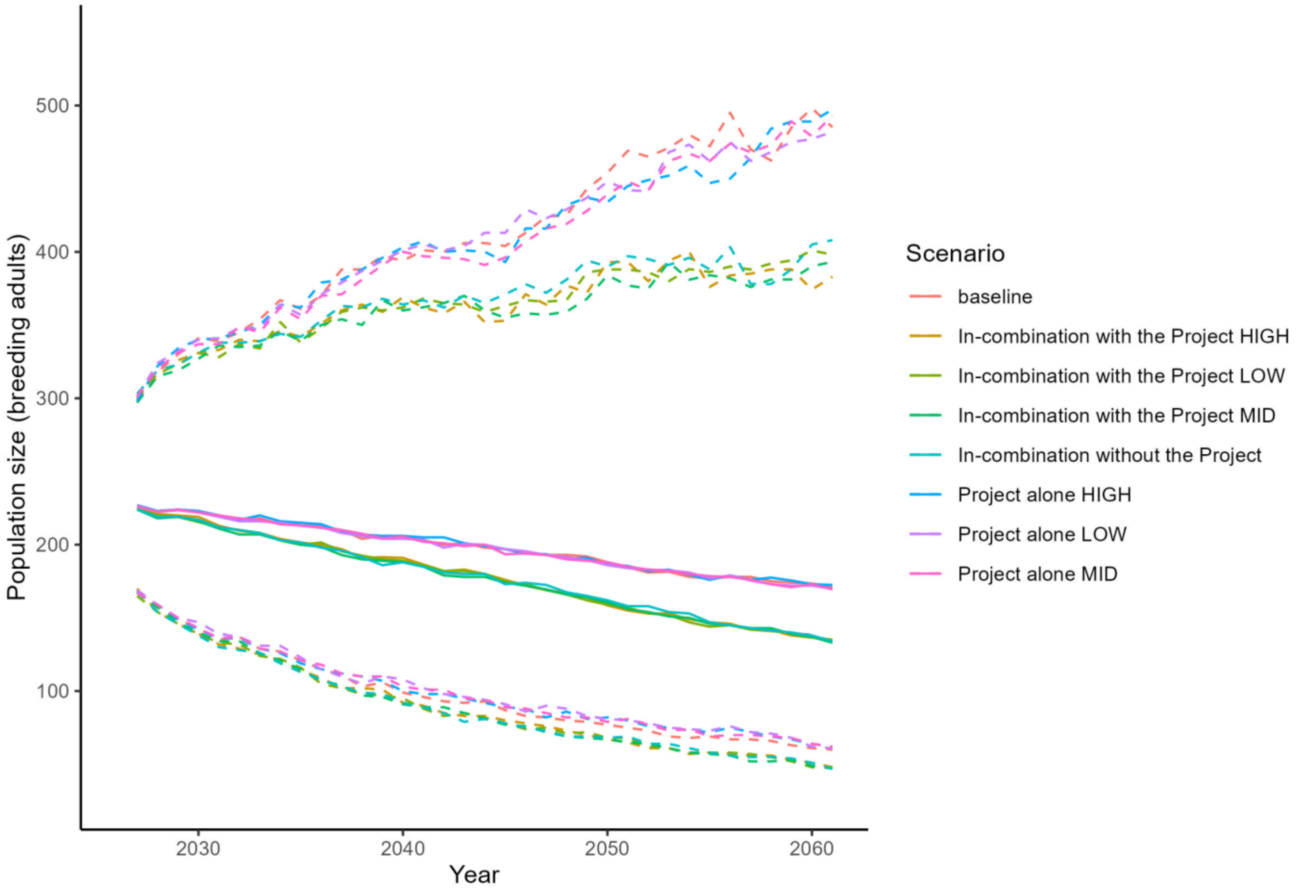

Figure E12-1 Projected population size of the breeding kittiwake feature of the Noss SPA for the baseline (unimpacted), Project alone, in-combination impacts without the Project and in-combination with the Project from 2027 to 2062. Solid line = mean, dashed line = S.D.

Table E12-1 Summary of PVA metrics for the kittiwake population from Noss SPA for the Project alone, in-combination without the Project and in-combination including the Project. Based on the assessment of in-combination impacts and population sizes for the BDMPS UK western waters & Channel during Spring migration (January to April) SD = standard deviation, LCI = lower confidence interval, UCI = upper confidence interval.

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone LOW	10	0.9999	0.9999	0.0109	0.9778	1.0214	1.0031	1.0074	0.1342	0.7700	1.2919	48.7	52.2
Project alone MID	10	0.9998	1.0002	0.0109	0.9796	1.0215	0.9940	1.0071	0.1331	0.7857	1.3209	50.1	50.3
Project alone HIGH	10	0.9999	1.0001	0.0109	0.9780	1.0211	1.0000	1.0088	0.1339	0.7679	1.2877	49.3	51.0
In-combination without the Project	10	0.9938	0.9935	0.0108	0.9725	1.0138	0.9315	0.9398	0.1230	0.7126	1.2008	41.6	59.0
In-combination with the Project LOW	10	0.9937	0.9935	0.0111	0.9718	1.0143	0.9311	0.9393	0.1239	0.7143	1.2018	41.0	60.3

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project MID	10	0.9930	0.9932	0.0111	0.9725	1.0146	0.9214	0.9347	0.1234	0.7198	1.2001	39.8	59.7
In-combination with the Project HIGH	10	0.9936	0.9937	0.0107	0.9728	1.0150	0.9342	0.9420	0.1228	0.7333	1.2025	42.7	59.3
Project alone LOW	20	1.0004	1.0003	0.0091	0.9812	1.0184	1.0057	1.0166	0.1606	0.7444	1.3819	49.1	50.7
Project alone MID	20	1.0000	1.0000	0.0091	0.9829	1.0184	0.9933	1.0093	0.1586	0.7476	1.3614	50.7	49.7
Project alone HIGH	20	0.9998	1.0002	0.0090	0.9830	1.0171	1.0026	1.0132	0.1588	0.7314	1.3704	52.9	48.1
In-combination without the Project	20	0.9940	0.9935	0.0092	0.9742	1.0106	0.9014	0.9136	0.1445	0.6636	1.2195	39.5	60.3

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project LOW	20	0.9934	0.9934	0.0091	0.9760	1.0109	0.8986	0.9102	0.1420	0.6583	1.2188	40.1	59.0
In-combination with the Project MID	20	0.9931	0.9934	0.0094	0.9752	1.0134	0.8951	0.9099	0.1466	0.6577	1.2181	38.9	61.8
In-combination with the Project HIGH	20	0.9933	0.9935	0.0089	0.9773	1.0111	0.8957	0.9134	0.1398	0.6801	1.2069	40.1	60.5
Project alone LOW	30	1.0004	1.0002	0.0078	0.9855	1.0158	1.0000	1.0190	0.1793	0.7160	1.3955	50.2	50.2
Project alone MID	30	0.9999	1.0000	0.0079	0.9847	1.0161	0.9944	1.0125	0.1782	0.7143	1.4167	50.2	50.1
Project alone HIGH	30	0.9997	1.0000	0.0078	0.9858	1.0157	0.9939	1.0137	0.1794	0.7222	1.4186	50.2	50.0

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination without the Project	30	0.9938	0.9934	0.0081	0.9770	1.0085	0.8827	0.8859	0.1594	0.6107	1.2182	39.3	62.0
In-combination with the Project LOW	30	0.9933	0.9933	0.0081	0.9768	1.0090	0.8717	0.8824	0.1573	0.6027	1.2169	37.8	64.4
In-combination with the Project MID	30	0.9932	0.9932	0.0081	0.9777	1.0097	0.8645	0.8807	0.1622	0.6231	1.2374	37.8	64.0
In-combination with the Project HIGH	30	0.9935	0.9934	0.0076	0.9784	1.0082	0.8703	0.8844	0.1495	0.6304	1.2046	37.8	63.2
Project alone LOW	35	1.0002	1.0001	0.0072	0.9855	1.0139	1.0111	1.0221	0.1998	0.6749	1.4690	51.6	48.8
Project alone MID	35	0.9999	1.0001	0.0073	0.9854	1.0147	1.0000	1.0191	0.2034	0.6957	1.4688	51.6	49.3

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone HIGH	35	1.0000	1.0001	0.0071	0.9867	1.0148	1.0000	1.0198	0.2032	0.7023	1.4788	51.0	49.8
In-combination without the Project	35	0.9939	0.9937	0.0074	0.9790	1.0084	0.8535	0.8657	0.1745	0.5631	1.2500	37.5	62.9
In-combination with the Project LOW	35	0.9933	0.9936	0.0073	0.9795	1.0092	0.8490	0.8633	0.1748	0.5630	1.2917	34.8	63.5
In-combination with the Project MID	35	0.9936	0.9935	0.0075	0.9783	1.0076	0.8480	0.8599	0.1759	0.5521	1.2248	35.1	64.6
In-combination with the Project HIGH	35	0.9935	0.9934	0.0069	0.9798	1.0066	0.8468	0.8580	0.1613	0.5823	1.2098	34.8	62.6

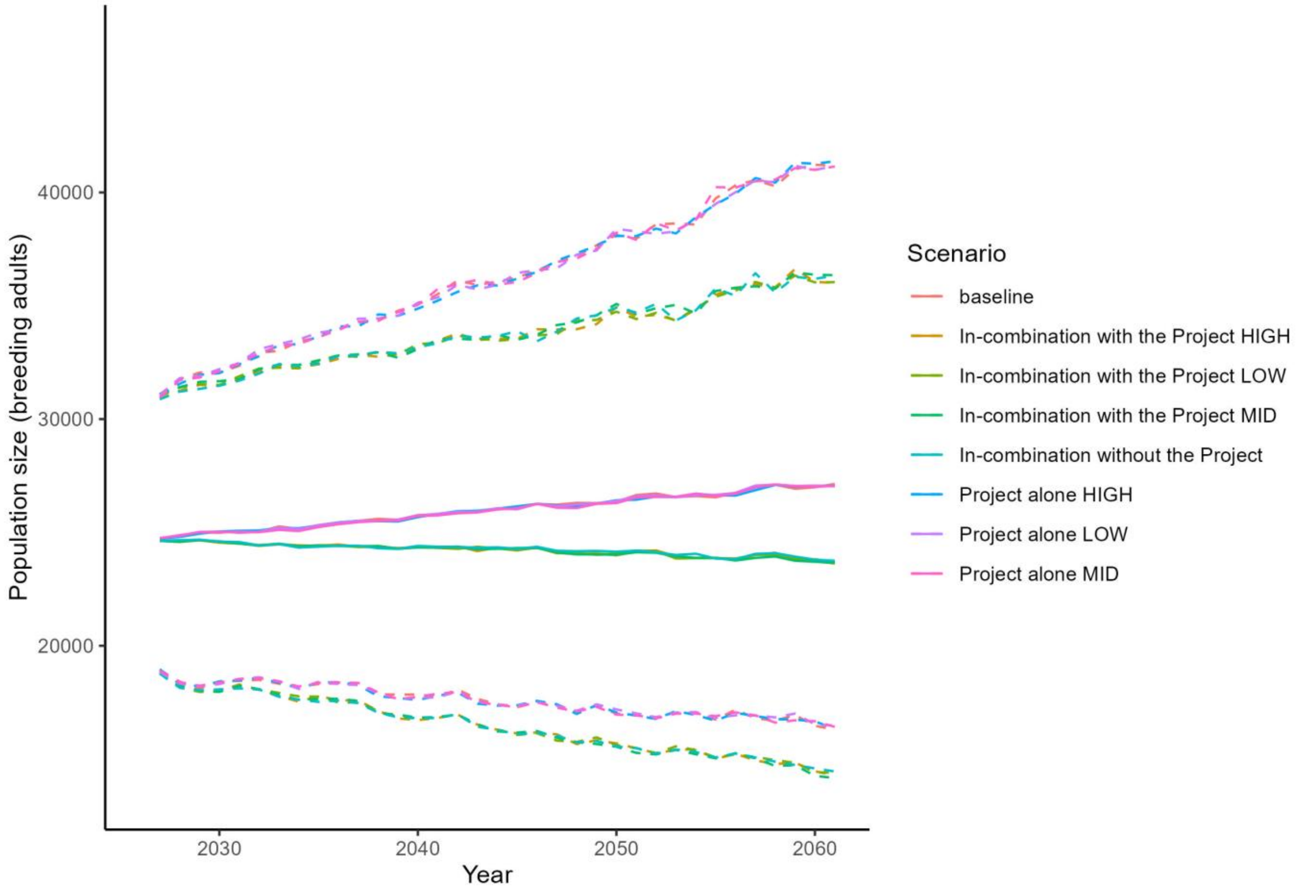

Figure E12-2 Projected population size of the breeding gannet feature of the Noss SPA for the baseline (unimpacted), Project alone, in-combination impacts without the Project and in-combination with the Project from 2027 to 2062. Solid line = mean, dashed line = S.D.

Table E12-2 Summary of PVA metrics for the gannet population from Noss SPA for the Project alone, in-combination without the Project and in-combination including the Project. Based on the assessment of in-combination impacts and population sizes for the BDMPS UK western waters & Channel during Spring migration (January to April) SD = standard deviation, LCI = lower confidence interval, UCI = upper confidence interval.

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone LOW	10	1.0000	1.0000	0.0008	0.9983	1.0016	1.0001	0.9997	0.0126	0.9744	1.0253	50.0	50.0
Project alone MID	10	0.9999	0.9999	0.0008	0.9983	1.0015	0.9993	0.9992	0.0127	0.9744	1.0243	49.4	50.8
Project alone HIGH	10	0.9999	0.9999	0.0009	0.9984	1.0017	0.9989	0.9993	0.0128	0.9747	1.0233	50.0	50.0
In-combination without the Project	10	0.9960	0.9961	0.0008	0.9945	0.9978	0.9566	0.9567	0.0124	0.9336	0.9813	39.9	61.4
In-combination with the Project LOW	10	0.9961	0.9961	0.0008	0.9944	0.9977	0.9575	0.9571	0.0123	0.9336	0.9807	39.3	61.8

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project MID	10	0.9960	0.9960	0.0008	0.9944	0.9975	0.9563	0.9566	0.0125	0.9328	0.9806	39.5	61.9
In-combination with the Project HIGH	10	0.9960	0.9960	0.0008	0.9943	0.9976	0.9568	0.9567	0.0128	0.9307	0.9826	39.3	61.7
Project alone LOW	20	0.9999	1.0000	0.0007	0.9986	1.0012	0.9996	0.9994	0.0138	0.9715	1.0257	50.1	49.7
Project alone MID	20	0.9999	0.9999	0.0007	0.9987	1.0013	0.9989	0.9990	0.0138	0.9718	1.0266	49.7	50.3
Project alone HIGH	20	0.9999	0.9999	0.0007	0.9987	1.0013	0.9981	0.9989	0.0140	0.9730	1.0273	50.6	49.7
In-combination without the Project	20	0.9961	0.9962	0.0007	0.9948	0.9975	0.9390	0.9395	0.0134	0.9138	0.9647	38.4	64.3

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project LOW	20	0.9961	0.9961	0.0007	0.9947	0.9974	0.9389	0.9392	0.0131	0.9136	0.9652	37.0	63.7
In-combination with the Project MID	20	0.9960	0.9961	0.0007	0.9947	0.9974	0.9388	0.9387	0.0134	0.9138	0.9660	38.2	63.7
In-combination with the Project HIGH	20	0.9961	0.9961	0.0007	0.9948	0.9975	0.9384	0.9389	0.0137	0.9127	0.9668	38.6	64.1
Project alone LOW	30	1.0000	1.0000	0.0006	0.9988	1.0011	0.9991	0.9991	0.0150	0.9704	1.0287	49.7	50.2
Project alone MID	30	0.9999	0.9999	0.0006	0.9988	1.0011	0.9992	0.9989	0.0154	0.9693	1.0295	49.0	51.3
Project alone HIGH	30	0.9999	0.9999	0.0006	0.9988	1.0011	0.9986	0.9984	0.0155	0.9683	1.0284	49.9	50.2

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination without the Project	30	0.9962	0.9962	0.0006	0.9950	0.9974	0.9219	0.9219	0.0146	0.8936	0.9510	34.4	66.4
In-combination with the Project LOW	30	0.9961	0.9961	0.0006	0.9949	0.9973	0.9212	0.9217	0.0145	0.8937	0.9502	33.9	66.4
In-combination with the Project MID	30	0.9961	0.9961	0.0006	0.9950	0.9972	0.9212	0.9209	0.0143	0.8935	0.9485	34.3	66.3
In-combination with the Project HIGH	30	0.9961	0.9961	0.0006	0.9950	0.9973	0.9208	0.9211	0.0148	0.8922	0.9505	34.1	66.3
Project alone LOW	35	1.0000	1.0000	0.0005	0.9990	1.0009	0.9987	0.9991	0.0160	0.9675	1.0295	49.7	50.3
Project alone MID	35	0.9999	0.9999	0.0005	0.9989	1.0010	0.9984	0.9986	0.0164	0.9676	1.0301	49.1	50.9

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone HIGH	35	0.9999	0.9999	0.0005	0.9989	1.0009	0.9980	0.9983	0.0163	0.9678	1.0309	49.2	50.6
In-combination without the Project	35	0.9962	0.9962	0.0005	0.9952	0.9973	0.9047	0.9050	0.0153	0.8757	0.9356	32.1	70.1
In-combination with the Project LOW	35	0.9962	0.9962	0.0005	0.9951	0.9972	0.9044	0.9045	0.0153	0.8757	0.9351	32.4	69.7
In-combination with the Project MID	35	0.9961	0.9961	0.0005	0.9951	0.9972	0.9043	0.9038	0.0150	0.8733	0.9343	32.1	70.1
In-combination with the Project HIGH	35	0.9961	0.9961	0.0005	0.9951	0.9972	0.9033	0.9039	0.0156	0.8731	0.9355	32.5	69.8

E.13 Shiant Isles SPA

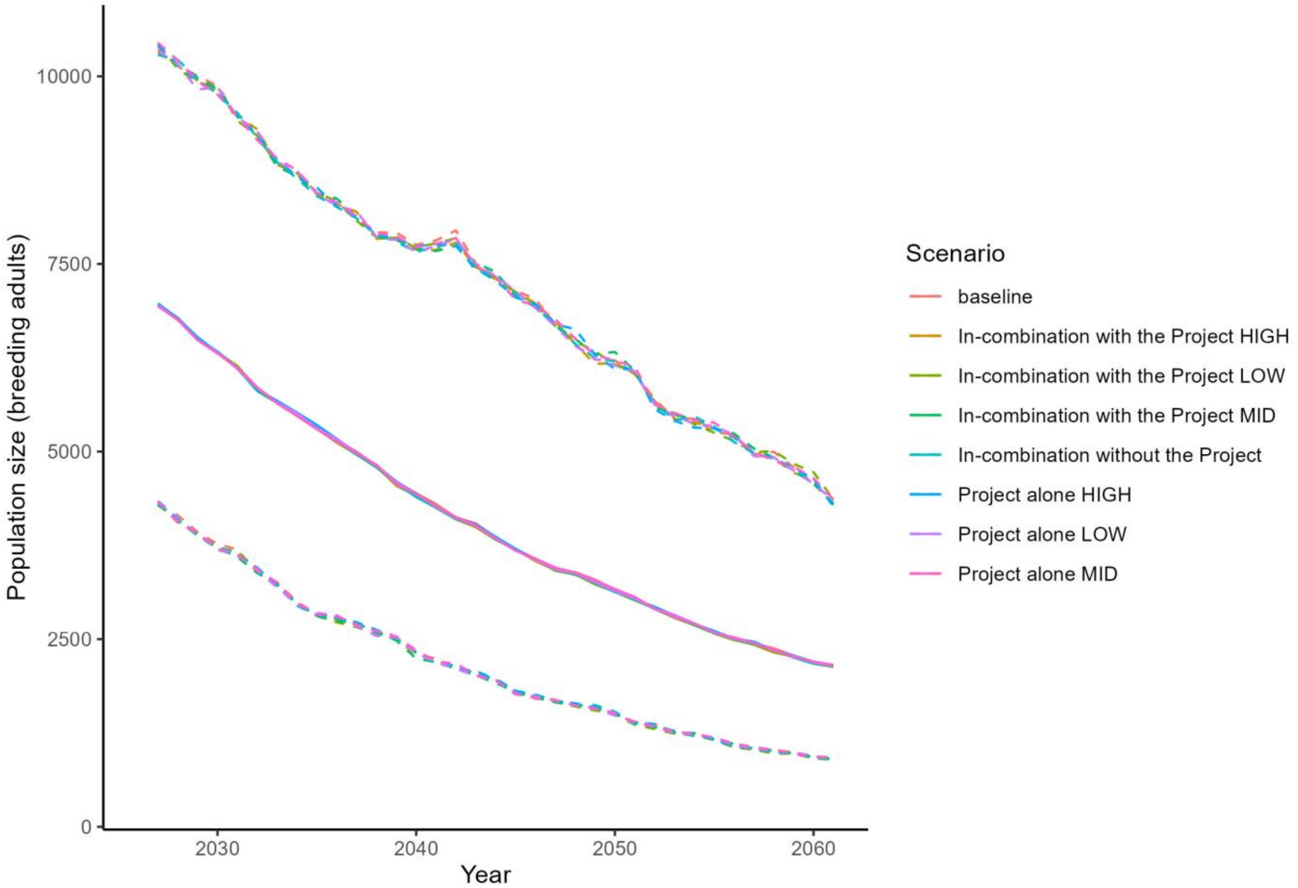

Figure E13-1 Projected population size of the breeding razorbill feature of the Shiant Isles SPA for the baseline (unimpacted), Project alone, in-combination impacts without the Project and in-combination with the Project from 2027 to 2062. Solid line = mean, dashed line = S.D.

Table E13-1 Summary of PVA metrics for the razorbill population from Shiant Isles SPA for the Project alone, in-combination without the Project and in-combination including the Project. Based on the assessment of in-combination impacts and population sizes for the BDMPS UK western waters & Channel during Spring migration (January to April) SD = standard deviation, LCI = lower confidence interval, UCI = upper confidence interval.

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone LOW	10	1.0000	1.0000	0.0019	0.9963	1.0036	1.0001	0.9998	0.0261	0.9505	1.0533	49.6	50.4
Project alone MID	10	0.9999	1.0000	0.0019	0.9961	1.0039	1.0005	1.0002	0.0257	0.9489	1.0548	49.4	50.4
Project alone HIGH	10	1.0000	1.0000	0.0019	0.9963	1.0037	1.0003	1.0007	0.0255	0.9511	1.0506	49.3	50.6
In-combination without the Project	10	0.9998	0.9998	0.0019	0.9959	1.0035	0.9987	0.9983	0.0261	0.9451	1.0513	49.2	51.1
In-combination with the Project LOW	10	0.9998	0.9998	0.0019	0.9961	1.0035	0.9972	0.9981	0.0261	0.9487	1.0518	49.1	51.1

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project MID	10	0.9998	0.9998	0.0019	0.9962	1.0035	0.9979	0.9983	0.0263	0.9469	1.0503	49.2	50.9
In-combination with the Project HIGH	10	0.9998	0.9998	0.0018	0.9962	1.0032	0.9974	0.9977	0.0245	0.9459	1.0422	48.9	51.0
Project alone LOW	20	0.9999	0.9999	0.0016	0.9968	1.0032	0.9978	0.9994	0.0305	0.9399	1.0611	49.6	50.2
Project alone MID	20	1.0000	1.0000	0.0017	0.9966	1.0032	0.9993	1.0001	0.0302	0.9432	1.0622	50.1	49.8
Project alone HIGH	20	1.0001	1.0000	0.0016	0.9968	1.0032	0.9998	1.0000	0.0299	0.9430	1.0595	49.6	50.3
In-combination without the Project	20	0.9997	0.9998	0.0017	0.9963	1.0030	0.9967	0.9971	0.0304	0.9361	1.0581	49.4	50.6

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project LOW	20	0.9998	0.9998	0.0017	0.9964	1.0030	0.9958	0.9966	0.0308	0.9373	1.0565	49.6	50.4
In-combination with the Project MID	20	0.9998	0.9998	0.0016	0.9966	1.0029	0.9976	0.9967	0.0297	0.9375	1.0565	49.4	50.2
In-combination with the Project HIGH	20	0.9998	0.9998	0.0016	0.9965	1.0029	0.9979	0.9968	0.0288	0.9346	1.0503	49.2	50.7
Project alone LOW	30	0.9999	1.0000	0.0015	0.9973	1.0028	0.9973	0.9995	0.0346	0.9327	1.0697	49.7	50.1
Project alone MID	30	1.0000	1.0000	0.0016	0.9968	1.0031	0.9986	1.0005	0.0357	0.9351	1.0777	50.6	49.6
Project alone HIGH	30	1.0000	1.0000	0.0015	0.9970	1.0028	1.0005	1.0000	0.0341	0.9326	1.0684	50.5	49.5

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination without the Project	30	0.9998	0.9998	0.0015	0.9969	1.0029	0.9960	0.9967	0.0346	0.9332	1.0668	50.2	49.4
In-combination with the Project LOW	30	0.9998	0.9998	0.0015	0.9967	1.0028	0.9957	0.9960	0.0357	0.9231	1.0677	49.3	50.3
In-combination with the Project MID	30	0.9998	0.9998	0.0014	0.9968	1.0025	0.9967	0.9962	0.0341	0.9280	1.0616	49.7	50.2
In-combination with the Project HIGH	30	0.9998	0.9998	0.0015	0.9968	1.0025	0.9969	0.9959	0.0338	0.9258	1.0626	49.4	50.5
Project alone LOW	35	0.9999	0.9999	0.0014	0.9972	1.0027	0.9973	0.9990	0.0387	0.9258	1.0750	49.8	50.3
Project alone MID	35	1.0000	1.0000	0.0015	0.9972	1.0029	1.0000	1.0011	0.0402	0.9283	1.0896	49.8	50.4

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone HIGH	35	1.0000	1.0000	0.0014	0.9972	1.0027	0.9999	1.0012	0.0390	0.9263	1.0775	50.3	49.7
In-combination without the Project	35	0.9998	0.9998	0.0014	0.9972	1.0025	0.9956	0.9962	0.0383	0.9221	1.0760	49.6	50.6
In-combination with the Project LOW	35	0.9998	0.9998	0.0014	0.9969	1.0024	0.9948	0.9950	0.0390	0.9190	1.0700	50.0	50.2
In-combination with the Project MID	35	0.9999	0.9998	0.0014	0.9971	1.0024	0.9957	0.9956	0.0378	0.9218	1.0713	49.7	50.5
In-combination with the Project HIGH	35	0.9998	0.9998	0.0014	0.9971	1.0023	0.9946	0.9949	0.0379	0.9211	1.0725	49.7	50.5

E.14 Skomer, Skokholm and the Seas off Pembrokeshire SPA

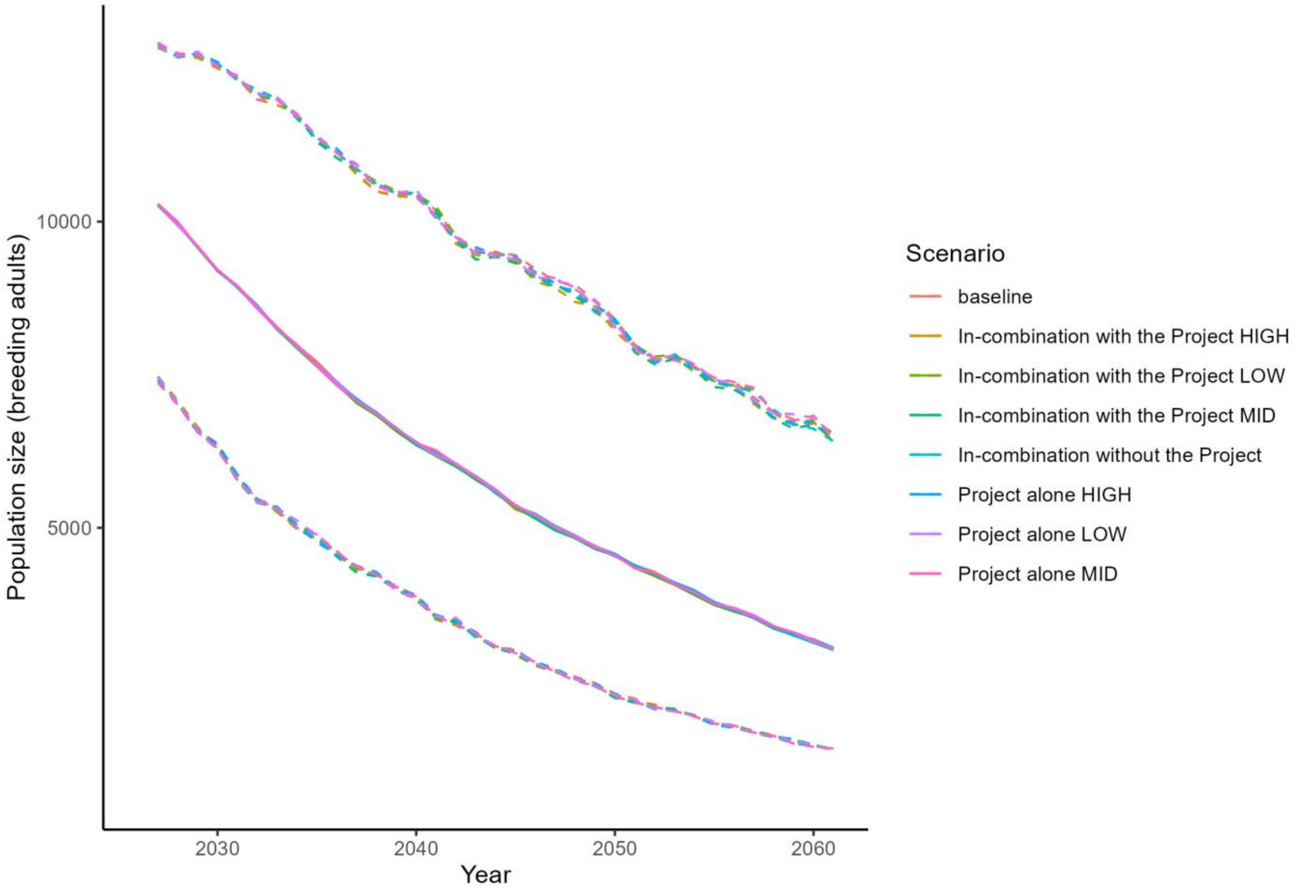

Figure E14-1 Projected population size of the breeding razorbill feature of the Skomer, Skokholm and the Seas off Pembrokeshire SPA for the baseline (unimpacted), Project alone, in-combination impacts without the Project and in-combination with the Project from 2027 to 2062. Solid line = mean, dashed line = S.D.

Table E14-1 Summary of PVA metrics for the razorbill population from Skomer, Skokholm and the Seas off Pembrokeshire SPA for the Project alone, in-combination without the Project and in-combination including the Project. Based on the assessment of in-combination impacts and population sizes for the BDMPS UK western waters & Channel during Spring migration (January to April) SD = standard deviation, LCI = lower confidence interval, UCI = upper confidence interval.

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone LOW	10	0.9999	0.9999	0.0016	0.9969	1.0029	0.9994	0.9994	0.0190	0.9646	1.0352	50.3	49.7
Project alone MID	10	0.9999	0.9999	0.0015	0.9969	1.0030	0.9987	0.9989	0.0180	0.9619	1.0336	50.3	49.8
Project alone HIGH	10	0.9999	0.9999	0.0016	0.9971	1.0032	0.9995	0.9995	0.0192	0.9626	1.0388	50.7	49.3
In-combination without the Project	10	0.9998	0.9998	0.0016	0.9966	1.0030	0.9980	0.9981	0.0195	0.9609	1.0371	50.9	49.6
In-combination with the Project LOW	10	0.9996	0.9996	0.0016	0.9964	1.0029	0.9965	0.9962	0.0190	0.9578	1.0322	49.3	50.8

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project MID	10	0.9997	0.9997	0.0015	0.9967	1.0025	0.9960	0.9961	0.0182	0.9622	1.0329	49.9	50.3
In-combination with the Project HIGH	10	0.9997	0.9997	0.0016	0.9964	1.0028	0.9957	0.9963	0.0189	0.9602	1.0329	50.0	50.0
Project alone LOW	20	0.9999	0.9999	0.0014	0.9975	1.0026	0.9989	0.9995	0.0231	0.9579	1.0463	50.5	49.9
Project alone MID	20	1.0000	0.9999	0.0013	0.9974	1.0025	0.9987	0.9989	0.0218	0.9571	1.0427	49.6	50.4
Project alone HIGH	20	0.9999	1.0000	0.0014	0.9974	1.0026	0.9986	0.9995	0.0233	0.9558	1.0470	49.5	50.5
In-combination without the Project	20	0.9998	0.9998	0.0013	0.9973	1.0025	0.9960	0.9969	0.0227	0.9534	1.0413	49.3	50.4

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project LOW	20	0.9997	0.9997	0.0014	0.9971	1.0023	0.9953	0.9954	0.0228	0.9506	1.0403	48.8	50.8
In-combination with the Project MID	20	0.9997	0.9997	0.0013	0.9973	1.0023	0.9944	0.9953	0.0221	0.9553	1.0404	48.9	51.0
In-combination with the Project HIGH	20	0.9997	0.9997	0.0014	0.9970	1.0024	0.9942	0.9952	0.0230	0.9500	1.0400	49.1	50.8
Project alone LOW	30	0.9999	0.9999	0.0012	0.9975	1.0023	0.9983	0.9994	0.0268	0.9458	1.0520	50.6	49.5
Project alone MID	30	0.9999	0.9999	0.0012	0.9975	1.0021	0.9983	0.9980	0.0255	0.9466	1.0489	50.1	49.9
Project alone HIGH	30	1.0000	1.0000	0.0012	0.9976	1.0024	1.0004	0.9999	0.0266	0.9459	1.0531	50.8	49.6

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination without the Project	30	0.9998	0.9998	0.0012	0.9974	1.0023	0.9949	0.9959	0.0268	0.9463	1.0529	49.7	50.3
In-combination with the Project LOW	30	0.9997	0.9997	0.0012	0.9972	1.0022	0.9935	0.9938	0.0264	0.9435	1.0464	49.7	50.2
In-combination with the Project MID	30	0.9997	0.9997	0.0012	0.9972	1.0021	0.9936	0.9935	0.0271	0.9397	1.0487	49.1	50.9
In-combination with the Project HIGH	30	0.9997	0.9997	0.0012	0.9973	1.0022	0.9937	0.9942	0.0271	0.9396	1.0480	50.1	50.0
Project alone LOW	35	0.9998	0.9999	0.0011	0.9977	1.0022	0.9975	0.9991	0.0308	0.9399	1.0620	49.7	50.4
Project alone MID	35	1.0000	0.9999	0.0011	0.9975	1.0021	0.9966	0.9977	0.0297	0.9336	1.0572	49.7	50.3

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone HIGH	35	1.0000	1.0000	0.0011	0.9976	1.0022	0.9997	0.9998	0.0305	0.9407	1.0611	49.6	50.4
In-combination without the Project	35	0.9998	0.9998	0.0012	0.9976	1.0022	0.9946	0.9949	0.0311	0.9392	1.0613	49.6	50.7
In-combination with the Project LOW	35	0.9997	0.9997	0.0012	0.9973	1.0021	0.9926	0.9931	0.0306	0.9305	1.0542	49.2	51.7
In-combination with the Project MID	35	0.9997	0.9997	0.0012	0.9974	1.0020	0.9912	0.9915	0.0311	0.9346	1.0549	49.5	51.1
In-combination with the Project HIGH	35	0.9997	0.9997	0.0012	0.9974	1.0022	0.9927	0.9930	0.0314	0.9337	1.0586	48.8	51.1

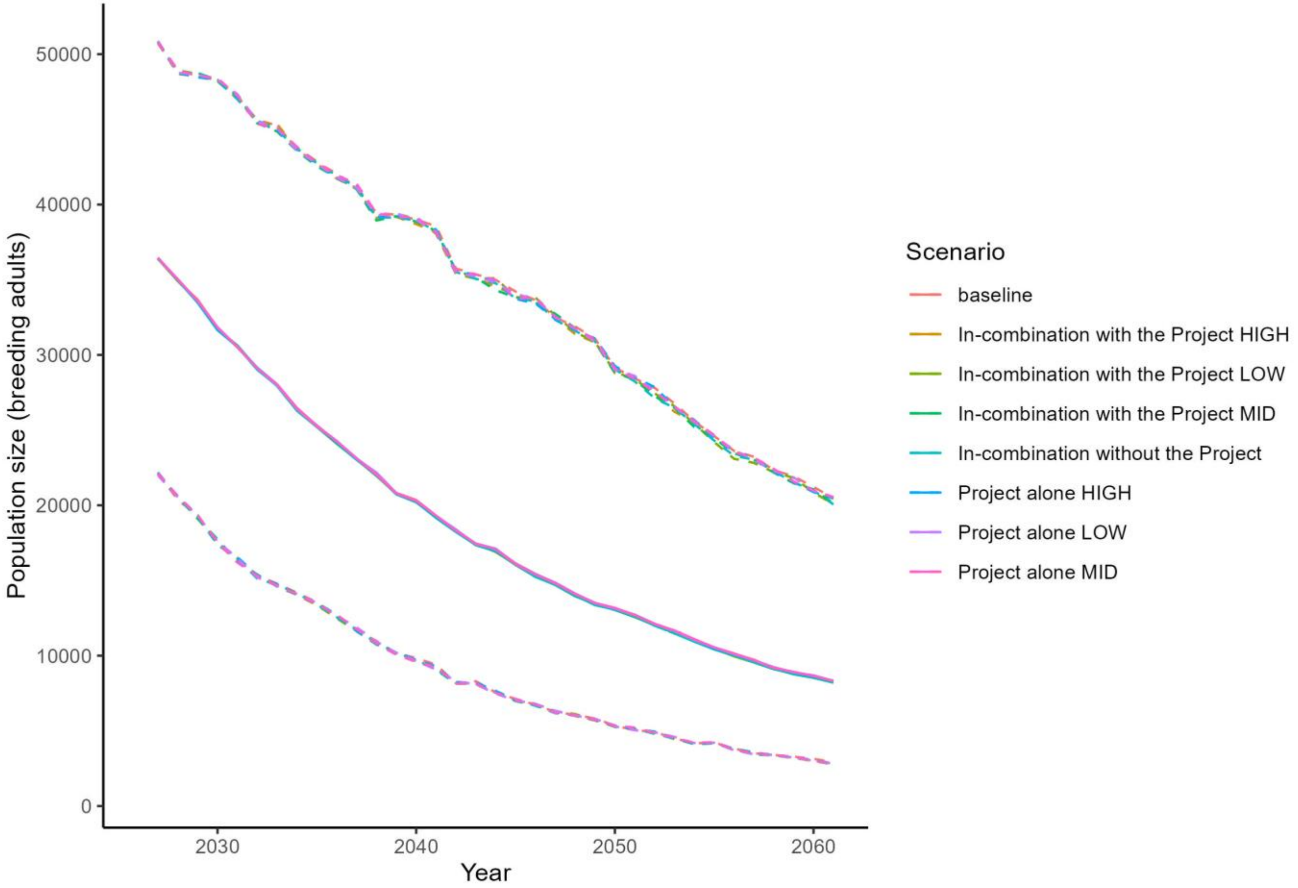

Figure E14-2 Projected population size of the breeding puffin feature of the Skomer, Skokholm and the Seas off Pembrokeshire SPA for the baseline (unimpacted), Project alone, in-combination impacts without the Project and in-combination with the Project from 2027 to 2062. Solid line = mean, dashed line = S.D.

Table E14-2 Summary of PVA metrics for the puffin population from Skomer, Skokholm and the Seas off Pembrokeshire SPA for the Project alone, in-combination without the Project and in-combination including the Project. Based on the assessment of in-combination impacts and population sizes for the BDMPS UK western waters & Channel during Spring migration (January to April) SD = standard deviation, LCI = lower confidence interval, UCI = upper confidence interval.

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone LOW	10	1.0000	1.0000	0.0009	0.9983	1.0017	0.9996	0.9998	0.0106	0.9804	1.0208	50.0	50.0
Project alone MID	10	1.0000	1.0000	0.0009	0.9983	1.0018	0.9996	1.0001	0.0105	0.9811	1.0209	50.1	49.9
Project alone HIGH	10	0.9999	1.0000	0.0009	0.9982	1.0019	0.9989	0.9996	0.0111	0.9773	1.0218	50.1	49.9
In-combination without the Project	10	0.9997	0.9997	0.0009	0.9981	1.0016	0.9967	0.9972	0.0109	0.9763	1.0192	49.7	50.5
In-combination with the Project LOW	10	0.9997	0.9997	0.0009	0.9980	1.0014	0.9961	0.9963	0.0106	0.9758	1.0168	49.9	50.2

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project MID	10	0.9997	0.9997	0.0009	0.9980	1.0013	0.9966	0.9964	0.0102	0.9767	1.0165	49.9	50.1
In-combination with the Project HIGH	10	0.9997	0.9997	0.0008	0.9981	1.0014	0.9966	0.9966	0.0105	0.9755	1.0179	50.0	50.1
Project alone LOW	20	1.0000	1.0000	0.0007	0.9985	1.0015	1.0000	0.9997	0.0129	0.9737	1.0250	50.7	49.4
Project alone MID	20	1.0000	1.0000	0.0008	0.9984	1.0015	0.9998	0.9998	0.0132	0.9744	1.0264	50.3	49.7
Project alone HIGH	20	0.9999	1.0000	0.0008	0.9984	1.0015	0.9988	0.9993	0.0132	0.9733	1.0256	50.3	49.7
In-combination without the Project	20	0.9997	0.9997	0.0008	0.9982	1.0013	0.9948	0.9953	0.0133	0.9702	1.0216	49.2	50.3

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project LOW	20	0.9997	0.9997	0.0008	0.9982	1.0012	0.9948	0.9947	0.0132	0.9704	1.0215	50.3	49.6
In-combination with the Project MID	20	0.9997	0.9997	0.0008	0.9982	1.0013	0.9946	0.9947	0.0129	0.9697	1.0222	50.3	49.8
In-combination with the Project HIGH	20	0.9997	0.9997	0.0007	0.9982	1.0012	0.9949	0.9949	0.0127	0.9698	1.0209	50.2	49.9
Project alone LOW	30	1.0000	1.0000	0.0007	0.9987	1.0014	0.9993	0.9997	0.0153	0.9705	1.0326	50.1	49.8
Project alone MID	30	1.0000	1.0000	0.0007	0.9986	1.0014	0.9999	0.9999	0.0157	0.9695	1.0304	49.6	50.4
Project alone HIGH	30	1.0000	1.0000	0.0007	0.9985	1.0013	0.9992	0.9992	0.0156	0.9686	1.0298	49.6	50.3

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination without the Project	30	0.9997	0.9997	0.0007	0.9984	1.0012	0.9928	0.9938	0.0158	0.9651	1.0269	49.1	51.2
In-combination with the Project LOW	30	0.9997	0.9997	0.0007	0.9982	1.0011	0.9939	0.9940	0.0155	0.9634	1.0273	49.3	50.9
In-combination with the Project MID	30	0.9996	0.9997	0.0007	0.9982	1.0012	0.9923	0.9929	0.0154	0.9632	1.0243	49.1	51.6
In-combination with the Project HIGH	30	0.9997	0.9997	0.0007	0.9983	1.0011	0.9933	0.9937	0.0155	0.9637	1.0250	49.1	50.8
Project alone LOW	35	1.0000	1.0000	0.0007	0.9987	1.0013	0.9990	0.9995	0.0183	0.9629	1.0358	49.9	50.3
Project alone MID	35	1.0000	1.0000	0.0007	0.9987	1.0014	0.9998	0.9998	0.0184	0.9646	1.0377	49.9	50.2

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone HIGH	35	1.0000	1.0000	0.0007	0.9986	1.0012	0.9987	0.9991	0.0180	0.9629	1.0351	49.9	50.3
In-combination without the Project	35	0.9997	0.9997	0.0007	0.9984	1.0011	0.9916	0.9923	0.0185	0.9564	1.0304	49.0	51.0
In-combination with the Project LOW	35	0.9997	0.9997	0.0007	0.9983	1.0011	0.9921	0.9926	0.0182	0.9571	1.0297	49.5	50.5
In-combination with the Project MID	35	0.9996	0.9997	0.0007	0.9983	1.0011	0.9904	0.9914	0.0179	0.9566	1.0306	49.4	50.5
In-combination with the Project HIGH	35	0.9997	0.9997	0.0007	0.9985	1.0011	0.9920	0.9923	0.0179	0.9584	1.0284	49.3	51.0

E.15 St Abb's to Fast Castle SPA

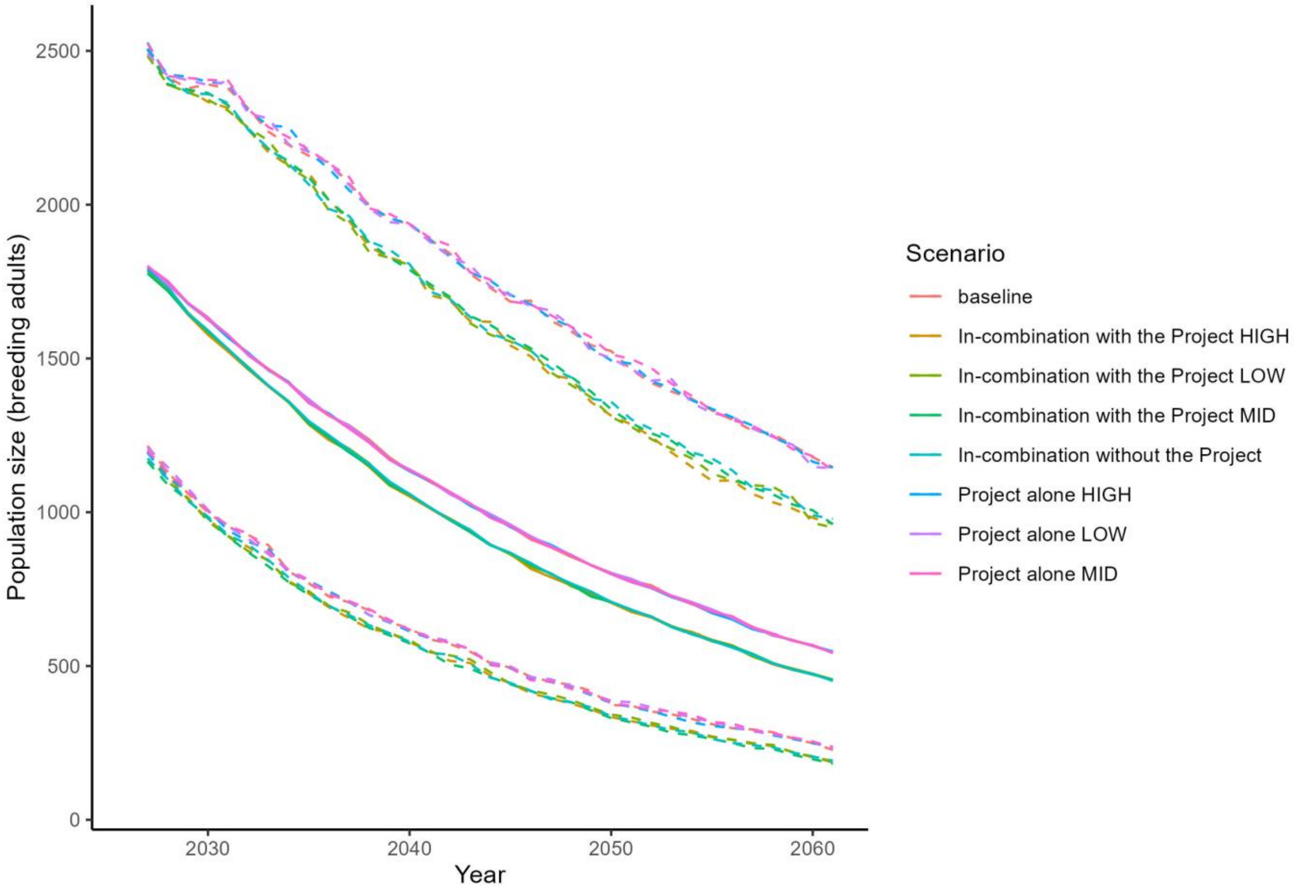

Figure E15-1 Projected population size of the breeding razorbill feature of the St Abb's to Fast Castle SPA for the baseline (unimpacted), Project alone, in-combination impacts without the Project and in-combination with the Project from 2027 to 2062. Solid line = mean, dashed line = S.D.

Table E15-1 Summary of PVA metrics for the razorbill population from St Abb's to Fast Castle SPA for the Project alone, in-combination without the Project and in-combination including the Project. Based on the assessment of in-combination impacts and population sizes for the BDMPS UK western waters & Channel during Spring migration (January to April) SD = standard deviation, LCI = lower confidence interval, UCI = upper confidence interval.

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone LOW	10	1.0069	1.0024	1.0015	0.0502	0.9085	1.1027	49.6	50.6	1.0069	1.0024	1.0015	0.0502
Project alone MID	10	1.0073	0.9995	1.0012	0.0465	0.9165	1.0894	49.1	51.4	1.0073	0.9995	1.0012	0.0465
Project alone HIGH	10	1.0071	1.0000	1.0001	0.0474	0.9127	1.0959	49.2	51.6	1.0071	1.0000	1.0001	0.0474
In-combination without the Project	10	1.0021	0.9452	0.9459	0.0453	0.8585	1.0392	39.9	59.8	1.0021	0.9452	0.9459	0.0453
In-combination with the Project LOW	10	1.0019	0.9438	0.9438	0.0464	0.8574	1.0345	40.2	60.9	1.0019	0.9438	0.9438	0.0464

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project MID	10	1.0025	0.9414	0.9431	0.0466	0.8528	1.0384	38.8	59.5	1.0025	0.9414	0.9431	0.0466
In-combination with the Project HIGH	10	1.0017	0.9393	0.9412	0.0449	0.8568	1.0330	39.6	60.7	1.0017	0.9393	0.9412	0.0449
Project alone LOW	20	1.0060	1.0040	1.0028	0.0579	0.8928	1.1135	49.3	50.3	1.0060	1.0040	1.0028	0.0579
Project alone MID	20	1.0068	1.0000	1.0026	0.0579	0.8953	1.1210	50.2	49.8	1.0068	1.0000	1.0026	0.0579
Project alone HIGH	20	1.0064	0.9985	1.0015	0.0570	0.8927	1.1239	50.0	50.4	1.0064	0.9985	1.0015	0.0570
In-combination without the Project	20	1.0011	0.9205	0.9226	0.0533	0.8202	1.0245	39.0	60.3	1.0011	0.9205	0.9226	0.0533

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project LOW	20	1.0014	0.9208	0.9214	0.0526	0.8226	1.0302	39.3	61.6	1.0014	0.9208	0.9214	0.0526
In-combination with the Project MID	20	1.0014	0.9188	0.9196	0.0567	0.8074	1.0307	38.9	61.3	1.0014	0.9188	0.9196	0.0567
In-combination with the Project HIGH	20	1.0007	0.9170	0.9184	0.0528	0.8153	1.0263	38.9	61.4	1.0007	0.9170	0.9184	0.0528
Project alone LOW	30	1.0057	1.0075	1.0054	0.0676	0.8774	1.1382	50.6	49.8	1.0057	1.0075	1.0054	0.0676
Project alone MID	30	1.0061	1.0000	1.0031	0.0676	0.8735	1.1400	50.4	49.9	1.0061	1.0000	1.0031	0.0676
Project alone HIGH	30	1.0058	0.9990	1.0021	0.0661	0.8812	1.1395	51.0	49.1	1.0058	0.9990	1.0021	0.0661

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination without the Project	30	1.0009	0.9017	0.9022	0.0630	0.7806	1.0298	36.2	61.9	1.0009	0.9017	0.9022	0.0630
In-combination with the Project LOW	30	1.0006	0.8972	0.8986	0.0597	0.7809	1.0245	36.5	62.5	1.0006	0.8972	0.8986	0.0597
In-combination with the Project MID	30	1.0010	0.8960	0.8976	0.0638	0.7757	1.0232	36.5	63.0	1.0010	0.8960	0.8976	0.0638
In-combination with the Project HIGH	30	1.0003	0.8944	0.8967	0.0612	0.7842	1.0214	34.2	63.8	1.0003	0.8944	0.8967	0.0612
Project alone LOW	35	1.0055	1.0015	1.0039	0.0783	0.8508	1.1583	49.1	51.5	1.0055	1.0015	1.0039	0.0783
Project alone MID	35	1.0058	1.0000	1.0027	0.0786	0.8605	1.1616	49.0	51.3	1.0058	1.0000	1.0027	0.0786

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone HIGH	35	1.0055	0.9967	1.0007	0.0776	0.8537	1.1634	49.0	51.8	1.0055	0.9967	1.0007	0.0776
In-combination without the Project	35	1.0005	0.8731	0.8776	0.0708	0.7492	1.0231	35.0	68.0	1.0005	0.8731	0.8776	0.0708
In-combination with the Project LOW	35	1.0005	0.8733	0.8761	0.0683	0.7484	1.0149	35.1	68.9	1.0005	0.8733	0.8761	0.0683
In-combination with the Project MID	35	1.0004	0.8731	0.8741	0.0726	0.7284	1.0107	35.2	67.4	1.0004	0.8731	0.8741	0.0726
In-combination with the Project HIGH	35	1.0001	0.8706	0.8735	0.0676	0.7482	1.0087	34.5	67.0	1.0001	0.8706	0.8735	0.0676

E.16 Sumburgh Head SPA

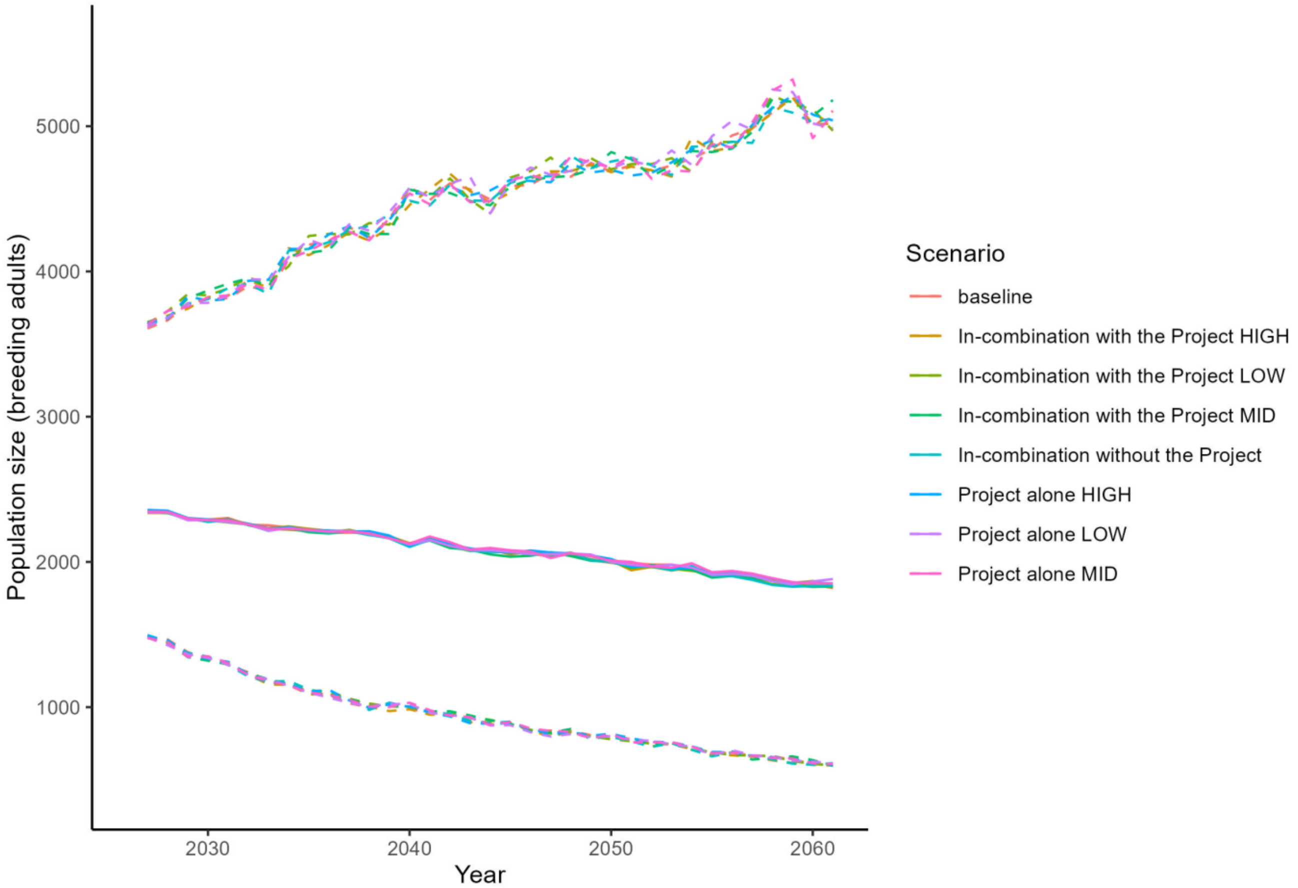

Figure E16-1 Projected population size of the breeding kittiwake feature of the Sumburgh Head SPA for the baseline (unimpacted), Project alone, in-combination impacts without the Project and in-combination with the Project from 2027 to 2062. Solid line = mean, dashed line = S.D.

Table E16-2 Summary of PVA metrics for the kittiwake population from St Abb's to Fast Castle SPA for the Project alone, in-combination without the Project and in-combination including the Project. Based on the assessment of in-combination impacts and population sizes for the BDMPS UK western waters & Channel during Spring migration (January to April) SD = standard deviation, LCI = lower confidence interval, UCI = upper confidence interval.

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone LOW	10	0.9998	1.0000	0.0035	0.9933	1.0072	0.9990	1.0001	0.0462	0.9075	1.0956	50.4	49.5
Project alone MID	10	1.0001	1.0001	0.0035	0.9933	1.0074	1.0009	1.0018	0.0460	0.9145	1.0920	50.1	49.5
Project alone HIGH	10	1.0000	1.0000	0.0035	0.9931	1.0068	1.0018	1.0019	0.0466	0.9125	1.0940	50.1	49.4
In-combination without the Project	10	0.9998	0.9997	0.0034	0.9928	1.0064	0.9986	0.9985	0.0454	0.9085	1.0866	50.4	49.7
In-combination with the Project LOW	10	0.9998	0.9998	0.0035	0.9926	1.0068	1.0001	0.9996	0.0458	0.9095	1.0936	51.0	48.8

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project MID	10	0.9998	0.9998	0.0033	0.9931	1.0062	0.9976	0.9991	0.0440	0.9120	1.0847	50.2	49.7
In-combination with the Project HIGH	10	0.9997	0.9997	0.0034	0.9928	1.0065	0.9956	0.9985	0.0462	0.9170	1.0890	50.4	49.5
Project alone LOW	20	0.9997	0.9999	0.0029	0.9945	1.0056	0.9985	1.0000	0.0524	0.9011	1.1107	49.9	50.3
Project alone MID	20	1.0000	1.0000	0.0028	0.9947	1.0057	1.0005	1.0009	0.0514	0.9060	1.1048	51.4	49.3
Project alone HIGH	20	0.9998	0.9999	0.0028	0.9951	1.0051	1.0014	1.0013	0.0524	0.9069	1.1072	50.7	49.6
In-combination without the Project	20	0.9997	0.9997	0.0027	0.9945	1.0049	0.9965	0.9972	0.0502	0.8989	1.0980	50.1	49.8

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project LOW	20	0.9996	0.9997	0.0029	0.9944	1.0059	0.9976	0.9981	0.0517	0.9000	1.1084	49.8	50.2
In-combination with the Project MID	20	0.9996	0.9997	0.0028	0.9943	1.0054	0.9954	0.9971	0.0499	0.9013	1.0999	49.2	50.7
In-combination with the Project HIGH	20	0.9997	0.9997	0.0028	0.9943	1.0054	0.9955	0.9976	0.0527	0.9038	1.1035	51.2	49.2
Project alone LOW	30	1.0000	1.0000	0.0025	0.9950	1.0050	1.0002	1.0005	0.0576	0.8788	1.1205	50.3	49.8
Project alone MID	30	1.0001	1.0000	0.0025	0.9951	1.0051	1.0025	1.0017	0.0586	0.8923	1.1225	49.5	50.5
Project alone HIGH	30	0.9998	0.9999	0.0025	0.9951	1.0047	0.9990	1.0006	0.0591	0.8915	1.1232	50.7	49.3

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination without the Project	30	0.9997	0.9997	0.0025	0.9950	1.0044	0.9946	0.9962	0.0567	0.8830	1.1098	49.6	50.8
In-combination with the Project LOW	30	0.9998	0.9997	0.0026	0.9945	1.0046	0.9947	0.9973	0.0581	0.8861	1.1153	50.4	49.6
In-combination with the Project MID	30	0.9997	0.9997	0.0023	0.9951	1.0045	0.9931	0.9965	0.0547	0.8971	1.1134	50.7	49.4
In-combination with the Project HIGH	30	0.9997	0.9998	0.0024	0.9953	1.0048	0.9968	0.9974	0.0587	0.8893	1.1270	49.8	50.5
Project alone LOW	35	1.0000	1.0000	0.0022	0.9958	1.0044	1.0006	1.0019	0.0633	0.8806	1.1259	49.5	50.3
Project alone MID	35	1.0000	1.0000	0.0022	0.9955	1.0044	1.0013	1.0028	0.0647	0.8857	1.1358	49.5	50.6

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone HIGH	35	0.9999	0.9999	0.0022	0.9956	1.0041	0.9992	1.0011	0.0638	0.8781	1.1296	49.6	50.3
In-combination without the Project	35	0.9998	0.9997	0.0022	0.9955	1.0041	0.9932	0.9955	0.0621	0.8761	1.1234	49.5	50.8
In-combination with the Project LOW	35	0.9998	0.9997	0.0022	0.9956	1.0041	0.9938	0.9957	0.0620	0.8800	1.1245	49.4	50.6
In-combination with the Project MID	35	0.9997	0.9997	0.0022	0.9954	1.0040	0.9938	0.9956	0.0622	0.8792	1.1264	49.7	50.3
In-combination with the Project HIGH	35	0.9998	0.9998	0.0022	0.9955	1.0041	0.9945	0.9975	0.0639	0.8782	1.1388	49.4	50.8

E.17 Troup, Pennan and Lion's Heads SPA

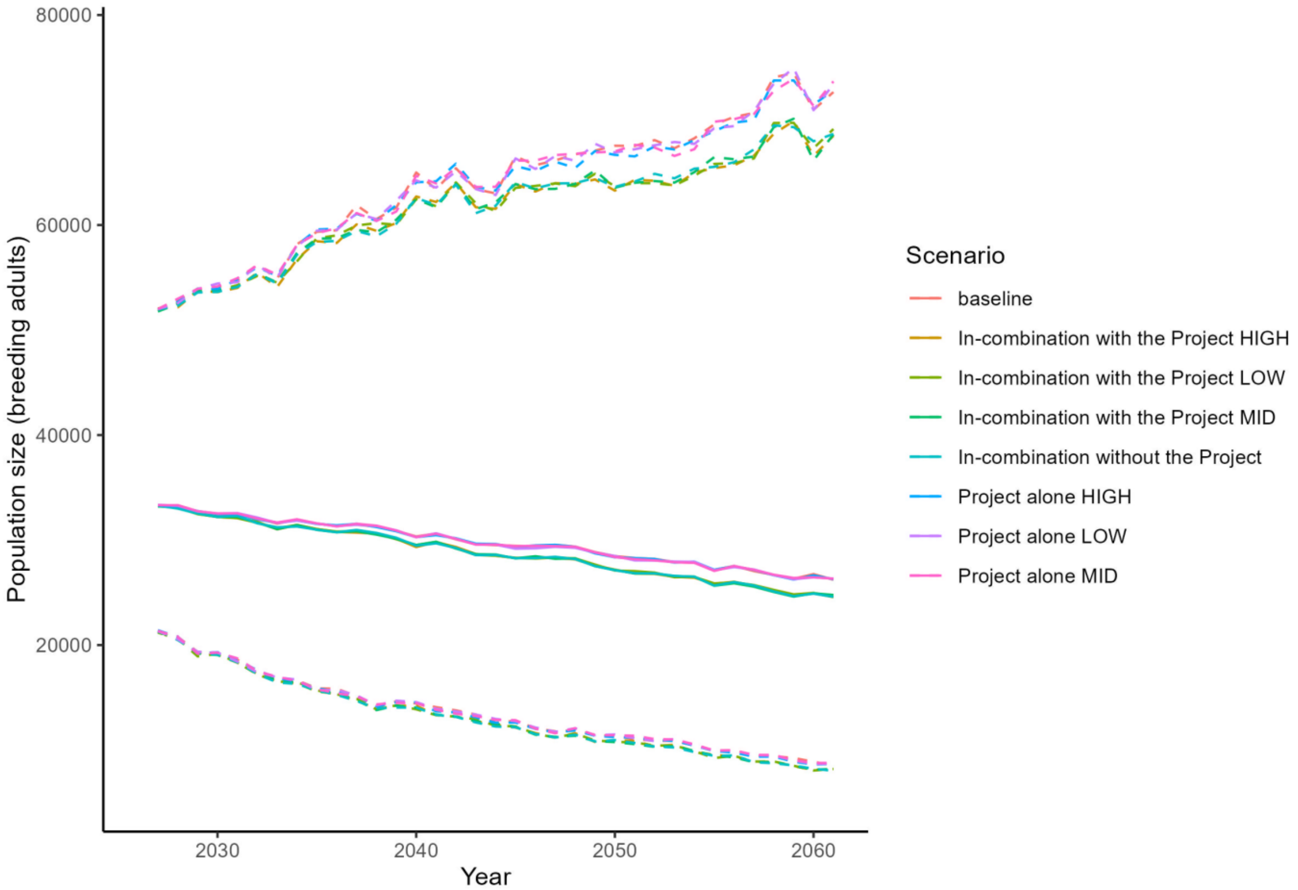

Figure E17-1 Projected population size of the breeding kittiwake feature of the Troup, Pennan and Lion's Heads SPA for the baseline (unimpacted), Project alone, in-combination impacts without the Project and in-combination with the Project from 2027 to 2062. Solid line = mean, dashed line = S.D.

Table E17-1 Summary of PVA metrics for the kittiwake population from Troup, Pennan and Lion's Heads SPA for the Project alone, in-combination without the Project and in-combination including the Project. Based on the assessment of in-combination impacts and population sizes for the BDMPS UK western waters & Channel during Spring migration (January to April) SD = standard deviation, LCI = lower confidence interval, UCI = upper confidence interval.

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone LOW	10	1.0000	1.0000	0.0009	0.9981	1.0017	1.0002	1.0003	0.0124	0.9766	1.0250	50.0	50.0
Project alone MID	10	1.0000	1.0000	0.0009	0.9980	1.0019	0.9999	1.0001	0.0125	0.9759	1.0245	50.5	49.5
Project alone HIGH	10	1.0000	1.0000	0.0009	0.9983	1.0017	0.9998	0.9998	0.0122	0.9767	1.0231	50.5	49.7
In-combination without the Project	10	0.9981	0.9981	0.0009	0.9964	0.9999	0.9794	0.9792	0.0117	0.9561	1.0026	47.7	52.4
In-combination with the Project LOW	10	0.9980	0.9981	0.0009	0.9963	0.9999	0.9790	0.9789	0.0125	0.9534	1.0038	47.3	52.3

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project MID	10	0.9980	0.9980	0.0009	0.9962	0.9999	0.9783	0.9786	0.0121	0.9551	1.0027	47.3	51.9
In-combination with the Project HIGH	10	0.9981	0.9981	0.0009	0.9963	0.9998	0.9788	0.9789	0.0121	0.9554	1.0040	47.2	52.2
Project alone LOW	20	1.0000	1.0000	0.0008	0.9985	1.0015	0.9999	0.9999	0.0142	0.9724	1.0284	50.1	49.9
Project alone MID	20	1.0000	1.0000	0.0008	0.9985	1.0016	0.9998	1.0003	0.0142	0.9739	1.0301	50.1	49.9
Project alone HIGH	20	1.0000	1.0000	0.0008	0.9984	1.0015	0.9996	0.9995	0.0142	0.9721	1.0271	50.1	49.6
In-combination without the Project	20	0.9981	0.9981	0.0008	0.9967	0.9996	0.9700	0.9702	0.0135	0.9441	0.9968	47.6	52.7

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project LOW	20	0.9981	0.9981	0.0007	0.9966	0.9996	0.9701	0.9699	0.0137	0.9420	0.9970	47.6	53.3
In-combination with the Project MID	20	0.9981	0.9981	0.0007	0.9965	0.9995	0.9695	0.9694	0.0135	0.9422	0.9956	47.6	52.9
In-combination with the Project HIGH	20	0.9981	0.9981	0.0008	0.9966	0.9996	0.9700	0.9699	0.0137	0.9447	0.9962	48.0	52.7
Project alone LOW	30	1.0000	1.0000	0.0007	0.9986	1.0013	0.9999	0.9999	0.0159	0.9693	1.0350	49.7	50.6
Project alone MID	30	1.0000	1.0000	0.0007	0.9986	1.0014	1.0000	1.0001	0.0159	0.9704	1.0341	49.9	50.3
Project alone HIGH	30	1.0000	1.0000	0.0007	0.9987	1.0013	0.9988	0.9993	0.0160	0.9681	1.0311	50.1	50.0

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination without the Project	30	0.9981	0.9981	0.0007	0.9969	0.9994	0.9612	0.9611	0.0148	0.9324	0.9904	47.9	55.6
In-combination with the Project LOW	30	0.9981	0.9981	0.0007	0.9967	0.9994	0.9611	0.9606	0.0158	0.9289	0.9916	47.6	55.8
In-combination with the Project MID	30	0.9981	0.9981	0.0007	0.9966	0.9994	0.9603	0.9603	0.0152	0.9302	0.9915	47.3	55.3
In-combination with the Project HIGH	30	0.9981	0.9981	0.0007	0.9967	0.9995	0.9607	0.9610	0.0155	0.9295	0.9902	47.6	55.4
Project alone LOW	35	1.0000	1.0000	0.0006	0.9988	1.0012	0.9995	0.9999	0.0174	0.9657	1.0375	49.7	50.5
Project alone MID	35	1.0000	1.0000	0.0006	0.9988	1.0012	0.9995	0.9998	0.0168	0.9678	1.0340	49.7	50.2

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone HIGH	35	1.0000	1.0000	0.0006	0.9987	1.0011	0.9985	0.9991	0.0171	0.9664	1.0348	49.9	50.1
In-combination without the Project	35	0.9981	0.9981	0.0006	0.9970	0.9993	0.9523	0.9521	0.0159	0.9199	0.9835	46.1	54.2
In-combination with the Project LOW	35	0.9981	0.9981	0.0006	0.9968	0.9993	0.9525	0.9517	0.0170	0.9177	0.9855	46.3	54.6
In-combination with the Project MID	35	0.9981	0.9981	0.0006	0.9968	0.9993	0.9511	0.9512	0.0164	0.9184	0.9849	46.0	55.0
In-combination with the Project HIGH	35	0.9981	0.9981	0.0006	0.9969	0.9993	0.9521	0.9520	0.0165	0.9190	0.9850	45.9	54.1

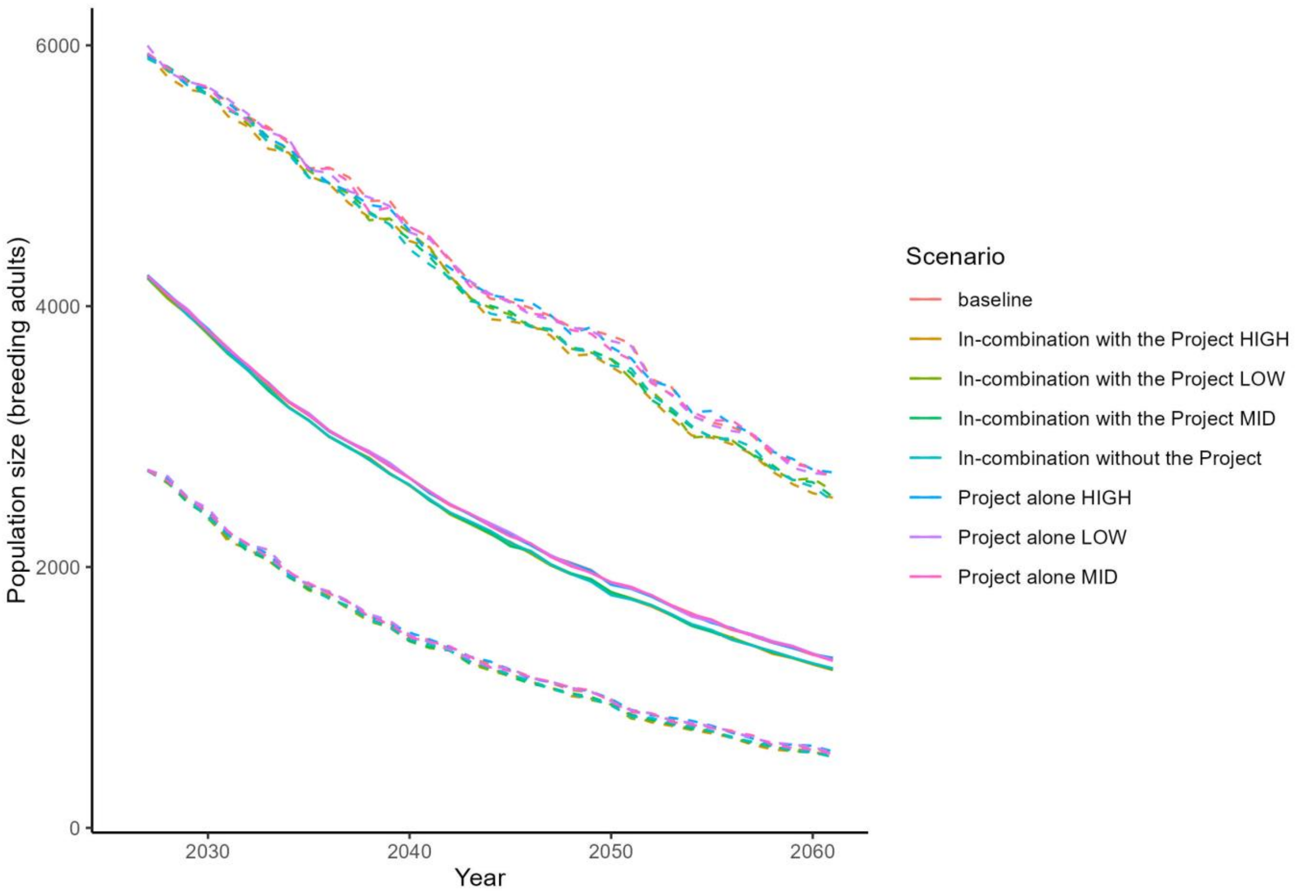

Figure E17-2 Projected population size of the breeding razorbill feature of the Troup, Pennan and Lion's Heads SPA for the baseline (unimpacted), Project alone, in-combination impacts without the Project and in-combination with the Project from 2027 to 2062. Solid line = mean, dashed line = S.D.

Table E17-2 Summary of PVA metrics for the razorbill population from Troup, Pennan and Lion's Heads SPA for the Project alone, in-combination without the Project and in-combination including the Project. Based on the assessment of in-combination impacts and population sizes for the BDMPS UK western waters & Channel during Spring migration (January to April) SD = standard deviation, LCI = lower confidence interval, UCI = upper confidence interval.

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone LOW	10	0.9999	0.9999	0.0024	0.9952	1.0051	0.9993	1.0005	0.0318	0.9397	1.0690	50.1	49.8
Project alone MID	10	0.9999	0.9998	0.0024	0.9950	1.0043	0.9978	0.9983	0.0314	0.9379	1.0608	50.0	50.0
Project alone HIGH	10	0.9998	0.9998	0.0024	0.9947	1.0046	0.9981	0.9985	0.0316	0.9391	1.0639	49.9	50.2
In-combination without the Project	10	0.9983	0.9983	0.0025	0.9932	1.0033	0.9815	0.9821	0.0315	0.9242	1.0484	47.1	52.2
In-combination with the Project LOW	10	0.9982	0.9982	0.0025	0.9934	1.0031	0.9797	0.9809	0.0320	0.9207	1.0472	47.1	52.7

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project MID	10	0.9982	0.9982	0.0025	0.9933	1.0029	0.9800	0.9813	0.0318	0.9195	1.0440	47.5	51.9
In-combination with the Project HIGH	10	0.9983	0.9982	0.0024	0.9935	1.0025	0.9820	0.9810	0.0306	0.9199	1.0401	47.2	51.8
Project alone LOW	20	1.0000	0.9999	0.0021	0.9959	1.0038	1.0000	1.0004	0.0374	0.9240	1.0798	50.5	49.4
Project alone MID	20	0.9999	0.9999	0.0021	0.9957	1.0042	0.9973	0.9990	0.0382	0.9311	1.0765	50.3	49.7
Project alone HIGH	20	0.9998	0.9998	0.0021	0.9957	1.0039	0.9969	0.9979	0.0379	0.9200	1.0742	50.5	49.1
In-combination without the Project	20	0.9983	0.9983	0.0021	0.9942	1.0024	0.9750	0.9748	0.0364	0.9047	1.0502	46.3	52.7

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination with the Project LOW	20	0.9982	0.9983	0.0021	0.9942	1.0024	0.9716	0.9729	0.0371	0.9027	1.0510	45.6	53.9
In-combination with the Project MID	20	0.9983	0.9983	0.0022	0.9939	1.0024	0.9740	0.9745	0.0371	0.9039	1.0467	46.1	53.0
In-combination with the Project HIGH	20	0.9982	0.9982	0.0021	0.9940	1.0022	0.9729	0.9730	0.0368	0.9007	1.0482	46.2	54.0
Project alone LOW	30	1.0000	1.0000	0.0019	0.9963	1.0037	1.0000	1.0008	0.0435	0.9207	1.0904	50.4	49.6
Project alone MID	30	1.0000	1.0000	0.0019	0.9962	1.0035	0.9982	0.9998	0.0435	0.9196	1.0882	49.5	50.1
Project alone HIGH	30	0.9999	0.9999	0.0019	0.9960	1.0038	0.9979	0.9990	0.0439	0.9149	1.0885	49.8	50.3

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
In-combination without the Project	30	0.9984	0.9983	0.0019	0.9943	1.0020	0.9669	0.9666	0.0422	0.8885	1.0495	46.4	53.3
In-combination with the Project LOW	30	0.9983	0.9983	0.0019	0.9948	1.0020	0.9632	0.9655	0.0421	0.8854	1.0538	45.9	53.1
In-combination with the Project MID	30	0.9983	0.9983	0.0020	0.9944	1.0020	0.9667	0.9671	0.0427	0.8851	1.0507	46.6	53.4
In-combination with the Project HIGH	30	0.9982	0.9982	0.0019	0.9945	1.0018	0.9647	0.9653	0.0421	0.8877	1.0455	46.3	54.0
Project alone LOW	35	0.9999	0.9999	0.0018	0.9965	1.0033	0.9985	0.9989	0.0495	0.9029	1.0971	50.2	49.9
Project alone MID	35	0.9999	0.9999	0.0018	0.9966	1.0034	0.9960	0.9982	0.0492	0.9060	1.0958	49.9	50.5

SCENARIO	YEARS SINCE IMPACT	COUNTERFACTUAL OF GROWTH RATE					COUNTERFACTUAL OF POPULATION SIZE					QUANTILE UNIMPACTED TO 50% IMPACTED	QUANTILE IMPACTED TO 50% IMPACTED
		MEDIAN	MEAN	SD	LCI	UCI	MEDIAN	MEAN	SD	LCI	UCI		
Project alone HIGH	35	1.0000	0.9999	0.0018	0.9965	1.0035	1.0000	0.9997	0.0502	0.9095	1.0985	49.7	50.1
In-combination without the Project	35	0.9983	0.9983	0.0018	0.9946	1.0017	0.9576	0.9585	0.0478	0.8653	1.0509	45.9	55.5
In-combination with the Project LOW	35	0.9983	0.9983	0.0018	0.9948	1.0019	0.9548	0.9568	0.0491	0.8689	1.0646	46.2	54.7
In-combination with the Project MID	35	0.9984	0.9984	0.0019	0.9947	1.0021	0.9599	0.9598	0.0484	0.8653	1.0547	46.2	54.6
In-combination with the Project HIGH	35	0.9982	0.9982	0.0018	0.9947	1.0018	0.9555	0.9570	0.0483	0.8657	1.0540	45.1	55.0

APPENDIX F – SeabORD Analysis

SeabORD Analysis Methods and Outputs

Proposed West of Orkney Offshore Windfarm

Xodus Group Ltd.

11 September 2023

OUR VISION

Working to create a world powered by renewable energy

natural power

Document history

Author	Dr Gillian Vallejo, Dr James Robbins	11 September
Checked	Dr Finlay Richardson	11 September
Approved	Dr Chris Pendlebury	11 September

Client Details	
Contact	David Bloxsom
Client Name	Xodus Group Ltd.
Address	Xodus House 50 Huntly Street Aberdeen AB10 1RS

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Local Office:

Ochil House
Springkerse Business Park
Stirling
FK7 7XE
SCOTLAND
UK
Tel: +44 (0) 1786 542 300

Registered Office:

The Natural Power Consultants Limited
The Green House
Forrest Estate, Dalry
Castle Douglas, Kirkcudbrightshire
DG7 3XS

Reg No: SC177881

VAT No: GB 243 6926 48

Contents

1. Introduction

The applicant, Offshore Wind Power Limited (OWPL) is proposing the development of the West of Orkney Windfarm ('the Project'), an Offshore Wind Farm (OWF), located approximately 23 kilometres (km) from the north coast of Scotland and 28 km from the west coast of Hoy, Orkney. The total area of the Option Agreement Area (OAA) is 657 km^2.

The location of the offshore Project area defines the 'Red Line Boundary' for the Section 36 Consent and Marine Licence applications and includes the OAA and the associated offshore Export Cable Corridor (ECC).

The development has the potential to have direct impacts upon seabirds in three main ways:

1. Mortality through collision with rotating turbine blades
2. Loss of foraging habitat as a result of displacement from the vicinity of the development; and,
3. Increased travel times to foraging locations due to avoiding (being barriered by) the development

There may also be indirect effects such as changes in levels of competition, which may decrease if collision impacts are high, or increase due to birds displaced from the windfarm increasing bird density at foraging locations elsewhere.

The SeabORD tool has been developed to predict direct and indirect impacts of displacement and barrier effects arising from offshore windfarms on seabirds (Searle *et al.*, 2018).

SeabORD is a spatially explicit individual-based model that simulates the energetic consequences of displacement and barrier effects, predicting impacts on foraging and reproductive success through the chick-rearing period (Searle et al., 2014; 2018). A baseline simulation is run in which simulated birds forage and provision themselves and their young based on a series of rules underlying the model, and baseline adult and chick survival rates are predicted. The former is extrapolated over the winter period based on adult weight at the end of the chick rearing period whilst the latter refers only to the chick-rearing period. The simulation is then re-run assuming that a certain user-defined proportion of the population is displaced from and/or barriered by one or more windfarm footprints. In this "impact" model, adult and chick survival varies from the baseline model as a result of:

1. The energetic consequences of barriered birds having to travel further to reach their chosen foraging locations; and
2. Displaced birds from the windfarm footprint travelling to different foraging locations which may be closer or further away from their colonies and where they may encounter different levels of competition.

SeabORD modelling has been conducted for the offshore Project in line with NatureScot guidance (NatureScot, 2023b), to provide context to displacement assessments carried out using the industry standard matrix approach (SNCBs, 2022). This report details the methods used and the resulting outputs.

2. Methods

Models were run using SeabORD version 1.3, available from https://www.webarchive.org.uk/wayback/archive/20181002061834/https://www.gov.scot/Topics/marine/marineenergy/mre/current/SeabORD. This is currently the most up-to-date publicly available version of the model, though it is noted that this will soon be superseded by the version implemented within Marine Scotland's Cumulative Effects Framework (CEF) tool (NatureScot, 2023a). The model was run on a Project-only basis, meaning that cumulative impacts including other developments in the area were not assessed. This was because:

- NatureScot did not request the cumulative effects of multiple projects to be included;

- The tool regularly crashed and was extremely slow to run in this region with only the Project included, so adding further projects would have resulted in excessive time needed to complete the runs; and
- The addition of the Pentland Floating Offshore Windfarm would have resulted in different results to those found by the seabORD model completed for that application due to different approaches taken (e.g. assumption of populations in the North Caithness Cliff's SPA being from only the Dunnet Head colony – see Section 2.1).

2.1. Species and colonies assessed

The species modelled and focal Special Protection Areas (SPAs) for which analysis should be run were selected in consultation with NatureScot, based on advice provided in their response to letter WO1-WOW-HSE-EV-LT-0020 (email response from Kim McEwan, dated 31 May 2023). The species for which NatureScot requested SeabORD modelling were guillemot and puffin.

For guillemot, seven SPAs were assessed for barrier and displacement effects using SeabORD. These were:

- North Caithness Cliffs
- Sule Skerry and Sule Stack
- Hoy
- Marwick Head
- Rousay
- Cape Wrath
- West Westray

For puffin, four SPAs were assessed for displacement effects using SeabORD. These were:

- North Caithness Cliffs
- Sule Skerry and Sule Stack
- Hoy
- Cape Wrath

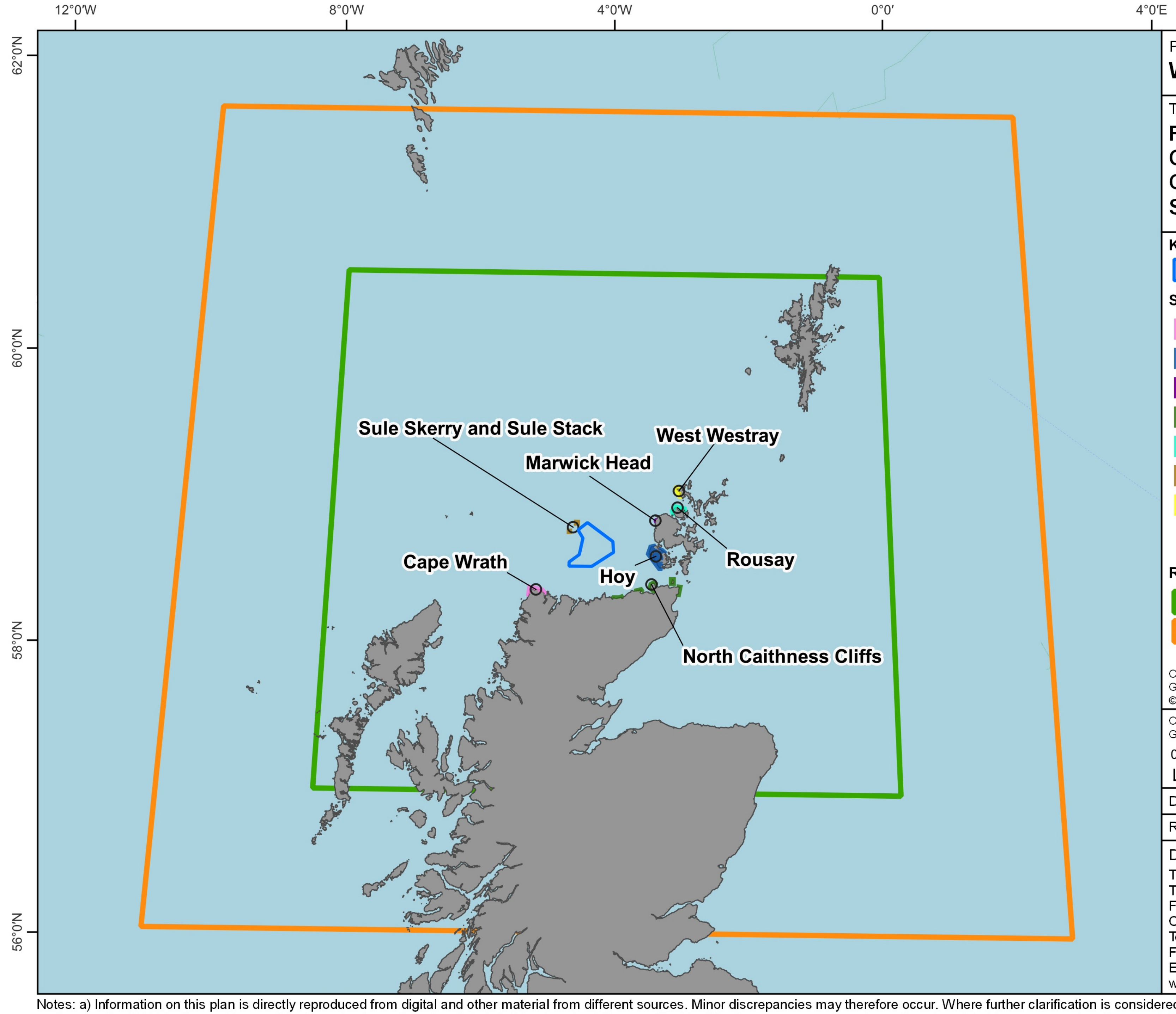
The SeabORD tool can incorporate data for up to six colonies to simulate competition effects at different foraging locations. Due to the need for calibration of the model for each individual colony (to ensure that the baseline model reflects expected chick survival and adult mass loss in a moderate year for each, see Section 2.7 for details), separate models must be run for each colony, with other colonies included only to ensure that the effect of competition with individuals from these colonies are incorporated in the simulations.

North Caithness Cliffs was originally identified as consisting of five separate colonies: Duncansby Head; Dunnet Head; Holburn Head; Melvich; and Stroma. However, given the limitation of SeabORD 1.3 to a maximum of six colonies per run, these were combined and all birds were assumed to forage from Dunnet Head, since this is the most central colony within the SPA. For the Sule Skerry and Sule Stack SPA, birds were assumed to forage from the mid-point of the two islands. The need for such an approach was acknowledged by NatureScot in their response to letter WO1-WOW-HSE-EV-LT-0020, and the approach taken was determined following the advice provided within the response that it would be appropriate in this case to model populations from different colonies constituting the same SPA from a subset of locations. The final locations used for each colony are presented in Figure 2.1 and Table 2.1.

The limitation to six colonies per run also meant that competition effects from all seven SPAs assessed for guillemot could not be simulated within a single model. SPAs were therefore ranked according to the impacts predicted by the matrix-based displacement assessment carried out for the Project (see Offshore RIAA, Appendix C) and the lowest ranked colony (West Westray SPA) was not included for competition effects for other colonies. The second lowest ranked SPA was Cape Wrath, and this was excluded for competition effects from the West Westray SPA model run. The final colonies included for competition effects in each model are presented in Table 2.1. The population size (in pairs) from each SPA colony was based on the most recent full SPA count available from the SMP database.

2.2. Fraction of the population modelled

SeabORD allows for a user-specified fraction of the population to be modelled to allow quicker 'test' runs to be carried out and also because the model is incredibly computationally intensive and can take an extremely long time to run for an entire population. SeabORD outputs are relatively insensitive to the fraction of the population that is modelled (Mobbs *et al.*, 2018), though it is recommended that final SeabORD runs should be carried out for as high a proportion of the population as is feasible to allow the quantification of uncertainty to be as precise as possible (Mobbs *et al.*, 2018). In this case, due to the large number of individuals being modelled and large amount of sea area within the foraging ranges of the species being studied, prohibitively long run times and several occasions during which the tool crashed meant that it was only possible to carry out the analysis for 20% of the guillemot population and 10% of the puffin population (Table 2.1). Run-times for the different stages of the modelling carried out are provided in Appendix A and exceeded 18 hours for the final runs alone, excluding tens of calibration runs as well as re-starts due to crashes. It was also noted that run time did not increase linearly with proportion of the population simulated, rather that run times got disproportionately slower with increasing percentage of the population modelled rendering it unfeasible to further increase this proportion.



Project:

West of Orkney

Title:

Figure 2.1: West of Orkney Option Agreement Area and Colonies and Regions used for SeabORD Analysis

Key

Option Agreement Area

Special Protection Area (SPA)

Cape Wrath

Hoy

Marwick Head

North Caithness Cliffs

Rousay

Sule Skerry and Sule Stack

West Westray

Locations used for SPAs included in the analysis

Region used for analysis

Guillemot

Puffin

Coordinate System: WGS 84 / UTM Zone 30N
Graticules: WGS 84

0 50 100 150 200 km

N

Date: 31-08-23	Prepared by: RB	Checked by: FR
Ref: GB211260_M_001_B		

Drawing by:
The Natural Power Consultants Limited
The Green House
Forrest Estate, Dalry
Castle Douglas, DG7 3XS, UK
Tel: +44 (0)1644 430008
Fax: +44 (0)845 299 1236
Email: sayhello@naturalpower.com
www.naturalpower.com

natural power

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Table 2.1: SPA colonies modelled using SeabORD modelling

Species	SPA	Colony	Number of pairs	Proportion of the population modelled	Latitude	Longitude	Colonies included for competition
Guillemot	North Caithness Cliffs	Duncansby Head, Dunnet Head, Holburn Head, Melvich, Stroma	25284	20%	58.66399155	-3.399308833	Sule Skerry and Sule Stack, Hoy, Marwick Head, Rousay, Cape Wrath
	Sule Skerry and Sule Stack	Sule Skerry and Sule Stack	6544	20%	59.05296628	-4.457915190	North Caithness Cliffs, Hoy, Marwick Head, Rousay, Cape Wrath
	Hoy	Hoy	7929	20%	58.85870173	-3.343172794	North Caithness Cliffs, Sule Skerry and Sule Stack, Marwick Head, Rousay, Cape Wrath
	Marwick Head	Marwick Head	7790	20%	59.10605961	-3.352462886	North Caithness Cliffs, Sule Skerry and Sule Stack, Hoy, Rousay, Cape Wrath
	Rousay	Rousay	3842	20%	59.19636641	-3.054905794	North Caithness Cliffs, Sule Skerry and Sule Stack, Hoy, Marwick Head, Cape Wrath
	Cape Wrath	Cape Wrath	24771	20%	58.61596854	-4.932545096	North Caithness Cliffs, Sule Skerry and Sule Stack, Hoy, Marwick Head, Rousay
	West Westray	West Westray	18653	20%	59.31174484	-3.035852305	North Caithness Cliffs, Sule Skerry and Sule Stack, Hoy, Marwick Head, Rousay

Species	SPA	Colony	Number of pairs	Proportion of the population modelled	Latitude	Longitude	Colonies included for competition
Puffin	North Caithness Cliffs	Duncansby Head, Dunnet Head, Holburn Head, Melvich, Stroma	1527	10%	58.66399155	-3.399308833	Sule Skerry and Sule Stack, Hoy, Cape Wrath
	Sule Skerry and Sule Stack	Sule Skerry and Sule Stack	47742	10%	59.05296628	-4.457915190	North Caithness Cliffs, Hoy, Cape Wrath
	Hoy	Hoy	1500	10%	58.85870173	-3.343172794	North Caithness Cliffs, Sule Skerry and Sule Stack, Cape Wrath
	Cape Wrath	Cape Wrath	1122	10%	58.61596854	-4.932545096	North Caithness Cliffs, Sule Skerry and Sule Stack, Hoy

2.3. Model region

The model region inputs are coordinates which define the spatial extent over which the model is to be run. For both species, colonies to be included were buffered by the species-specific foraging range (mean maximum plus one standard deviation as defined in Woodward *et al*, 2019) plus 5%. The additional 5% was included to avoid restricting the locations where modelled birds could forage, given that the function used to determine distribution of foraging locations assumes that a proportion of birds forage beyond the maximum foraging range (see Section 2.4). Model regions for each species were then determined as the minimum rectangular area that contained all of the buffers (Figure 2.1). Coordinates used are presented in Table 2.2.

Table 2.2: Region definitions used for SeabORD modelling

Species	Buffer size (km)*	North limit (degrees)	South limit (degrees)	East limit (degrees)	West limit (degrees)
Guillemot	161.4	60.760855165	57.167166687	-0.203095170	-7.703329455
Puffin	278.7	61.813783830	56.114015111	1.848829508	-9.705724096

*Source: *Mean maximum foraging range plus 1 standard deviation from Woodward et al. 2019, plus 5%.*

2.4. Determination of foraging locations

SeabORD can simulate the distribution of seabird foraging locations either using colony-specific foraging probability density maps, or under the assumption that the probability of a bird foraging in a given location declines with distance from the colony according to a distance decay function (Searle *et al.*, 2018). Since data were not available to generate a robust input map of foraging distributions of birds from the input colonies, distance decay functions were used. The function used by SeabORD 1.3 to generate the distance decay curve is parameterised with a user-defined species-specific foraging range and a proportion of animals expected to forage within that range. Foraging ranges used for the modelling represented the mean maximum foraging range plus one standard deviation from Woodward *et al.*, 2019. Assuming a normal distribution, the inclusion of the standard deviation should mean that ~84% of mean maximum foraging ranges fall within this range. However, since this is a maximum, the majority of foraging trips would be likely to be shorter than this. Therefore, the default value of 95% was used as the input for the percentage of birds within the foraging range. Values used are presented in Table 2.3.

The resulting distance decay functions and normalised bird density maps for each species and colony combination are presented in Appendix B.

Table 2.3: Method used to describe foraging distributions within the SeabORD modelling

Species	Method	Foraging range (km)*	Percentage in foraging range
Guillemot	Distance decay	153.7	95%
Puffin	Distance decay	265.4	95%

*Source: *Woodward et al. 2019*

2.5. Prey distribution

Prey distribution can also be modelled based on input prey distribution maps, or assuming a uniform distribution of prey across the modelled extent. Since suitable prey distribution data were not available for the area, a uniform prey density was assumed.

2.6. Behavioural assumptions and barrier navigation method

It was assumed that 60% of birds would be displaced and 100% of those would also be barriered in line with current guidance (NatureScot, 2023b). It was assumed that displacement occurred within the OAA plus a 2 km buffer and that displaced birds (i.e. those selecting foraging locations within the windfarm footprint plus 2 km buffer and being susceptible to displacement) would select new foraging locations within a 5 km buffer around the displacement zone (Table 2.4). It should be noted that this will likely overestimate displacement as the array area will be smaller than the OAA.

The SeabORD tool allows the incorporation of two navigation methods to describe the movement of barriered birds avoiding the windfarm footprint. These are the perimeter method and the A* pathfinding method. If the perimeter method is used, a barrier-susceptible simulated bird selecting a foraging location beyond the displacement zone (the site plus a buffer determined by the 'border' input parameter) will travel up to the edge of the displacement zone and then travel around the displacement zone perimeter until it reaches the point where their original trajectory would have passed out of the other side of the displacement zone, at which point it continues along its previous flight path. The A* pathfinding method instead uses an algorithm to identify the most efficient path to the foraging location whilst avoiding the displacement zone. Since the A* pathfinding method substantially increases computational time and assumes that birds are immediately able to find the most efficient path around the windfarm footprint, a precautionary approach was taken in which the perimeter method was used.

Table 2.4: Input parameters controlling behaviour used for the SeabORD modelling

Species	Proportion displaced	Proportion of displaced also barriered	Windfarm border (displacement buffer)	Windfarm buffer (area into which birds are displaced)	Barrier navigation method
Guillemot	60%	100%	2 km	5 km	Perimeter
Puffin	60%	100%	2 km	5 km	Perimeter

Source: Natural Power

2.7. Prey Calibration

Prior to running a full SeabORD analysis, calibration must be carried out to determine appropriate values for the upper and lower prey level input parameters determining the amount of prey resource available to the birds for each combination of species and focal SPA. Trial runs were conducted for each species and SPA combination in which 10% of the population was simulated. A single run was carried out per prey value for a range of single prey input values until the maximum and minimum values that give rise to "moderate" conditions in the baseline were identified. Moderate conditions are defined as the prey values within which the baseline model returns an adult body mass loss within lower and upper thresholds and a chick survival rate above a specified lower threshold expected in a moderate year, as specified in Mobbs *et al.*, 2018 (Table 2.5). Final prey values used are presented in Table 2.6.

Table 2.5: Definition of a "moderate" year, used to calibrate prey levels for SeabORD modelling

Species	Adult mass loss expected during a moderate chick rearing season		Target chick survival for a moderate year
	Lower	Upper	
Guillemot	3.5%	10.5%	> 49%
Puffin	3.5%	10.5%	> 50%

Source: Mobbs et al., 2018

Table 2.6: Final lower and upper prey values used within the SeabORD modelling

Species	Colony	Range of adult mass loss (%)	Range of chick survival (%)	Lower prey value	Upper prey value
Guillemot	North Caithness Cliffs	9.19 – 3.52	49.6 – 93.8	476	595
	Sule Skerry and Sule Stack	8.94 – 3.53	49.2 – 93.9	432	549
	Hoy	9.19 – 3.52	49.6 – 93.6	479	591
	Marwick Head	9.25 – 3.52	49.2 – 93.8	467	580
	Rousay	9.31 – 3.51	50.0 – 93.8	471	581
	Cape Wrath	9.17 – 3.52	49.5 – 93.8	463	580
	West Westray	9.14 – 3.51	49.7 – 94.1	475	583
Puffin	North Caithness Cliffs	10.43 – 3.51	71.9 – 90.2	319	403
	Sule Skerry and Sule Stack	10.41 – 3.52	75.1 – 94.0	301	376
	Hoy	10.41 – 3.53	74.7 – 92.0	319	400
	Cape Wrath	10.47 – 3.53	77.7 – 96.4	319	405

Source: Natural Power

2.8. Run parameters

For the final runs, ten matched-pair simulations were carried out. This represents ten runs utilising different prey values from within the range specified as determined through calibration, selected by SeabORD using stratified random sampling in order to capture the uncertainty associated with prey levels (Searle *et al.*, 2018). Each simulation was run for a baseline and an impact scenario providing matched pairs of outputs from which output metrics were calculated. The starting seed was set to 52 for guillemot runs and 1 for puffin runs.

2.9. Output metrics

A range of output metrics are provided by SeabORD and these also allow calculation of additional metrics. Since models were not run for 100% of the population, predicted absolute numbers of mortalities relate only to the proportion of the population modelled. These numbers can be scaled by multiplying the inverse of the proportion modelled to generate a predicted number of mortalities for the full population. Metrics presented in this report for each species and colony include:

- Scaled mortality rates indicating the mean number of mortalities predicted by SeabORD for each colony, assuming that mortality scales directly with proportion of the colony simulated;
- Survival rates for baseline and impact scenarios, calculated from mean mortality rates (adults only);
- Percentage point reduction in survival rate from the baseline to the impact scenario (which is the same value as the percent additional mortality metric provided by the SeabORD tool) (adults); and
- Percent additional mortality (chicks).

These output metrics relate to adults across the whole year and chicks during the chick-rearing season (since SeabORD does not provide an estimate of chick over-winter survival). Additional metrics that may be useful for comparing with other SeabORD analyses or to understand the mechanisms underlying the impacts that are being predicted are presented in Appendix C.

3. Results

3.1. Guillemot

Results of the SeabORD analysis carried out for guillemot are presented in Table 3.1 and Table 3.2, with supplementary outputs provided in Appendix C.

For guillemot, model outputs suggested that the biggest impact of displacement and barrier effects from the West Orkney Windfarm would be to the Sule Skerry and Sule Stack SPA (0.302% increase in adult annual mortality rate from the baseline scenario in a moderate year), with North Caithness Cliffs, Hoy, Cape Wrath and Marwick Head SPAs also having an increase in adult annual mortality rate in a moderate year of greater than 0.1% (0.184%, 0.170%, 0.128% and 0.106% respectively) (Table 3.1). Rousay and West Westray SPAs had predicted reductions of less than 0.1% in a moderate year (0.072% and 0.034% respectively) (Table 3.1). This pattern is consistent with the distance of each colony away from the windfarm, with Sule Skerry and Sule Stack SPA being closest to the proposed windfarm footprint, and Rousay and West Westray SPAs being furthest away (Figure 2.1). Despite SeabORD only quantifying a very small portion of the total uncertainty inherent within the model (see Section 4), it is notable that the 95% confidence intervals around the reduction in survival rates (or additional mortality rates) include 0, with the exception of Sule Skerry and Sule Stack SPA (Table 3.1).

Similarly for chicks, by far the greatest impact was predicted for Sule Skerry and Sule Stack SPA (Table 3.2) at which a 2.3% increase in mortality during the chick rearing season was predicted. The predicted increase in mortality for the remaining colonies were all below 1% and followed the same pattern as for adults with the exception that higher impacts were predicted for Rousay than Marwick Head SPAs (Table 3.2). This is interesting since the Marwick Head SPA is closer to the proposed development than the Rousay SPA (Figure 2.1).

Table 3.1: Mean predicted guillemot adult annual mortalities (scaled to represent the whole population) and survival rates with and without displacement and barrier effects from the offshore Project

Colony	Population size (birds)	Year type	Scaled Baseline mortality (birds)	Scaled Impact mortality (birds)	Scaled additional mortalities (birds)	Baseline survival rate (%)	Impact survival rate (%)	Percentage point reduction in survival rate (95% confidence intervals)
Sule Skerry and Sule Stack	13088	Poor	2504	2580	77	80.87	80.29	0.584 (0.153 – 1.106)
		Moderate	**1190**	**1230**	**40**	**90.91**	**90.61**	**0.302 (0.011 – 0.593)**
		Good	1066	1084	18	91.87	91.72	0.134 (-0.187 – 0.454)
North Caithness Cliffs	50568	Poor	12221	12358	137	75.83	75.56	0.271 (0.038 – 0.504)
		Moderate	**5952**	**6045**	**93**	**88.23**	**88.05**	**0.184 (-0.054 – 0.421)**
		Good	4862	4945	84	90.39	90.22	0.165 (0.078 – 0.252)
Hoy	15858	Poor	3711	3755	45	76.60	76.32	0.281 (-0.047 – 0.608)
		Moderate	**1758**	**1785**	**27**	**88.92**	**88.75**	**0.170 (-0.036 – 0.376)**
		Good	1511	1531	20	90.47	90.35	0.123 (-0.072 – 0.318)
Marwick Head	15580	Poor	3502	3520	18	77.54	77.41	0.116 (-0.046 – 0.277)
		Moderate	**1770**	**1786**	**17**	**88.64**	**88.54**	**0.106 (-0.046 – 0.277)**
		Good	1337	1349	13	91.42	91.34	0.080 (-0.114 – 0.274)
Rousay	7684	Poor	1692	1709	17	78.00	77.70	0.221 (-0.229 – 0.671)
		Moderate	**947**	**952**	**6**	**87.70**	**87.60**	**0.072 (-0.175 – 0.318)**
		Good	672	676	4	91.30	91.20	0.046 (-0.148 – 0.239)
Cape Wrath	49542	Poor	11062	11121	59	77.67	77.55	0.119 (-0.026 – 0.264)
		Moderate	**5356**	**5420**	**64**	**89.19**	**89.06**	**0.128 (-0.049 – 0.305)**
		Good	4218	4276	58	91.49	91.37	0.117 (-0.055 – 0.289)

Colony	Population size (birds)	Year type	Scaled Baseline mortality (birds)	Scaled Impact mortality (birds)	Scaled additional mortalities (birds)	Baseline survival rate (%)	Impact survival rate (%)	Percentage point reduction in survival rate (95% confidence intervals)
West Westray	37306	Poor	8283	8331	48	78.32	78.20	0.129 (-0.024 – 0.281)
		Moderate	**4017**	**4029**	**13**	**89.49**	**89.46**	**0.034 (-0.063 – 0.130)**
		Good	3234	3241	7	91.54	91.52	0.019 (-0.093 – 0.130)

Table 3.2: Mean predicted guillemot chick mortalities (scaled to represent the whole population) and survival rates during the chick-rearing season with and without displacement and barrier effects from the offshore Project

Colony	Number of chicks*	Scaled baseline mortality (chicks)	Scaled impact mortality (chicks)	Scaled additional mortalities (chicks)	Percent additional mortality (95% confidence intervals)
Sule Skerry and Sule Stack	6544	1276	1425	149	2.277 (-1.258 – 5.811)
North Caithness Cliffs	25284	4782	5003	221	0.872 (-0.298 – 2.042)
Hoy	7929	1591	1654	63	0.794 (0.021 – 1.568)
Marwick Head	7790	1524	1555	31	0.398 (-0.535 – 1.331)
Rousay	3842	790	807	17	0.430 (-0.382 – 1.241)
Cape Wrath	24771	4517	4682	165	0.666 (-0.082 – 1.414)
West Westray	18653	3495	3561	66	0.354 (-0.045 – 0.752)

*Source: Natural Power, *SeabORD assumes one chick per pair of adults simulated*

3.2. Puffin

Results of the SeabORD analyses carried out for puffin are presented in Table 3.3 and Table 3.4, with supplementary outputs provided in Appendix C.

For puffin, model outputs suggested that the biggest impact of displacement and barrier effects from the West Orkney Windfarm would be to the Sule Skerry and Sule Stack SPA for which a 0.495% percentage point reduction in the survival rate was predicted for the impact scenario versus the baseline in a moderate year (Table 3.3). This makes sense since Sule Skerry and Sule Stack SPA is the closest population to the proposed windfarm site (Figure 2.1). Hoy SPA had the second largest predicted impact, with a percentage point reduction in survival of 0.4% and North Caithness Cliffs SPA the third, with a percentage point reduction in survival of 0.26% (Table 3.3). For Cape Wrath SPA, the model predicted an increase in survival rate in the impact scenario under moderate conditions of 0.18% (Table 3.3). The prediction of positive impacts of displacement and barrier effects on adult survival within SeabORD can occur as a result of several different factors within the model including 1) individuals displaced from the windfarm selecting alternative foraging locations closer to the colony, thereby reducing the distance they are required to travel and thus energetic costs associated with foraging, 2) displaced individuals selecting alternative foraging locations with lower competition, and 3) adult birds abandoning their breeding attempt therefore being able to better provision themselves over the chick-rearing season (Searle *et al.*, 2018). As for guillemot, the 95% confidence intervals around the reduction in survival rates (or additional mortality rates) for a moderate year include 0, with the exception of Sule Skerry and Sule Stack SPA (Table 3.3).

Similarly for chicks, predicted impacts were greatest at Sule Skerry and Sule Stack SPA, followed by Hoy, North Caithness Cliffs and finally Cape Wrath SPAs, with percentage point reduction in survival rate of 0.74%, 0.27%, 0.20% and 0.18% respectively (Table 3.4). All of the 95% confidence intervals around the reduction in survival rates (or additional mortality rates) for include 0 (Table 3.4).

Table 3.3: Mean predicted puffin adult annual mortalities (scaled to represent the while population) and survival rates with and without displacement and barrier effects from the offshore Project

Colony	Population size (birds)	Year type	Scaled baseline mortality (birds)	Scaled impact mortality (birds)	Scaled additional mortalities (birds)	Baseline survival rate (%) (mean)	Impact survival rate (%) (mean)	Percentage point reduction in survival rate (95% confidence intervals)
Sule Skerry and Sule Stack	95484	Poor	17,892	18,265	373	81.26	80.87	0.391 (-0.084 – 0.865)
		Moderate	**12,511**	**12,984**	**473**	**86.90**	**86.40**	**0.495 (0.277 – 0.713)**
		Good	7,319	7,630	311	92.33	92.01	0.326 (0.130 – 0.522)
North Caithness Cliffs	3054	Poor	661	671	10	78.40	78.07	0.327 (-0.707 – 1.361)
		Moderate	**412**	**420**	**8**	**86.54**	**86.27**	**0.261 (-0.350 – 0.873)**
		Good	326	331	5	89.35	89.18	0.163 (-0.948 – 1.275)
Hoy	3000	Poor	651	662	11	78.30	77.93	0.367 (-0.580 – 1.313)
		Moderate	**530**	**542**	**12**	**82.33**	**81.93**	**0.400 (-0.881 – 1.681)**
		Good	340	341	1	88.67	88.63	0.033 (-0.550 – 0.617)
Cape Wrath	2244	Poor	498	509	11	77.77	77.28	0.491 (-0.675 – 1.657)
		Moderate	**360**	**356**	**-4**	**83.93**	**84.11**	**-0.179 (-1.202 – 0.845)**
		Good	148	155	7	93.39	93.08	0.313 (-0.402 – 1.027)

Table 3.4: Mean predicted puffin chick mortalities (scaled to represent the whole population) and survival rates during the chick-rearing season with and without displacement and barrier effects from the offshore Project

Colony	Number of chicks*	Scaled baseline mortality (chicks)	Scaled impact mortality (chicks)	Scaled additional mortalities (chicks)	Percent additional mortality (95% confidence intervals)
Sule Skerry and Sule Stack	47742	5024	5378	354	0.742 (-0.768 – 2.251)
North Caithness Cliffs	1527	208	211	3	0.196 (-0.553 – 0.945)
Hoy	1500	170	174	4	0.267 (-0.550 – 1.083)
Cape Wrath	1122	78	80	2	0.179 (-1.161 – 1.518)

*Source: Natural Power, *SeabORD assumes one chick per pair of adults simulated*

4. Discussion and caveats

As requested by NatureScot, SeabORD models were run to provide additional context to displacement assessment carried out for guillemot and puffin for the proposed offshore Project.

As noted previously, the boundary used in the modelling to determine the area from which displacement and barrier effects would occur represented the OAA rather than the array area itself, since the final wind farm layout is yet to be agreed. The use of this larger area would be expected to give rise to higher predicted displacement and barrier impacts than the use of the final array area. This is because the larger area of the polygon will mean that a greater number of birds simulated during the modelling will be directly impacted by the wind farm, either as a result of selecting a foraging location within the polygon or for which the flight paths to their chosen foraging location will pass through the polygon.

The seabORD modelling framework is more nuanced than the displacement matrix as it seeks to replicate the underlying biological processes determining displacement and barrier effects on sea birds and provides outputs regarding a number of different potential impacts of an offshore windfarm development relating to the survival and reproductive rates of key seabird populations. However, there are a number of caveats which mean that results presented here should not be interpreted as accurate estimates of mortality rates associated with displacement and barrier effects, but rather as supplementary information to indicate how different colonies may be affected relative to one another. These caveats are listed below:

- The model was originally developed to look in detail at scenarios in the Forth and Tay region and was parameterised and calibrated accordingly, therefore using it outside of this region without reviewing and updating the data underlying the model may result in poor model performance. Whilst a handful of the inputs can be customised by the user, the model incorporates upwards of 80 underlying assumptions and parameters (Vallejo *et al.*, 2022), most of which cannot be altered by the user.
- Many of the input parameters and underlying model assumptions are associated with a high degree of uncertainty (Vallejo *et al.*, 2022), the majority of which is not captured within the model outputs (Searle *et al.*, 2018; 2022). For this reason, absolute mortality estimates are likely to be inaccurate and uncertainty measures provided should not be considered to capture the true uncertainty inherent within the model, which will be substantially higher.
- The model was originally devised to use tracking data to represent seabird foraging locations as accurately as possible across the modelled region. Since no appropriate data are available for the north of Scotland, it was necessary to use the distance decay function option within the SeabORD framework. The distance-decay relationship cannot account for the effect of prey abundance which will generally cause hotspots of bird density beyond those where they would be expected to be when only considering distance to the colony (Searle et al. 2018). Instead, the majority of birds will be simulated to forage close to the colony (see distance decay curves and maps in Appendix B) potentially resulting in very different conclusions being drawn (Vallejo *et al.*, 2022).
- The model was developed to be used with a prey map describing the distribution of prey within the study region which is used by the model to simulate food availability. Since suitable prey distribution data were also unavailable, a uniform prey distribution was assumed. This assumption does not reflect the patchy prey distributions known to be encountered by seabirds at sea and has previously been found to give rise to very different outputs than a model using prey distribution data (Vallejo *et al.*, 2022).
- The model was run using the most recent publicly available version of SeabORD, released in 2018, but a new release will shortly be available through the Cumulative Effects Framework (CEF) which may yield different outputs if applied with the same inputs. Therefore, these results should not be directly compared to future outputs generated using the CEF.

- The length of time taken to run SeabORD meant that it was not possible within a reasonable timeframe available to simulate 100% of the individuals in the populations being studied. Whilst model developers state that the model is largely insensitive to the fraction of the population simulated (Mobbs *et al.*, 2018), the assumption that impacts scale with proportion simulated has not been well tested. Additionally, measures of uncertainty may be less accurate than if the entire population had been simulated.
- Due to limitations of the publicly available tool, the five discrete and spatially differentiated colonies making up the North Caithness Cliffs SPA had to be modelled as a single colony foraging from the location of the middle colony. However, in reality, birds located within the different colonies would be expected to experience different levels of impacts from the proposed windfarm based on their spatial locations.
- Similarly, all colonies of interest could not be run in the same model for guillemot. This means that competition effects for all seven models excluded competition with individuals from one of the colonies, and also that the West Westray SPA model outputs may be less comparable with other guillemot runs than the other colony runs are to each other.
- The region definition (the spatial extent over which the model runs) is user-definable and needs to be updated to allow the model to be run outside of the Forth and Tay. However, no guidance is available regarding how to set the region nor how sensitive the model is to this input. It seems intuitive that since few birds are expected to forage beyond the mean maximum foraging range plus one standard deviation, region definitions beyond this should not significantly change simulated bird distributions and thus model outputs. However, this has not previously been shown and given the large amount of time taken to run models, has not been investigated as part of this work.
- More generally, there is currently very little guidance on running SeabORD in a standardised way and what input parameters should be used. Therefore, the implementation of the model is likely to differ by user, limiting comparability among assessments.
- There have been some concerns raised regarding SeabORD predictions which have not yet been adequately resolved. For example, previous work for the consented Inch Cape offshore windfarm found that SeabORD often predicts much higher rates of mortality (by an order of magnitude) than is expected from expert judgement informing the matrix-based approach (ICOL, 2018; Searle *et al*. 2020), and different versions of the model (2014 and 2018) were found to generate very different predictions, despite being based, with a few exceptions, on a very similar set of parameters and assumptions, and the same principles (ICOL, 2018). Inch Cape also identified unintuitive patterns in their SeabORD outputs, for example, very different effects of displacement mortality upon colonies at similar distances to a development and stronger cumulative effects on populations that are on average farther away from the developments being considered than closer populations (ICOL, 2018). Additionally, the authors of SeabORD have highlighted several possible modifications to the model that could be made to increase the representativeness and true quantification of uncertainty within the modelling process (Daunt *et al.*, 2018; Searle *et al.*, 2022), which would likely yield different outputs than the existing model.

SeabORD provides a mechanistic solution to understanding the potential impacts of displacement and barrier effects occurring during the chick-rearing season and has been run for West Orkney to provide further insight into these potential effects. However, given the number of caveats and uncertainty around this approach, as well as the conservatism in the way in which the model has been run, these results have been provided for context only with the industry standard displacement tool being used for the main assessment.

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A. SeabORD run-times

Run times for SeabORD modelling carried out for offshore Project are presented in Table A.1. Total run time for the work was roughly 475 hours.

Table A.1: Flight paths are calculated during the initial run and are then re-used for subsequent runs.

Species	Run type	Number of runs	Percent population simulated	Duration (hh:mm)
Guillemot	Flight paths (all except West Westray)	1	10	7:07
	Flight paths (West Westray)	1	10	20:37
	Calibration runs (median)	21*	10	0:25
	Full run (Sule Skerry and Sule Stack)	10	20	30:45
	Full run (North Caithness Cliffs)	10	20	30:19
	Full run (Hoy)	10	20	20:58
	Full run (Marwick Head)	10	20	18:38
	Full run (Rousay)	10	20	29:51
	Full run (Cape Wrath)	10	20	29:39
	Full run (West Westray)	10	20	25:49
Puffin	Flight paths	1	10	176:20
	Calibration runs (median)	24*	10	1:24
	Full run (Sule Skerry and Sule Stack)	10	10	14:14
	Full run (North Caithness Cliffs)	10	10	11:06
	Full run (Hoy)	10	10	9:16
	Full run (Cape Wrath)	10	10	11:33

*Source: Natural Power, *individual runs with different fixed prey values.*

B. Distance decay plots and normalised bird densities

The distance decay curves constructed by SeabORD for guillemot and puffin respectively are presented in Figure B.1 and B.2. The normalised bird density surfaces calculated within SeabORD using these as output by SeabORD are presented in Figure B.3 – B.13.

Source: Natural Power

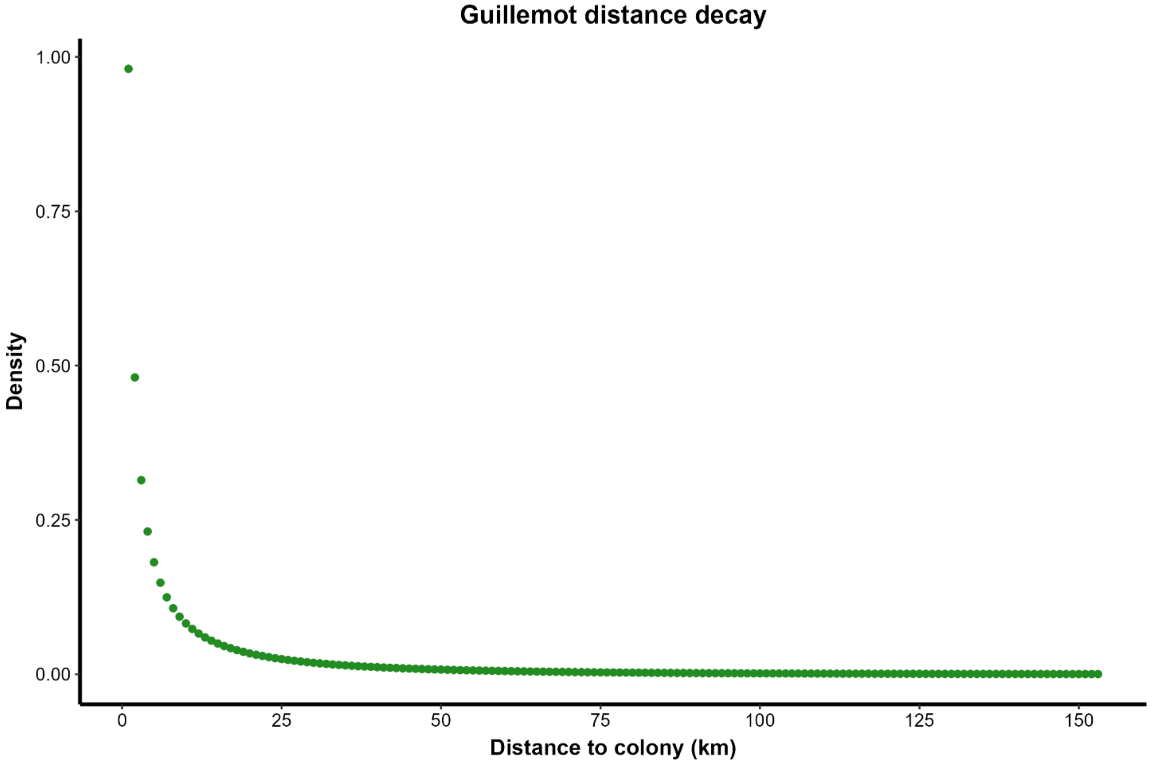

Figure B.1: Distance decay function used within SeabORD for guillemot runs.

Source: Natural Power

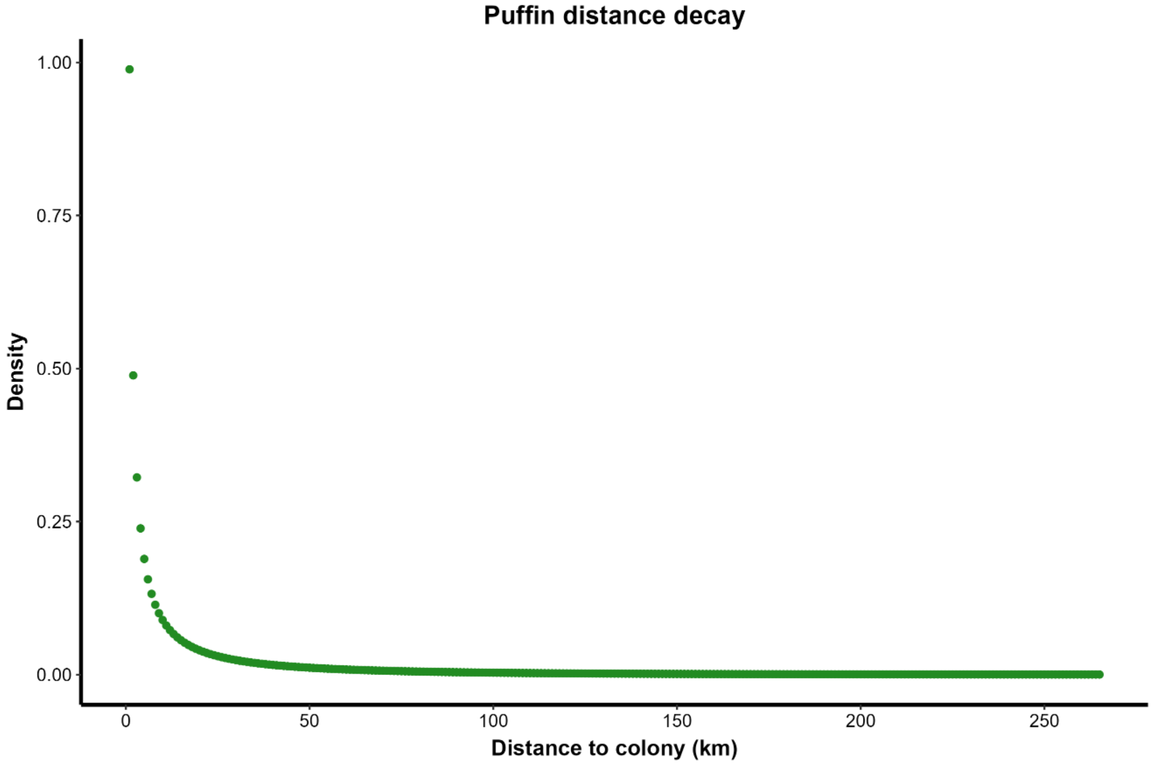

Figure B.2: Distance decay function used within SeabORD for puffin runs

Source: SeabORD output

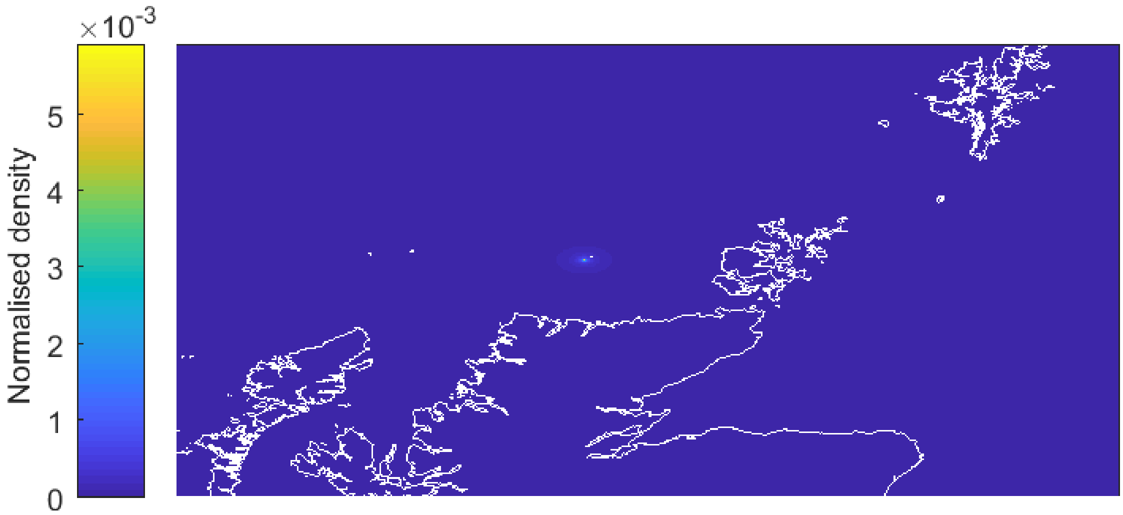

Figure B.3: Normalised Guillemot density at Sule Skerry and Sule Stack.

Source: SeabORD output

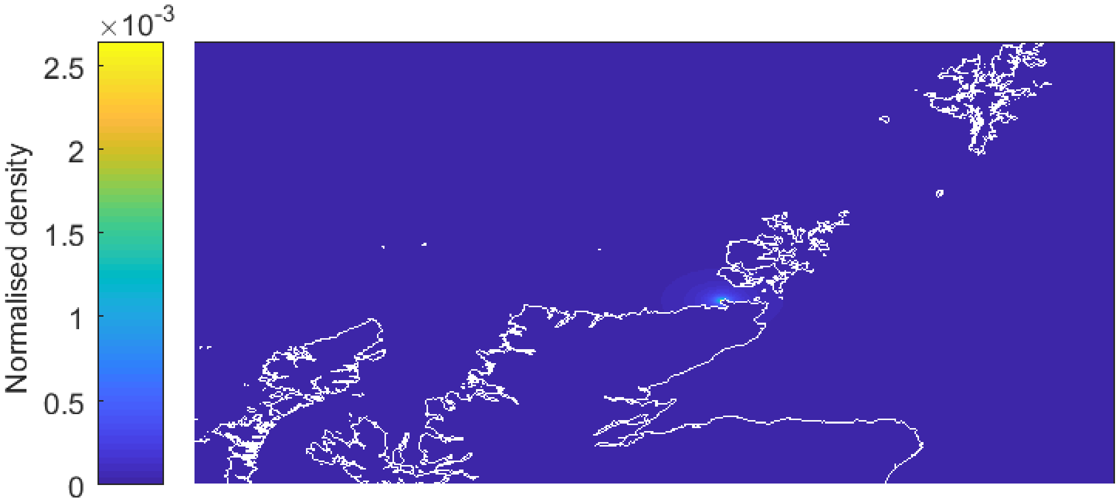

Figure B.4: Normalised Guillemot density at North Caithness Cliffs.

Source: SeabORD output

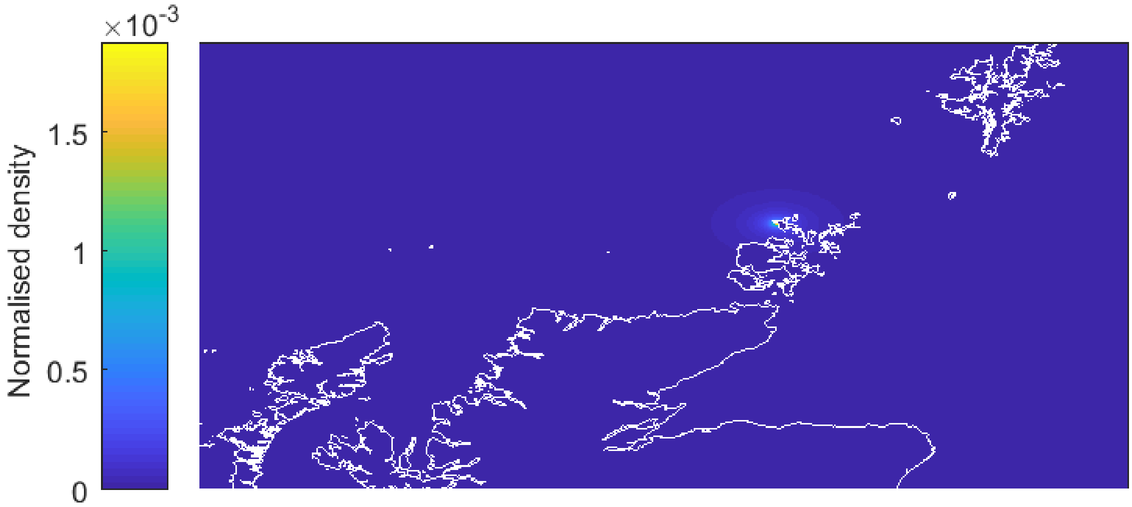

Figure B.5: Normalised Guillemot density at West Westray.

Source: SeabORD output

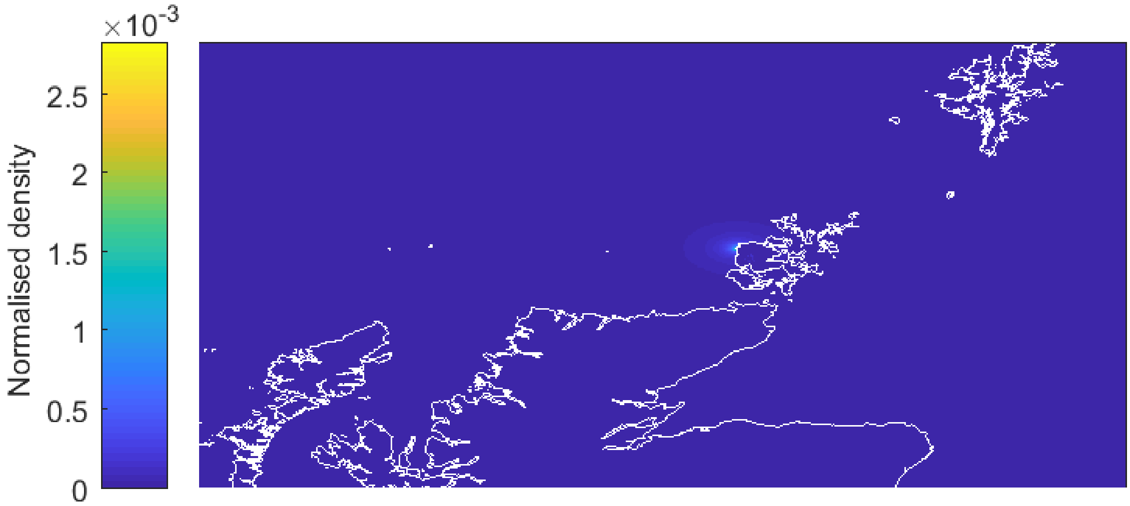

Figure B.6: Normalised Guillemot density at Marwick Head.

Source: SeabORD output

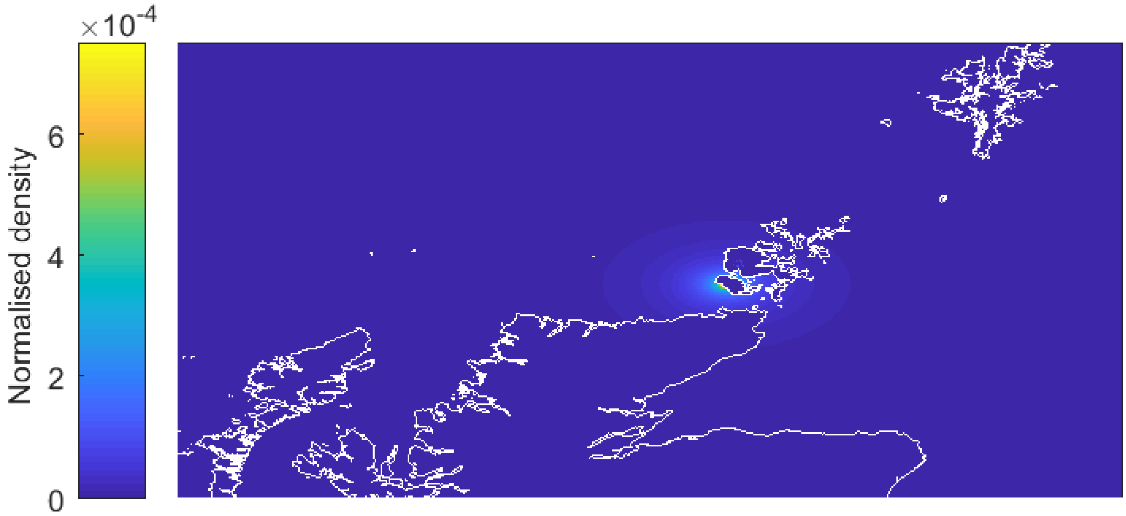

Figure B.7: Normalised Guillemot density at Hoy.

Source: SeabORD output

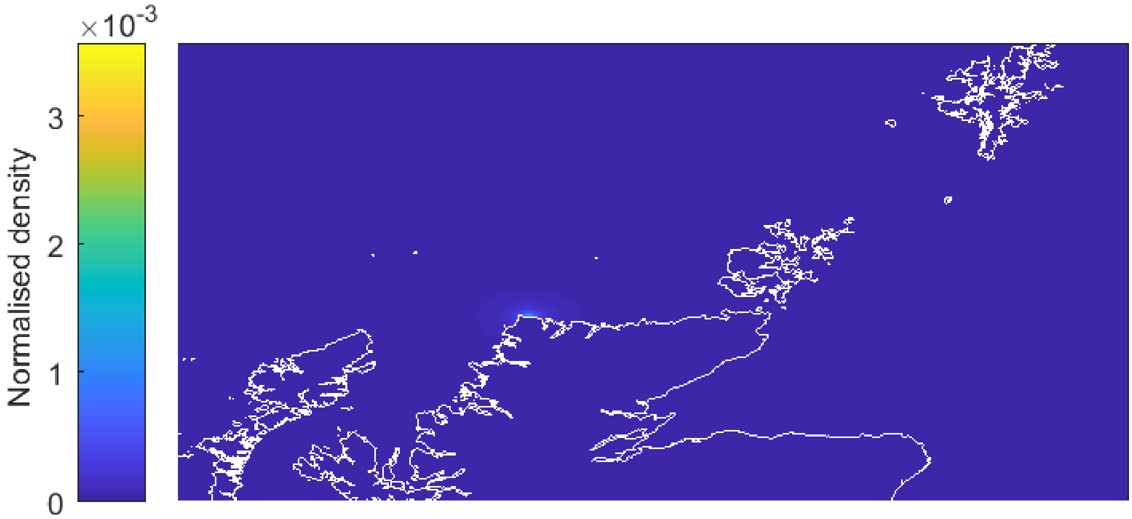

Figure B.8: Normalised Guillemot density at Cape Wrath.

Source: SeabORD output

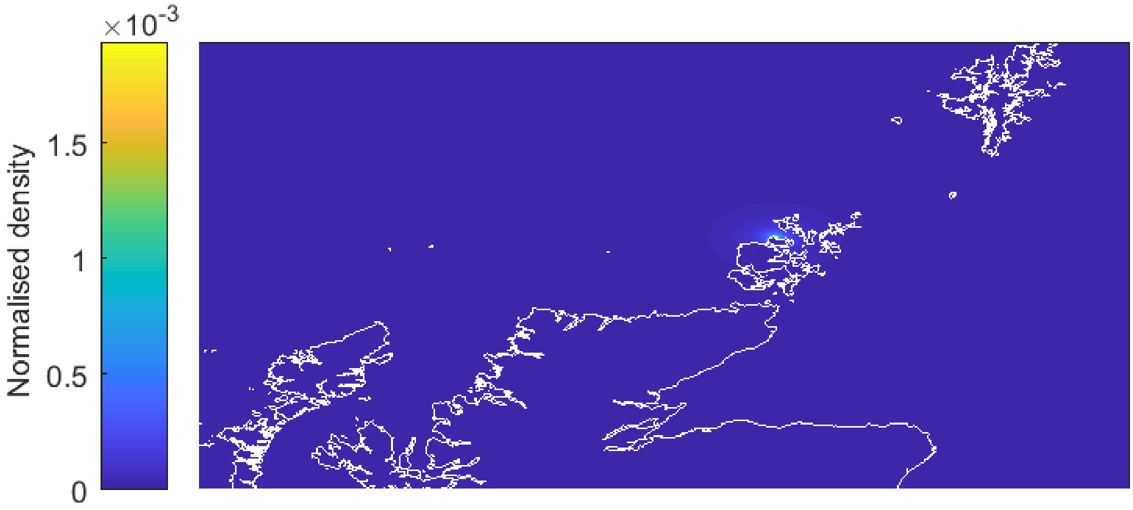

Figure B.9: Normalised Guillemot density at Rousay.

Source: SeabORD output

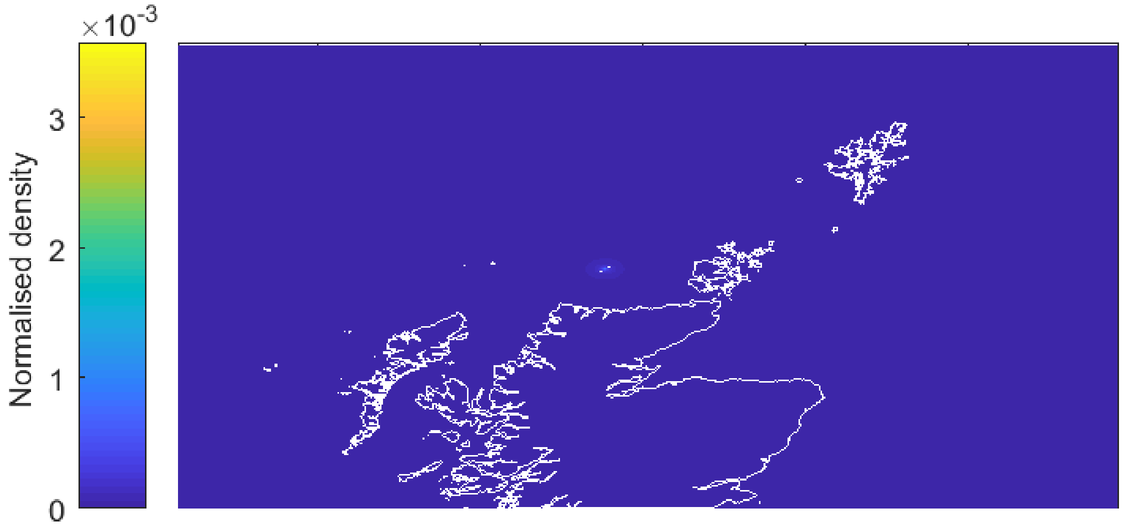

Figure B.10: Normalised Puffin density at Sule Skerry and Sule Stack.

Source: SeabORD output

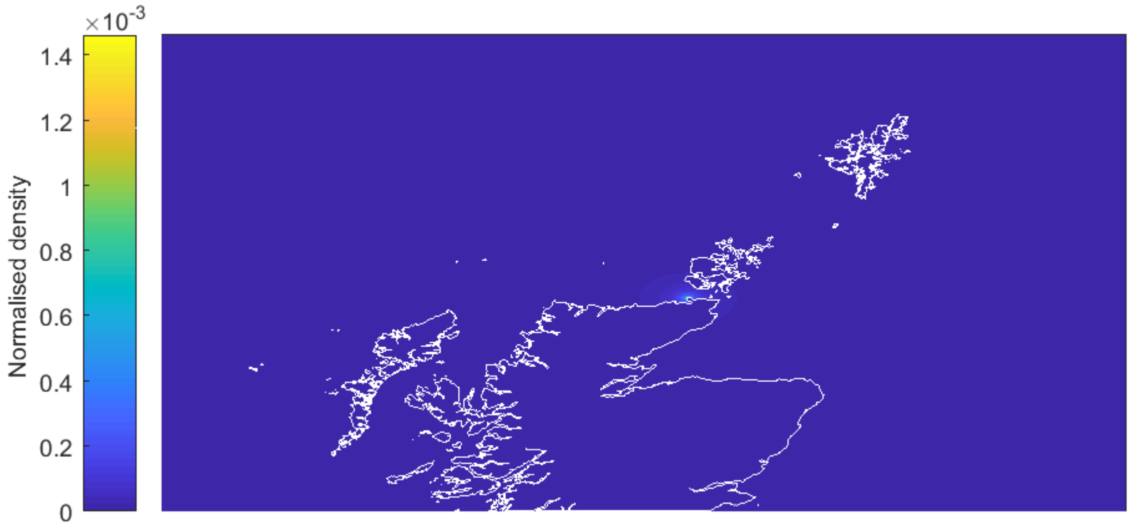

Figure B.11: Normalised Puffin density at North Caithness Cliffs.

Source: SeabORD output

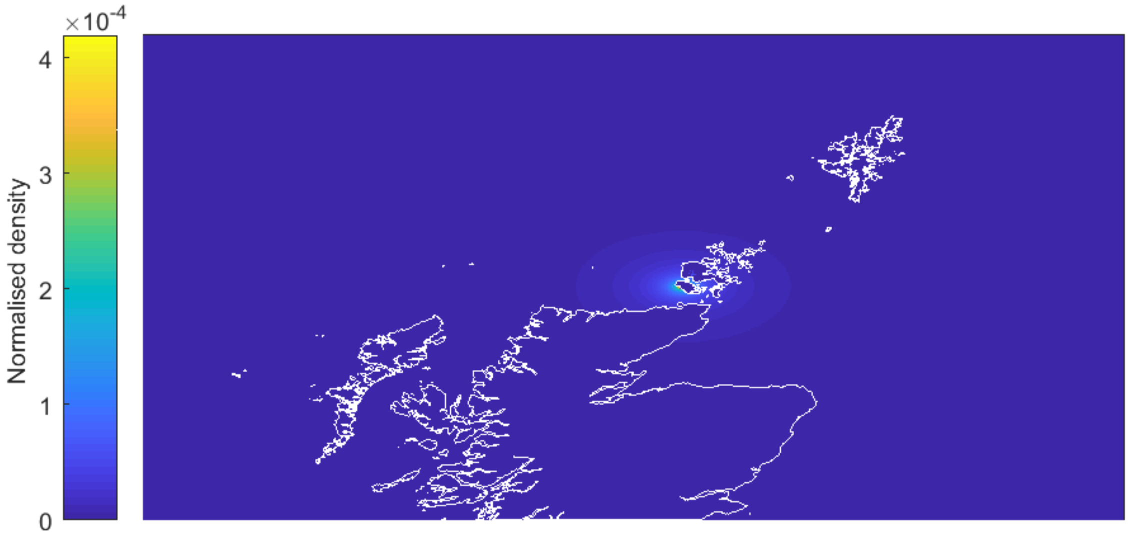

Figure B.12: Normalised Puffin density at Hoy.

Source: SeabORD output

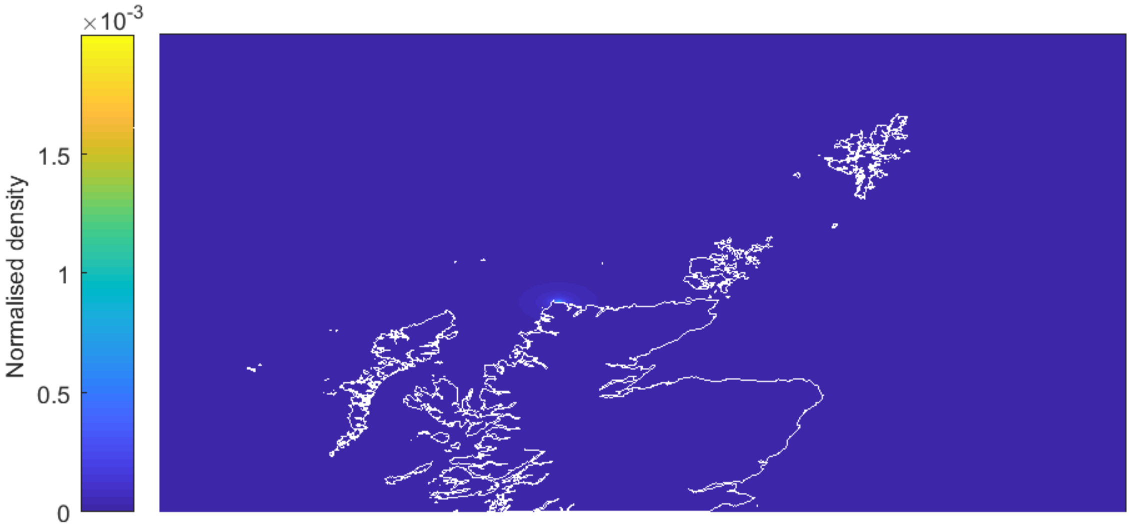

Figure B.13: Normalised Puffin density at Cape Wrath.

C. Detailed SeabORD outputs

A selection of additional metrics produced by SeabORD are presented in Table C.1 – Table C.6. These values are provided to allow comparison with other instances where SeabORD has been used and to provide insight into the underlying mechanisms determining additional mortality.

Additional metrics presented include:

- Unscaled mortality rates indicating the total number of mortalities predicted by SeabORD for each colony
- Percent additional mortality between the baseline and impact scenarios across the ten runs calculated as:

  $$AM = 100 * \frac{Mortalities\ when\ the\ wind\ farm\ is\ present - Mortalities\ when\ the\ wind\ farm\ is\ absent}{Population\ size}$$

  Where population size is the number of individuals simulated if runs are carried out for less than 100% of the total population. Percent additional mortality is presented as mean, standard deviation and upper and lower confidence intervals. (Note that these values are the same as the percentage point reduction in survival rates presented in the main text).
- Adult survival during the chick-rearing period, presented as a mean and standard deviation.
- The initial adult mass within the simulations (mean and standard deviation).
- Adult mass at the end of the chick-rearing season both for the baseline and impact scenarios (mean and standard deviation).
- The percentage of adults directly impacted by the windfarm (i.e. birds that are displaced or barriered as a result of the windfarm at least once during a simulated season).
- The difference in the number of trips flown by simulated birds between the baseline and impact scenarios (mean and standard deviation), determined as a result of simulated birds optimising trip number to minimise time spent foraging/maximise energetic gain (Searle *et al.*, 2018).
- The difference in the total distance flown between the baseline and impact scenarios (mean and standard deviation).

Table C.1: Adult annual mortality predicted by SeabORD for guillemot colonies with and without barrier and displacement effects from the offshore Project

Colony	Birds simulated	Year type	Baseline Model (no ORD)			Impact Model (with ORD)			Additional Mortality			
			Mean mortality	Standard deviation	Scaled mortality	Mean mortality	Standard deviation	Scaled mortality	Percent additional mortality	Standard deviation	Lower 95% CI	Upper 95% CI
Sule Skerry and Sule Stack	2618	Poor	500.7	14.072	2503.5	516.0	12.101	2580.0	0.584	0.182	0.153	1.106
		Moderate	**238.0**	**7.330**	**1190.0**	**245.9**	**5.152**	**1229.5**	**0.302**	**0.123**	**0.011**	**0.593**
		Good	213.2	5.308	1066.0	216.7	3.592	1083.5	0.134	0.135	-0.187	0.454
North Caithness Cliffs	10114	Poor	2444.1	11.200	12220.5	2471.5	16.514	12357.5	0.271	0.098	0.038	0.504
		Moderate	**1190.4**	**5.232**	**5952.0**	**1209.0**	**13.638**	**6045.0**	**0.184**	**0.100**	**-0.054**	**0.421**
		Good	972.3	13.466	4861.5	989.0	11.719	4945.0	0.165	0.037	0.078	0.252
Hoy	3172	Poor	742.1	6.437	3710.5	751.0	6.446	3755.0	0.281	0.138	-0.047	0.608
		Moderate	**351.5**	**3.808**	**1757.5**	**356.9**	**4.483**	**1784.5**	**0.170**	**0.087**	**-0.036**	**0.376**
		Good	302.2	2.700	1511.0	306.1	4.306	1530.5	0.123	0.082	-0.072	0.318
Marwick Head	3116	Poor	700.3	3.335	3501.5	703.9	3.107	3519.5	0.116	0.068	-0.046	0.277
		Moderate	**353.9**	**5.724**	**1769.5**	**357.2**	**6.015**	**1786.0**	**0.106**	**0.087**	**-0.100**	**0.312**
		Good	267.3	3.020	1336.5	269.8	2.616	1349.0	0.080	0.082	-0.114	0.274
Rousay	1536	Poor	338.4	4.300	1692.0	341.8	3.765	1709.0	0.221	0.190	-0.229	0.671
		Moderate	**189.3**	**3.302**	**946.5**	**190.4**	**3.502**	**952.0**	**0.072**	**0.104**	**-0.175**	**0.318**
		Good	134.4	2.633	672.0	135.1	1.912	675.5	0.046	0.081	-0.148	0.239
Cape Wrath	9908	Poor	2212.4	22.677	11062.0	2224.2	18.341	11121.0	0.119	0.061	-0.026	0.264
		Moderate	**1071.2**	**10.358**	**5356.0**	**1083.9**	**11.484**	**5419.5**	**0.128**	**0.075**	**-0.049**	**0.305**
		Good	843.6	5.854	4218.0	855.2	5.903	4276.0	0.117	0.073	-0.055	0.289

Colony	Birds simulated	Year type	Baseline Model (no ORD)			Impact Model (with ORD)			Additional Mortality			
			Mean mortality	Standard deviation	Scaled mortality	Mean mortality	Standard deviation	Scaled mortality	Percent additional mortality	Standard deviation	Lower 95% CI	Upper 95% CI
West Westray	7462	Poor	1656.5	17.927	8282.5	1666.1	16.333	8330.5	0.129	0.064	-0.024	0.281
		Moderate	**803.3**	**7.704**	**4016.5**	**805.8**	**6.443**	**4029.0**	**0.034**	**0.041**	**-0.063**	**0.130**
		Good	646.7	5.187	3233.5	648.1	4.408	3240.5	0.047	0.047	-0.093	0.130

Source: Natural Power

Table C.2: Chick mortality during the chick-rearing season predicted by SeabORD for guillemot colonies with and without barrier and displacement effects from the offshore Project

Colony	Baseline Model (no ORD)			Impact Model (with ORD)			Additional Mortality			
	Mean mortality	Standard deviation	Scaled mortality	Mean mortality	Standard deviation	Scaled mortality	Percent additional mortality	Standard deviation	Lower confidence interval	Upper confidence interval
Sule Skerry and Sule Stack	255.2	177.904	1276.0	285.0	196.912	1425.0	2.277	1.490	-1.258	5.811
North Caithness Cliffs	956.4	655.581	4782.0	1000.5	679.122	5002.5	0.872	0.493	-0.298	2.042
Hoy	318.1	215.268	1590.5	330.7	219.094	1653.5	0.794	0.326	0.021	1.568
Marwick Head	304.7	216.805	1523.5	310.9	222.511	1554.5	0.398	0.393	-0.535	1.331
Rousay	158.0	108.788	790.0	161.3	111.223	806.5	0.430	0.342	-0.382	1.241
Cape Wrath	903.3	653.970	4516.5	936.3	663.685	4681.5	0.666	0.315	-0.082	1.414
West Westray	699.0	498.662	3495	712.2	502.948	3561.0	0.354	0.168	-0.045	0.752

Source: Natural Power

Table C.3: Additional output metrics from SeabORD modelling for guillemot colonies with and without barrier and displacement effects from the offshore Project. Numbers in brackets are standard deviations.

Colony	Scenario	Mean adult survival during chick-rearing (%)	Initial adult mass (g)	Mean adult mass at the end of the chick-rearing season (g)	Mass loss during the chick-rearing season (g)	Mean adults directly impacted by the windfarm (%)	Mean difference in the number of trips flown	Mean difference in the distance flown (km)
Sule Skerry and Sule Stack	Baseline (no ORD)	100 (0.00)	920.085 (0.000)	862.622 (16.589)	57.463	N/A	0.125 (0.080)	35.496 (11.507)
	Impact (ORD)	100 (0.00)	920.085 (0.000)	860.103 (16.469)	59.982	59.47		
North Caithness Cliffs	Baseline (no ORD)	100 (0.00)	919.404 (0.000)	862.554 (16.687)	56.850	N/A	-0.013 (0.022)	16.059 (1.504)
	Impact (ORD)	100 (0.00)	919.404 (0.000)	861.511 (16.409)	57.893	48.40		
Hoy	Baseline (no ORD)	100 (0.00)	921.350 (0.000)	863.601 (16.308)	57.749	N/A	-0.048 (0.016)	10.835 (1.491)
	Impact (ORD)	100 (0.00)	921.350 (0.000)	862.669 (16.092)	58.681	49.40		
Marwick Head	Baseline (no ORD)	100 (0.00)	921.421 (0.000)	863.403 (16.581)	58.018	N/A	-0.027 (0.016)	8.022 (1.451)
	Impact (ORD)	100 (0.00)	921.421 (0.000)	862.767 (16.425)	58.654	44.40		
Rousay	Baseline (no ORD)	100 (0.00)	919.970 (0.000)	859.670 (16.529)	60.300	N/A	0.004 (0.010)	7.604 (1.031)

Colony	Scenario	Mean adult survival during chick-rearing (%)	Initial adult mass (g)	Mean adult mass at the end of the chick-rearing season (g)	Mass loss during the chick-rearing season (g)	Mean adults directly impacted by the windfarm (%)	Mean difference in the number of trips flown	Mean difference in the distance flown (km)
	Impact (ORD)	100 (0.00)	919.970 (0.000)	859.200 (16.394)	60.770	29.60		
Cape Wrath	Baseline (no ORD)	100 (0.00)	920.184 (0.000)	864.164 (16.356)	56.020	N/A	-0.016 (0.015)	9.074 (0.949)
	Impact (ORD)	100 (0.00)	920.184 (0.000)	863.466 (16.149)	56.717	46.70		
West Westray	Baseline (no ORD)	100 (0.00)	921.172 (0.000)	863.703 (16.650)	57.469	N/A	0.008 (0.005)	5.457 (0.402)
	Impact (ORD)	100 (0.00)	921.172 (0.000)	863.383 (16.554)	57.789	23.20		

Source: Natural Power

Table C.4: Adult annual mortality predicted by SeabORD for puffin colonies with and without barrier and displacement effects from the offshore Project

Colony	Adult birds simulated	Year type	Baseline Model (no ORD)			Impact Model (with ORD)			Additional Mortality			
			Mortality	Standard deviation	Scaled mortality	Mortality	Standard deviation	Scaled mortality	Percent additional mortality	Standard deviation	Lower 95% CI	Upper 95% CI
Sule Skerry and Sule Stack	9548	Poor	1789.2	11.419	17,892	1826.5	9.490	18,265	0.391	0.200	-0.084	0.865
		Moderate	**1251.1**	**8.130**	**12,511**	**1298.4**	**15.180**	**12,984**	**0.495**	**0.092**	**0.277**	**0.713**
		Good	731.9	7.852	7,319	763.0	4.640	7,630	0.326	0.083	0.130	0.522
North Caithness Cliffs	306	Poor	66.1	5.087	661	67.1	4.383	671	0.327	0.436	-0.707	1.361
		Moderate	**41.2**	**2.700**	**412**	**42.0**	**3.055**	**420**	**0.261**	**0.258**	**-0.350**	**0.873**
		Good	32.6	3.307	326	33.1	4.332	331	0.163	0.469	-0.948	1.275
Hoy	300	Poor	65.1	4.122	651	66.2	4.803	662	0.367	0.399	-0.580	1.681
		Moderate	**53.0**	**5.055**	**530**	**54.2**	**4.614**	**542**	**0.400**	**0.540**	**-0.881**	**1.681**
		Good	34.0	1.330	340	34.1	1.370	341	0.033	0.246	-0.550	0.617
Cape Wrath	224	Poor	49.8	0.919	498	50.9	1.524	509	0.491	0.491	-0.675	1.657
		Moderate	**36.0**	**1.700**	**360**	**35.6**	**1.506**	**356**	**-0.179**	**0.431**	**-1.202**	**0.845**
		Good	14.8	2.098	148	15.5	1.900	155	0.313	0.301	-0.402	1.027

Source: Natural Power

Table C.5: Chick mortality during the chick-rearing season predicted by SeabORD for puffin colonies with and without barrier and displacement effects from the offshore Project

Colony	Baseline Model (no ORD)			Impact Model (with ORD)			Additional Mortality			
	Mean mortality	Standard deviation	Scaled mortality	Mean mortality	Standard deviation	Scaled mortality	Percent additional mortality	Standard deviation	Lower confidence interval	Upper confidence interval
Sule Skerry and Sule Stack	502.4	241.645	5024	537.8	271.403	5378	0.742	0.636	-0.768	2.251
North Caithness Cliffs	20.8	6.893	208	21.1	7.712	211	0.196	0.316	-0.553	0.945
Hoy	17.0	6.377	170	17.4	6.835	174	0.267	0.344	-0.550	1.083
Cape Wrath	7.8	5.391	78	8.0	5.437	80	0.179	0.565	-1.161	1.518

Source: Natural Power

Table C.6: **Additional output metrics from SeabORD modelling for puffin colonies with and without barrier and displacement effects from the offshore Project. Numbers in brackets are standard deviations.**

Colony	Scenario	Mean adult survival during chick-rearing (%)	Initial adult mass (g)	Mean adult mass at the end of the chick-rearing season (g)	Mass loss during the chick-rearing season (g)	Mean adults directly impacted by the windfarm (%)	Mean difference in the number of trips flown	Mean difference in the distance flown (km)
Sule Skerry and Sule Stack	Baseline (no ORD)	100 (0.000)	392.963 (0.000)	368.704 (7.821)	24.259	N/A	0.192 (0.024)	103.199 (7.747)
	Impact (ORD)	100 (0.000)	392.963 (0.000)	367.622 (8.161)	25.071	59.6		
North Caithness Cliffs	Baseline (no ORD)	100 (0.000)	393.695 (0.000)	369.466 (7.866)	24.229	N/A	0.098 (0.105)	87.535 (9.948)
	Impact (ORD)	100 (0.000)	393.695 (0.000)	368.663 (7.985)	28.032	63.4		
Hoy	Baseline (no ORD)	100 (0.000)	390.647 (0.000)	367.334 (7.464)	23.313	N/A	0.025 (0.103)	62.443 (10.606)
	Impact (ORD)	100 (0.000)	390.647 (0.000)	366.679 (7.668)	23.968	60.7		
Cape Wrath	Baseline (no ORD)	100 (0.000)	395.002 (0.000)	370.909 (7.906)	24.093	N/A	0.025 (0.105)	47.995 (13.734)
	Impact (ORD)	100 (0.000)	395.002 (0.000)	370.412 (8.112)	24.590	65.2		

Source: Natural Power

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