# MachairWind Offshore Windfarm

# Appendix 1 Without Prejudice Guillemot Compensation Plan

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## GLOSSARY OF ACRONYMS

| Term | Definition |
|---|---|
| AEoSI | Adverse Effect on Site Integrity |
| ANS | Artificial Nesting Structure |
| EC | European Commission |
| ECC | Export Cable Corridor |
| EIA | Environmental Impact Assessment |
| JNCC | Joint Nature Conservation Committee |
| km | Kilometres |
| MPA | Marine Protected Area |
| OAA | Option Agreement Area |
| OSP | Offshore Substation Platform |
| RSPB | Royal Society for the Protection of Birds |
| SMRF | Scottish Marine Recovery Fund |
| SPA | Special Protection Areas |
| WDA | Windfarm Development Area |
| WTG | Wind Turbine Generator |
| UK | United Kingdom |

## GLOSSARY OF TERMS

| Term | Definition |
|---|---|
| Appropriate Assessment | A formal stage of the Habitats Regulations Assessment undertaken where a plan or project is likely to have a significant effect on a European site, either alone or in combination with other plans or projects. The Appropriate Assessment assesses the implications of the plan or project for the site's conservation objectives and determines whether it can be ascertained, beyond reasonable scientific doubt, that the proposal will not adversely affect the integrity of the site, taking account of mitigation measures. |
| Breeding season | Furness (2015) defines breeding season as the period from modal return to the colony through to modal departure from the colony at the end of breeding, for birds at UK colonies. |
| Collision | The act or process of two moving objects colliding. |
| Environmental Impact Assessment (EIA) | The process of evaluating the likely significant environmental effects of a proposed development over and above the existing circumstances (or 'baseline'). |
| European site | Sites designated for nature conservation under the Habitats Directive and Birds Directive as transposed by the Habitats Regulations and comprise Special Areas of Conservation and Special Protection Areas. In accordance with Scottish Government and UK Government policy, candidate SACs, potential SPAs and Ramsar sites are also afforded equivalent protection for assessment purposes, despite not being formally designated European sites. |
| Habitats Regulations | A collective term used to describe the Conservation of Habitats and Species Regulations 2017 and The Conservation (Natural Habitats, &c.) Regulations 1994. |
| Inter-array cables (IACs) | Armoured cable containing electrical and fibre optic cores which link the wind turbine generators to each other and to the offshore substation platform(s). |
| Landfall | The area from Mean Low Water Springs to a transition bay(s), where the offshore export cable(s) come ashore. |
| MachairWind Offshore Windfarm | An offshore windfarm capable of exporting around 2 gigawatts of renewable energy to the National Electricity Transmission System. MachairWind Offshore Windfarm comprises three Development Areas:<br>• The Windfarm Development Area (WDA) – located on the west coast of Scotland to the northwest of Islay and west of Colonsay;<br>• The Offshore Export Cable Corridor – a preliminary boundary extending from the WDA to mean high water springs at a landfall location near Girvan, South Ayrshire; and<br>• The Onshore Transmission Development Area – a preliminary boundary which extends landward from mean low water springs and includes the land required for the landfall of the offshore export cable(s) and their route up to but not including the proposed high voltage direct current switching station which will be developed and constructed by Transmission Owner, ScottishPower Transmission.<br>Separate consent and licence applications will be submitted for each Development Area. |
| Mean High Water Springs (MHWS) | The average, over a year, of the heights of two successive high waters during those periods of 24 hours (once every fortnight) when the range of the tide is greatest. |
| National Electricity Transmission System | The high-voltage electricity power transmission network serving Great Britain which receives electricity from generators (such as offshore windfarms) and |

| Term | Definition |
|---|---|
| | transmits that electricity to anywhere on the National Electricity Transmission System to satisfy demand. |
| Non-breeding season | Furness (2015) defines non-breeding season as the remaining part of the year that is not a part of breeding season. |
| Offshore cables | The collective term for all offshore cables i.e. IACs, offshore substation platform link cables, offshore export cables and associated fibre optic cables. |
| Offshore export cable | Armoured cable containing electrical cores between the offshore substation platform(s) and landfall. Offshore export cables will include bundled fibre optic cables. The offshore export cables are subject to Marine Licence applications under the Marine (Scotland) Act 2010. The portion of the offshore export cable(s) located within the WDA is assessed as part of this MachairWind WDA EIA and a marine licence application to construct, alter or improve this portion has been submitted alongside the WDA application. A separate marine licence application will be submitted for the portion of the offshore export cable(s) from the WDA boundary to mean high water Mean High Water Springs. |
| Offshore Export Cable Corridor (ECC) | The preliminary boundary extending from the WDA to mean high water springs near Girvan, South Ayrshire and within which the offshore export cable(s) will be located. A separate marine licence application will be submitted for the offshore export cable(s) located within the Offshore ECC. |
| Offshore Substation Platform (OSP) | An offshore platform with a fixed foundation located within the WDA which houses electrical equipment such as transformers, switchgear, protection and control systems, and enables the windfarm's renewable electricity to be collected via inter-array cables and exported to the National Electricity Transmission System via offshore export cables. |
| Offshore Substation Platform (OSP) link cables | Electrical cables which link OSPs (if more than one OSP is required). These cables will include fibre optic cores or bundled fibre optic cables. OSP link cables will be wholly located within the WDA. |
| Onshore Transmission Development Area (OnTDA) | The preliminary boundary which extends landward from mean low water springs and includes the land required for the landfall of the offshore export cables and their route up to but not including the proposed high voltage direct current switching station which will be developed and constructed by Transmission Owner, ScottishPower Transmission. This Transmission Owner is responsible for consenting the high voltage direct current switching station. Onward connections to the National Electricity Transmission System will be consented by National Grid Electricity Transmission and ScottishPower Transmission. Where relevant, these are considered as part of cumulative effects assessment in the EIA. |
| OnTDA infrastructure | The onshore transmission infrastructure, for which the Applicant is responsible, that is located primarily within the OnTDA, up to mean low water springs, and includes but is not limited to: landfall(s), onshore export cables, transition joint bays, telecom/SCADA infrastructure including vehicular access, joint bays, link boxes and temporary construction compounds. The OnTDA infrastructure will be subject to a planning application under the Town and Country Planning (Scotland) Act 1997. |
| Option Agreement Area (OAA) | The seabed area awarded to ScottishPower Renewables in January 2022 through the Scotwind leasing round. |
| ScotWind | A Crown Estate Scotland seabed leasing round which enabled developers to propose offshore wind projects and apply for seabed rights to plan and build windfarms in Scottish waters. |

| Term | Definition |
|---|---|
| Scour protection | Protective measures to avoid sediment being eroded away from the base of the wind turbine generator foundations as a result of the flow of water. |
| The Applicant | The legal entity submitting consent applications for the MachairWind Offshore Windfarm, namely MachairWind Limited. |
| The Project | MachairWind Offshore Windfarm including all its Development Areas and associated infrastructure. |
| Transition bay | Connects offshore and onshore export cables at the landfall. The transition bay will be located above mean high water. |
| Windfarm Development Area (WDA) | The application boundary within the OAA where consent will be sought for the proposed WDA infrastructure. The WDA infrastructure is subject to Section 36 consent and marine licence applications (generation and transmission) which are being applied for separately from the Offshore ECC infrastructure and OnTDA infrastructure. |
| WDA infrastructure | The offshore generation and transmission infrastructure located within the WDA including but not limited to: WTGs, WTG fixed foundations (and associated scour protection), OSP(s), OSP fixed foundations (and associated scour protection), IACs, OSP link and offshore export cable(s) and their associated external cable protection (insofar as these are located within the WDA) and fibre optic cables. |
| Wind Turbine Generator (WTG) | A wind turbine generator which converts wind energy into electrical energy. Each wind turbine generator is a complex system composed of a high number of components. Typically, the main components include the rotor assembly (composed of three blades and a hub); the nacelle (containing a generator, shaft and gearbox, power electronic converter and transformer); and the tower (containing lifting equipment and the switchgear). |

# 1 INTRODUCTION

1. MachairWind Limited, hereafter "the Applicant", is proposing to develop MachairWind Offshore Windfarm, hereafter "the Project". The Project includes an offshore Windfarm Development Area (WDA) of 448 km$^2$ located 12.4 kilometres (km) west of Colonsay on the west coast of Scotland. The Project proposes the construction, operation and maintenance and decommissioning of Wind Turbine Generators (WTGs) within the WDA. WTGs have the potential to result in mortality of seabirds, either through collision or by a reduction in foraging efficiency resulting from loss of habitat as a result of displacement from the WTGs (Peschko et al. 2020).

2. This appendix provides information to support the final stage of the derogation process which is to develop compensation measures designed to benefit the United Kingdom (UK) Marine Protected Area (MPA) network in a manner which is reasonably proportionate to the adverse effects, or predicted adverse effects, on the integrity of a European site or European offshore marine site. It identifies specific compensation measures that are considered to be effective and lays out the process that will be undertaken to secure one or more of those measures (as necessary to ensure proportionality of compensation with Project impacts) should Appropriate Assessment conclude that adverse effect on site integrity (AEoSI) cannot be excluded in relation to the Project.

3. It is the position of the Applicant that no AEoSI will occur with respect to the ornithological features of any SPA site as a result of the Project. However, on the basis that Scottish Ministers may disagree with these conclusions, compensation measures are presented here. These compensation measures are presented "without prejudice" to the Applicant's conclusions.

4. Potential compensation measures are presented for one SPA feature: breeding common guillemot (*Uria aalge*, hereafter "guillemot") at North Colonsay and Western Cliffs SPA.

5. A range of potential compensation measures are presented in this document. The Applicant does not propose to implement all of the compensation measures herein; rather, a range of measures are presented to provide sufficient flexibility to ensure that any compensation requirements specified by Scottish Ministers can be met by scaling up or down individual measures.

6. It is the Applicant's view that the information presented within this document provides enough information to give Scottish Ministers sufficient confidence in the proposed measures, allowing them to grant the required consents should they conclude that securing compensation is necessary as a result of predicted Project effects.

# 2 CONTEXT FOR THE POTENTIAL REQUIREMENT FOR COMPENSATION

7. The Project is predicted to result in mortality in guillemot as a result of displacement of birds from a portion of their current habitat. Displacement mortality in guillemot was calculated for the Project on the assumption that 60% of guillemots present within the WDA will be displaced, and that either 3% of these displaced individuals will die as a result of displacement in the breeding season and 1% of these displaced individuals will die as a result of displacement in the non-breeding season (the "lower displacement estimate"), or 5% of these displaced individuals will die as a result of displacement in the breeding season and 3% of these displaced individuals will die as a result of displacement in the non-breeding season (the "higher displacement estimate").

8. Apportionment of the predicted Project alone impact to SPA sites results in an annual estimated mortality of 121 (lower displacement estimate) or 222 (higher displacement estimate) guillemots within North Colonsay and Western Cliffs SPA. This project alone impact is identical to the predicted impact in-combination with other projects and developments, since none of the impacted guillemot

colonies are predicted to be impacted by any other projects or developments that have been scoped in for assessment of in-combination effects.

9. The conservation objectives for North Colonsay and Western Cliffs SPA are as follows:

- To ensure that the qualifying features of North Colonsay and Western Cliffs SPA are in favourable condition and make an appropriate contribution to achieving Favourable Conservation Status.
- To ensure that the integrity of North Colonsay and Western Cliffs SPA is restored in the context of environmental changes by meeting objectives 2a, 2b and 2c for each qualifying feature:
  - The populations of the qualifying features are viable components of the North Colonsay and Western Cliffs SPA;
  - The distribution of the qualifying features is maintained throughout the site by avoiding significant disturbance of the species; and
  - The supporting habitats and processes relevant to qualifying features and their prey resources are maintained, or where appropriate restored, at North Colonsay and Western Cliffs SPA.

10. Breeding guillemot is a qualifying feature of North Colonsay and Western Cliffs SPA. The guillemot population of North Colonsay and Western Cliffs SPA has grown in the past few decades, from a citation size of 9,940 individuals in 1997 (NatureScot 2024a) to 25,647 individuals at the most recent count in 2025 (JNCC 2023, Seabird Monitoring Programme 2025) (**Plate 2.1**). The population declined by approximately 26% between 2000 and 2018 (JNCC 2023), but has since grown and is now at its largest recorded size (Seabird Monitoring Programme 2025). The breeding guillemot feature of the SPA has a “favourable maintained” conservation status (NatureScot 2026).

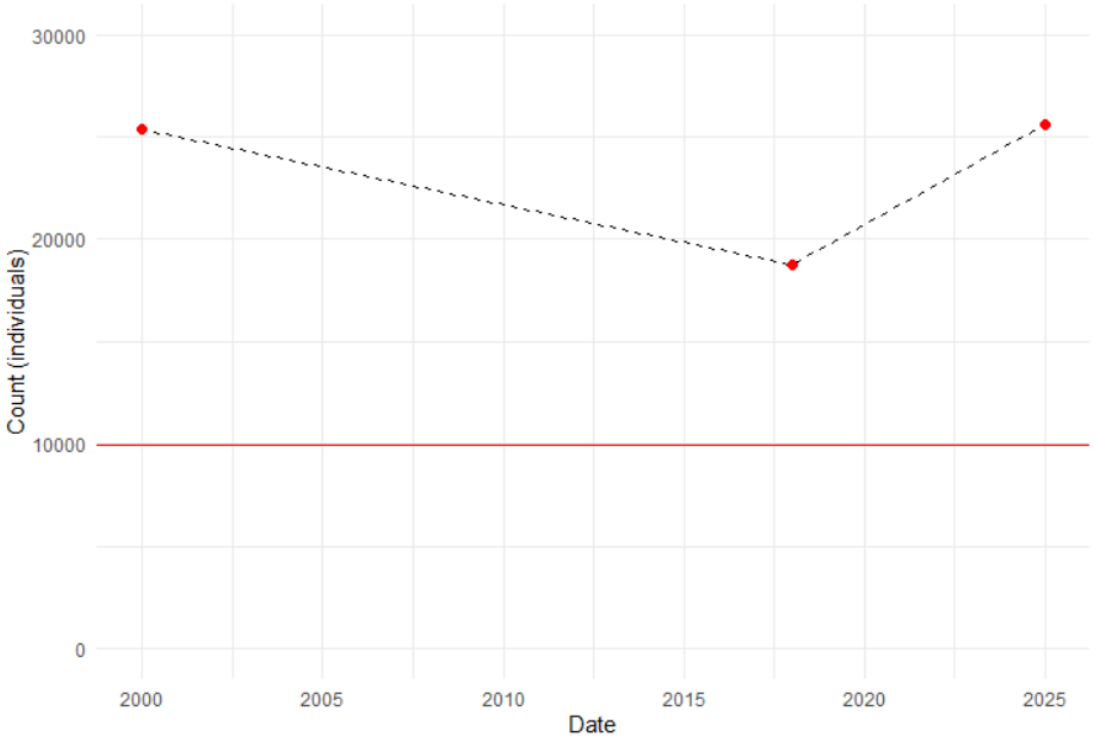


*Plate 2.1. Common guillemot population size recorded within North Colonsay and Western Cliffs SPA by the British Trust for Ornithology’s Seabird Monitoring Programme. Full counts are available only for 2000, 2017 and 2025. The red line indicates the 1997 citation population size.*

11. It is the view of the Applicant that, on the basis of the listed conservation objectives, no AEoSI will occur with respect to the guillemot feature of North Colonsay and Western Cliffs SPA as a result of the Project alone or in-combination with other projects and developments. However, if Scottish Ministers determine that AEoSI cannot be excluded for guillemot at North Colonsay and Western Cliffs SPA, this document is presented to demonstrate how compensation can be delivered for the effects of the Project. This compensation plan will be progressed in the event that AEoSI is not excluded in relation to the guillemot population feature of North Colonsay and Western Cliffs SPA. This compensation plan is presented without prejudice to the Applicant's conclusions that no AEoSI will occur with respect to the ornithological features of any SPA site as a result of the Project either alone or in combination with other projects and developments.

## 3 COMPENSATION REQUIREMENTS

12. The Scottish Government's draft compensation policy (Scottish Government 2025b) states that the Habitats Regulations are expected to be amended such that the ecological benefit of compensation measures must be "reasonably proportionate to the level of damage to the protected site network". This framework is expected to replace the previous like-for-like compensation requirement, which required that compensation target the impacted feature.

13. In deference to this change in framework, the calculations of compensation requirements in this section are not intended as a compensation quantum, or target, but rather as indicative of the magnitude of compensation measure that might be required to ensure that compensation is proportional to Project impacts.

14. Where compensation measures prevent the deaths of adult birds, each death prevented would be considered to be equivalent to one death predicted to occur as an impact of the Project. Where compensation measures increase the breeding population of birds at a colony, the number of additional breeding pairs of birds that would generate sufficient new recruits to offset predicted Project impacts would be dictated by the demographic rate for guillemot (i.e. the number of new adults produced annually by each breeding pair of adults). For guillemot, the demographic rate is calculated as 0.226 in Horswill and Robinson (2015). On the basis of this figure, approximately 4.42 additional breeding pairs of guillemots could reasonably represent proportional compensation for one additional adult mortality per year (**Table 3.1**).

*Table 3.1 Demographic parameters underpinning the calculation of the number of additional pairs of breeding adults that would be required to compensate for Project impacts on guillemot at North Colonsay and Western Cliffs SPA.*

| Demographic parameters | | Guillemot |
|---|---|---|
| **Age of recruitment**[1] | | 6 |
| **Annual survival rate of birds of given age**[1] | 0 | 0.560 |
| | 1 | 0.792 |
| | 2 | 0.917 |
| | 3 | 0.939 |
| | 4 | 0.939 |
| | 5 | 0.939 |
| | 6+ (adult) | 0.939 |
| **Productivity** (chicks fledged per breeding pair per year) [1] | | 0.672 |

| Demographic parameters | Guillemot |
|---|---|
| **Compensation ratio** (breeding pairs per adult recruited to the population per year) [2] | 4.42 |
| **Predicted impact of the Project at North Colonsay and Western Cliffs SPA** (adult mortalities per year) [3] | 222 |
| **Total additional breeding population required to compensate for Project effect** (pairs) [4] | 981 |

[1] Demographic rates derived from Horswill and Robinson (2015), using national average rates where applicable.

[2] Calculated as 1 divided by the product of annual survival rates for years prior to adulthood, divided by productivity.

[3] Based on the higher displacement mortality estimate for guillemot at North Colonsay and Western Cliffs SPA.

[4] The product of the compensation ratio and the predicted impact.

15. If compensation is required for the impact of the Project on the guillemot feature of the North Colonsay and Western Cliffs SPA, then the Project's upper estimate of mortality is 222 additional adult birds annually. Proportional compensation measures would therefore likely include those that a) reduce existing mortality rates in guillemot by 222 adult birds annually, b) sustain an additional population of 981 breeding adult pairs of guillemot for the duration of required compensation, or c) increase the reproductive success of guillemot within a colony sufficiently to produce additional recruits equivalent to those that would be produced by 981 additional breeding pairs of adults.[1]

16. However, the Scottish Government's draft compensation policy makes it clear that compensation measures could also be considered proportional even if they do not provide one of the above benefits to guillemot (Scottish Government 2025b). Indeed, they could provide no benefit to guillemot provided that they provide sufficient benefit either to other, ecologically similar features of the protected site network, or to the protected site network as a whole (see **Section 5**). On this basis, no fixed compensation target is presented here. Instead, the Applicant will develop appropriate compensation targets, in consultation with stakeholders, during the site-selection process for compensation measures described in **Section 6**. These targets will be informed by the calculations of the Project's predicted impact on features where AEoSI has not been excluded, and will be determined in alignment with future guidance that is expected to be published during the development of compensation measures for the Project.

## 4 GUIDANCE IN RELATION TO IDENTIFICATION OF POTENTIAL COMPENSATION MEASURES

17. At the time of writing, there is no formal guidance from the Scottish Government in relation to the identification of potential ornithology compensation measures at the level of individual projects. However, in accordance with The Conservation of Habitats and Species (Offshore Wind) (Miscellaneous Amendments) (Scotland) Regulations 2026 which take effect on 25 May 2026, new statutory guidance is expected to be published shortly. Once published, the guidance will be reviewed and applied by the Applicant. The following documents have therefore been used to guide

[1] Note that as described in the **RIAA Part 3 Ornithology**, whilst the Applicant has followed NatureScot online guidance as well as Project-specific advice to produce the impact assessments presented in the RIAA, it is evident from the SOWEC (2025) and Butler et al. (2025) evaluations that estimated mortalities produced by the approach of applying precaution to inputs, as advised by NatureScot, are very likely to be substantial overestimates of true seabird mortality that the WDA could cause. The mortality estimates presented in the quantitative assessment of the **RIAA Part 3 Ornithology** represent a worst-case scenario, in that true impacts that the WDA could cause will be substantially less than those presented. The mortality estimates presented have a very low likelihood of occurring in reality and may not be biologically plausible.

the identification of compensation measures (note that some documents are from the English planning process but have been considered where relevant):

- Best practice guidance for developing compensation measures in relation to Marine Protected Areas (Defra 2021);
- Consultation on policies to inform updated guidance for MPA assessments (Defra 2024);
- Guidance document on Article 6(4) of the 'Habitats Directive' 92/43/EEC (European Commission 2007);
- European Commission (EC) 2018 "Managing Natura 2000 Sites" (European Commission 2018)
- The Planning Inspectorate's Nationally Significant Infrastructure Projects: advice on Habitats Regulations Assessments (Planning Inspectorate 2024);
- Report to Crown Estate Scotland and the Scottish Offshore Wind Energy Council: Habitats Regulation Appraisal derogation scope B – review of seabird strategic compensation options (MacArthur Green 2021);
- Assessment of compensatory measures for impacts of offshore windfarms on seabirds (McGregor et al. 2022);
- The Scottish seabird vulnerability report (Scottish Government 2025a);
- Strategic compensation policy for offshore wind: consultation (Scottish Government 2025b);
- Scottish Marine Recovery Fund: interim guidance (Scottish Government 2025c); and
- Development of ornithology regional compensation measures (Pizzolla et al. 2024).

18. Consideration has also been given to previous and current compensation measures that have been proposed for guillemot in relation to offshore windfarm proposals (including but not limited to Outer Dowsing, Rampion 2, Ayre, Buchan, Berwick Bank and Muir Mhòr).

## 5 LONG LIST OF POTENTIAL COMPENSATION MEASURES

19. This section lists potential compensation measures that could be implemented in the event that AEoSI cannot be excluded for the Project in relation to the breeding guillemot feature of North Colonsay and Western Cliffs SPA.

20. The Scottish Government's draft compensation policy consultation paper lays out a proposed hierarchy of approaches that can be taken to compensate for the impacts of offshore developments on designated features of protected sites (Scottish Government 2025b):

- "Tier 1 - Benefit to the Impacted Feature: compensatory measures that provide ecological benefit(s) for the impacted feature in a measurable way, i.e., where there is clear evidence that the intervention will be effective in benefiting the impacted feature. The following points in relation to location should be considered in sequence:"
  a. "Does the measure benefit the impacted feature at the impacted site?"
  b. "Does the measure benefit the impacted feature at a different site inside the protected site network?";
- "Tier 2 - Benefit to a Similar Feature: compensatory measures that provide sufficient evidence of ecological benefit(s) to features, or groups of features which are ecologically similar to the impacted feature"; and
- "Tier 3 - Benefit to Protected Site Network: compensatory measures that provide sufficient evidence of ecological benefit(s) to the protected site network more widely."

21. Where management measures would be required to target specific seabird colonies, this draft compensation policy makes clear that the ideal target colonies would be within those SPAs for which AEoSI could not be excluded during assessment. However, some measures may be more beneficially applied at other colonies. These other colonies could either be within the protected site

network themselves, or could have the potential to act as source populations for colonies within the protected site network. This approach would still have the potential to generate suitable compensation under the Scottish Government's draft compensation policy, which makes clear that measures that "benefit the impacted feature at a different site inside the protected site network" would contribute Tier 1 compensation for projects' impacts (Scottish Government 2025b). Therefore, details of the applicability of individual measures at specific colonies are not considered to be critical in the below evaluation, provided that measures could be applied in such a way as to provide recruits to colonies within the protected site network.

22. Furthermore, this draft compensation policy makes clear that compensation can consist, in whole or in part, of measures that benefit species other than the species impacted by development. Consideration is therefore given in the below evaluation to those compensation measures that would provide benefits for species other than guillemot, on the basis that even if the measure cannot provide Tier 1 compensation proportionate to the Project's impacts, it may be able to provide proportionate Tier 2 or Tier 3 compensation instead.

23. A long list of potential compensation measures is presented below. These have been scored according to the criteria presented in **Table 5.1**. Some measures would have the potential to provide compensation at multiple tiers, depending on the details of their implementation. Where a measure's score differs depending on the tier at which it would be applied (e.g. if a measure would likely be ineffective in increasing guillemot populations (Tier 1), but has greater potential to increase the populations of ecologically similar species (Tier 2)), scores and underlying evidence have been provided separately for each relevant tier. Scores are presented in one table per measure:

- **Table 5.2** – Mammalian predator eradication;
- **Table 5.3** – Reducing anthropogenic disturbance at colonies;
- **Table 5.4** – Bycatch reduction;
- **Table 5.5** – Avian predator management;
- **Table 5.6** – Management of nesting sites;
- **Table 5.7**– Supplementary feeding;
- **Table 5.8** – Fisheries closure;
- **Table 5.9** – Artificial nesting structures;
- **Table 5.10** – Kelp bed extension;
- **Table 5.11** – Seagrass restoration;
- **Table 5.12** – Shellfish reef restoration; and
- **Table 5.13** – Conservation management measure funding.

24. A short list of the measures deemed most likely to meet any compensation requirements, and details of how each might be deployed, is presented in **Section 6**. Measures have been selected for inclusion on this shortlist based on their performance to the criteria in **Table 5.1**. These criteria have been selected on the basis of published best-practice advice (Defra 2021), with changes made to align the criteria with the Scottish Government's draft compensation policy (Scottish Government 2025b). These criteria are similar to the criteria that have been used in derogation cases published by other offshore wind farm projects (e.g. MarramWind 2025). Measures that scored three out of five or higher on all criteria for a given tier were deemed to be both feasible and ecologically effective.

*Table 5.1 Rubric used to score long-listed compensation measures for the Project.*

| Score | Metric | | | | |
|---|---|---|---|---|---|
| | **Effectiveness - How high is the confidence level that the measure will deliver effective and sustainable compensation for the impact of the Project?** | **Delivery timeframe - What is the timeframe within which the compensation measure is expected to be functioning and contributing to the network?** | **Technical delivery - Can the measure be delivered successfully from a technical, financial and legal perspective, and be monitored and managed appropriately?** | **Conservation value - What is the wider environmental benefit provided by the proposed measure?** | **Extent - Can the scale of the proposed compensation measure be accurately quantified / predicted?** |
| **5** | There is strong evidence of the effectiveness of the measure on the feature of interest. | There is certainty that the compensation measure will be functioning within one year of implementation. | There is strong evidence that the delivery of this compensation measure is achievable without substantial challenge and there is certainty in expected outcomes. | In addition to benefitting the target feature, the measure will benefit other features and / or habitats, including sites and / or species of conservation interest or concern. | There is certainty that the benefits of the measure can be suitably quantified and amended to deliver compensation that is proportional to predicted Project impacts. |
| **4** | There is some evidence of the effectiveness of the measure on the feature of interest and strong evidence of the effectiveness of the measure on other, similar features. | The measure will require a lead in time of several years after implementation. There is certainty that the measure will be effective at the point of impacts being predicted to occur. | There is evidence that the delivery of this measure is achievable but with some challenge and / or uncertainty of the outcomes. Further evidence gathering may be beneficial to reduce uncertainty. | In addition to benefitting the target feature, the measure will benefit multiple other features and / or habitats. | There is some uncertainty that the benefit of the measure can be suitably quantified, but the measure can be amended to deliver compensation that is proportional to predicted Project impacts. |
| **3** | There is some evidence of the effectiveness of the measure on features similar to the feature of interest. | The measure will require a lead in time of several years after implementation. There is some certainty that the measure will be effective at the point of impacts being predicted to occur, but a higher compensation target may need to be assumed to accommodate for uncertainty. | There is some evidence of delivery of this measure being achievable, though some uncertainty exists regarding expected outcomes. Further evidence gathering would be recommended to reduce uncertainty. | In addition to benefitting the target feature, the measure may benefit additional features and / or habitats. | There is certainty that the benefit of the compensation can be suitably quantified but the ability of the measure to deliver compensation that is proportional to predicted Project impacts is uncertain. |
| **2** | There is some evidence of the effectiveness of the measure in general. | The measure will require a lead in time of up to ten years from implementation to be functioning. There is little certainty that the | There is little to no evidence of how this measure might be delivered and there is considerable uncertainty with regard to expected outcomes. | The measure is targeted at the feature and is unlikely to provide | There is some uncertainty with respect to the predicted benefit of the measure and it is unlikely that the measure can deliver |

| Score | Metric | | | | |
|---|---|---|---|---|---|
| | **Effectiveness - How high is the confidence level that the measure will deliver effective and sustainable compensation for the impact of the Project?** | **Delivery timeframe - What is the timeframe within which the compensation measure is expected to be functioning and contributing to the network?** | **Technical delivery - Can the measure be delivered successfully from a technical, financial and legal perspective, and be monitored and managed appropriately?** | **Conservation value - What is the wider environmental benefit provided by the proposed measure?** | **Extent - Can the scale of the proposed compensation measure be accurately quantified / predicted?** |
| | | measure will be effective at the point of impacts being predicted to occur and a higher compensation target would be required to accommodate for uncertainty. | Further evidence gathering would be required to reduce uncertainty. | significant benefits to other features. | compensation that is proportional to predicted Project impacts. |
| **1** | The measure has the potential to have an effect, but there is little empirical evidence. | There is no certainty and limited evidence that the compensation measure will be functioning within ten years therefore a significantly higher compensation target would be necessary. | There is no evidence of how this measure might be delivered and there is considerable uncertainty regarding expected outcomes. Or, the measure is likely not possible to implement from either a technical, financial or legal perspective. | The measure is targeted at the feature and has the potential to cause harm to other features. | There is significant uncertainty with respect to the predicted benefits of the measure and it is unlikely that the measure can deliver compensation that is proportional to predicted Project impacts. |

*Table 5.2 Assessment of the performance of mammalian predator management as a compensation measure to the criteria presented in* ***Table 5.1****.*

| Description | Metric | Tier | Score | Explanation |
|---|---|---|---|---|
| Eradication or (lethal or non-lethal) control of invasive mammalian predators at seabird colonies, including black and brown rat (*Rattus rattus* and *Rattus norvegicus,* respectively), feral cat (*Felis catus*), American mink (*Neogale vison*) and red fox (*Vulpes vulpes*).<br><br>The compensation would be likely to be targeted at a seabird colony on an island or peninsula from which mammalian predators could be effectively removed and then continuously excluded through ongoing biosecurity measures and monitoring that would be ongoing for the period over which compensation was required.<br><br>This measure would likely be targeted at guillemot colonies and would therefore provide Tier 1 compensation. However, it would also have the potential to provide Tier 2 compensation by providing benefits to other seabird species such as puffin and razorbill either alongside guillemot or independently. | Effectiveness | 1 | 4 | Mammalian predator management has been shown to consistently provide benefits to a range of bird species, including guillemot. However, the benefits to guillemot may be less substantial than the benefit to other species such as Atlantic puffin (*Fratercula arctica*, hereafter "puffin") and razorbill (*Alca torda*) because guillemot nesting ecology provides them with a level of protection from mammalian predators (Tapia-Harris & Evans 2024). |
| | | 2 | 5 | Puffin and, to a lesser extent, razorbill consistently benefit substantially from mammalian predator management schemes (Tapia-Harris & Evans 2024). For example, otherwise small or declining colonies have been observed to increase in population size by over 100% following eradication of rats (St Pierre et al. 2023). |
| | Delivery timeframe | 1 and 2 | 4 | Eradication of mammalian predators would likely take 1-3 years, with seabird populations likely to respond almost immediately (St Pierre et al. 2023). However, it would take some time for colony size to grow such that sufficient additional breeding pairs were present to produce compensation that was proportional to predicted Project impacts. Ongoing monitoring and biosecurity would be required over the lifetime of the Project to ensure that compensation requirements were met and predators did not re-occur at the colony. |
| | Technical delivery | 1 and 2 | 3 | Proven techniques exist both for conducting the eradication and control of mammalian predators and for implementing biosecurity measures required to prevent re-invasion (Pizzolla et al. 2024). Nevertheless, failure can occur, which could necessitate re-implementation of costly control measures. Some initial investigation of potential target sites would be necessary to establish the extent to which target seabird species would be expected to benefit from mammalian predator control or eradication, and to establish the feasibility of conducting a programme at those sites. Final selection of a site for implementation of this measure would require consultation with stakeholders.<br><br>Costs for mammalian predator eradication programmes scale with island area, and could exceed ten million pounds on large islands. Legal considerations include the need for permits and licenses to carry out the programme's activities (likely including within an SPA), the need to consider potential adverse effects on protected non-target species, landowner permissions and secure land access rights, and the need to consider impacts on non-statutory stakeholders such as any residents of the impacted area, which is liable to include land significantly beyond the boundary of any SPA. |
| | Conservation value | 1 and 2 | 5 | In addition to benefiting the target species, mammalian predator eradication or control at seabird colonies would provide substantial benefits to other species of conservation concern, particularly other seabirds present within the impacted area and potentially also vegetation. |

| Description | Metric | Tier | Score | Explanation |
|---|---|---|---|---|
| | Extent | 1 | 3 | Mammalian predator eradication or control is typically conducted in isolated areas such as islands or peninsulas (Tapia-Harris & Evans 2024). The seabird population of these areas can be surveyed before and after implementation of control measures using standard survey techniques. Guillemot populations in different locations have differed in the magnitude of their responses to mammalian predator control and eradication (e.g. Luxmoore et al. 2019, St Pierre et al. 2023), and so it would be necessary to conduct preliminary analyses of likely response magnitude during site selection to quantify expected compensation returns. |
| | | 2 | 4 | Mammalian predator eradication or control is typically conducted in isolated areas such as islands or peninsulas (Tapia-Harris & Evans 2024). The seabird population of these areas can be surveyed before and after implementation of control measures using standard survey techniques. Puffin, and to a lesser extent razorbill, show consistent, large, positive responses to the exclusion of mammalian predators from their colonies (Tapia-Harris & Evans 2024). On this basis, the expected impact on these species of implementing this compensation measure could be calculated relatively reliably prior to implementation of the measure. Nevertheless, the exact response is likely to depend upon local variables (such as food availability) and so some uncertainty would remain. |
| | **Total** | 1 | 19 | |
| | | 2 | 21 | |
| | **In short-list?** | 1 and 2 | Yes – no score lower than three. Further discussion is presented in the shortlist in **Section 6.1**. | |

*Table 5.3 Assessment of the performance of reducing anthropogenic disturbance at colonies as a compensation measure to the criteria presented in **Table 5.1**.*

| Description | Metric | Tier | Score | Explanation |
|---|---|---|---|---|
| Implementation of new restrictions upon activities at seabird colonies or within adjacent areas of sea. This could include, among other measures, increased presence of site wardens, increased signage and restricted access to areas of colonies at certain times of day or year.<br><br>This measure would likely be targeted at guillemot colonies and would therefore provide Tier 1 compensation. However, it would also have the potential to provide Tier 2 compensation, either by providing benefits to other seabird species within the same area or by being targeted at a puffin or razorbill colony. | Effectiveness | 1 | 5 | Reducing disturbance at guillemot colonies has been proven to quantifiably increase breeding success (Harris & Wanless 1995). Reducing disturbance sufficiently across a sufficient area of colony would therefore generate quantifiable compensation for the Project. |
| | | 2 | 5 | Both puffin and razorbill have been shown to have lower breeding success when subjected to anthropogenic disturbance (Lyngs 1994, Rodway et al. 1996, Bogdanova et al. 2014). Reducing disturbance sufficiently across a sufficient area of colony would therefore generate quantifiable compensation for the Project. |
| | Delivery timeframe | 1 and 2 | 5 | Measures to reduce disturbance at seabird colonies could be implemented relatively quickly following stakeholder agreement at relevant sites and would have an immediate effect on breeding success at the relevant colonies. Further increases to breeding success may be achieved more slowly if reductions in disturbance allow for expansion of the colony into previously disturbed areas. |
| | Technical delivery | 1 and 2 | 3 | A range of measures to reduce disturbance at seabird colonies have been trialed and implemented in the past (Carney & Sydeman 1999), and collaboration with the organisations that manage relevant sites would allow for both the implementation of measures and the monitoring of the effectiveness of measures. Selection of a site for implementation of this measure would require further data collection and consultation with stakeholders.<br><br>Some measures to reduce disturbance at seabird colonies could be implemented with relatively little cost, although deployment of any new structures or long-term employment of staff would result in higher costs. Legal considerations would include the need to acquire secure land access rights and landowner permissions for relevant activities and, potentially, the need to seek licenses for activities conducted within SPAs. |
| | Conservation value | 1 and 2 | 3 | The wider conservation benefits of reducing disturbance would depend upon how it was implemented. If measures were targeted at guillemot-rich areas of colony, then other species may gain limited benefits. However, there is liable to be some additional benefits to other species based on their proximity to those guillemot-rich areas. |
| | Extent | 1 and 2 | 3 | With continuous monitoring, benefits of this measure to seabird breeding success could be quantified. However, it is not clear if this measure alone would be sufficient to meet any compensation requirements of the Project because the total impact of disturbance on breeding success across the protected site network is not clear. |
| | **Total** | 1 | 19 | |

| Description | Metric | Tier | Score | Explanation |
|---|---|---|---|---|
| | | 2 | 19 | |
| | **In short-list?** | 1 and 2 | Yes – no score lower than three. Further discussion is presented in the shortlist in **Section 6.2**. | |

*Table 5.4 Assessment of the performance of bycatch reduction as a compensation measure to the criteria presented in **Table 5.1**.*

| Description | Metric | Tier | Score | Explanation |
|---|---|---|---|---|
| Monitoring and adaptation of fishing methods in collaboration with industry stakeholders to reduce mortality of seabirds.<br><br>This measure would likely be targeted at fisheries that impact guillemot and would in that case provide Tier 1 compensation. However, it would also have the potential to provide Tier 2 compensation by providing benefits to other seabird species if they were impacted by the same fisheries and were receptive to the same bycatch reduction measures, or if the measure was targeted at other fisheries. | Effectiveness | 1 and 2 | 3 | A range of technologies exist that have been shown to be able to reduce bycatch of seabirds. For example, Mangel et al. (2018) demonstrated an 85% reduction in bycatch of guanay cormorant (*Leucocarbo bougainvilliorum*) in Peru through the use of LED-illuminated gillnets. However, evidence is currently lacking on the effectiveness of bycatch reduction measures for guillemot or ecologically similar species. |
| | Delivery timeframe | 1 and 2 | 4 | Bycatch reduction measures would be effective as soon as they were implemented and, because they reduce the number of adult deaths, would immediately begin generating compensation for the Project without the need to wait for buildup of new breeding pairs of guillemot. Some delay could be caused by the need for effectiveness trials. |
| | Technical delivery | 1 and 2 | 2 | Trials would be required to ensure the effectiveness of any technology to be implemented, and the logistical difficulties of implementing bycatch reduction technologies within existing fisheries may be prohibitive, particularly at the scale that may be required for the Project.<br><br>Costs of equipment or its deployment could be relatively high over the lifetime of the Project. Implementation of this measure would require continuous buy-in from suitable fishers, which may present a legal obstacle since meeting the Project's compensation obligations would require that buy-in be secured over a long timescale. |
| | Conservation value | 1 and 2 | 4 | In addition to reducing bycatch of guillemot, implemented measures would have the potential to reduce bycatch of other seabirds. |
| | Extent | 1 | 4 | Bycatch is a persistent problem in guillemot (MacArthur Green 2021). Northridge et al. (2020) estimated that around 2,500 guillemot are killed annually in the UK by bycatch. This is more than ten times the predicted impact of the Project on guillemot at North Colonsay and Western Cliffs SPA. It is therefore likely that sufficient compensation could be achieved through this measure if implemented measures are effective.<br><br>Bycatch can be quantified continuously, and the effectiveness of implemented measures could be continuously monitored during fishing. Trials could be conducted prior to implementation of compensation measures to determine likely expected compensation returns within any one fishery, such that compensation measures could be scaled to meet the compensation requirements of the Project. |

| Description | Metric | Tier | Score | Explanation |
|---|---|---|---|---|
| | | 2 | 1 | Bycatch of razorbill does occur, but at substantially lower rates than in guillemot (Northridge et al. 2020). This may be partly attributable to the fact that there are fewer razorbill in the UK than guillemot. Bycatch of puffin is even rarer and is not recorded at all in the Northridge et al. (2020) report. On this basis, any reduction of bycatch of puffin and razorbill that could be achieved would be minimal in terms of extent. |
| | **Total** | 1 | 17 | |
| | | 2 | 14 | |
| | **In short-list?** | 1 | No – low score for technical delivery | |
| | | 2 | No – multiple scores lower than 3 | |

*Table 5.5 Assessment of the performance of avian predator management as a compensation measure to the criteria presented in **Table 5.1**.*

| Description | Metric | Tier | Score | Explanation |
|---|---|---|---|---|
| Reduction of the predator pressure exerted on seabirds by avian predators at colonies, either by lethal control of predators or non-lethal measures such as the construction of artificial cover structures.<br><br>This measure would likely be targeted at guillemot colonies and would therefore provide Tier 1 compensation. However, it would also have the potential to provide Tier 2 compensation, either by providing benefits to other seabird species within the same area or by being targeted at colonies of puffin or razorbill. | Effectiveness | 1 | 5 | Both lethal and non-lethal management of avian predators have been shown to be effective in increasing population sizes of guillemots in particular. Guillemot are susceptible to predation by a range of avian predators, including large gulls, corvids, birds of prey and skuas (Furness et al. 2024). Parrish & Paine (1996) demonstrated that providing artificial cover to guillemots decreased their susceptibility to disturbance by avian predators on Tatoosh Island in the USA and Hasebe et al. (2026) demonstrated that lethal control of avian predators resulted in a substantial increase in guillemot populations on Teuri Island in Japan. |
| | | 2 | 5 | Avian predators are known to have negative impacts at the population level on both puffin and razorbill (Veitch et al. 2016, Langlois Lopez et al. 2023), and reduction of this avian predation has been shown to be an effective method for facilitating colony recovery (Ebersole 2023). |
| | Delivery timeframe | 1 and 2 | 3 | Implementation of avian predator management would be expected to result in a rapid population-level response at the managed colony. However, if compensation required an increase in population size at the colony (rather than just an increase in reproductive success of the existing population) then several years lead in would likely be required for that increase in population size to occur. There may be some delays associated with deployment of measures as a result of the need to coordinate with stakeholders involved in the management of chosen sites. |
| | Technical delivery | 1 and 2 | 2 | Avian predator control could be implemented using lethal or non-lethal measures. However, lethal measures may be impractical to deploy for regulatory reasons, other than possibly against crows, and non-lethal avian predator control measures have not been widely deployed in relation to guillemot and so would require significant trialing.<br><br>Legal barriers to implementation of avian control measures could be prohibitive: avian predators are often protected species in their own right, and disrupting their feeding ecology would be expected to have negative impacts of uncertain magnitude. It would also be necessary to secure land access from landowners and agreement on measures from stakeholders, which may be particularly difficult for this measure because of its negative impact on the predator species. Costs of this measure are hard to estimate because it has not been widely implemented in this context for other projects, but they would likely include costs of setup and maintenance of infrastructure within one or more seabird colonies for the duration of the Project. |

| Description | Metric | Tier | Score | Explanation |
|---|---|---|---|---|
| | Conservation value | 1 and 2 | 3 | Depending on the specifics of the measure deployed, avian predator management may produce benefits for species other than the focal species. However, consideration would need to be given to potential negative impacts on avian predator species. |
| | Extent | 1 and 2 | 3 | Generated compensation could be suitably quantified through observation of adult survival and reproductive success, as well as through measurement of population-level effects. However, it is difficult to determine the expected compensation return from avian predator management as benefits are likely to be very colony-specific and existing data are limited. |
| | **Total** | 1 | 16 | |
| | | 2 | 16 | |
| | **In short-list?** | 1 and 2 | No – low score for technical delivery | |

*Table 5.6 Assessment of the performance of management of nesting sites as a compensation measure to the criteria presented in* ***Table 5.1****.*

| Description | Metric | Tier | Score | Explanation |
|---|---|---|---|---|
| Removal of vegetation or other potential obstructing material from colonies to increase the availability of nesting habitat for seabirds.<br><br>This measure could be targeted at guillemot colonies, in which case it would provide Tier 1 compensation. However, it could also be targeted at colonies of puffin, in which case it would provide Tier 2 compensation. | Effectiveness | 1 | 2 | Guillemot are cliff nesting. Clearance of obstructing material would therefore likely involve work to expose more cliff, which is not an established management measure. It is also not clear that habitat availability is generally limiting for guillemot at a regional level, particularly since the population size of many colonies has decreased in recent decades (Burnell et al. 2023). |
| | | 2 | 5 | Removing vegetation such as non-native tree mallow (*Malva arborea*) and bracken (*Pteridium aquilinum*) has been shown to be an effective management intervention for puffin (van der Wal 2006). |
| | Delivery timeframe | 1 and 2 | 4 | An increase in nesting space availability could facilitate seabird population growth at a colony as soon as it was implemented, provided that the availability of nesting habitat was limiting to population growth. However, it may take some time for populations to respond sufficiently to generate proportionate compensation for Project impacts. |
| | Technical delivery | 1 | 2 | Removing obstructing material from cliffs in seabird colonies would be a difficult and potentially dangerous activity. Not only would it require prolonged work near cliff faces, it would also require actively modifying those cliff faces which could produce debris. This activity may also cause significant disturbance to birds at those colonies and would therefore have to be conducted outside of the breeding season, which would elevate the risk of adverse environmental conditions.<br><br>If this work was to be conducted within an SPA, then there would likely be a legal requirement to obtain permission for the activities. Activities would also require landowner permission and secure land access rights. Costs of activities would be highly dependent upon the site chosen and the extent of modification required, but there would likely be significant personnel costs at least initially. |
| | | 2 | 3 | Vegetation clearance for the benefit of puffin has been shown to be practical as a conservation measure on Craigleith and Skomer, although it requires substantial and continuous investment of effort in order to prevent invasive plants from returning (Anderson 2025).<br><br>If this work was to be conducted within an SPA, then there would likely be a legal requirement to obtain permission for the activities. Activities would also require landowner permission and secure land access rights. Costs of activities would be highly dependent upon the site chosen and the extent of modification required, but there would likely be significant personnel costs. |

| Description | Metric | Tier | Score | Explanation |
|---|---|---|---|---|
| | Conservation value | 1 | 2 | Depending on the extent of obstructing material, its removal could create significant new nesting habitat. However, it is assumed that this measure would target habitat that would be ideal for the target species and so benefits to other species would be expected to be minimal. |
| | | 2 | 3 | Clearance of invasive vegetation for the benefit of puffins can provide other benefits to native plants and to soil stability within the colony, which would support the ecosystem as a whole (van der Wal 2006). |
| | Extent | 1 and 2 | 2 | It would be straightforward to measure increases in colony size following this management intervention, and it would be possible to assess seabirds' use of newly created versus long-standing areas of nesting habitat. However, creation of additional nesting habitat may have limited potential to produce compensation for Project impacts since habitat availability is not clearly limiting in many colonies, and deployment of the habitat management measures described here would only be possible if specific pressures were present at a given site. |
| | **Total** | 1 | 12 | |
| | | 2 | 17 | |
| | **In short-list?** | 1 | No – multiple scores lower than three | |
| | | 2 | No – low score for extent | |

*Table 5.7 Assessment of the performance of supplementary feeding as a compensation measure to the criteria presented in **Table 5.1**.*

| Description | Metric | Tier | Score | Explanation |
|---|---|---|---|---|
| Provision of food resources to adults and / or chicks at a target colony to increase breeding success and adult survival.<br><br>This measure would be targeted at guillemot and would therefore provide Tier 1 compensation. | Effectiveness | 1 | 1 | Food scarcity has been implicated in wrecks (i.e. mass deaths) of guillemots in the UK (MacArthur Green 2021). However, there is very limited empirical evidence to suggest that supplementary feeding would effectively address this issue. Incidental supplementary feeding of seabirds through fisheries discards has increased seabird breeding success in the past, but the feeding ecology of guillemot has meant that they have not benefited from discards as much as other species. Additionally, implementation of the measure may cause disturbance at the colony, which could reduce breeding success (Buckley 2004). |
| | Delivery timeframe | 1 | 5 | Supplementary feeding could be implemented quickly and would be expected to have an immediate impact on survival and reproduction at the colony. |
| | Technical delivery | 1 | 1 | No established best-practice method exists for implementing supplementary feeding of guillemot at colonies. Additionally, the outcome of any supplementary feeding would be unpredictable with respect to population growth. Furthermore, supplementary feeding could have unintended consequences with respect to behavior and population dynamics within targeted colonies, and may represent an unacceptable intervention from the perspective of stakeholders.<br><br>Lack of established implementation methods for this measure makes estimation of costs difficult, but significant staffing costs would likely be associated with frequent visits to the colony during the breeding season for the duration of the Project. Legal considerations would include the need for permits to conduct any activity within SPA sites, particularly since this measure would be liable to result in disturbance. It would also be necessary to secure landowner permission and land access for the duration of the Project. |
| | Conservation value | 1 | 2 | Supplementary feeding would be expected to be targeted at guillemot and so benefits to other species would be minimal. |
| | Extent | 1 | 2 | It would be straightforward to monitor changes in colony size and reproductive rate at a colony following this intervention. However, lack of existing examples of supplementary feeding as a management intervention for guillemot mean that the capacity of supplementary feeding to meet the compensation needs of the Project is uncertain. |
| | **Total** | 1 | 11 | |
| | **In short-list?** | 1 | No – multiple scores lower than three | |

*Table 5.8 Assessment of the performance of fisheries closure as a compensation measure to the criteria presented in **Table 5.1**.*

| Description | Metric | Tier | Score | Explanation |
|---|---|---|---|---|
| Closure of fisheries that harvest key prey species for seabirds to increase food availability to breeding colonies.<br><br>This measure would not be targeted at any specific species and would have an impact across the protected site network. However, it would be likely to provide a quantifiable benefit to guillemot and to other, similar species. It would therefore have the potential to provide Tier 1, Tier 2 and Tier 3 compensation. | Effectiveness | 1 and 2 | 3 | Increased availability of natural food is likely to be beneficial to guillemot and other auks (MacArthur Green 2021), although it is not clear how much the closure of ongoing fisheries would benefit auks given that the UK and Scottish governments have already closed sandeel fisheries in UK waters. |
| | | 3 | 4 | While guillemot and other auks are likely to benefit disproportionately from ongoing closure of sandeel fisheries in the UK waters, other components of the protected site network may benefit more from closure of ongoing fisheries. For example, marine mammals feed on a range of fish and shellfish species that are still actively fished in Scotland (Das et al. 2003). |
| | Delivery timeframe | 1, 2 and 3 | 2 | Closing any fisheries would be likely to be a long and complex process involving deliberation by regulators. It is also not clear how rapidly relevant prey fish populations would increase after fisheries closure, or how rapidly seabird populations would increase following recovery of prey fish populations, both of which would result in delays in the delivery of compensation. |
| | Technical delivery | 1, 2 and 3 | 1 | Further changes to fisheries regulations could be implemented by regulators to facilitate this measure at a strategic level. However, closing fisheries is not viable at a project level. |
| | Conservation value | 1, 2 and 3 | 5 | Closure of fisheries would have the potential to be beneficial to a large number of different species, including seabirds of conservation concern and non-avian marine species. |
| | Extent | 1 and 2 | 1 | It would be extremely difficult to quantify the benefits of this intervention measure on guillemot or any other seabird species in particular, particularly if effects are broadly distributed in space. It is also not clear what level of benefit to the guillemot population (or populations of other seabirds) could be expected. |
| | | 3 | 2 | It is not clear how wider benefits to the protected site network would be quantified, but changes in the abundance of fished species themselves would likely to be measurable. The extent to which a given change in the abundance of a fish species would translate to a given benefit to the protected site network is not clear. |
| | **Total** | 1 and 2 | 12 | |
| | | 3 | 14 | |

| Description | Metric | Tier | Score | Explanation |
|---|---|---|---|---|
| | **In short-list?** | 1, 2 and 3 | No – multiple scores lower than three | |

*Table 5.9 Assessment of the performance of artificial nesting structures as a compensation measure to the criteria presented in **Table 5.1**.*

| Description | Metric | Tier | Score | Explanation |
|---|---|---|---|---|
| Construction of an artificial nesting structure (ANS), either onshore or offshore, to increase habitat availability for guillemot and / or to provide protection from impactors at existing colonies such as predators.<br><br>This measure would be targeted at guillemot and would therefore provide Tier 1 compensation. | Effectiveness | 1 | 2 | ANS have previously been deployed as compensation measures for kittiwake (Rhoades et al. 2025). However, there is less evidence of their effectiveness in relation to other species. The presence of guillemot on artificial structures suggests that ANS have potential to provide compensation in relation to the impact of developments on guillemot, but this remains unproven (Ørsted 2021, Hentati-Sundberg et al. 2025).<br><br>In principle, the use of ANS as compensation for any species requires that either a) habitat availability is limiting for population growth of that species in the region, or b) breeding success is greater on the ANS than on adjacent areas of natural habitat. It is not clear that either of these conditions could be reliably met for guillemot. |
| | Delivery timeframe | 1 | 2 | Deployment of ANS would require site selection over a wide area and construction of the structure, which may require additional regulatory consideration. Additionally, in order for the ANS to produce compensation for the Project's impacts, it would be necessary for a sufficient number of guillemot pairs to nest on the structure every year, and buildup of this population may take several years. |
| | Technical delivery | 1 | 2 | Deployment of ANS would require stakeholder approval and landowner permissions for construction. It may be expensive, particularly if it was to be deployed at sea. It would also be relatively inflexible: some adaptive management measures, such as deployment of decoys and playbacks, could be implemented to increase recruitment of birds to the structure. However, once constructed, any expansion of the structure itself that was required to meet compensation requirements would be expensive and impractical. |
| | Conservation value | 1 | 3 | A sufficiently large ANS or series of ANS would have the potential to meet compensation requirements for guillemot. Other seabird species that made use of the ANS for nesting would necessarily reduce the available nesting space for guillemot, and so while some benefits may exist for species other than guillemot they would have to be relatively limited in order for the measure to meet compensation requirements. |
| | Extent | 1 | 2 | It would be possible to quantify the benefits of an ANS to guillemot based on observations of the number of guillemot using the structure and their reproductive success. However, lack of past evidence of the effectiveness of ANS as compensation for guillemot means that it is difficult to predict those benefits in advance, and the nature of ANS means that post-construction adjustments to the measure to meet compensation requirements would be costly and difficult. |
| | **Total** | 1 | 11 | |

| Description | Metric | Tier | Score | Explanation |
|---|---|---|---|---|
| | **In short-list?** | 1 | No – multiple scores lower than three | |

*Table 5.10 Assessment of the performance of kelp bed extension as a compensation measure to the criteria presented in **Table 5.1**.*

| Description | Metric | Tier | Score | Explanation |
|---|---|---|---|---|
| Planting and protection of new kelp forests or the facilitation of the natural expansion of kelp forests into new areas as a means of increasing the quality of foraging habitat adjacent to seabird colonies, or as a means of benefiting the protected site network more broadly.<br><br>This measure would not be targeted at any specific species but would provide broad benefits to the protected site network. This measure would therefore provide Tier 3 compensation, and may provide Tier 1 or Tier 2 compensation depending on location and the measurability of impacts. | Effectiveness | 1 and 2 | 1 | Kelp restoration efforts in the UK have been limited, and so impacts are not well known. While kelp forest expansion could result in an increase in foraging efficiency, and therefore breeding success, within nearby seabird colonies, this effect would be likely to be diffuse and hard to quantify. |
| | | 3 | 4 | This measure could have significant benefits for the wider marine protected area network; kelp forests support significant biodiversity both locally and by acting as nursery habitats for fish species. They also act as carbon sinks, both on short timescales and on longer timescales through connectivity to marine sediments and regulate water quality and nutrient loading (Wilding et al. 2022). |
| | Delivery timeframe | 1, 2 and 3 | 2 | Kelp grows extremely rapidly. Nevertheless, considerable preparatory work would be required before a large area of new kelp forest was established within an area, and establishment of mature marine ecosystems that support substantial ecosystem services would take even longer. |
| | Technical delivery | 1, 2 and 3 | 3 | A number of trials have been conducted to study how kelp beds might be extended or introduced into new areas, and further research is ongoing (Wilding et al. 2022). However, there are not yet well established protocols, and so further trials would likely be required. Kelp forests are impacted by climate change (Moore & Smale 2020), and so any kelp forest created as a compensation measure for the Project would need to be resilient to expected future climate change. The logistical difficulties of implementing this measure, and the benefits of implementing it at a large scale, mean that it is likely to be better suited for strategic, rather than project-led compensation.<br><br>The need to secure the use of a significant area of seabed would add both financial and legal requirements to this measure. The goal would likely be for kelp to be self-sustaining once established, but establishing the new kelp forest would incur significant initial fieldwork and equipment costs, as well as some ongoing costs associated with monitoring. There would also likely be a legal need to acquire regulatory approval for implementing this measure at any particular site given the scale of the measure and its potential environmental impacts on nearby ecosystems. |
| | Conservation value | 1, 2 and 3 | 4 | Kelp forests are valuable habitat for a range of marine species and provide food resources to others (Wilding et al. 2022). They also have the potential to act as significant carbon sinks (Canvin et al. 2024) and to protect coastal ecosystems from storm events and erosion. These benefits are not well quantified, but they are liable to be significant. |

| Description | Metric | Tier | Score | Explanation |
|---|---|---|---|---|
| | Extent | 1 and 2 | 1 | There is no accepted method for measuring the impacts of kelp forest expansion on seabird populations. Seabird presence in and around the managed area could be quantified, but this would not necessarily be reflective of increased breeding success. Changes in breeding success at colonies could be quantified, but this would be hard to attribute to the compensation measure with any confidence. It would therefore be difficult to determine the impact of the measure, and whether or not any adaptive management was necessary. |
| | | 3 | 4 | A range of variables exist including biodiversity, biomass, carbon sequestration rate and water quality that could be measured to determine the benefits produced for the wider protected site network by kelp forest restoration. In each case, there are some uncertainties over the magnitude of the response that would be expected after implementation of this measure, but some response can be predicted and adjustments could be made to increase the magnitude of the response as required. |
| | **Total** | 1 and 2 | 11 | |
| | | 3 | 17 | |
| | **In short-list?** | 1, 2 and 3 | No – multiple scores lower than three | |
| | | | No – low score for delivery timeframe | |

*Table 5.11 Assessment of the performance of seagrass restoration as a compensation measure to the criteria presented in **Table 5.1**.*

| Description | Metric | Tier | Score | Explanation |
|---|---|---|---|---|
| Planting and protection of new seagrass meadows or the facilitation of the natural expansion of seagrass meadows into new areas as a means of increasing the quality of foraging habitat adjacent to seabird colonies, or as a means of benefiting the protected site network more broadly.<br><br>This measure would not be targeted at any specific species but would provide broad benefits to the protected site network. This measure would therefore provide Tier 3 compensation, and may provide Tier 1 or Tier 2 compensation depending on location and the measurability of impacts. | Effectiveness | 1 and 2 | 1 | Seagrass meadows have been shown to support fish species that could act as food sources for nearby colonies of seabirds, including guillemot (Unsworth & Butterworth 2021). However, no study has yet shown an actual increase in guillemot survival or reproductive success resulting from seagrass meadow restoration, and any direct effect on guillemot (Tier 1 compensation) or ecologically similar seabirds (Tier 2 compensation) would be likely to be diffuse and hard to quantify. |
| | | 3 | 5 | This measure could have significant benefits for the wider marine protected area network; seagrass meadows have a well-evidenced ability to sequester carbon, regulate coastal water quality, limit coastal erosion and support significant biodiversity (Unsworth et al. 2021). |
| | Delivery timeframe | 1, 2 and 3 | 2 | Seagrass meadows may establish relatively rapidly after site selection and planting works (Gamble et al. 2021). However, establishment of mature marine ecosystems within these seagrass meadows may take longer, and there is uncertainty in the rate at which ecosystem services would reach maturity within the new seagrass meadow (Bell et al. 2008). |
| | Technical delivery | 1, 2 and 3 | 3 | Seagrass meadow creation projects have been successfully conducted in the UK and elsewhere (Gamble et al. 2021). However, the logistical difficulties of implementing this measure, and the benefits of implementing it at a large scale, mean that it is likely to be better suited for strategic, rather than project-led compensation.<br><br>The need to secure the use of a significant area of seabed would add both financial and legal requirements to this measure. The goal would likely be for seagrass to be self-sustaining once established, but establishing the new seagrass meadows would incur significant initial fieldwork and equipment costs, as well as some ongoing costs associated with monitoring. There would also likely be a legal need to acquire regulatory approval for implementing this measure at any particular site given the scale of the measure and its potential environmental impacts on nearby ecosystems. |
| | Conservation value | 1, 2 and 3 | 4 | Seagrass meadows are valuable habitat for a range of marine species and provide food resources to others (Unsworth & Butterworth 2021). They also have the potential to act as significant carbon sinks, with their carbon sequestration capacity being sufficiently quantified that they have been incorporated into the Verified Carbon Standard framework (VERRA 2015). |
| | Extent | 1 and 2 | 1 | There is no accepted method for measuring the impacts of seagrass meadow creation on seabird populations. Seabird presence in and around the managed area could be quantified, but this would not necessarily be reflective of increased breeding success. Changes in breeding success at colonies could |

| Description | Metric | Tier | Score | Explanation |
|---|---|---|---|---|
| | | | | be quantified, but this would be hard to attribute to the compensation measure with any confidence. It would therefore be difficult to determine the impact of the measure, and whether or not any adaptive management was necessary. |
| | | 3 | 4 | A range of variables exist including biodiversity, biomass, carbon sequestration rate and water quality that could be measured to determine the benefits produced for the wider protected site network by kelp forest restoration. In each case, there are some uncertainties over the magnitude of the response that would be expected after implementation of this measure, but some response can be predicted and adjustments could be made to increase the magnitude of the response as required. |
| | **Total** | 1 and 2 | 11 | |
| | | 3 | 18 | |
| | **In short-list?** | 1 and 2 | No – multiple scores lower than three | |
| | | 3 | No – low score for delivery timeframe | |

*Table 5.12 Assessment of the performance of shellfish reef restoration or creation as a compensation measure to the criteria presented in **Table 5.1**.*

| Description | Metric | Tier | Score | Explanation |
|---|---|---|---|---|
| Seeding and protection of new shellfish reefs or the facilitation of the natural expansion of existing shellfish reefs into new areas as a means of increasing the quality of foraging habitat adjacent to seabird colonies, or as a means of benefiting the protected site network more broadly.<br><br>This measure would not be targeted at any specific species but would provide broad benefits to the protected site network. This measure would therefore provide Tier 3 compensation, and may provide Tier 1 or Tier 2 compensation depending on location and the measurability of impacts. | Effectiveness | 1 and 2 | 1 | Shellfish reefs have been shown to act as habitat for seabird prey species, and could act as nursery habitat for food sources for nearby seabird colonies (Fitzsimons et al. 2020). However, no study has yet shown an actual increase in the survival or reproductive success of guillemot or related species resulting from expansion of shellfish reefs, and any effect would be likely to be diffuse and hard to quantify. |
| | | 3 | 4 | This measure could have significant benefits for the wider marine protected area network. Shellfish reefs provide valuable habitat and food resources for a range of species, including protected seabirds and shorebirds (Fitzsimons et al. 2020). |
| | Delivery timeframe | 1, 2 and 3 | 2 | Shellfish reefs take several years to establish and, even once established, may take several more before they host a mature marine ecosystem that would provide benefits to nearby guillemot colonies. |
| | Technical delivery | 1, 2 and 3 | 3 | Shellfish reef creation has previously been conducted in the UK (zu Ermgassen et al. 2021). Established methods therefore exist for shellfish reef creation. However, it is not clear how reefs would need to be structured or where they would need to be sited to maximise benefits to guillemot.<br><br>The need to secure the use of a significant area of seabed would add both financial and legal requirements to this measure. The goal would likely be for the reef to be self-sustaining once established, but establishing the new reef would incur significant initial fieldwork and equipment costs, as well as some ongoing costs associated with monitoring. There would also likely be a legal need to acquire regulatory approval for implementing this measure at any particular site given the scale of the measure and its potential environmental impacts on nearby ecosystems. |
| | Conservation value | 1, 2 and 3 | 4 | Shellfish reefs are a valuable habitat for a range of marine species, and would provide food resources to seabird species other than guillemot (Fitzsimons et al. 2020). |
| | Extent | 1 and 2 | 1 | There is no accepted method for measuring the impacts of shellfish reef creation on seabird populations. Seabird presence in and around the reef could be quantified, but this would not necessarily be reflective of increased breeding success. Changes in breeding success at colonies could be quantified, but this would be hard to attribute to the compensation measure with any confidence. It would therefore be difficult to determine the impact of the measure, and whether or not any adaptive management was necessary. |
| | | 3 | 4 | Benefits to the wider protected area network could be quantified in terms of the use of the shellfish reef by species of importance to the network, such as seabirds and shorebirds. In each case, there are some uncertainties over the magnitude of the response that would be expected after implementation of this |

| Description | Metric | Tier | Score | Explanation |
|---|---|---|---|---|
| | | | | measure, but some response can be predicted and adjustments could be made to increase the magnitude of the response. |
| | **Total** | 1 and 2 | 11 | |
| | | 3 | 17 | |
| | **In short-list?** | 1 and 2 | No – multiple scores lower than three | |
| | | 3 | No – low score for delivery timeframe | |

*Table 5.13 Assessment of the performance of conservation management measure funding as a compensation measure to the criteria presented in **Table 5.1**.*

| Description | Metric | Tier | Score | Explanation |
|---|---|---|---|---|
| Provision of funding for unfunded actions listed in SPA / site plans. This could include, for example, site-specific predator control or biosecurity measures, disturbance reduction or habitat creation or restoration, depending on the site.<br><br>This measure could be used to implement measures that had been designed to benefit guillemot, in which case it would deliver Tier 1 compensation. However, it could also be used to deliver measures targeted at other, ecologically similar species, or at other features, in which cases it would deliver Tier 2 or 3 compensation respectively. | Effectiveness | 1, 2 and 3 | 5 | Measures listed in site management plans can be expected to have been deemed effective as a means of supporting the features for which they are specified and would therefore be expected to be effective as a means of delivering compensation provided that the totality of additional measures funded is proportional to the impact of the Project. Past examples of effective conservation management measures funded by wind farm developers have included invasive predator management (Outer Dowsing Offshore Wind 2024, Ossian 2024, Muir Mhòr Offshore Wind Farm 2024) and habitat management (Cenos 2024, Green Volt 2024).<br><br>This measure would only consider site management activities as appropriate targets for provision of funding where it could be clearly demonstrated that there is no long term possibility of such a management activity being conducted without funding from the Applicant; routine and ongoing management activities and activities with existing and sufficient funding would not be considered, as funding of such activities for the purposes of generating compensation for the Project would lack additionality. |
| | Delivery timeframe | 1, 2 and 3 | 5 | The timeline for delivery of this measure would depend upon the specifics of the activity being funded. However, it is expected that, since this measure would involve the funding of management activities that have already been included within site management plans, the feasibility of those activities is likely to already have been assessed and so the delivery timeline is likely to be shorter than it might otherwise be for development of the same activities. |
| | Technical delivery | 1 | 3 | Measures listed in site management plans can be expected to have been deemed to be practically and legally feasible at the site in question. Existing management plans for protected sites tend to include relatively few active interventions to support guillemot populations, and so implementation of this measure for guillemot would require that a site be identified where active intervention is proposed to support guillemot in the site management plan. One frequently proposed measure to support guillemot is biosecurity (e.g. NatureScot 2024a, NatureScot 2024b), which may be a suitable measure for inclusion within a package of conservation management measure funding.<br><br>Financial considerations would depend upon the specific activity to be undertaken. If high costs have limited the previous implementation of the activity then financial limitations may also apply to work conducted in relation to the Project, although funding of specific and limited measures through the Project would have the benefit of being additional to existing funding provided for management activities at the site. |

| Description | Metric | Tier | Score | Explanation |
|---|---|---|---|---|
| | | 2 and 3 | 4 | Measures listed in site management plans can be expected to have been deemed to be practically and legally feasible at the site in question. These measures could include, among others, biosecurity (NatureScot 2024a, NatureScot 2024b), habitat management (Cenos 2024, Green Volt 2024), and reduction of anthropogenic disturbance (NatureScot 2024a, NatureScot 2024b).<br><br>Financial considerations would depend upon the specific activity to be undertaken. If high costs have limited the previous implementation of the activity then financial limitations may also apply to work conducted in relation to the Project, although funding of specific and limited measures through the Project would have the benefit of being additional to existing funding provided for management activities at the site. |
| | Conservation value | 1, 2 and 3 | 3 | The wider conservation value of any activity to be undertaken would depend upon the specific activity, which cannot be assessed at this stage. |
| | Extent | 1, 2 and 3 | 3 | The predictability and measurability of benefits associated with a particular management activity would depend upon the activity in question. However, since the work would be associated with a particular, managed site, it is likely that changes in appropriate metrics (e.g. guillemot population size) could be measured at the site. Such measurement could be conducted through the Project if necessary, although for many sites it is likely that suitable monitoring will already be ongoing, for example through the British Trust for Ornithology's Seabird Monitoring Programme (Seabird Monitoring Programme 2025) and by wardens employed at the site. |
| | **Total** | 1 | 19 | |
| | | 2 and 3 | 20 | |
| | **In short-list?** | 1, 2 and 3 | Yes – no score lower than three. Further discussion is presented in the shortlist in **Section 6.3**. | |

# 6 SHORT LIST OF POTENTIAL COMPENSATION MEASURES

25. The long-list of compensation measures in **Section 5** includes means of providing Tier 1 compensation that perform well to the defined criteria in **Table 5.1**, and are therefore deemed feasible and ecologically effective. On this basis, the short list describes the potential for selected measures to provide Tier 1 compensation. However, all of the shortlisted measures are also deemed to be feasible and ecologically effective in terms of their ability to deliver Tier 2 compensation, and so the ability of the measures to deliver Tier 2 compensation is also discussed below. One measure is also considered to be feasible and ecologically effective in terms of its ability to deliver Tier 3 compensation, and so Tier 3 compensation is also discussed in relation to that measure. In line with the Scottish Government's draft compensation policy consultation paper (Scottish Government 2025b), delivery of proportionate compensation for the Project through the use of Tier 2 or 3 compensation would be considered appropriate if it could be shown that such compensation would provide a greater ecological benefit to the protected site network than compensation at the preceding tiers.

26. Assessment of the performance of long-listed compensation measures to the criteria in **Table 5.1** resulted in three measures being taken forward to the short list. These were mammalian predator management (Tier 1 and Tier 2) (**Section 6.1**), reduction of anthropogenic disturbance at colonies (Tier 1 and Tier 2) (**Section 6.2**), and conservation management measure funding (Tier 1, Tier 2 and Tier 3) (**Section 6.3**). More details of each are provided below.

27. It is not the intention of the Applicant to deliver all of the compensation measures shortlisted here. Rather, the Applicant will consider each of these shortlisted measures in consultation with stakeholders and will implement sufficient measures to ensure that compensation is generated that is proportional to the Project's impacts. This may comprise a single measure from the shortlist, or a combination of measures if a single measure is deemed insufficient.

## 6.1 MAMMALIAN PREDATOR MANAGEMENT

### 6.1.1 Background

28. Eradication or control of mammalian predators has the potential to increase survival and breeding success in a number of seabird species (McGregor et al. 2022, Pizzolla et al. 2024, Tapia-Harris & Evans 2024, Tarbet 2025). Past mammal eradication and control programmes have shown substantial benefits for puffin and razorbill (Stoneman & Zonfrillo 2005, Luxmoore et al. 2019, St Pierre et al. 2023). Guillemot have also benefited from the eradication and control of mammalian predators, although these benefits have been less consistent among projects; rat eradication on Lundy in 2003/2004 preceded a more than 300% increase in guillemot populations over a 20-year period (St Pierre et al. 2023), and rat eradication on Ramsey Island preceded an approximately 50% increase in guillemot populations over a 20-year period (Burnell et al. 2023). However, rat eradication on Canna did not result in as substantial or rapid an increase in the guillemot population, although it did contribute to slowing its decline and the population has subsequently increased (Luxmoore et al. 2019).

29. NatureScot has previously stated, in response to marine licence applications submitted in relation to offshore wind, that mammalian predator eradication has the potential to compensate for the impacts of offshore windfarm developments on seabirds (Scottish Government 2025d).

30. The most common targets of mammalian predator eradication and control schemes are black and brown rats, although schemes have also targeted larger species including American mink and red fox (Tapia-Harris & Evans 2024). Regardless of the species targeted, measures are cheaper and

easier to implement over small areas than large ones, and removal of mammalian predators from an area must be followed up with ongoing biosecurity measures and monitoring to prevent re-invasion. Risk of re-invasion is higher on peninsulas than on islands, and higher on larger islands closer to the mainland than on smaller or more remote islands. For these reasons, site selection for mammalian predator control will favour small and remote islands (Holmes et al. 2015). Human habitation is also a consideration, since the presence of humans on an island increases the risk of re-invasion and complicates the implementation of control measures such as poison bait.

31. When it is successful, and biosecurity measures are maintained, the outcome of mammalian predator control or eradication with respect to guillemot is understood to be dependent upon the local conditions at the colony; where colony growth is limited by other factors, such as the availability of food resources, control or eradication of predatory mammals may be insufficient to facilitate colony growth (Tapia-Harris & Evans 2024). Additionally, eradication or control of one predator may be insufficient to facilitate growth in seabird populations if another, uncontrolled predator is still present within the colony (Tapia-Harris & Evans 2024). It is vital, therefore, that any mammalian predator management carried out for the purposes of compensation seeks to remove all of the predators necessary to facilitate growth, and is targeted at a colony where the removal of predators can reasonably be expected to result in an increase in colony size.

### 6.1.2 Project Context for the Compensation Measure

32. If mammalian eradication or control were to be taken forward as compensation measures then the Scottish Government draft compensation policy states that, ideally, Tier 1 compensation would be deployed, which would target the impacted species (Scottish Government 2025b). The draft compensation policy also states that consideration should be given to whether or not Tier 1 compensation could be delivered at the impacted site in particular.

33. Mammalian predator eradication and control may be possible within North Colonsay and Western Cliffs SPA; Colonsay (and Oronsay) are identified as high priority targets for mammalian predator eradication and control in Stanbury et al. (2017). However, it is not clear whether or not invasive mammalian predators have caused damage to guillemot populations at this colony. Furthermore, Colonsay is inhabited, and has an area of 40.7 $km^2$. Hitherto, the largest island in the UK from which rats have been successfully eradicated is Canna, which has an area of 13.1 $km^2$ (Stanbury et al. 2017, Luxmoore et al. 2019). While rat eradication is theoretically possible on islands as large as 130 $km^2$ (Springer 2018), both costs and risks increase with island area and with permanent human settlement (Holmes et al. 2015).

34. The potential for mammalian predator control to be conducted on Colonsay and Oronsay will be investigated during the site selection process for this measure. If mammalian predator control is feasible on Colonsay and Oronsay for the benefit of guillemot then this would represent Tier 1 compensation for the Project. However, it is possible that mammalian predator control at guillemot colonies elsewhere within the protected site network may be more practical, may provide greater benefits to the protected site network (Stanbury et al. 2017) and / or may be more agreeable to stakeholders. The feasibility of conducting mammalian predator control for the benefit of guillemot at other sites will therefore also be assessed. Compensation produced through mammalian predator control at a guillemot colony other than North Colonsay and Western Cliffs SPA would still be considered Tier 1 under the Scottish Government's draft compensation policy (Scottish Government 2025b).

35. The Scottish Government's draft compensation policy states that it would be permissible to use Tier 2 compensation measures even if Tier 1 compensation measures are available, provided that there is evidence that Tier 2 measures would have a greater ecological benefit on the protected site network than Tier 1 measures (Scottish Government 2025b). Predator control or eradication have

considerable potential to deliver both Tier 1 and Tier 2 compensation, since the removal of predators from an area is likely to result in benefits for a range of seabird species simultaneously, some of which are likely to benefit more than guillemot from predator eradication (Tapia-Harris & Evans 2024).

36. Tier 2 compensation consists of providing benefits to features that are ecologically similar to the impacted feature (Scottish Government 2025b). The Scottish Government's draft compensation policy states that other auks would be sufficiently similar to puffin to provide Tier 2 compensation for impacts on puffin (Scottish Government 2025b). On this basis, the Applicant considers that puffin and razorbill are both sufficiently ecologically similar to guillemot that they could contribute towards Tier 2 compensation for impacted guillemot populations: guillemot, puffin and razorbill are all auks, are all colony-nesting, are all pursuit divers and have similar diets (Hernández & Arroyo 2025). They are also targeted by similar predators (Veitch et al. 2016) and are impacted by similar anthropogenic pressures such as sea surface warming (Burthe et al. 2012), fishing (Searle et al. 2023) and invasive mammals at the colony (Tapia-Harris & Evans 2024).

37. Both puffin and razorbill are likely to benefit more from predator eradication than guillemot as a result of differences in their nesting habitat (Tapia-Harris & Evans 2024). Therefore, Tier 2 compensation in the form of benefits to puffin, razorbill and potentially other seabird species as appropriate could provide a greater ecological benefit to the protected site network than Tier 1 compensation in the form of benefits to guillemot. On this basis, the potential for both Tier 1 and Tier 2 compensation will be assessed during site selection in relation to this compensation measure and appropriate compensation quanta will be determined for Tier 1 and Tier 2 compensation at each site to ensure that compensation return is proportional to the Project's predicted impacts (**Table 3.1**).

38. The removal of invasive mammalian predators from an ecosystem is liable to have impacts on a wide range of ecosystem components, including vegetation. For example, Zonfrillo (1997) showed that the eradication of rats on Ailsa Craig resulted in significant increases in vegetation growth. On this basis, consideration will need to be given to the indirect effects of mammalian predator control on the ecosystem of the target site throughout the planning and implementation of the compensation measure to ensure that any issues that arise with respect to sensitive species can be addressed.

39. If AEoSI cannot be excluded for the Project in relation to guillemot at North Colonsay and Western Cliffs SPA, the number of additional breeding pairs that would be required to offset the predicted impacts of the Project would be 981. Expected compensation return from predator eradication will depend upon the site selected. However, past projects demonstrate that multiple thousands of additional breeding adult birds can be produced as a result of mammal eradication (Burnell et al. 2023, St Pierre et al. 2023) (**Table 6.1**).

*Table 6.1 Guillemot population responses to mammalian predator control programmes that have been conducted in the UK. Locations are only included when sufficient data are available for the impacts of mammalian predator control to be inferred. Data are drawn from the Seabird Monitoring Programme unless specified otherwise.*

| Location | Last pre-control guillemot count year | Whole-colony guillemot population count prior to control | Year that control measures were implemented | Most recent guillemot count year | Most recent whole-colony guillemot population count | Additional guillemots at colony (individuals) |
|---|---|---|---|---|---|---|
| Canna and Sanday | 2004 | 1,350 | 2005 | 2018 | 2,850 | 1,500 |
| Lundy | 2000 | 2,348 | 2002 | 2025 | 12,202 | 9,854 |

| Location | Last pre-control guillemot count year | Whole-colony guillemot population count prior to control | Year that control measures were implemented | Most recent guillemot count year | Most recent whole-colony guillemot population count | Additional guillemots at colony (individuals) |
|---|---|---|---|---|---|---|
| Ramsey Island | 1997 | 2,650 | 1999 | 2025 | 4,774 | 2,124 |
| Ailsa Craig | 1987 | 5,000[1] | 1991 | 2025 | 7,042 | 2,042 |
| [1]Data from Lloyd et al. 1991 | | | | | | |

40. On the basis of the results of past mammalian predator management schemes that have been conducted in the UK (**Table 6.1**), it is likely that any compensation requirements for the Project could be met entirely through mammalian predator control or eradication. Three of the four past projects for which suitable figures could be found showed increases in guillemot population sizes clearly in excess of the potential compensation requirements for the Project calculated in **Section 3**. Additionally, all four programmes presented in **Table 6.1** resulted in benefits for seabird species other than guillemot, such as puffin and razorbill. Similar benefits resulting from a mammalian predator control or eradication programme conducted as compensation for the Project would be expected to produce Tier 2 compensation for the Project as well, which may be ecologically more beneficial than Tier 1 compensation.

41. The Applicant considers that this compensation measure may also be effectively delivered at a strategic level, rather than at a project level, either through the Scottish Marine Recovery Fund (SMRF) (**Section 7**) or through collaboration with other developers. The Applicant's preferred approach is to engage in strategic or coordinated mechanisms that offer the potential to deliver enhanced ecological outcomes and improved cost efficiency, while avoiding unnecessary duplication of effort. In the absence of such mechanisms being available at this time, the Applicant is also progressing project-led proposals.

### 6.1.3 Indicative Roadmap

42. An early-stage roadmap for development of project-led mammalian predator control or eradication measures is presented here, should this measure be progressed. The first stage of development will begin during the determination stage to ensure that compensation measures are in place before any Project impacts occur. Progression of this roadmap may cease if the Applicant determines, in consultation with stakeholders, that alternative shortlisted compensation measures represent a more feasible means of generating proportional compensation for the Project's impacts.

- Measures to be completed before consent award (assumed 2027) :
  - A long list of potentially suitable sites for predator eradication or control will be developed with reference to existing published reports. This list will be based on feasibility of control, the presence (or expected potential for presence with mammalian control) of guillemot (Tier 1) and / or ecologically similar species (Tier 2), and the confirmed or expected presence of mammalian predators.
  - Sites on this long list will be screened in or out of further consideration based on defined criteria, informed by published assessments of site priority for mammal control and eradication (e.g. Stanbury et al. 2017, McGregor et al. 2022). These will include risk of reinvasion by predators, area size, presence of permanent human population, population size of guillemot and ecologically similar species, presence of other limitations on seabird

population growth, existence of other mammalian predator control schemes, and potential for benefits to other features of the protected site network.
    - Screened-in sites on the long list will be ranked based on their performance to the key criteria, with the top sites taken forward to form a short list.
    - Relevant stakeholders will be contacted for all sites on the shortlist to consult on the feasibility of implementation of mammalian predator control or eradication at those sites and the receptiveness of landowners to the measures that would be implemented.
- Measures to be completed between consent award and final investment decision (assumed 2027 to 2031):
    - Surveys will be conducted at shortlisted sites, if necessary, to establish what mammalian predators are present at those sites.
    - Based on the results of consultation with stakeholders, the optimal site or sites for implementation of proportionate compensation measures will be selected, and plans developed to carry out the necessary predator control or eradication measures and subsequent biosecurity for the duration of the Project.
    - Any required land rights, planning permission and statutory consents will be secured to conduct the planned work at the chosen sites, noting that formal agreements with landowners and conservation organisations at existing protected sites may ameliorate the need for the Applicant to secure permissions that would otherwise be required.
    - Proportionate seabird surveys will be conducted at the selected site or sites to establish a baseline against which to measure the impact of the compensation measure.
- Measures to be completed prior to start of construction (assumed 2031 to 2032):
    - Active mammal eradication or control measures will be implemented at the selected site or sites, and biosecurity measures will be implemented as appropriate to reduce the risk of re-invasion of any controlled areas.
    - Intensive mammalian predator monitoring will be conducted at the selected site or sites to monitor the progress of implemented measures.
    - Measures to be implemented subsequent to March 2030:
    - Proportionate seabird surveys will be conducted to monitor changes in seabird populations, either on a project-led basis or through collaboration with stakeholders and ongoing monitoring programmes.
    - Mammalian predator monitoring will continue on a proportionate basis to ensure that any breach of biosecurity measures is detected.
    - Should annual surveys or monitoring indicate that the targeted mammalian predators have not been removed from the site or sites as intended, or have returned to the site or sites after being removed, adaptive management measures will be implemented as appropriate, in consultation with stakeholders, to remove those predators.
- Regular discussions will be held with relevant stakeholders throughout the planning and implementation process for the compensation to seek advice and agreement with respect to the timing, extent and form of planned management activities, and monitoring reports will be produced annually subsequent to the start of monitoring work.

## 6.2 REDUCING ANTHROPOGENIC DISTURBANCE AT COLONIES

### 6.2.1 Background

43. Anthropogenic disturbance of seabirds leads to a range of negative consequences for disturbed individuals, which can translate into negative effects at the population level. Many seabirds perceive humans as potential predators. As such, coming into close contact with humans results in elevated levels of physiological stress, which can be harmful to the long-term health of individuals and, in extreme cases, can even lead to immediate death (Clewley et al. 2018).

44. Guillemot are not particularly vulnerable to anthropogenic disturbance at sea as a result of vessel traffic (Fliessbach et al. 2019). However, guillemots will often temporarily abandon their eggs or chicks if approached by humans at colonies to ensure their own survival; a response known as “flushing”. Flushing can lead to increased avian predation of eggs and chicks, death of eggs and chicks due to exposure to the elements and, because guillemots are cliff-nesting, can also result in the lethal displacement of chicks or eggs from nesting ledges (Buckley 2004, Fuller et al. 2018).

45. Breeding is energetically expensive in guillemot, and flushing also imparts a direct energetic cost on adults which may reduce their breeding success (Buckley 2004). Additionally, because they are colony-nesting birds, flushing of one or a few guillemots can trigger flushing across a wider area of the colony, with all associated costs to survival and reproductive success. Repeated disturbance events can also cause abandonment of otherwise high-quality nest sites. Human disturbance within colonies can also cause direct mortality in guillemot as a result of injury to chicks or damage to eggs, although guillemots’ cliff-nesting ecology makes this less of a risk than for some other seabird species such as terns.

46. Because of their nesting ecology, razorbill and puffin may be less susceptible than guillemot to the direct loss of eggs or chicks as a result of disturbance (Rodway et al. 1996). However, disturbance can lead to abandonment of eggs or reduced provisioning of chicks, both of which can reduce reproductive success (Lyngs 1994).

47. Quantifying the benefits of reduced disturbance at colonies would present a necessary challenge to ensuring that compensation measures are proportional to Project impacts. Harris & Wanless (1995) found that guillemot exposed to disturbance by human visitors showed an approximately 19% reduction in nesting success relative to undisturbed control groups. Similarly, Lyngs (1994) found that daily disturbance resulted in a 50% reduction in breeding success in razorbill, and Rodway et al. (1996) found that experimental disturbance resulted in a 38% reduction in breeding success in puffin. These studies suggest that the impacts of disturbance, or of its prevention, can be quantified at a population level, although uncertainty still exists surrounding this quantification.

### 6.2.2 Project Context for the Compensation Measure

48. If reduction of anthropogenic disturbance was to be taken forward as a compensation measure, then the Scottish Government draft compensation policy states that, ideally, Tier 1 compensation would be deployed, which would target the impacted species (Scottish Government 2025b). The draft compensation policy also states that consideration should be given to whether or not Tier 1 compensation could be delivered at the impacted site in particular.

49. North Colonsay and Western Cliffs SPA is relatively isolated, and so it is unlikely that anthropogenic disturbance has a substantial impact on the survival or breeding success of guillemot at that colony. Nevertheless, reduction of anthropogenic disturbance at guillemot colonies elsewhere within the protected site network would still generate Tier 1 compensation under the Scottish Government’s draft consultation compensation policy (Scottish Government 2025b).

50. The Scottish Government's draft compensation policy states that it would be permissible to use Tier 2 compensation measures even if Tier 1 compensation measures are available, provided that there is evidence that Tier 2 measures would have a greater ecological benefit on the protected site network than Tier 1 measures (Scottish Government 2025b). Reduction of anthropogenic disturbance has the potential to deliver both Tier 1 and Tier 2 compensation.

51. Tier 2 compensation consists of providing benefits to features that are ecologically similar to the impacted feature (Scottish Government 2025b). The Scottish Government's draft compensation policy states that other auks would be sufficiently similar to puffin to provide Tier 2 compensation for impacts on puffin (Scottish Government 2025b). On this basis, the Applicant considers that puffin and razorbill are both sufficiently ecologically similar to guillemot that they could contribute towards Tier 2 compensation for impacted guillemot populations: guillemot, puffin and razorbill are all auks, are all colony-nesting, are all pursuit divers and have similar diets (Hernández & Arroyo 2025). They are also targeted by similar predators (Veitch et al. 2016) and are impacted by similar anthropogenic pressures such as sea surface warming (Burthe et al. 2012), fishing (Searle et al. 2023) and invasive mammals at the colony (Tapia-Harris & Evans 2024).

52. Measures for reduction of disturbance at colonies could include, among other things, restriction of permitted times and seasons during which humans could visit colonies, implementation of minimum distances between humans and nest sites using ropes and fences, restriction of dogs at the colony, educational programmes, funding of additional wardens and restriction of boat activities on the seaward side of colony cliffs. All of these measures are liable to provide benefits to both guillemot (Tier 1) and puffin and razorbill (Tier 2) populations, depending on the site at which they are deployed.

53. The Applicant understands that disturbance reduction measures have been included in the seabird site management actions list, compiled by NatureScot, National Trust for Scotland and the Royal Society for the Protection of Birds (RSPB) and provided to the Offshore Wind Directorate due to overlap with the ongoing Portfolio of Seabird Compensation Measures work. Therefore, further detail on how and where this measure might be implemented has not been presented at this stage. The content of the site management actions list will be used to develop specific disturbance reduction measures if it becomes available during the early phases of implementation of this measure. If the content of the site management action list is not available at the time that selection of sites and specific measures is ongoing then site-specific measures will instead be developed on a project-led basis in collaboration with stakeholders at those sites, as laid out in the indicative roadmap.

54. The Applicant notes that disturbance reduction measures are expected to be among those measures implemented strategically through the SMRF. Therefore, if this compensation measure was taken forward on a project-led basis, the Applicant would subsequently investigate the potential for this compensation to be incorporated into the portfolio of management measures coordinated through the SMRF when the option becomes available to do so.

### 6.2.3 Indicative Roadmap

55. An early-stage roadmap for development of project-led disturbance reduction measures for guillemot and ecologically similar species is presented here, should this measure be progressed. The first stage of development will begin during the determination stage to ensure that compensation measures are in place before any Project impacts occur. Progression of this roadmap may cease if the Applicant determines, in consultation with stakeholders, that alternative shortlisted compensation measures represent a more feasible means of generating proportional compensation for the Project's impacts.

- Measures to be completed before consent award (assumed 2027):

- A long list of potentially suitable sites for disturbance reduction will be developed based on the presence of colonies containing significant populations of guillemot (Tier 1) or ecologically similar species (Tier 2), and the presence of significant numbers of humans at or near the colony. This long list will be informed by the seabird site management actions list if it is published prior to the completion of this phase of the work.
- Sites on this long list will be screened in or out of further assessment based on defined criteria including the degree of human activity at the colony, the predicted compensation return from reducing disturbance, the expected ecological effectiveness of specific disturbance reduction measures, the feasibility of implementing specific disturbance reduction measures and the extent of existing management measures in place to reduce disturbance.
- Screened-in sites on the long list will be ranked based on their performance to the key criteria, with the top sites taken forward to form a short list.
- Stakeholders will be contacted for each of the sites on the short list to conduct consultation to determine the feasibility of implementing new disturbance management measures at those sites and the receptiveness of landowners to the measures that would be implemented.

- Measures to be completed between consent award and final investment decision (assumed 2027 to 2031):
  - Based on the results of consultation with stakeholders, the optimal sites for implementation of sufficient compensation measures will be selected, and plans developed in collaboration with local management organisations to implement the necessary disturbance reduction measures and to monitor those measures.
  - Any required land rights, planning permission and statutory consents will be secured to conduct the planned work at the chosen sites, noting that formal agreements with landowners and conservation organisations at existing protected sites may ameliorate the need for the Applicant to secure permissions that would otherwise be required.
  - Proportionate seabird surveys will be conducted at the selected site or sites to establish a baseline against which to measure the impact of the compensation measure.
- Measures to be completed prior to start of construction (assumed 2031 to 2032):
  - The selected disturbance reduction measures will be implemented at the selected sites.
  - Proportionate seabird surveys will be conducted to monitor changes in seabird populations, either on a project-led basis or through collaboration with stakeholders and ongoing monitoring programmes.
  - Should monitoring indicate that seabird populations are not responding to disturbance reduction as expected (and a shortfall in compensation is therefore possible), adaptive management measures will be implemented as appropriate in consultation with stakeholders to ensure that compensation requirements are met.
- Regular discussions will be held with relevant stakeholders throughout the planning and implementation process for the compensation to seek advice and agreement with respect to the timing, extent and form of planned management activities, and monitoring reports will be produced annually.

## 6.3 CONSERVATION MANAGEMENT MEASURE FUNDING

### 6.3.1 Background

56. A wide range of proposed management measures either exist within the conservation and management advice documents for Scottish SPAs (e.g. NatureScot 2024a) or have been proposed by stakeholders involved in conservation operations within SPAs (e.g. de Pedro 2021). These are management measures that have already been determined to be both feasible and likely to deliver benefits to some designated feature within the protected site network. Conservation management measure funding would generate compensation for the Project through the funding of proposed but un-implemented measures within relevant sites that would not otherwise be implemented, and / or through the expansion and / or extension of implemented measures that would not otherwise be expanded or extended.

57. Funding of existing proposed conservation management measures has been taken forward as a compensation measure for a range of other offshore windfarms. Outer Dowsing offshore windfarm propose to provide compensation for project impacts by funding existing but otherwise unfunded proposals for invasive predator management within Plémont seabird reserve in Jersey (Outer Dowsing Offshore Wind 2024); Ossian and Muir Mhòr offshore windfarms have proposed providing funding to the existing Scottish Mink Control Project as a compensatory measure for puffin, guillemot, razorbill and kittiwake (Ossian 2024, Muir Mhòr Offshore Wind Farm 2024); and Green Volt and Cenos offshore windfarms have proposed contributing funding to the Scottish Seabird Centre's SOS Puffin Project to support habitat management measures for puffin within Forth Islands SPA (Cenos 2024, Green Volt 2024).

58. In order to ensure additionality of compensation measures, compensation management measure funding will only be considered for those management measures where it could be clearly demonstrated that there is no long-term possibility of such a management activity being conducted without funding from the Applicant.

### 6.3.2 Project Context for the Compensation Measure

59. Identification of fundable conservation management measures would be conducted during the early stages of the progression of this compensation measure, should this measure be progressed. Details of unfunded measures are not typically published in site management plans and so discussions with stakeholders would be necessary to identify suitable measures. However, a range of long-term conservation management activities undertaken at seabird colonies draw upon fixed-term funding to support their operations. These conservation management activities would likely benefit from extensions of funding, and so it is considered likely that opportunities would exist for measures to be funded that would generate Tier 1 and / or Tier 2 compensation for the Project.

60. Examples of ongoing, long-term conservation management measures with fixed-term funding allocations include the Biosecurity for Scotland's Seabird Islands project, which is currently funded through to March 2027 (RSPB 2026); the Species on the Edge project, the implementation of which involves a range of measures including habitat creation and biosecurity and which was funded for four-and-a-half years in 2022 (NatureScot 2025); and various wardening and other staff positions at seabird colonies that, among other duties, monitor and reduce anthropogenic disturbance (Berwick Bank Wind Farm 2023, National Trust for Scotland 2023).

61. Tier 1 compensation for the Project would involve the funding of conservation management measures proposed to support guillemot populations. While these measures could be delivered at any site within the protected site network, the Scottish Government's draft compensation policy states that consideration should be given to whether or not Tier 1 compensation could be delivered at the impacted site in particular (Scottish Government 2025b). The Applicant will assess the relative

feasibility and predicted benefits of conservation management measure funding for measures targeting guillemot across the protected site network.

62. Site management plans for guillemot tend to involve relatively little active intervention; guillemot are cliff-nesting and so measures to improve nesting habitat are less straightforward to implement for guillemot than for species like puffin or Sandwich tern (*Thalasseus sandvicensis*) (Equinor 2023, Anderson 2025). However, biosecurity, disturbance reduction and bycatch reduction measures have all been proposed as components of site management plans for guillemot within SPAs (NatureScot 2024a), and so funding from the Applicant for such measures could be used to produce compensation for Project impacts if the measure would not otherwise be carried out.

63. Tier 2 compensation for the Project would involve the funding of conservation management measures proposed to support populations of seabirds ecologically similar to guillemot (e.g. puffin and razorbill). As with Tier 1 compensation, Tier 2 compensation could be delivered at any site within the protected site network. Many of the conservation management measures proposed for puffin and razorbill are similar to the measures proposed for guillemot (NatureScot 2024b), but differences in nesting habit mean that a wider range of potential management measures exist that could provide Tier 2 compensation, such as creation of artificial nesting habitat (Kress and Nettleship 1988) or clearance of invasive plant species (Anderson 2025).

64. The Applicant will assess the relative feasibility and predicted benefits of conservation management measure funding for measures targeting seabird species ecologically similar to guillemot across the protected site network. The Applicant may propose to fund these measures if the predicted ecological benefits exceed those that could be generated by Tier 1 compensation measures, in line with the Scottish Government's draft compensation policy (Scottish Government 2025b).

65. Tier 3 compensation for the Project would involve the funding of conservation management measures proposed to provide benefits to the ecological site network more broadly. As with Tier 1 and 2 compensation, Tier 3 compensation could be delivered at any site within the protected site network. The measure to be implemented in this case would be highly dependent upon the feature of the protected site network that was expected to benefit. Given the range of features that could be supported by the Applicant to generate Tier 3 compensation, it will be necessary for the Applicant to conduct a screening exercise before specific measures can be suggested.

### 6.3.3 Indicative Roadmap

66. An early-stage roadmap for development of conservation management measure funding as a compensation measure is presented here, should this measure be progressed. The first stage of development will begin during the determination stage to ensure that compensation measures are in place before any Project impacts occur. Progression of this roadmap may cease if the Applicant determines, in consultation with stakeholders, that alternative shortlisted compensation measures represent a more feasible means of generating proportional compensation for the Project's impacts.

- Measures to be completed before consent award (assumed 2027):
    - A long list of proposed conservation management activities within SPA sites will be compiled based on the published conservation and management plans for SPAs, and on reports of published conservation management activities at those sites. This long list will focus initially on SPAs where guillemot and / or ecologically similar species are designated features, and where Tier 1 and / or Tier 2 compensation might therefore be generated, with potential sites for Tier 3 compensation being evaluated later if necessary.
    - Sites on this long list will be screened in or out of further assessment based on defined criteria including the predicted compensation return from proposed conservation management measures and the extent of existing funding for those measures if any.

- Screened-in sites on the long list will be ranked based on their performance to the key criteria, with the top sites taken forward to form a short list.
- Stakeholders will be contacted for each of the sites on the short list to conduct consultation to determine the feasibility of implementing or expanding proposed conservation management measures at those sites and the receptiveness of landowners to the measures that would be implemented.

- Measures to be completed between consent award and final investment decision (assumed 2027 to 2031):
  - Based on the results of consultation with stakeholders, the optimal sites for implementation of sufficient compensation measures will be selected, and plans developed in collaboration with local management organisations to implement the necessary conservation management measures and to monitor those measures.
  - Any required land rights, planning permission and statutory consents will be secured to conduct the planned work at the chosen sites, noting that since this measure involves the funding of existing proposed conservation activities, it is likely that relatively few such permissions will need to be sought by the Applicant.
  - Proportionate surveys will be conducted at the selected site or sites to establish a baseline against which to measure the impact of the compensation measure.
- Measures to be completed prior to start of construction (assumed 2031 to 2032):
  - The selected conservation management measures will be implemented at the selected sites.
  - Proportionate surveys will be conducted to monitor responses by chosen receptors, either on a project-led basis or through collaboration with stakeholders and ongoing monitoring programmes.
  - Should monitoring indicate that receptors are not responding to management measures as expected (and a shortfall in compensation is therefore possible), adaptive management measures will be implemented as appropriate in consultation with stakeholders to ensure that compensation requirements are met.

67. Regular discussions will be held with relevant stakeholders throughout the planning and implementation process for the compensation to seek advice and agreement with respect to the timing, extent and form of planned management activities, and monitoring reports will be produced annually.

## 7 STRATEGIC DELIVERY OF COMPENSATION MEASURES

68. The Applicant is prepared to deliver the measures described in **Section 5** and **Section 6** through a project-led framework. This will ensure that compensation can be delivered for the Project to meet the compensation requirements of the Project within the required timeframe.

69. The Applicant is aware that The Scottish Government is proposing to introduce a mechanism to enable developers to contribute to compensation measures that are being developed at a strategic level. This contribution would be made through a SMRF, towards which developers would contribute, with the SMRF implementing or overseeing the delivery of the relevant compensation.

70. The legal framework is in place for the operation of the SMRF following the passage of the Marine Recovery Funds Regulations 2025; however, the SMRF is not yet operational. Scottish Government has published interim guidance on the SMRF (Scottish Government 2025c). Based on the information published to date, the Applicant considers that the SMRF could provide an appropriate mechanism to meet any compensation requirements that are concluded and, notwithstanding the Applicant's plans to implement any and all required compensation on a project-led basis if necessary,

the Applicant expresses an interest in meeting any compensation requirements through the SMRF if feasible.

71. Functionally speaking, implementation of strategic compensation could involve the deployment of one or more of the same compensation measures described in this document. However, it is the view of the Applicant that implementation of measures at the strategic level would have the potential to result in more efficient provision of compensation return across the protected site network than could be achieved at the project level.

72. At this stage the timeframe or arrangements for the implementation of the SMRF are not known. Therefore, contribution of the Applicant towards the SMRF would be subject to a) confirmation of suitability of the SMRF as a means by which sufficient and suitable compensation return for Project effects can be generated; b) the acceptability of any proposed tariff; and c) the timing of implementation of the SMRF relative to the timeline for production of required compensation for the Project.

73. If the SMRF is implemented subsequent to the implementation of project-led compensation measures for the Project, the Applicant would investigate the potential for any ongoing project-led compensation measures associated with the Project to be integrated into the compensation measures managed through the SMRF.

## 8 CONCLUSIONS

74. It is the position of the Applicant that no AEoSI will occur with respect to the ornithological features of any SPA site as a result of the Project. However, on the basis that the Scottish Ministers may disagree with these conclusions, compensation measures are presented in this document. These compensation measures are presented "without prejudice" to the Applicant's conclusions.

75. The Applicant has demonstrated through review of past and potential compensation measures that effective measures are available to deliver proportionate compensation for the potential effects of the Project if compensation is deemed necessary by the Scottish Ministers.

76. Should compensation be required for the Project, the Applicant expresses an interest in meeting all compensation requirements through contribution to the SMRF when it becomes available, subject to the financial viability of the proposed tariff and the capacity of strategic compensation through the SMRF to meet the Project's compensation requirements.

77. However, if compensation requirements are not met through contribution to the SMRF, the Applicant has proposed a range of deliverable and effective measures for compensation that are being progressed at the project level and / or in collaboration with other developers to meet the compensation requirements of the Project. It is proposed here that mammalian predator management (**Section 6.1**), reduction of anthropogenic disturbance at colonies (**Section 6.2**), or conservation management measure funding (**Section 6.3**) ultimately be implemented on a project-led basis, if required, to deliver any compensation requirements for guillemot.

78. If it is determined that compensation is required at the project level, the Applicant will select one or more compensation measures to progress based on the magnitude of compensation requirements. Details such as site selection and schedule for implementation of compensation will be developed in consultation with NatureScot and other stakeholders to ensure that the compensation generated, in the form of benefits to the protected site network, is proportional to the impacts of the Project over its lifetime.

## REFERENCES

Anderson, H. (2025). Soil disturbance at puffin burrows and tree mallow seedling numbers on Craigleith. Report Prepared for the Scottish Seabird Centre. Available at: Soil_Disturbance_at_Puffin_Burrows_and_Tree_Mallow_Seedling_Numbers_on_Craigleith_2025.pdf. [Accessed 28 April 2026].

Bell, S.S., Tewfik, A., Hall, M.O. and Fonseca, M.S. (2008). Evaluation of seagrass planting and monitoring techniques: implications for assessing restoration success and habitat equivalency. Restoration Ecology 16:3, 407-416.

Berwick Bank Wind Farm. (2023). HRA Derogation Case – colony compensation measures evidence report. Available at: berwickbank-eia.com/supporting-documents/derogation-case-colony-compensation-measures-evidence-report/part-4.html. [Accessed 12 May 2026].

Bogdanova, M.I., Newell, M., Harris, M.P., Wanless, S. and Daunt, F. (2014). Impact of visitor disturbance on Atlantic puffins and Arctic terns breeding on the Isle of May. Centre for Ecology and Hydrology, Wallingford, UK. Available at: Microsoft Word - Bogdanova et al_SNH_visitor_impact_report. [Accessed 28 April 2026].

Butler, A., Lorenzo-Arribas, A.L.A., Hague, A., Searle, K., Daunt, F., Furness, R.W., Matthiopoulos, J., Miller, S.C., Couto, A.S., Delacombe, K. and Jones, E.L. (2025). Recommendations and Roadmap (WP4). AssESs - Assessing the extent and significance of uncertainty in offshore wind assessments. The Carbon Trust. December 2025. Accelerate the mission to Net Zero.

Buckley, R. (2004). Impacts of ecotourism on birds. In: Buckley, R. (Eds.). Environmental impacts of ecotourism. CABI Publishing, Wallingford. 187-210.

Burnell, D., Perkins, A.J., Newton, S.F., Bolton, M., Tierney, T.D. & Dunn, T.E. (2023). Seabirds Count: a census of breeding seabirds in Britain and Ireland (2015–2021). Lynx.

Burthe, S., Daunt, F., Butler, A., Elston, D.A., Frederiksen, M., Johns, D., Newell, M., Thackeray, S.J. & Wanless, S. (2012). Phenological trends and trophic mismatch across multiple levels of a North Sea pelagic food web. Marine Ecology Progress Series 454, 119-133.

Canvin, M.C., Moore, P.J. & Smale, D.A. (2024). Quantifying growth, erosion and dislodgement rates of farmed kelp (*Saccharina latissima*) to examine the carbon sequestration potential of temperate seaweed farming. Journal of Applied Phycology 36, 3091-3102.

Carney, K.M. & Sydeman, W.J. (1999). A review of human disturbance effects on nesting colonial waterbirds. Waterbirds 22:1, 68-79.

Cenos. (2024). Habitats regulations appraisal (HRA) – Compensation and implementation strategy. Available at: cenos_eia_-_hra_compensation_strategy_redacted.pdf. [Accessed 04 May 2026].

Clewley, G.D., Robinson, R.A. & Clark, J.A. (2018). Estimating mortality rates among passerines caught for ringing with mist nets using data from previously ringed birds. Ecology & Evolution 8:10, 5164-5172.

Das, K., Lepoint, G., Leroy, Y. and Bouquegneau, J.M. (2003). Marine mammals from the southern North Sea: feeding ecology data from $\delta^{13}C$ and $\delta^{15}N$ measurements. Marine Ecology Progress Series 263, 287-298.

de Pedro, C.S. (2021). Plémont seabird reserve – feasibility study report for a predator-exclusion fence. Birds on the Edge. Available at: Predator Control Evidence Base and Roadmap. [Accessed 04 May 2026].

DEFRA. (2021). Best practice guidance for developing compensatory measures in relation to Marine Protected Areas. Department for Environment Food & Rural Affairs. Available at: Best practice guidance for developing compensatory measures in relation to Marine Protected Areas. [Accessed 17 February 2026].

DEFRA. (2024). Consultation on policies to inform updated guidance for Marine Protected Area (MPA) assessments. Department for Environment Food & Rural Affairs. Available at: 090224 OWEIP Consultation on updated policies to inform guidance for MPA assessments .pdf. [Accessed 17 February 2026].

Ebersole, R. (2023). 50 years of Project Puffin: an oral history of an incredibly audacious idea. Audubon Magazine. Available at: 50 Years of Project Puffin: An Oral History of an Incredibly Audacious Idea | Audubon. [Accessed 28 April 2026].

Equinor. (2023). Sheringham Shoal and Dudgeon Offshore Wind Farm Extension Projects – Appendix 2 – Sandwich tern compensation document. Available at: Appendix 2 Sandwich Tern Compensation Document. [Accessed 04 May 2026].

European Commission. (2007). Guidance document on Article 6(4) of the 'Habitats Directive' 92/43/EEC. European Commission.

European Commission. (2018). Managing Natura 2000 sites – The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC. European Commission. Available at: Managing Natura 2000 sites - Publications Office of the EU. [Accessed 17 February 2026].

Fitzsimons, J.A., Branigan, S., Gillies, C.L., Brumbaugh, R.D., Cheng, J., DeAngelis, B.M., Geselbracht, L., Hancock, B., Jeffs, A., McDonald, T., McLeod, I.M., Pogoda, B., Theuerkauf, S.J., Thomas, M., Westby, S. & zu Ermgassen, P.S.E. (2020). Restoring shellfish reefs: global guidelines for practitioners and scientists. Conservation Science and Practice 2:6, e198.

Fliessbach, K.L., Borkenhagen, K., Guse, N., Markones, N., Schwemmer, P. & Garthe, S. (2019). A ship traffic disturbance vulnerability index for northwest European seabirds as a tool for marine spatial planning. Frontiers in Marine Science 6, 192.

Fuller, A.R., McChesney, G.J. & Golightly, R.T. (2018). Aircraft disturbance to common murres (*Uria aalge*) at a breeding colony in central California, USA. Waterbirds 41:3, 257-267.

Furness, R.W., Goodship, N., Raveh, S. & Philip, E. (2024). Potential actions to support recovery of seabird populations in Scotland. NatureScot Research Report 1370. Available at: NatureScot Research Report 1370 - Potential actions to support recovery of seabird populations in Scotland | NatureScot. [Accessed 14 April 2026].

Gamble, C., Debney, A., Glover, A., Bertelli, C., Green, B., Hendey, I., Lilley, R., Nuuttila, H., Potouroglou, M., Ragazzola, F., Unsworth, R. & Preston, J. (eds.) (2021). Seagrass restoration handbook. The Zoological Society of London, London. Available at: ZSL00168-Seagrass-Restoration-Handbook_20211108.pdf. [Accessed 14 April 2026].

Green Volt. (2024). Green Volt offshore wind farm – Outline seabird compensation plan. Available at: green_volt_outline_seabird_compensation_plan.pdf. [Accessed 04 May 2026].

Harris, M.P. & Wanless, S. (1995). Impacts of visitors on breeding seabirds on the Isle of May National Nature Reserve. Report to Scottish Natural Heritage. Available at: N004710CR.pdf. [Accessed 18 February 2026].

Hasebe, M., Matsui, S., Watanabe, Y., Takenaka, Y. & Watanuki, Y. (2026). Avian predator control led to increased breeding success of Common Murre *Uria aalge* on Teuri Island, Hokkaido. Ornithological Science 25, 3-10.

Hentati-Sundberg, J., Berglund, P.-A., Olin, A.B., Hejdström, A., Österblom, H., Carlsen, A.A., Queiros, Q. & Olsson, O. (2025). Technological evolution generates new answers and new ways forward: a progress report from the first decade at the Karlsö auk lab. Marine Ornithology 53:1, 21-33.

Hernández, J. & Arroyo, J.I. (2025). Foraging guilds of seabirds. Ornithology Research 33, 57.

Holmes, N.D., Campbell, K.J., Keitt, B.S., Griffiths, R., Beek, J., Donlan, C.J. & Broome, K.G. (2015). Reporting costs for invasive vertebrate eradications. Biological Invasions 17, 2913-2925.

Horswill, C. & Robinson, R.A. (2015). Review of seabird demographic rates and density dependence. JNCC Report No. 552. JNCC, Peterborough.

JNCC. (2023). Seabirds counts datasets. Available at: Seabirds Count Datasets | JNCC Resource Hub. [Accessed 07 April 2026].

Kress, S.W. and Nettleship, D.N. (1988). Re-establishment of Atlantic puffins (*Fratercula arctica*) at a former breeding site in the Gulf of Maine. Journal of Field Ornithology 59:2, 161-170.

Langlois Lopez, S., Daunt, F., Wilson, J., O'Hanlon, N.J., Searle, K.R., Bennett, S., Newell, M.A., Harris, M.P. and Masden, E. (2023). Quantifying the impacts of predation by great black-backed gulls *Larus marinus* on an Atlantic

puffin *Fratercula arctica* population: implications for conservation management and impact assessments. Marine Environmental Research 188, 105994.

Lloyd, C., Tasker, M.L. & Partridge, K. (1991). The status of seabirds in Britain and Ireland. T. and A.D. Poyser, London.

Luxmoore, R., Swann, R.L. & Bell, E. (2019). Canna seabird recovery project 10 years on. In: Veitch, C.R., Clout, M.N., Martin, A.R., Russell, J.C. & West, C.J. (Eds.) Island invasives: scaling up to meet the challenge. Occasional Paper SSC no. 62, Gland, Switzerland, 576-579.

Lyngs, P. (1994). The effects of disturbance on growth rate and survival of young razorbills *Alca torda*. Seabird 16, 46-49.

MacArthur Green. (2021). Report to Crown Estate Scotland and SOWEC: HRA Derogation Scope B - Review of seabird strategic compensation options. MacArthur Green. Available at: hra-derogation-scope-b-report.pdf. [Accessed 20 February 2026].

Mangel, J.C., Wang, J., Alfaro-Shigueto, J., Pingo, S., Jimenez, A., Carvalho, F., Swimmer, Y. & Godley, B.J. (2018). Illuminating gillnets to save seabirds and the potential for multi-taxa bycatch mitigation. Royal Society Open Science 7:7, 180254.

MarramWind. (2025). MarramWind Offshore Wind Farm Derogation Case Appendix A – Derogation Case Compensation Plan. MarramWind. Available at: Derogation Case. [Accessed 27 April 2026].

McGregor, R., Trinder, M. & Goodship, N. (2022). Assessment of compensatory measures for impacts of offshore windfarms on seabirds. A report for Natural England. Natural England Commissioned Reports. Report Number NECR431.

Moore, P.J. & Smale, D.A. (2020). Impacts of climate change on shallow and shelf subtidal habitats relevant to the coastal and marine environment around the UK. MCCIP Science Review, 2020, 272-292.

Muir Mhòr Offshore Wind Farm. (2024). Derogation case – Appendix C: predator control evidence and roadmap. Available at: appendix_c_predator_control_evidence_and_roadmap.pdf. [Accessed 04 May 2026].

National Trust for Scotland. (2023). Prospect of protecting natural heritage helps National Trust for Scotland strengthen its team. Available at: Media-release-Prospect-Of-Protecting-Natural-Heritage-Helps-National-Trust-For-Scotland-Strengthen-Its-Team-30-May-2023.pdf. [Accessed: 12 May 2026].

NatureScot. (2024a). Conservation and management advice – North Colonsay and Western Cliffs SPA. Available at: conservation-and-management-advice.pdf. [Accessed 16 February 2026].

NatureScot. (2024b). Conservation and management advice – Forth Islands SPA. Available at: conservation-and-management-advice.pdf [Accessed 04 May 2026].

NatureScot. (2025). Species on the Edge – About the Programme. Available at: Species on the Edge - About the Programme | NatureScot. [Accessed: 12 May 2026]

NatureScot. (2026). SiteLink - North Colonsay and Western Cliffs SPA. Available at: https://sitelink.nature.scot/site/8555. [Accessed 08 April 2026].

Northridge, S., Kingston, A. & Coram, A. (2020). Preliminary estimates of seabird bycatch by UK vessels in UK and adjacent waters. Final Report to JNCC. JNCC, Peterborough.

Ossian. (2024). Derogation case – Appendix 1: ecological evidence report. Available at: derogation_case_-_appendix_1_-_ecological_evidence_report_0.pdf. [Accessed 04 May 2026].

Ørsted. (2021). Compensation measures for FFC SPA offshore artificial nesting ecological evidence. Hornsea Project Four: derogation information. Ørsted.

Outer Dowsing Offshore Wind. (2024). Predator control evidence base and roadmap. Available at: Predator Control Evidence Base and Roadmap. [Accessed 04 May 2026].

Parrish, J.K. & Paine, R.T. (1996). Ecological interactions and habitat modification in nesting Common Murres, *Uria aalge*. Bird Conservation International 6, 261-269.

Peschko, V., Mercker, M. & Garthe, S. (2020). Telemetry reveals strong effects of offshore wind farms on behaviour and habitat use of common guillemots (*Uria aalge*) during the breeding season. Marine Biology 167, 118.

Pizzolla, P., Tyler, G., Grant, M., Salmon, W., Harker, J. & Bower, R. (2024). Development of ornithology regional compensation measures. Report by Royal HaskoningDHV and HiDef Aerial Surveying Ltd. for northeast Scotland Offshore Wind Developers Group.

Planning Inspectorate. (2024). Nationally Significant Infrastructure Projects: advice on Habitats Regulations Assessments. Planning Inspectorate. Available at: Nationally Significant Infrastructure Projects: Advice on Habitats Regulations Assessments - GOV.UK. [Accessed 17 February 2026].

Rhoades, J., Johnston, D.T., Humphreys, E.M. & Boersch-Supan, P.H. (2025). Review of methods used to calculate scale of artificial nesting structures proposed as a compensation measure for kittiwake mortality at offshore wind farms. BTO Research Report 788. BTO, Thetford.

Rodway, M.S., Montevecchi, W.A. and Chardine, J.W. (1996). Effects of investigator disturbance on breeding success of Atlantic puffins *Fratercula arctica*. Biological Conservation 76:3, 311-319.

RSPB. (2026). Biosecurity for Scotland. Available at: Biosecurity for Scotland. [Accessed 12 May 2026].

Scottish Government. (2025a). The Scottish seabird vulnerability report. Scottish Government. Available at: Scottish Seabird Conservation Action Plan - Vulnerability Report. [Accessed 18 February 2026].

Scottish Government. (2025b). Strategic compensation policy for offshore wind. Scottish Government. Available at: Strategic Compensation Policy for Offshore Wind. [Accessed 16 February 2026].

Scottish Government (2025c). Scottish Marine Recovery Fund: interim guidance. Scottish Government. Available at: Marine+Recovery+Fund+operational+planning+and+delivery+-+interim+guidance+4+July+2025.pdf. [Accessed 17 February 2026].

Scottish Government (2025d). Consultee Response – Construction and Operation of Generating Station – Muir Mhor Offshore Wind Farm. Available at: Consultee Response – Construction and Operation of Generating Station – Muir Mhor Offshore Wind Farm | marine.gov.scot. [Accessed 10 April 2026].

Seabird Monitoring Programme. (2025). Data available at: Seabird Monitoring Programme | JNCC. [Accessed 20 February 2026].

Searle, K.R., Regan, C.E., Perrow, M.R., Butler, A., Rindorf, A., Harris, M.P., Newell, M.A., Wanless, S. & Daunt, F. (2023). Effects of a fishery closure and prey abundance on seabird diet and breeding success: implications for strategic fisheries management and seabird conservation. Biological Conservation 281, 109990.

SOWEC (2025). Application of precaution in ornithology impact assessments for offshore wind project applications: Evaluation of current approaches. SLR report to SOWEC and Scottish Renewables.

Springer, K. (2018). Eradication of invasive species on Macquarie Island to restore the natural ecosystem. In: Garnett, S., Latch, P., Lindenmayer, D. & Woinarski, J. (Eds.) Recovering Australian threatened species: a book of hope. CSIRO.

Stanbury, A., Thomas, S., Aegerter, J., Brown, A., Bullock, D., Eaton, M., Lock, L., Luxmoore, R., Roy, S., Whitaker, S. & Oppel, S. (2017). Prioritising islands in the United Kingdom and crown dependencies for the eradication of invasive alien vertebrates and rodent biosecurity. European Journal of Wildlife Research, 61:1, 31.

St Pierre, P., Booker, H., Price, D., Slader, P., Bellamy, A.J. & Pearson, J. (2023). Lundy now internationally important for seabirds: cliff nesting seabird survey 2021. Journal of the Lundy Field Society 8, 7-20.

Stoneman, J. & Zonfrillo, B. (2005). The eradication of brown rats from Handa Island, Sutherland. Scottish Birds 25, 17-23.

Tapia-Harris, C. & Evans, T. (2024). Feasibility of strategic ornithological compensatory measures in the Scottish context. RSPB Science Report.

Tarbet, A. (2025). Strategic compensation studies: efficacy of predator reduction measures – a literature review. Offshore Wind Evidence Council. Available at: Strategic Compensation Studies: Efficacy of predator reduction measures – a literature review | Tethys. [Accessed 10 March 2026].

Unsworth, R.K.F. & Butterworth, E.G. (2021). Seagrass meadows provide a significant resource in support of avifauna. Diversity 13:8, 363.

Unsworth, R.F.K., Butterworth, E.G., Freeman, A.S., Fox, E. and Priscott. (2021). The ecosystem service role of UK seagrass meadows. Project Seagrass. Available at: The ecosystem service role of UK Seagrass meadows. [Accessed 28 April 2026].

van der Wal, R. (2006). The management of tree mallow and puffin habitat on Craigleith: a first proposal. CEH: Project Report Number C020823. Available at: NORA. [Accessed 18 February 2026].

Veitch, B.G., Robertson, G.J., Jones, I.L. & Bond, A.L. (2016). Great black-backed gull (*Larus marinus*) predation on seabird populations at two colonies in eastern Canada. Waterbirds 39, 235-245.

VERRA (2015). VM0033 - methodology for tidal wetland and seagrass restoration. Available at: VM0033 Methodology for Tidal Wetland and Seagrass Restoration, v2.1 - Verra. [Accessed 14 April 2026].

Wilding, C.M., Earp, H.S., Cooper, C.N., Lubelski, A. & Smale, D.A. (2022). British kelp forest restoration: feasibility report. Marine Biological Association of the UK, Plymouth. Available at: British Waters Kelp Forest Restoration Feasibility Report_FINAL.pdf. [Accessed 14 April 2026].

Zonfrillo, B. (1997). The ecology of seabirds on Ailsa Craig, Firth of Clyde. University of Glasgow.

zu Ermgassen, P.S.E., Bos, O., Debney, A., Gamble, C., Glover, A., Pogoda, B., Pouvreau, S., Sanderson, W., Smyth, D. & Preston, J. (eds.) (2021). European native oyster habitat restoration monitoring handbook. The Zoological Society of London, London. Available at: European Native Oyster Habitat Monitoring Handbook_WEB_Final.pdf. [Accessed 14 April 2026].