Muir Mhòr Offshore Wind Farm

Derogation Case

Appendix F - Compensatory Measures: Environmental Impact Assessment Report

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Glossary

Term	Definition
Array Area	The area in which the generation infrastructure (including Wind Turbine Generators and associated foundations and inter-array cables), Offshore Electrical Platform(s), and an interconnector cable will be located.
Developer	Muir Mhòr Offshore Wind Farm Limited
E2	The ScotWind Plan Option Area within the Proposed Development is located
Habitats Regulations	The Conservation (Natural Habitats, &c..) Regulations 1994, the Conservation of Offshore Marine Habitats and Species Regulations 2017 and the Conservation of Habitats and Species Regulations 2017.
Inter-array cables	Cables which link the wind turbines generators to each other and the Offshore Electrical Platform(s).
Interconnector cable	Cable which links the Offshore Electrical Platform(s) to one another, allowing for power to be transferred between the platforms.
National Site Network	A National Site Network covering both land and sea, including the UK's inshore and offshore marine areas. This network encompasses existing SACs and SPAs, as well as new SACs and SPAs designated under these Habitats Regulations.
Offshore Electrical Platform (OEP)	Offshore platform consisting of High Voltage Alternating Current (HVAC) equipment, details depending on the final electrical set up of the Project.
Offshore Export Cable Corridor (ECC)	The area within which the offshore export cables will be installed.
Project	Muir Mhòr Offshore Wind Farm – comprises the wind farm and all associated offshore and onshore components.
Proposed Development	The offshore Muir Mhòr Offshore Wind Farm project elements to which this Offshore EIA Report relates.
Wind Turbine Generator (WTG)	The wind turbines that generate electricity consisting of tubular towers and blades attached to a nacelle housing mechanical and electrical generating equipment.

Acronyms

Term	Definition
AA	Appropriate Assessment
AEoI	Adverse Effect on Integrity
ANS	Artificial Nesting Structure
AON	Apparently Occupied Nest
AOS	Apparently Occupied Site
BMP	Bycatch Monitoring Programme
CIMP	Compensation Implementation Management Plan
EEZ	Exclusive Economic Zone
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
HRA	Habitats Regulation Appraisal
HPAI	Highly Pathogenic Avian Influenza
INNS	Invasive Non-Native Species
IROPI	Imperative Reasons of Overriding Public Interest
LPO	Ligue pour la protection des oiseaux
LSE	Likely Significant Effect
MCP	Mink Control Program
MHWS	Mean High Water Springs
OEP	Offshore Electrical Platform
RIAA	Report to Inform Appropriate Assessment
RSPB	Royal Society for the Protection of Birds
SAC	Special Areas of Conservation
SMRU	Sea Mammal Research Unit
SPA	Special Protection Areas
SUP	Stand-Up Paddleboard
SNCB	Statutory Nature Conservation Body
WTG	Wind Turbine Generator

1. INTRODUCTION

1.1. BACKGROUND

1.1.1. Muir Mhòr Offshore Wind Farm Limited (hereafter referred to as 'the Developer') is proposing to develop the Muir Mhòr Offshore Wind Farm (hereafter 'the Project'). The Project is made up of both offshore and onshore components. The subject of this report is the offshore infrastructure of the Project seaward of Mean High-Water Springs (MHWS) which is hereafter referred to as 'the Proposed Development'.

1.1.2. The Muir Mhòr Array Area covers an area of approximately 200 km^2 and is located approximately 63 km east of Peterhead on the east coast of Scotland. The offshore infrastructure of the Proposed Development includes Wind Turbine Generators (WTGs) and associated floating foundations, the Offshore Electrical Platform(s) (OEP(s)) and associated foundations, the inter-array cables, an interconnector cable, offshore export cables and landfall.

1.1.3. The Proposed Development is located within Scottish Territorial Waters (extending to 12 nautical miles (nm) from shore) and the United Kingdom (UK) Exclusive Economic Zone (EEZ; between 12 and 200 nm). Consents and licences required for the construction and operation of offshore wind farms in these waters are granted by Scottish Ministers. As a generating station with a generating capacity of above 50 MW located in the Scottish offshore region, the Developer is applying for a s.36 Consent alongside the necessary marine licences for the generating and transmission assets comprised in the Proposed Development, as well as conducting a Habitats Regulation Appraisal (HRA) under the Conservation of Offshore Marine Habitats and Species Regulations 2017, the Conservation of Habitats and Species Regulations 2017, and the Conservation (Natural Habitats, &c.) Regulations 1994 (the 'Habitats Regulations'). The Marine Directorate Licensing Operations Team (MD-LOT), process S36 Consent and marine licence applications on behalf of the Scottish Ministers.

1.1.4. An Appropriate Assessment (AA) is required for projects or plans which may affect European sites. If, during the Habitats Regulations Appraisal (HRA) process an Adverse Effect on Site Integrity (AEoSI) of a particular site cannot be excluded, a derogations process is undertaken during which any potential alternative solutions are assessed. Should no appropriate alternative solutions exist, and provided there are Imperative Reasons of Overriding Public Interest (IROPI) in the project proceeding, the final stage of the derogations process is to develop compensation measures to ensure that overall coherence of the National Site Network (NSN) is protected.

1.1.5. Pending the Scottish Ministers AA conclusions, the derogation case is presented for the NSN sites and species where the Developer's Report to Inform Appropriate Assessment (RIAA) (Muir Mhòr Offshore Wind Farm Limited, 2024) concludes that either an AEoSI cannot be ruled out; or, no AEoSI is concluded but it is considered there is a risk that Scottish Ministers may disagree with these conclusions. In the latter case, the derogation case is therefore presented "without prejudice" to the Developer's conclusions.

1.1.6. The chosen package of compensation measures, comprise of the following:

- Artificial Nesting Structures (ANS) for Kittiwake;
- Predator Control for Kittiwake, Guillemot, Razorbill and Puffin; and
- Disturbance Reduction Measures for all target species.

1.1.7. Full details, including the evidence underpinning each measure and the plan for delivery, is provided in the Ornithological Compensation Plan (Derogation Case, Appendix A), and the Evidence and Roadmaps for each of these measures (Derogation Case, Appendices B-D).

1.2. PURPOSE OF THIS DOCUMENT

1.2.1. This Compensation Measures Environmental Impact Assessment (EIA) Report presents an assessment of the likely significant environmental effects of the compensatory measures being developed as part of the derogation case for the Proposed Development.

1.2.2. Whilst the proposed compensatory measures themselves are relatively small-scale and do not constitute EIA Schedule 1 or Schedule 2 projects (triggering a need for EIA), the compensatory measures are being brought forward as a consequence of the potential effects from the Proposed Development on the NSN. Any effects arising from the compensatory measures are, on a precautionary basis, considered to be indirect or secondary to the effects of the Proposed Development under the EIA regulations which require consideration of indirect and secondary impacts.

1.2.3. The purpose of this document is to assess the likely significant effects of the proposed compensation measures on the environment. Full details on the policy and legislative background please see Volume 1, Chapter 2 (Legislation and Policy Context) of the Offshore EIA Report (EIAR).

1.2.4. The assessment provided in this document is based on the current understanding of the location, scope and nature of the proposed compensation measures. It should be noted, however, that ultimately, the compensation measures will not be consented through the application to Scottish Ministers to construct and operate the Proposed Development and will be subject to (where necessary) standalone EIA and HRA processes as part of their own consenting process.

1.3. STRUCTURE OF THIS DOCUMENT

1.3.1. This Compensation Measures EIA Report is set out as follows:

- Section 1: Introduction;
- Section 2: Proposed Compensatory Measures;
- Section 3: Consideration of Alternative Compensatory Measures;
- Section 4: Consultation;
- Section 5: EIA Methodology;
- Section 6: EIA – Artificial Nesting Structures for Kittiwake;
- Section 7: EIA – Predator Control;
- Section 8: EIA – Disturbance Reduction Measures;
- Section 9: Conclusions; and
- Section 10: References.

2. PROPOSED COMPENSATION MEASURES

2.1.1. A summary of each of the compensation measures is outlined in Table 2-1. Full details are provided in the Ornithological Compensation Plan (Derogation Case, Appendix A), and the Evidence and Roadmaps for each of these measures (Derogation Case, Appendices B-F). To reduce any potential effect on EIA receptors, each measure will be implemented in line with industry practice standards. These standards represent commitments made by the Developer and will be captured within the Developer's Compensation Implementation Management Plan (CIMP).

Table 2-1 Summary of proposed compensation measures

Compensation Measure	Potential Location	Summary
Artificial Nesting Structures (ANS) for Kittiwake	Up to seven locations on the east coast of Scotland (Aberdeen to Stonehaven). Inchcolm, Inchgarvie, and Inchkeith islands are also considered.	The proposed compensation measure is to build ANS in the form of artificial ledges (or 'hammocks') into the cliffs of existing colonies at seven potential sites (total) located within the following non-SPA colonies: Burnbanks, Cove Bay, Cove Bay to Hare Ness, Hare Ness to Seal's Cove, Seal's Cove to Findon Ness, and Findon Ness. A conservative estimate of the benefit of this measure is an additional 407.1 fledglings per annum, while the maximum yield could potentially add 2430.8 kittiwake fledgelings to the non-SPA populations in eastern Scotland, which more than compensates for the number of birds required based on the compensation quantum calculations (see Derogation Case: Appendix B – Artificial Nesting Structures for Kittiwake: Evidence and Roadmap). Ledges can be created by a blacksmith using two steel rods attached to a stainless steel 'hammock.' The hammock is pinned to the cliff using epoxy resin (Wrobel, 2021). Two 12 mm holes are bored into the cliff side and within minutes, a new ledge becomes available to kittiwake (Wrobel, 2021). The Royal Society for the Protection of Birds (RSPB) trialled these artificial ledges at Coquet Island, and they were quickly colonised by breeding pairs (Wrobel, 2021). The proposed hammocks for the non-SPA colonies identified can be designed to optimise kittiwake productivity by addressing nest structure integrity issues, such as the need for irrigation to prevent flooding or the addition of a roof or overhang to protect kittiwake from avian predators.
Predator Control	East coast of Scotland (Aberdeen to Stonehaven). Inchcolm, Inchgarvie, and Inchkeith islands are also considered.	Scotland currently has one active predator control programme that has the potential to have a positive effect on seabird populations. This is the Mink Control Project (MCP), led by SISI. Since spring 2018, SISI has worked with volunteers and partners to control American mink (Neovison vison) across the northern third of Scotland (SISI, 2024). The aim of this measure is to partner with the MCP to expand its activities to areas of Scotland currently not being covered by the programme due to limited resources. A potential predator control programme is being explored at two non-SPA islands in the Firth of Forth that have been identified as hosting populations of mammalian predators: Inchcolm, and Inchkeith. The Berwick Bank OWF have proposed the implementation of mammalian

Compensation Measure	Potential Location	Summary
		predator control at Inchcolm for their application. Should the Berwick Bank OWF be determined positively, including these measures in their package, the Developer would aim to engage with Berwick Bank OWF to explore potential collaboration. These islands are regularly visited by tourist boats during the summer which, coupled with their proximity to the shore, can pose a biosecurity risk, as rodents are strong swimmers (Stanbury et al., 2017). Black rats have been reported on Inchcolm (Ratcliffe et al., 2009; Forth Seabird Group, pers. comm.). Inchkeith has been identified as a priority island for INNS eradication in the UK by Stanbury et al. (2017), as it hosts brown rats and house mice. Inchkeith hosts the largest population of nesting seabirds in the non-SPA Forth Islands (Deare, 2023). Puffin are also breeding on Inchkeith but were not counted by the Forth Seabird Group. Predator management on Inchkeith has the potential to provide additional protection for nesting seabirds.
Disturbance Reduction Measures	East coast of Scotland (Aberdeen to Stonehaven). Inchcolm, Inchgarvie, and Inchkeith islands are also considered.	Where the colony at Seal's Cove to Findon Ness is concerned, there is potentially a negative impact on kittiwake from the clay shooting range . According to Labansen et al. (2021), gunshot noises may affect adult fitness, as repeated escape behaviour can have a negative effect on the fitness of breeding kittiwake and auks. At North Sutor, tour boats may increase disturbance of cliff-nesting seabirds such as kittiwake, guillemot, and razorbill. EcoVentures offers regular trips to visit the seabird colony around North Sutor, including during the breeding season between April and July (EcoVentures, 2024). Watercrafts, which include these tourist boats, jet skis, and kayaks, can negatively impact seabird breeding success (Buckley, 2004). In addition, the site investigations on the east coast of Scotland found evidence of rock-climbing and footfall near the colonies. While difficult to quantify, there is a significant amount of evidence to support the use of environmental education or conservation education as a biological conservation tool (Howe et al., 2012; Curti et al., 2010; Ardoin et al., 2020; Bergamo et al., 2023). Simple education measures such as signposting have proven effective at reducing human disturbance. In addition, disturbance reduction measures may take the form of wardens or rangers. The Developer is discussing a collaboration with the Scottish Seabird Centre on the implementation of outreach activities, between the two parties having been signed (see Derogation Case: Appendix D – Disturbance Reduction Evidence and Roadmap). These measures are in line with the upcoming Scottish Seabird Strategy and has been supported by RSPB Scotland as a compensatory measure.

3. CONSIDERATION OF ALTERNATIVE COMPENSATION MEASURES

3.1.1. An important part of the development of the derogation case has been the consideration of potential options, selection and the subsequent refinement of compensatory measures and their delivery. Well informed decisions on the selection and consideration of alternatives are critical and the Developer recognises the need to ensure consultees and stakeholders understand how such decisions have been made. The process undertaken by the Developer for selection and consideration of alternative compensation measures is detailed within the Ornithological Compensation Plan (Derogation Case, Appendix A).

4. CONSULTATION

4.1.1. Prior to application submission, the proposed compensation measures were consulted on with local and national stakeholders, such as NatureScot and the RSPB.

4.1.2. Meetings were held with NatureScot and the RSPB to discuss the selected sites, surveys, and proposed compensation measures. In addition, several written exchanges occurred with local groups or organisations and councils to discuss potential measures. A detailed list of exchanges can be found in Table 4-1. This list only includes exchanges with stakeholders who engaged with the Developer, as several other stakeholders were contacted and did not provide a response.

Table 4-1 Exchanges with stakeholders on possible compensation measures.

Stakeholder	Communication	Date(s)	Topic(s) of discussion
NatureScot	Meeting	08/08/2024	Ornithological surveys and their results were presented to NatureScot.
RSPB	Meeting	18/06/2024	Ornithological surveys and their methodology were presented to the RSPB.
Highland Bird Ringing Group	E-mail	26/04/2024 to 01/05/2024	Conservation around potential threats to seabird colonies at North and South Sutor.
Forth Seabird Group	E-mail	22/08/2024 to 30/09/2024	Conversation around mammalian predator eradication at the Firth of Forth Islands.
Aberdeenshire Council	E-mail	15/08/2024 to 24/09/2024	Landownership and current council seabird conservation/mammalian predator eradication programmes were discussed.
Scottish Seabird Centre	Meeting	04/09/2024 to 21/11/2024	Possible compensation measures to support the Scottish Seabird Centre and their projects were discussed.
National Trust for Scotland	E-mail	19/08/2024 to 24/09/2024	Current seabird conservation initiatives carried out by the National Trust for Scotland were discussed.
Scottish Wildlife Trust	E-mail	26/09/2024 to 30/09/2024	Current seabird conservation initiatives carried out by the Scottish Wildlife Trust for Scotland were discussed.
Ligue pour la protection des oiseaux (LPO) (French partner of BirdLife International)	E-mail	30/08/2024 to 24/09/2024	A possible collaboration to support the LPO in reducing bycatch in French waters is the focus of this discussion. At the time of submission this is no longer being pursued.

4.1.3. Post-consent, the Developer will create a steering committee to support in defining the details of site refinement, implementation, monitoring, maintenance, reporting, and other measures necessary for the successful implementation of the measure. Core members will likely include any Statutory Nature Conservation Bodies (SNCBs), as well as RSPB, site owners and local council(s). These discussions will inform the CIMP and support the implementation of the measures.

5. EIA METHODOLOGY

5.1. INTRODUCTION

5.1.1. Volume 1, Chapter 6: (Environmental Impact Assessment Methodology) of the EIAR sets out the EIA methodology followed for the Proposed Development. It describes the approach used to identify, evaluate, and mitigate likely significant effects and evaluate whether they are significant in EIA terms.

5.1.2. The requirement for EIA and the proposed temporal, spatial and technical scope of the assessments are described in detail and are equally relevant to this Compensatory Measures: EIA Report. As such, most of this detail is not repeated within this document. However, to enhance the readability of this Compensatory Measures: EIA Report, some elements of EIA methodology are repeated below to allow this document to be read and be understood without extensive cross-referencing to other documents.

5.2. OVERVIEW OF PROCESS

5.2.1. EIA is a systematic, iterative, and prescribed process framed by statutory requirements as well as the relevant planning and policy context (see Volume 1, Chapter 2: (Legislation and Policy Context)). Furthermore, consideration of EIA practice (see Volume 1 Chapter 6: (Environmental Impact Assessment Methodology)) has guided the specific approach followed by the Developer in relation to this Compensatory Measures: EIA Report .

5.2.2. The key elements of the Compensatory Measures: EIA Report process and the identification of significant effects are described in the following Sections.

5.3. IMPACTS, EFFECTS, MITIGATION AND SIGNIFICANCE

5.3.1. Impacts are defined as the physical (or chemical) changes that will be caused by activities relating to the construction, operation, maintenance and decommissioning of the Proposed Development.

5.3.2. Effects are defined as the consequences of these impacts on biological populations, ecosystems, and humans (including their physical and cultural assets). The impacts of the various compensation measures presented in this document have been identified based on knowledge of impact pathways from examining similar projects plus a consideration of the existing baseline environment and subsequent potential for impact.

5.3.3. For many technical topics, the likely significance of an effect is established by combining the magnitude of an impact with the sensitivity of the receptor to that impact (noting that sensitivity is not considered as an inherent characteristic but how something specifically responds to an external factor).

5.3.4. The magnitude of an impact is the consideration of the extent, duration, frequency, and reversibility of an impact. In defining the sensitivity for each receptor/receptor group, the vulnerability, recoverability, and value/importance of that receptor will be taken into consideration. The conclusion of significance of effect is determined through a significance matrix as presented in Table 5-1.

Table 5-1 Matrix used for the assessment of the significance of the effect

MUIR MHÒR OFFSHORE WIND FARM A joint venture between Fred. Olsen Seawind & Vattenfall		Magnitude of Impact			
		Negligible	**Low**	**Medium**	**High**
Sensitivity of Receptor	**Negligible**	Negligible	Negligible	Negligible	Negligible
	Low	Negligible	Negligible	Minor	Minor
	Medium	Negligible	Minor	Moderate	Moderate
	High	Negligible	Minor	Moderate	Major

5.3.5. A level of effect of moderate or more will be considered a 'significant' effect for the purposes of the EIA. A level of effect of minor or less will be considered 'not significant'. Effects of moderate significance or above are therefore considered important in the decision-making process, whilst effects of minor significance are afforded less weight in the decision-making process.

5.4. SCOPING OF IMPACTS

5.4.1. To facilitate a proportionate level of environmental assessment of the compensation measures, a simplified scoping process was undertaken to identify the potential impacts arising from the proposed compensation measures. The results of the scoping stage are presented in Table 5-2.

5.4.2. Scoping was undertaken based on the knowledge of the proposed locations of each measure and the baseline environment, and potential impacts of the measures from other similar projects already undertaken elsewhere in the UK. Where no pathway for impact exists or all impacts on a particular receptor have been scoped out, that receptor is scoped out and not examined further in this Compensatory Measures: EIA Report. Justification for scoping out is presented in Table 5-2.

5.5. CUMULATIVE, INTER-RELATIONSHIPS AND TRANSBOUNDARY EFFECTS

5.5.1. For consideration of cumulative effects, where it is considered that a potential likely significant effect exists cumulatively with other plans and projects, this has been assessed within the Section for each individual compensation measure.

5.5.2. Inter-relationships refer to a situation where several impacts may combine on a particular receptor. This Compensatory Measures: EIA Report has given due consideration by using expert judgement to the potential for different residual impacts to have a combined impact on key sensitive receptors, however, within the context of this assessment it has been considered that there is no potential for inter-relationships.

5.5.3. Transboundary effects (likely significant effects on another country or countries) have also been considered during the assessment process where appropriate.

Table 5-2 Results of scoping of environmental impacts of the compensation measures

Compensation Measure	EIA Receptor Group Scoped In	Potential Impacts Scoped In	EIA Receptor Groups Scoped Out	Rationale for Scoping Out
Artificial Nesting Structures for Kittiwake	Offshore and Intertidal Ornithology	Beneficial effect on seabird populations as productivity of colonies improved	• Marine and Coastal Processes; • Marine Water and Sediment Quality; • Benthic, Subtidal and Intertidal Ecology; • Commercial Fisheries; • Shipping and Navigation; • Marine Archaeology and Cultural Heritage; • Military and Civil Aviation; • Socioeconomics, Tourism and Recreation; • Climate; • Infrastructure and Other Users; • Major Accidents and Disasters; • Onshore receptors.	The proposed measure is not anticipated to impact on marine and coastal processes, marine water and sediment quality, benthic subtidal and intertidal ecology, commercial fisheries, shipping and navigation, marine archaeology and cultural heritage, military and civil aviation, socio-economics tourism and recreation, climate, infrastructure and other users, and onshore receptors. Furthermore, no risks of major accidents and/or disasters are expected to occur because of this measure. Therefore, these receptor groups have been scoped out from assessment as no impact pathways exist.
	Fish and Shellfish Ecology	Adverse effect on fish and shellfish populations through increased predation from birds		
	Marine Mammals	Adverse effect on marine mammals through a decrease in prey resource (due to expected increase in seabirds)		
Predator Control	Offshore and Intertidal Ornithology	Beneficial effect on seabirds from reduced predation Potential for disturbance from human activity due to control and monitoring measures	• Marine and Coastal Processes; • Marine Water and Sediment Quality; • Benthic, Subtidal and Intertidal Ecology; • Fish and Shellfish Ecology; • Marine Mammals; • Commercial Fisheries; • Shipping and Navigation; • Marine Archaeology and Cultural Heritage; • Military and Civil Aviation; • Seascape, Landscape and Visual Resources; • Socioeconomics, Tourism and Recreation; • Climate; • Infrastructure and Other Users; and • Major Accidents and Disasters; and • Other non-ecological onshore receptors.	The effects associated with the proposed method for this measure will be restricted to onshore areas and will not directly impact on any of the offshore receptors with the exception of the target receptor (offshore ornithology). Therefore, the marine and coastal processes, marine water and sediment quality, benthic subtidal and intertidal ecology, fish and shellfish ecology, marine mammals, commercial fisheries, shipping and navigation, marine archaeology and cultural heritage, military and civil aviation, seascape, landscape and visual resources, socioeconomics, tourism and recreation, climate, infrastructure and other users, and non-ecological onshore receptor groups have been scoped out as no pathways for impact have been identified. Furthermore, no risks of major accidents and/or disasters are anticipated to occur as a result of this measure.
	Onshore Ecology	Impacts to onshore plants and animals other than the targeted predator species		
Disturbance Reduction	Offshore and Intertidal Ornithology	Beneficial effect on seabird populations as productivity of colonies improved	• Marine and Coastal Processes; • Marine Water and Sediment Quality; • Benthic, Subtidal and Intertidal Ecology; • Fish and Shellfish Ecology; • Marine Mammals; • Commercial Fisheries; • Shipping And Navigation; • Marine Archaeology and Cultural Heritage; • Military and Civil Aviation; • Climate ; • Infrastructure and Other Users; • Major Accidents and Disasters; and • Onshore receptors.	The proposed measure is not anticipated to impact on marine and coastal processes, marine water and sediment quality, benthic subtidal and intertidal ecology, shipping and navigation, marine archaeology and cultural heritage, military and civil aviation, climate, infrastructure and other users, and onshore receptors. Furthermore, no risks of major accidents and/or disasters are expected to occur because of this measure. Therefore, these receptor groups have been scoped out from assessment as no impact pathways exist.
	Socioeconomics, Tourism And Recreation	Adverse effects on local recreation groups and nature conservation organisations through implementation of disturbance reduction measures		

6. EIA - ARTIFICIAL NESTING STRUCTURES FOR KITTIWAKE

6.1. INTRODUCTION

6.1.1. This section considers the potential impacts arising from introducing artificial nesting structures for kittiwake.

6.1.2. A characterisation of the physical, biological and human environmental baseline is presented followed by the results of an assessment of likely significant effects arising from the proposed compensation measure.

6.2. BASELINE

6.2.1. Table 6-1 provides a description of the baseline environment for each receptor which was identified during the scoping stage as potentially being affected by the proposed compensation measure (Table 5-2).

Table 6-1 The baseline environment for the receptor groups relevant to artificial nesting structures for kittiwake.

Receptor Group	Summary of Baseline Environment
Offshore and Intertidal Ornithology	Scotland is globally important for its seabird colonies, supporting over 65% of the British and Irish seabird population (National Trust for Scotland, 2020) and 24 species of breeding seabirds. Key factors affecting the abundance and productivity of seabirds are food availability, weather conditions/ climate, pollution, and the occurrence of predators. Monitoring of breeding seabirds by the UK Seabird Monitoring Programme shows that seabird numbers in Scotland in 2019 were 49% of the initial 1986 level, having declined due to three key pressures: fisheries, climate change, and non-native species. A more detailed baseline is described in Volume 2, Chapter 11 (Offshore and Intertidal Ornithology) Scotland has a network of 162 SPAs covering 2.75 million hectares of land and sea (NatureScot, 2023), selected with the aim to protect vulnerable or threatened protected bird species from decline.
Fish and Shellfish Ecology	The northern North Sea is inhabited by a range of fish and shellfish. Examples of fish and shellfish surveyed and/or landed within 15 km of the Proposed Development (as described Volume2, Chapter 10 (Fish and Shellfish Ecology) are: • Plaice (*Pleuronectes platessa*); • Whiting (*Merlangius merlangus*); • Atlantic cod (*Gadus morhua*); • Lesser Sandeel (*Ammodytes tobianus*); • Atlantic herring (*Clupea harengus*) (Buchan Stock); • Lemon sole (*Microstomus kitt*); • Sprat (*Sprattus sprattus*); • Norway pout (*Trisopterus esmarkii*); • Brown crab (C*ancer pagurus*); and • Norway Lobster (*Nephrops norvegicus*).

Receptor Group	Summary of Baseline Environment
Marine Mammals	The northern North sea is inhabited by a range of cetaceans and pinniped species. Common resident and migrating species found in the marine mammal study area (as set out in Volume 2, Chapter 12 (Marine Mammals) include: • Common minke whales (*Balaenoptera acutorostrata*); • White-beaked dolphin (*Lagenorhynchus albirostris*); • Harbour porpoises (*Phocoena phocoena*); • Risso's dolphins (*Grampus griseus*); • Common bottlenose dolphins (*Tursiops truncatus*); • Grey seal (*Halichoerus grypus*); and • Harbour seals (*Phoca vitulina*).

6.3. ASSESSMENT

IDENTIFICATION OF IMPACTS AND SCOPE OF ASSESSMENT

6.3.1. Based on the information presented in this document and the Ornithology Compensation Plan (Derogation Case, Appendix A), all activities associated with the artificial nesting structures compensation measure were defined and potential impact pathways identified. The potential impact pathways identified are presented here with respect to the relevant receptor groups:

- Offshore and Intertidal Ornithology: Beneficial effect on seabird populations as productivity of colonies improved;
- Fish and Shellfish Ecology: Adverse effect on fish and shellfish populations through increased predation from birds; and
- Marine Mammals: Adverse effect on marine mammals through a decrease in prey resource (due to expected increase in seabirds).

IMPACT ASSESSMENT ALONE

6.3.2. An assessment of the effects of the compensation measure alone is presented below.

OFFSHORE AND INTERTIDAL ORNITHOLOGY

BENEFICIAL EFFECT ON SEABIRD POPULATIONS AS PRODUCTIVITY OF COLONIES IMPROVED

6.3.3. It can be expected that kittiwake will be quicker to colonise new ledges within an existing colony than a new structure. Indeed, as demonstrated at Coquet Island, kittiwake were shown to colonise the new ledges quicker than RSPB volunteers could carve them, resulting in the need for artificial ledges to be built (Wrobel, 2021).

6.3.4. The colonies counted during surveys in July 2024 on Scotland's east coast showed kittiwake occupying every available space and the unsuitable geology and overgrown vegetation of some cliffs resulted in sporadic distribution of kittiwake on the cliffside.

6.3.5. In addition, providing high quality nest sites can improve productivity where nest sites are not in optimum condition to support breeding success (Turner, 2010; Equinor, 2023). For example, kittiwake have been known to choose to breed on ANS rather than natural cliff ledges as the former protects them from adverse weather (Turner, 2010).

6.3.6. ANS can be designed to reduce the risk of nests being flooded or the ledges being eroded by storms by allowing water to filter through, as well as protect kittiwake from predators through the provision of a roof or overhang (Ørsted, 2023).

6.3.7. The proposed measure will result in an increase in breeding productivity and therefore an increase in kittiwake population. This would have a beneficial effect on the ornithological receptors.

6.3.8. The proposed measure is expected to produce a significant increase in the number of suitable nesting sites, resulting in a significant increase in the number of successful breeding pairs, and therefore it is considered that the magnitude of activities is high (beneficial). Given the high sensitivity of the receptors to increased nesting areas, it is also considered that their sensitivity is high (beneficial).

6.3.9. Following the significance matrix utilised in this assessment (Table 5-1), a magnitude of high and sensitivity of high results in a major beneficial significance of effect, which is significant in EIA terms.

FISH AND SHELLFISH ECOLOGY

ADVERSE EFFECT ON FISH AND SHELLFISH POPULATIONS THROUGH INCREASED PREDATION FROM BIRDS

6.3.10. The proposed measure will result in an increase in breeding productivity and therefore an increase in kittiwake population. This in turn has the potential to result in increased predation of prey resource by kittiwake.

6.3.11. While the proposed measure is expected to make a large contribution to improving the productivity of breeding populations, the increased number of kittiwake is not expected to significantly reduce fish and shellfish stock levels because predation would only increase to levels experienced under normal natural ecological conditions. On this basis, it is considered that the identified potential impact has a magnitude of negligible (adverse).

6.3.12. Although fish and shellfish will experience an increase in predation from seabirds, relative to other impacts such as commercial fishing, it is anticipated the effect on fish stocks will be negligible, because predation would only increase to levels experienced under normal natural ecological conditions allowing for natural fish stock recovery. Therefore, it is considered that the receptors have a sensitivity of negligible (adverse).

6.3.13. Following the significance matrix utilised in this assessment (Table 5-1), a magnitude of negligible and sensitivity of negligible results in a negligible significance of effect, which is not significant in EIA terms.

MARINE MAMMALS

ADVERSE EFFECT ON MARINE MAMMALS THROUGH A DECREASE IN PREY RESOURCE (DUE TO EXPECTED INCREASE IN SEABIRDS)

6.3.14. The proposed measure will result in an increase in breeding productivity and therefore an increase in kittiwake population. This in turn has the potential to result in increased predation of prey resource by kittiwake which would then reduce available resource for marine mammals.

6.3.15. While the proposed measure is expected to make a large contribution to improving the productivity of breeding populations, the increased number of kittiwake is not expected to significantly reduce fish and shellfish stock levels because predation would only increase to levels experienced under normal natural ecological conditions. On this basis, it is considered that the identified potential impact has a magnitude of low (adverse).

6.3.16. Although marine mammals will experience a small decrease in prey resource due to increased predation from kittiwake, it is anticipated the effect on the prey resource will be negligible relative to other impacts such as commercial fishing. Therefore, it is considered that the receptors have a sensitivity of negligible (adverse).

6.3.17. Following the significance matrix utilised in this assessment (Table 5-1), a magnitude of low and sensitivity of negligible results in a negligible significance of effect, which is not significant in EIA terms.

CUMULATIVE EFFECT ASSESSMENT

6.3.18. Due to the beneficial or negligible adverse effects associated with ANS, it can be concluded that there would be no significant cumulative effects. Furthermore, no other plans or projects that have the same impacts have been identified by the Developer.

TRANSBOUNDARY IMPACTS

OFFSHORE AND INTERTIDAL ORNITHOLOGY

BENEFICIAL EFFECT ON SEABIRD POPULATIONS AS PRODUCTIVITY OF COLONIES IMPROVED

6.3.19. An increase in kittiwake breeding productivity will increase seabird populations along migratory routes outside of the chosen sites, therefore there is potential for a transboundary impact.

6.3.20. Although not all kittiwake are philopatric (i.e., return to their natal colony to nest), they tend to nest within 100 km of their natal nesting site (Coulson and Nève de Mévergnies, 1992; Boulinier and Danchin, 1997). While 36% of kittiwake are philopatric (mostly males), another 43% breed within 100 km of their natal colony, meaning that only 10% of kittiwake nest further than 100 km from where they were born (Coulson and Nève de Mévergnies, 1992).

6.3.21. When considering the wider populations that transboundary impacts may occur to and the distances these populations may be from the Proposed Development, the magnitude of the increased productivity impact is determined to be negligible. Given the high sensitivity of the receptors to increased nesting areas, it is considered that their sensitivity is high (beneficial).

6.3.22. Following the significance matrix utilised in this assessment (Table 5-1), a magnitude of negligible and sensitivity of high (beneficial) results in a negligible (beneficial) significance of effect, which is not significant in EIA terms.

FISH AND SHELLFISH ECOLOGY

ADVERSE EFFECT ON FISH AND SHELLFISH POPULATIONS THROUGH INCREASED PREDATION FROM BIRDS

6.3.23. There is a potential for increased predation on fish and shellfish along migratory routes outside of the chosen sites from increased kittiwake populations due to the ANS. As such, there is potential for a transboundary impact.

6.3.24. While the proposed measure is expected to make a large contribution to improving the productivity of breeding populations, the increased number of kittiwake is not expected to significantly reduce fish and shellfish stock levels because predation would only increase to levels more normally experienced under natural ecological conditions. On this basis, it is considered that the identified potential impact has a magnitude of low (adverse).

6.3.25. Although fish and shellfish will experience an increase in predation from seabirds, relative to other impacts such as commercial fishing, it is anticipated the effect on fish stocks will be negligible, because predation would only increase to levels experienced under normal ecological conditions allowing for natural fish stock recovery. Therefore, it is considered that the receptors have a sensitivity of negligible (adverse).

6.3.26. Following the significance matrix utilised in this assessment (Table 5-1), a magnitude of low and sensitivity of negligible results in a negligible adverse significance of effect, which is not significant in EIA terms.

MARINE MAMMALS

ADVERSE EFFECT ON MARINE MAMMALS THROUGH A DECREASE IN PREY RESOURCE (DUE TO EXPECTED INCREASE IN SEABIRDS)

6.3.27. There is a potential for a decrease in prey resource for marine mammals due to increased predation from seabirds after population increases along migratory routes outside of the chosen sites, therefore there is potential for a transboundary.

6.3.28. While the proposed measure is expected to increase the number of seabirds predating shared prey resource, the increase is not expected to significantly reduce fish and shellfish stock levels because predation would only increase to levels more normally experienced under natural ecological conditions. On this basis, it is considered that the identified potential effect has a magnitude of negligible (adverse).

6.3.29. Although marine mammals will experience a small decrease in prey resource due to increased predation from seabirds, it is anticipated the effect on the prey resource will be negligible. Therefore, it is considered that the receptors have a sensitivity of negligible (adverse).

6.3.30. Following the significance matrix utilised in this assessment (Table 5-1), a magnitude of negligible and sensitivity of negligible results in a negligible adverse significance of effect, which is not significant in EIA terms.

7. EIA - PREDATOR CONTROL

7.1. INTRODUCTION

7.1.1. This section considers the potential impacts arising from predator control in Scotland. Due to the widespread and adaptive nature of predator control, this EIA assumes that control measures could occur anywhere in Scotland.

7.1.2. A characterisation of the physical, biological and human environmental baseline is presented followed by the results of an assessment of likely significant effects arising from the proposed compensation measure.

7.2. BASELINE

7.2.1. Table 7-1 provides a description of the baseline environment for each receptor which was identified during the scoping stage as potentially being affected by the proposed compensation measure.

Table 7-1 The baseline environment for the receptor groups relevant to predator control.

Receptor Group	Summary of Baseline Environment
Offshore and Intertidal Ornithology	Scotland is globally important for its seabird colonies, supporting over 65% of the British and Irish seabird population (National Trust for Scotland, 2020) and 24 species of breeding seabirds. Key factors affecting the abundance and productivity of seabirds are food availability, weather conditions/ climate, pollution, and the occurrence of predators. Monitoring of breeding seabirds by the UK Seabird Monitoring Programme shows that seabird numbers in Scotland in 2019 were 49% of the initial 1986 level, having declined due to three key pressures: fisheries, climate change, and non-native species. Scotland has a network of 162 SPAs covering 2.75 million hectares of land and sea (NatureScot, 2023), selected with the aim to protect vulnerable or threatened protected bird species from decline.
Onshore Ecology	Scotland is characterised by a range of onshore habitat types including, for example: rivers, wetlands, freshwater lochs, woodlands, peatlands, mountains, and moorlands. These habitats support a range of vulnerable or threatened species within a network of SPAs. Protected species in Scotland include, for example: • Bats; • Great crested newt; • Otters; • Natterjack toads; and • Water vole.

7.3. ASSESSMENT

IDENTIFICATION OF IMPACTS AND SCOPE OF ASSESSMENT

7.3.1. Based on the information presented in this document and the Ornithology Compensation Plan (Derogation Case, Appendix A), all activities associated with the predator control compensation measure were defined and potential impact pathways identified. The potential impact pathways identified are presented here with respect to the relevant receptor groups:

- Offshore and Intertidal Ornithology

  - Potential for disturbance from human activity due to monitoring and control methods; and
  - Beneficial effect on seabird populations from reduced predation.
- Onshore Ecology
  - Impacts to onshore plants and animals other than the targeted predator species.

IMPACT ASSESSMENT ALONE

7.3.2. An assessment of the effects of the compensation measure alone is presented below.

OFFSHORE AND INTERTIDAL ORNITHOLOGY

DISTURBANCE FROM HUMAN ACTIVITY DUE TO CONTROL AND MONITORING MEASURES

7.3.3. There is a potential for disturbance to offshore and intertidal ornithological receptors from monitoring and control methods, as those undertaking the proposed measure may cause disturbance and stress to birds on site.

7.3.4. The spatial extent of disturbance is anticipated to be small, limited to the immediate area around the monitoring rafts and live capture traps. The temporal extent is also anticipated to be small, with any disturbance caused being temporary (typically in terms of hours). When factoring in the small spatial and temporal extent, it is considered that the proposed activities have a magnitude of low (adverse).

7.3.5. During sensitive times of year, specifically breeding seasons, bird species will have a medium tolerance to disturbance as if disturbed they expend more energy and time toward vigilance and fleeing than they would normally expend were they undisturbed (Price, 2008). As this is the highest potential sensitivity, it is considered that the receptors have a sensitivity of medium (adverse).

7.3.6. Following the significance matrix utilised in this assessment (Table 5-1), a magnitude of low and sensitivity of medium results in a minor adverse significance of effect, which is not significant in EIA terms.

BENEFICIAL EFFECT ON SEABIRD POPULATIONS FROM REDUCED PREDATION

7.3.7. The proposed measure will result in reduced predator populations, and therefore a reduction in the predation of offshore and intertidal ornithological receptors at the chosen sites. This would have a beneficial effect on the ornithological receptors.

7.3.8. The proposed measure is anticipated to result in a significant increase in the population of razorbill and kittiwake and therefore it is considered that the magnitude of activities is high (beneficial). Given the high sensitivity of the receptors to predation, it is also considered that their sensitivity is high (beneficial).

7.3.9. Following the significance matrix utilised in this assessment (Table 5-1), a magnitude of high and sensitivity of high results in a major beneficial significance of effect, which is significant in EIA terms.

ONSHORE ECOLOGY

IMPACTS TO ONSHORE PLANTS AND ANIMALS OTHER THAN THE TARGETED PREDATOR SPECIES.

7.3.10. There is a potential for non-target animals (i.e. any species other than mink) to interact with the live capture traps, and potential for interaction with plants when carrying out the monitoring and control methods, and for both receptor groups to be disturbed.

7.3.11. During implementation of the invasive species controls, the Developer will ensure established good practice standards are implemented at all times to ensure an avoidance/reduction of interaction with sensitive receptors. Therefore, due to the implementation of these best practice standards, the magnitude of effect is considered to be negligible (adverse).

7.3.12. Following MCP standard practices for predator control, traps are set on monitoring rafts and daily trap checks are conducted by volunteers, who will safely and securely release any non-target species captured. Due to this, it is anticipated that if any non-target species and plants were to interact with the live capture traps, most would exhibit a medium sensitivity to small scale disturbance (adverse).

7.3.13. Following the significance matrix utilised in this assessment (Table 5-1), a magnitude of negligible and sensitivity of medium results in a negligible adverse significance of effect, which is not significant in EIA terms.

CUMULATIVE EFFECT ASSESSMENT

7.3.14. Due to the minor and negligible significance of effects associated with predator control methods, it can be concluded that there would be no significant cumulative effects. Furthermore, no other plans or projects that have the same impacts have been identified by the Developer.

TRANSBOUNDARY IMPACTS

7.3.15. No transboundary impacts are predicted as the outlined impacts are anticipated to be limited to Scotland.

8. EIA – DISTURBANCE REDUCTION

8.1. INTRODUCTION

8.1.1. This Section considers the potential impacts arising from disturbance reduction measures at the nesting colony sites identified.

8.1.2. A characterisation of the physical, biological and human environmental baseline is presented followed by the results of an assessment of likely significant effects arising from the proposed compensation measure.

8.2. BASELINE

8.2.1. Table 8-1 provides a description of the baseline environment for each receptor which was identified during the scoping stage as potentially being affected by the proposed compensation measure.

Table 8-1 The baseline environment for the receptor groups relevant to disturbance reduction measures.

Receptor Group	Summary of Baseline Environment
Offshore and Intertidal Ornithology	Scotland is globally important for its seabird colonies, supporting over 65% of the British and Irish seabird population (National Trust for Scotland, 2020) and 24 species of breeding seabirds. Key factors affecting the abundance and productivity of seabirds are food availability, weather conditions/ climate, pollution, and the occurrence of predators. Monitoring of breeding seabirds by the UK Seabird Monitoring Programme shows that seabird numbers in Scotland in 2019 were 49% of the initial 1986 level, having declined due to three key pressures: fisheries, climate change, and non-native species. Scotland has a network of 162 SPAs covering 2.75 million hectares of land and sea (NatureScot, 2023), selected with the aim to protect vulnerable or threatened protected bird species from decline.
Socioeconomics, Tourism And Recreation	Human disturbances can range from walking to ecotourism and boat tours along coasts near breeding colonies alongside a myriad of others. Activities that have taken place in the vicinity of certain key colonies are listed below: **Walking/Running** • Black Slough to Burn of Daff – Highly frequented coastal path that is used for walking and running. • Findon Ness to Black Slough – Several paths running through it, many of which run along the cliffs themselves. • Cove Bay – The Cove Bay colony is located approximately 110 metres from the Aberdeenshire Coastal Path. • Burnbanks – Burnbanks is located less than 100 metres from Aberdeenshire Coastal Path • Cove to Hare Ness – The Cove to Hare Ness colony is located approximately 100 metres from the heavily used access road to Cove Bay Harbour.

Receptor Group	Summary of Baseline Environment
	Water Sports (Stand-up Paddleboard (SUP)/Sea Kayaking) • Cove Bay – There is evidence of water sports being practiced near the colony (likely to be SUP or sea kayaking). • Cove to Hare Ness – Cove Bay Harbour slipway is often used as a launching point for SUP enthusiasts. • Hare Ness To Seal's Cove – Popular SUP site. **Boat Tours** • Inchkeith Island – Inchkeith is an uninhabited island in the Firth of Forth. Boat tours are frequent to the island. – It hosts the most important seabird populations of the non-SPA Forth Islands, with 480 (Apparently Occupied Nests (AON)) kittiwake, 170 (individual) guillemot, and 83 (Apparently Occupied Sites (AOS)) razorbill counted in 2023 (Deare, 2023). • Inchcolm island – Inchcolm is located 6 km east of the Forth Bridge. Inchcolm Abbey and its grounds are open to the public all year round and is accessible to tourists by ferry and boat tours. **Other Disturbances** • Seal's Cove to Findon Ness – The Seal's Cove to Findon Ness colony is located less than 100 metres from the Seal's Cove Shooting Ground, where recreational clay shooting takes place.

8.3. ASSESSMENT

IDENTIFICATION OF IMPACTS AND SCOPE OF ASSESSMENT

8.3.1. Based on the information presented in this document and the Ornithology Compensation Plan (Derogation Case, Appendix A), all activities associated with the disturbance reduction measure were defined and potential impact pathways identified. The potential impact pathways identified are presented here with respect to the relevant receptor groups:

- Offshore Ornithology: Beneficial effect on seabird populations as productivity of colonies improved; and
- Socioeconomics, Tourism And Recreation: Adverse effects on individuals, local recreation groups and nature conservation organisations through implementation of disturbance reduction measures.

IMPACT ASSESSMENT ALONE

OFFSHORE AND INTERTIDAL ORNITHOLOGY

BENEFICIAL EFFECT ON SEABIRD POPULATIONS AS PRODUCTIVITY OF COLONIES IMPROVED

8.3.2. Reducing disturbance to seabirds both during and between breeding seasons has the potential to increase productivity through mitigating stress factors that could cause flushing or nest abandonment where recreational activity is a source of disturbance.

8.3.3. Where Highly Pathogenic Avian Influenza (HPAI) is concerned, the resurgence of the virus remains a threat, not only to seabirds and other wild birds, but also to mammals and humans. Preventing its spread is vital to reduce seabird mortality linked to HPAI. Preventing the spread of HPAI through education or awareness-raising has the potential to limit transmission between seabird colonies. These measures will be especially effective at sites with higher visitor traffic.

8.3.4. The proposed measures will result in a reduction in disturbance of seabirds (from both recreational activities and HPAI). This would have a beneficial effect on the offshore and intertidal ornithological receptors.

8.3.5. The proposed measure is anticipated to result in a reduction in disturbance, and therefore it is considered that the magnitude of activities is medium (beneficial). Given the high sensitivity of the receptors to disturbance, it is also considered that their sensitivity is high (beneficial).

8.3.6. Following the significance matrix utilised in this assessment, a magnitude of medium and sensitivity of high results in a moderate beneficial significance of effect, which is significant in EIA terms.

SOCIOECONOMICS, TOURISM AND RECREATION

ADVERSE EFFECTS ON LOCAL RECREATION GROUPS AND NATURE CONSERVATION ORGANISATIONS THROUGH IMPLEMENTATION OF DISTURBANCE REDUCTION MEASURES

8.3.7. There is a potential for disruption to recreational visitors due to the implementation of these measures and monitoring mechanisms. The spatial extent of disturbance would be small, with any disturbance from the measures being limited to individuals.

8.3.8. The temporal extent is anticipated to be small, with any disturbance caused expected to be in the short term (typically in the hours during education events), after which the recreationists will be able to continue as normal. When factoring in the small spatial and temporal extent, it is considered that the proposed activities have a magnitude of low (adverse).

8.3.9. The proposed mitigations are not expected to affect individuals' ability to engage in recreational activity. Therefore, it is considered that the receptors have a sensitivity of negligible (adverse).

8.3.10. Following the significance matrix utilised in this assessment, a magnitude of low and sensitivity of low results in a negligible significance of effect, which is not significant in EIA terms.

CUMULATIVE EFFECT ASSESSMENT

8.3.11. Due to the beneficial and negligible adverse effects associated with disturbance reduction measures, it can be concluded that there would be no significant cumulative effects. Furthermore, no other plans or projects that have the same impacts have been identified by the Developer.

TRANSBOUNDARY IMPACTS

8.3.12. No transboundary impacts are predicted as the outlined impacts are anticipated to be limited to Scotland.

9. CONCLUSIONS

9.1.1. This Compensation Measures EIA Report has considered the environmental impacts associated with the implementation of the following proposed compensation measures:

- Artificial Nesting Structures for Kittiwake;
- Predator Control in Scotland; and
- Disturbance Reduction Measures.

9.1.2. The assessment provided in this document is based on the current understanding of the location, scope and nature of the proposed compensation measures as provided within the Ornithology Compensation Plan (Derogation Case, Appendix A) and associated Evidence and Roadmap documents (Derogation Case, Appendices B-D).

9.1.3. For each of the proposed compensation measures, the parameters of each measure have defined from the Ornithology Compensation Plan (Derogation Case, Appendix A) and the potential impacts identified following the process outlined in Section 5, with some impacts scoped out and others taken forward for assessment. The magnitude of impact and sensitivity of each receptor has been considered, and the level of significance have been derived following the matrix approach (Table 5-1).

9.1.4. Following the above methodology, a range of impacts were identified and assessed with respect to each compensation measure. No adverse impacts were considered to be likely significant effects in EIA terms with respect to any of the proposed compensation measures, with all of the likely significant effects considered to have a beneficial impact.

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