



ESTABLISHED 1968

The Finest Salmon from
SCOTLAND



Report to Inform Appropriate Assessment

North Gravir, Isle of Lewis

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Table of Contents

1.	Introduction	6
1.1	Regulatory Background.....	6
1.2	Overview of Habitats Regulations Appraisal Process.....	6
1.3	Consultation Responses	7
1.4	Proposed Development Description	11
1.5	Proposed Development Infrastructure	11
1.5.1	Pens.....	11
1.5.2	Pen Nets.....	11
1.5.3	Top Nets	12
1.5.4	Moorings.....	12
2.	Embedded Mitigation.....	12
3.	European Sites	21
3.1	Step One: Is the Proposal Directly Connected with or Necessary for Site Management for Nature Conservation?	21
3.2	Step Two: Is the Proposal Likely to have a Significant Effect on the Site?	21
3.2.1	Identification of European Sites Relevant to the Proposed Development.	21
3.2.2	Screening Relevant European Sites for AA	22
3.2.3	Screening Statement and Conclusions	37
3.3	Step Three: Can it be Ascertained that the Proposal will not Adversely Affect the Integrity of the Site?	37
3.3.1	St. Kilda SPA, the Seas of St. Kilda SPA, North Rona and Sula Sgeir SPA and Sule Skerry and Sula Stack SPA.....	38
4.	Conclusion.....	46

Table of Tables

Table 1.1: Consultation responses specific to HRA. 8

Table 2.1: Summary of the embedded mitigation measures and their relevance to the identified impacts of the Proposed Development. 14

Table 3.1: Summary of the European Sites identified and scoped in through the formal Screening and Scoping Request. 21

Table 3.2: Summary of the European Sites that were identified and scoped out of further assessment within the Scoping Report..... 22

Table 3.3: Impact pathway screening assessment for the identified European Sites..... 23

Table 3.4: HRA screening assessment summary. 37

Table 3.5: Pole mounted top net system specifications for the Proposed Development. 44

Table 3.6: Summary of the pole mounted top net systems deployed at Gravir Outer and Gravir West. 45

Table of Figures

Figure 1.1: Location of the Proposed Development. 11
Figure 3.1: Spatial representation of the areas of the marine environment surrounding the St. Kilda SPA that are heavily utilised by northern gannets. 40
Figure 3.2: Proximity of North Rona and Sula Sgeir SPA to Proposed Development. 41
Figure 3.3: Proximity of Sula Skerry and Sula Stack SPA to Proposed Development. 42

Glossary of Terms

Terms	Definition
AA	Appropriate Assessment
ADD	Acoustic Deterrent Device
AEOSI	Adverse Effect on Site Integrity
BFS	Bakkafrost Scotland Ltd.
CAR	The Water Environment (Controlled Activities) (Scotland) Regulations 2011
CnES	Comhairle nan Eilean Siar
CSIP	Cetacean Strandings and Investigation Programme
EU	European Union
FCR	Feed Conversion Ratio
FCS	Favourable Conservation Status
FMA	Farm Management Area
FNC	Flying Net Cleaner
g	Gram
Habitats Regulations	The Conservation (Natural Habitats &c.) Regulations 1994
HRA	Habitats Regulations Appraisal
JNCC	Joint Nature Conservation Committee
Km	Kilometre
Km ²	Squared Kilometre
LSE	Likely Significant Effect
m ²	Squared Metre
MD-LOT	Marine Directorate Licensing Operations Team
MMO	Marine Management Organisation
NMPi	National Marine Plan interactive
NS	NatureScot
PCP	Predator Control Plan
PE	Polyethylene
Proposed Development	The North Gravir Fish Farm Proposal
RIAA	Report to Inform Appropriate Assessment
RONC	Remotely Operated Net Cleaner
SAC	Special Area of Conservation
SDM	Standard Default Method
SEPA	Scottish Environment Protection Agency
SPA	Special Protection Area
VMP	Vessel Management Plan
yr ⁻¹	Year
ZoI	Zone of Influence

1. Introduction

This Report to Inform an Appropriate Assessment (RIAA) is provided as supporting information to an application submitted under the 'Town and Country Planning (Scotland) Act 1997 (as amended)', for a new fish farm development, North Gravir ('the Proposed Development'), situated off the east coast of the Isle of Lewis. The Proposed Development is comprised of five 200 m circumference pens, along with associated supporting infrastructure.

Habitats Regulations Appraisal (HRA) screening was undertaken to identify European Sites and their associated qualifying features relevant to the Proposed Development. The HRA screening assessment was submitted as part of the 'Screening and Scoping Request' (22/00290/FFSCSC) made to the Comhairle nan Eilean Siar (CnES) in June 2022. The consultation feedback received from stakeholders, primarily NatureScot (NS), has been used to inform the scope of this assessment (see **Sub-Section 1.3**).

1.1 Regulatory Background

The requirements of the Habitats Directive (92/43/EEC)¹ and the Wild Birds Directive (2009/147/EC)² are transposed into domestic law in Scotland through 'The Conservation (Natural Habitats & c.) Regulations 1994' (as amended)³ (hereafter referred to as 'the Habitat Regulations'). These regulations apply on land in Scotland and in Scottish inshore waters (the area of sea adjacent to the Scottish coast out to 12 nautical miles). The UK's exit from the European Union (EU) has resulted in changes in terminology regarding the Habitats Regulations. The term 'European Site' is now being used to refer to what was previously known as a 'Natura 2000' site. This recognises that Special Areas of Conservation (SAC) and Special Protection Areas (SPA) protect species and habitats shared across Europe and were originally designated under European legislation^{1, 2}. In addition, Ramsar sites, designated under The Convention on Wetlands⁴, are also classified as European Sites.

As a result of the UK's exit from the EU, these designated sites are no longer part of the EU's Natura 2000 network. Instead, they form a UK wide network of designated sites. This UK site network is made up of SACs and SPAs designated at various points in time before the UK's exit day from the EU, and any sites designated under the Habitat Regulations after exit day. The UK site network still contributes to the delivery of the UK's domestic and international biodiversity objectives. The UK site network, and component SACs and SPAs (European Sites) now form part of the 'Emerald Network', which spans from Europe into Africa. The Emerald Network was established in 1989 under the Bern Convention as an ecological network made up of Areas of Special Conservation Interest. The inclusion of the UK site network, within the Emerald Network, ensures that the UK continues to meet its obligations under the Bern Convention. It is Scottish Government policy to afford the same level of protection to 'proposed SPAs and 'candidate SACs as fully classified and designated sites.

1.2 Overview of Habitats Regulations Appraisal Process

In accordance with the Habitat Regulations, where a plan or project could affect a European Site, the Habitat Regulations require the competent authority to consider the following, under Regulation 48:

¹ Council Directive 92/43/EEC: [Online] Available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:31992L0043>

² Council Directive 2009/147/EC: [Online] Available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32009L0147>

³ Conservation (Natural Habitats &c.) Regulations 1994: [Online] Available at: <https://www.legislation.gov.uk/ukxi/1994/2716/contents/made>

⁴ The Convention on Wetlands. Designating Ramsar Sites. [Online] Available at: <https://www.ramsar.org/our-work/wetlands-international-importance/designating-ramsar-sites>

- Determine whether the proposal is directly connected with or necessary to site management for conservation; and, if not
- Determine whether the proposal will have a likely significant effect (LSE) on the European Site either individually or in-combination with other plans or projects; and, if so, then
- Make an appropriate assessment (AA) of the implications for the European Site in view of that site's Conservation Objectives.

This process is commonly known as HRA. HRA applies to any plan or project which has the potential to affect the qualifying features of a European Site, even when the plan or project is located out with the boundary of the European Site. The competent authority, in this case CnES, will decide whether an AA is necessary and carry it out, with advice from NS, if required. It is the applicant's (Bakkafrost Scotland (BFS)) responsibility under Regulation 48 (2) to 'provide such information as the competent authority may reasonably require for the purposes of the assessment or to enable the competent authority to determine whether an AA is required.

The approach to HRA follows the three-step process as detailed in NS guidance⁵. Therefore, information in this HRA is presented in a format to answer the following three questions:

- **Step 1:** Is the proposal directly connected with or necessary for site management for nature conservation?
- **Step 2:** Is the proposal likely to have a significant effect on the site?
- **Step 3:** Can it be ascertained that, beyond reasonable scientific doubt, the proposal will not adversely affect the integrity of the site?

If, after assessment under Regulation 48, it cannot be ascertained that a proposal will not adversely affect the integrity of a European Site (either as adverse effects are predicted or they cannot be ruled out), the competent authority may approve a plan or project, if there are no alternative solutions, and there are imperative reasons for over-riding public interest, as defined in Regulation 49 (2) of the Habitats Regulations. Necessary compensatory measures must be taken to secure the coherence of the European Site network.

1.3 Consultation Responses

Consultation feedback specific to the HRA was received in response to the Screening and Scoping Request (22/00290/FFSCSC). Details of each of the comments received and how these have been incorporated into the assessment to allow for completion of the HRA are presented in **Table 1.1**.

⁵ NatureScot, (2010). Natura sites and the Habitats Regulations. How to consider proposals affecting SACs and SPAs in Scotland. The essential quick guide. Available [online] at: <https://www.nature.scot/natura-sites-and-habitats-regulations-how-consider-proposals-affecting-sacs-and-spas-scotland>

Table 1.1: Consultation responses specific to HRA.

Comment/Information Request	Relevant European Site	Applicant Response
NS Scoping Advice, October 2022		
<p>NS state that the Proposed Development will be located within the Inner Hebrides and the Minches SAC, which is designated for harbour porpoise (<i>Phocoena phocoena</i>).</p> <p>It is also highlighted that the typical frequencies of acoustic deterrent devices (ADDs) overlap with the hearing range of harbour porpoise. Therefore, if ADDs are deployed at the Proposed Development, there is the potential for LSE.</p> <p>NS state that BFS should consider whether it is possible to operate the Proposed Development without the use of ADDs.</p>	<p>Inner Hebrides and the Minches SAC</p>	<p>BFS has made the decision to not deploy ADDs as standard practice at the Proposed Development. Therefore, this potential impact pathway has been avoided. Instead, the Proposed Development will utilise proactive, passive predator control measures as detailed within the Predator Control Plan (PCP), provided in Appendix E.</p> <p>Further detail on the potential for LSE is provided within Sub-Section 3.2.1.</p>
<p>NS state that there is the potential for northern gannets to become entangled within or entrapped under pole mounted top netting.</p> <p>There are eight SPAs, for which breeding northern gannets are a qualifying feature. Due to the large foraging range of northern gannets, there is the potential for connectivity between northern gannets from SPA colonies and all marine waters suitable for fish farming.</p> <p>Therefore, NS state that LSE should be concluded for all marine fish farms that deploy pole mounted top netting.</p>	<p>Northern gannets SPAs - St. Kilda, the Seas off St. Kilda, North Rona and Sule Sgeir, and Sule Skerry and Sule Stack SPAs have been screened into the HRA (Sub-Section 3.2.1).</p>	<p>The Proposed Development will deploy pole mounted top netting on each of the five pens. The mesh size will be in line with NS requirements.</p> <p>Determination of the potential for LSE and the requirement for AA is detailed within Sub-Section 3.2.1.</p>

Comment/Information Request	Relevant European Site	Applicant Response
<p>NS also indicate that the potential for LSE is much reduced if the top netting mesh size is 100 mm or less, but LSE cannot be ruled out without detailed assessment.</p>		
<p>CnES Scoping Opinion, December 2022</p>		
<p>CnES state that the SACs identified within the Screening and Scoping Request are correct.</p> <p>CnES state that the Proposed Development lies within the Inner Hebrides and the Minches SAC, which is designed for harbour porpoise.</p> <p>CnES require detail on make and model of ADD system to be deployed at the Proposed Development, along with management arrangements intended to limit ADD usage.</p> <p>Mitigation measures for LSE on the harbour porpoise feature of the Inner Hebrides and Minches SAC are required.</p>	<p>Inner Hebrides and the Minches SAC</p>	<p>BFS has made the decision to not deploy ADDs as standard practice at the Proposed Development. Therefore, this potential impact pathway has been avoided. Instead the Proposed Development will utilise proactive, passive predator control measures as detailed within the Predator Control Plan (PCP), provided in Appendix E.</p> <p>Further detail on the potential for LSE is provided within Sub-Section 3.2.1.</p>
<p>CnES state that the SPAs identified within the Screening and Scoping Request are correct.</p> <p>CnES state that there is the potential for connectivity, and therefore LSE, between the Proposed Development and northern gannets for SPA colonies.</p> <p>CnES request that mitigation measures for LSE on northern gannets are provided and indicate that top</p>	<p>Northern gannets SPAs - St. Kilda, the Seas off St. Kilda, North Rona and Sule Sgeir, and Sule Skerry and Sule Stack SPAs have been screened into the HRA (Sub-Section 3.2.1).</p>	<p>The Proposed Development will deploy pole mounted top netting on each of the five pens. The mesh size will be in line with NS requirements.</p> <p>Determination of the potential for LSE and the requirement for AA is detailed within Sub-Section 3.2.1.</p>

Comment/Information Request	Relevant European Site	Applicant Response
netting should be in line with NS guidance.		

1.4 Proposed Development Description

The Proposed Development will be located off the east coast of the Isle of Lewis (see



Figure 1.1). The development will be situated between Camas Chalaboist to the north and the mouth of Loch Odhairn to the south. The development lies on a stretch of coastline adjacent to The Minch and sheltered to the south by the A'Chabag headland. The site is sheltered from westerly directions but exposed to wave approaching from the easterly directions.

Bathymetric data indicates the Proposed Development is located on a uniform eastward slope going from 30 m depth on the west side of the proposed planning boundary to 100 m depth on the east side. The proposed site is to be located between the 40 m and 70 m contours.



Figure 1.1: Location of the Proposed Development

1.5 Proposed Development Infrastructure

1.5.1 Pens

The Proposed Development will be comprised of a single group of five 200 m circumference circular pens, held in a 120 m grid. The formation of the group will be 1 x 5. The overall surface area of the pens will equate to 1.59 ha.

1.5.2 Feed Barge

The proposed barge is the JT Electric, which has a length of 28.35 m and a beam of 13.5 m. The feed barge will be fully automated and will have a feed holding capacity of 600 T, split across a number of purpose-built feed silos. When unloaded the feed-barge has a maximum height above the waterline of 10.29 m and when fully loaded it has a maximum height above the waterline of 8.70 m.

1.5.3 Pen Nets

The proposed net depth of the Proposed Development is 15 m (sidewall). Nets will be specifically designed to suit site conditions and husbandry requirements. Nets will be subject to regular strength testing and a maintenance program. Nets are typically replaced after six years, dependant on strength test results.

BFS will install enhanced, high rigidity netting, such as Sapphire Seal Pro⁶ nets, designed using high density polyethylene (PE), at the Proposed Development. These nets are structurally designed to provide

⁶ Garware Technical Fibres: Sapphire Seal Pro Netting. [Online] Available at: <https://www.garwarefibres.com/product/sapphire-sealpro/>

greater cut and bite resistance and rigidity, helping to protect stock from predator damage and reduce the probability of escape events. Deployment at other fish farms in Scotland has demonstrated a reduction in the requirement for active predator control measures.

Sinker tubes will also be installed at the Proposed Development to maintain net tension. This aims to minimise 'bagging' of the net thereby denying seals the necessary purchase required to bite through or damage the net.

Divers contracted to BFS will regularly inspect each net and nets will, on average, be cleaned every ten days using mechanical net cleaners, specifically Remotely Operated Net Cleaners (RONCs) and Flying Net Cleaners (FNCs) which use mechanical arms and concentrated jets of water to dislodge algae and other fouling organisms.

1.5.4 Top Nets

The Proposed Development will utilise a pole mounted top net system, as a predator control measure to reduce the risk of predation of the farmed stock by avian predators. Top nets will be inspected and re-tensioned on a daily basis, as part of the containment checks. Top net mesh size will be in-line with the recommendations made by NS in the Interim Technical Briefing Note – Pole-mounted top nets and birds at finfish farms⁷.

1.5.5 Moorings

The pens will be secured within a rope and chain matrix. Moorings will be specifically designed to meet the meteorological, hydrological, and bathymetric conditions at the development location. The surface mooring system components will be checked as part of the daily containment checks and a full inspection of sub-surface component parts will be undertaken by specialist contractors at the end of every production cycle. The end of cycle inspection will highlight any remedial work that is needed and, once complete, a Declaration of Compliance with the Technical Standard for Scottish Finfish Aquaculture will be issued by the contractor.

2. Embedded Mitigation

An outline of the embedded mitigation measures anticipated to avoid, reduce or compensate for potential impacts on SAC and SPA qualifying features, which may otherwise lead to adverse effect on site integrity (AEOSI), is presented in **Table 2.1**. The embedded mitigation measures presented in **Table 2.1** can be distinguished between mitigation that is essential or intrinsic to the Proposed Development, or which is employed as good practice, irrespective of the potential for LSE on a European Site, and mitigation measures that have been embedded into the Proposed Development that are directly related to the avoidance or reduction of potential impacts on European Sites. Therefore, in line with the NS guidance note 'The handling of mitigation in Habitats Regulations Appraisal – the People Over Wind CJEU judgement'⁸, only mitigation measures that are determined to be essential, intrinsic, or best practice have

⁷ NatureScot: Interim Technical Briefing Note: Pole-mounted Top Nets and Birds at Finfish Farms. [Online] Available at: <https://www.nature.scot/doc/interim-technical-briefing-note-pole-mounted-top-nets-and-birds-finish-farms>

⁸ NatureScot. The handling of mitigation in Habitats Regulations Appraisal – the People Over Wind CJEU judgement. [Online] Available at: <https://www.nature.scot/sites/default/files/2019-08/Guidance%20Note%20-%20The%20handling%20of%20mitigation%20in%20Habitats%20Regulations%20Appraisal%20-%20the%20People%20Over%20Wind%20CJEU%20judgement.pdf>

been considered in the screening stage (**Sub-Section 3.2.1**) of this HRA. Within **Table 2.1** this distinction is made in the column titled 'Considered at Screening Stage'.

Table 2.1: Summary of the embedded mitigation measures and their relevance to the identified impacts of the Proposed Development.

Embedded Mitigation Measure	Description	Relevance	Considered at Screening Stage (i.e., Intrinsic to Development) (Yes / No)
Development Location	The development location was selected based on hydrographic data indicating that the location is a well flushed and highly energetic site. This high dispersion potential of the development location will allow for waste discharges to be diffused to low levels over a large area. As a result, it is unlikely that sediments will be consolidated underneath the pens. Therefore, the intensity of sediment deposition will be significantly reduced within the defined Mixing Zone.	Direct displacement from the Proposed Development's footprint; and Loss of or damage to prey supporting habitats	Yes
Site Design and Layout	As detailed within Section 3 of the EIAR and Sub-Section 1.5 of this RIAA, the Proposed Development will make use of fewer, but larger pens. This will help limit the spatial extent of the Proposed Development in relation to the seabed and therefore help reduce the spatial extent of any potential impacts on the benthic environment. The use of fewer pens will also help ensure the effectiveness of other embedded mitigation measures such as; Feed Control and Monitoring (see below).	Disturbance in vicinity of the Proposed Development; Direct displacement from the Proposed Development's footprint; and Loss of or damage to prey supporting	Yes

Embedded Mitigation Measure	Description	Relevance	Considered at Screening Stage (i.e., Intrinsic to Development) (Yes / No)
NewDEPOMOD Modelling	<p>The NewDEPOMOD standard default method (SDM) is a risk assessment tool and is considered to be conservative in nature. As required for new farms, the SDM approach has been used for the Proposed Development. NewDEPOMOD modelling for the Proposed Development has been undertaken for both organic (carbon) deposition and in-feed residue deposition.</p> <p>NewDEPOMOD organic deposition model runs were iterated up in biomass in order to calculate the maximum passing biomass in relation to the SEPA Mixing Zone criteria. NewDEPOMOD model outputs and the accompanying NewDEPOMOD Modelling Report (Appendix K) for a maximum passing biomass of 4680 T have been submitted to and approved by SEPA.</p> <p>The NewDEPOMOD outputs indicate that, at a biomass of 4680 T, the average depositional intensity within the Mixing Zone will be 360.2 g/m²/yr⁻¹, a value far below the depositional intensity threshold of 4,000 g/m²/yr⁻¹, whilst the Mixing Zone's spatial extent has been modelled at 117.17 % of the permissible 120 %.</p>	<p>habitats</p> <p>Loss of or damage to prey supporting habitats</p>	<p>Yes</p>
Containment Net Strategy	<p>BFS will install enhanced, high rigidity primary netting at the Proposed Development. High rigidity netting (Sapphire Seal Pro, or similar) is constructed out of different combinations of polyolefins and co-polymers and, as such, it is highly compact, resulting in a final product that displays greater rigidity than that of regular PE braided netting. This netting also has a higher bite and cut resistance than traditional containment netting and, therefore, provides an additional level of predator deterrence. The high rigidity netting has a knotted mesh with large rough knots on the outer surface of the netting and a smooth inner surface, presented to the stocked fish. These large rough knots have been documented to help reduce seal depredation incidence, as the knot structures irritate the sensitive skin on the noses of seals.</p>	<p>Entanglement and entrapment</p>	<p>Yes</p>

Embedded Mitigation Measure	Description	Relevance	Considered at Screening Stage (i.e., Intrinsic to Development) (Yes / No)
	<p>An effective net tensioning system (sinker tubes) will ensure that all pen nets are highly tensioned and thereby hold their volume and structure within the water column. It is proposed that sinker tubes with a weight of 80 kg/m be deployed to ensure correct tensioning. Correct tensioning of the primary netting will help reduce the impact of predator interactions, as a uniformly taut pen net presents as a 'wall' to any underwater predator. As such, there will be no slack areas in the netting for entanglement or purchase through which seals can grab or bite stocked fish.</p>		
Bird Nets	<p>The Proposed Development will be fitted with pole-mounted top nets, this netting will have a ceiling and sidewall mesh size of 75 mm. This pole-mounted system will prevent avian predators from aggregating on the top netting in order to access fish feed or stocked fish. The top netting will be correctly tensioned to ensure maximum effectiveness by minimising the potential for ingress into the pens by avian predators and by reducing the risk of both entanglement and entrapment. The deployment of 100 mm (ceiling) and 75 mm (sidewall) mesh for pole-mounted top netting is in line with current guidance from NatureScot⁷ and mitigates the potential for entanglement and entrapment.</p> <p>Top netting will be inspected and re-tensioned on a daily basis as part of the site containment checks and records of this will be held onsite. Maintenance will be conducted as and when required, based on the findings of the daily containment checks. The combination of daily containment checks and maintenance will ensure that the top netting is effective at both deterring avian predator interactions and reducing the likelihood of entanglement and entrapment.</p>	Entanglement and entrapment	No
Feed Storage and Feeding	<p>Feed will be stored in the purpose-built feed silos on the feed-barge, these silos are securely sealed from the external environment. This will help prevent avian attraction to the Proposed Development. Feed will be delivered to the feed barge via feed delivery vessels, where feed will be emptied straight into the silos and no feed bags will be stored on the deck of the feed barge.</p>	Entanglement and entrapment	Yes

Embedded Mitigation Measure	Description	Relevance	Considered at Screening Stage (i.e., Intrinsic to Development) (Yes / No)
	Feed will be delivered to each pen through an automated feed system. Feed will be pumped, via a high-pressure air system, from the feed silos to a feed spreader in each pen, through sealed feed pipes. The feed spreaders will face downwards to ensure feed is not sprayed into the air. High-definition cameras will be used to monitor the feeding operations to ensure that the feed spreaders are working correctly.		
Best Practice Husbandry Procedures	<p>Best practice husbandry procedures will be employed at the Proposed Development to ensure fish health and welfare are maintained at a high standard throughout the production cycle. Full details of fish health and welfare husbandry procedures are outlined in Sub-Section 3.4.2 of the EIAR.</p> <p>The presence of mortalities building up at the base of pens is a known attractant to seal species. Therefore, an effective mortality removal procedure, such as the one proposed in Sub-Section 3.4.3, can reduce the potential for predatory interactions.</p>	Entanglement and entrapment; and Disturbance in vicinity of the Proposed Development	Yes
Acoustic Deterrent Devices (ADDs)	BFS has committed to not using ADDs as standard practice at the Proposed Development. In circumstances of exceptional welfare concern for stocked fish, BFS will consult with NS, the Local Planning Authority, and the Marine Directorate-Licensing Operations Team (MD-LOT) to discuss how best to proceed and to obtain approval for any ADD use. It is likely that a European Protected Species (EPS) licence will be required. An EPS licence can be applied for via the MD-LOT who will consult with NS on any applications.	Underwater noise, with the potential to cause disturbance and exclusion	Yes
Anti-Predator Netting	BFS will not use anti-predator nets as a standard measure at the Proposed Development. In circumstances of exceptional welfare concern for stocked fish, BFS will consult with NS and the Local Planning Authority on the feasibility and potential for use of anti-predator nets at the Proposed Development.	Entanglement and entrapment	Yes
Predator Control Plan (PCP)	The Proposed Development's PCP (Appendix E) outlines the adaptive management measures in place to mitigate against predatory interactions. The various measures are detailed within the PCP and a summary is provided below:	Entanglement and entrapment	Yes

Embedded Mitigation Measure	Description	Relevance	Considered at Screening Stage (i.e., Intrinsic to Development) (Yes / No)
	<ul style="list-style-type: none"> • Wildlife assessment; • Wildlife logbook; • Net tensioning and seal blinds; and • Effective husbandry. 		
Environmental Quality Standards (EQSs)	<p>SEPA regulates the quantity of discharges of medicines by imposing conditions on the use of these products such that either the area or time over which they may have an impact is restricted.</p> <p>EQSs are safe concentrations for medicinal discharges and have been set to be protective of all species in the environmental matrix where exposure is likely to be highest.</p> <p>Discharge limits for the Proposed Development represent discharge quantities that have been modelled and show full compliance to the relevant EQSs.</p>	Loss of or damage to prey supporting habitats	Yes
Feed Control and Monitoring	<p>Fish feed used by BFS across all marine farming operations has been developed to mimic the natural diet of Atlantic salmon, and is highly digestible, helping to improve FCRs. BFS focuses on ensuring an optimal diet is produced and provided to the stocked fish. This optimised feed ensures efficient nutrient conversion, meaning that the amount of soluble nutrients released as waste is minimised.</p> <p>Feeding will be in accordance with established guides and staff will be able to adapt the feeding regime as necessary, for example, if weather conditions are temporarily affecting feeding behaviour.</p> <p>Feeding operations will be conducted from either the feed barge or the shorebase where feed input can be adjusted as required and high-definition cameras, within each pen, allow for close monitoring of the feed response, allowing real-time adjustments and cessation of feeding when</p>	Entanglement and entrapment; Loss of, or damage to prey supporting habitats	Yes

Embedded Mitigation Measure	Description	Relevance	Considered at Screening Stage (i.e., Intrinsic to Development) (Yes / No)
	<p>required. In doing so, feed wastage is reduced and the potential for organic deposition beneath the pens is minimised.</p> <p>Site staff will also receive specific in-house training as part of the 'feed, feeding, fish growth and development' section of the Marine Competency Framework.</p>		
Fallowing	<p>Fallowing between production cycles is best practice within the Scottish finfish aquaculture industry. Fallowing provides an opportunity for benthic communities within the Mixing Zone of a fish farm to recover. Alterations to benthic faunal communities within the Mixing Zone as a result of organic deposition during a production cycle are anticipated to be temporary and reversible in nature. Furthermore, residues from in-feed treatments also have further opportunity to degrade during the fallow period. During the fallow periods all containment nets are removed and sent for servicing.</p> <p>At present SEPA require that there must be a minimum period of 28 consecutive days between every production cycle during which no commercial species shall be kept onsite.</p>	Entanglement and entrapment; and Loss of or damage to prey supporting habitats	Yes
Enforcement	<p>Existing regulation, in place through the Water Environment (Controlled Activities) (Scotland) Regulations 2011, provides an effective method of controlling the use of sea lice medicines, whilst promoting the use of biological and mechanical treatment methods.</p> <p>SEPA require benthic monitoring on all operational fish farms, once per production cycle. This monitoring regime is designed to ensure that the fish farm's operational Mixing Zone complies with the Mixing Zone criteria and does not exceed the modelled Mixing Zone extent as defined by NewDEPOMOD modelling.</p> <p>In the worst-case scenario, SEPA has extensive enforcement powers to decrease the maximum</p>	Loss of or damage to prey supporting habitats	Yes

Embedded Mitigation Measure	Description	Relevance	Considered at Screening Stage (i.e., Intrinsic to Development) (Yes / No)
	biomass, if a fish farm is deemed to continuously not comply with benthic EQSs.		
Environmental Monitoring Plan	A site specific monitoring plan will be implemented to monitor seabed impacts from the Proposed Development in order to assess compliance with the seabed standards outlined by SEPA. This is a requirement under the SEPA CAR licence.	Loss of or damage to prey supporting habitats	Yes
Monitoring and Reporting	<p>BFS will implement an entanglement and entrapment monitoring and reporting programme at the Proposed Development, as is implemented across all BFS marine operations. The requirements of the monitoring and reporting programme will be in line with those outlined by NS, through the Interim Technical Briefing Note: Pole-mounted Top Nets and Birds at Finfish Farms⁷. A summary of the requirements is presented below:</p> <ul style="list-style-type: none"> • Maintain daily records of wildlife entanglements or entrapment at the development and submit six-monthly returns to the Planning Authority and to NS; and • Provide written immediate notification to the Planning Authority and NS of the occurrence of any entrapment or entanglement of any single bird species in the event that in relation to a single bird species: <ul style="list-style-type: none"> ○ Three or more birds become entangled or entrapped on a single day; or ○ Ten or more birds become entangled or entrapped in any seven-day period; or ○ One or more birds become entangled or entrapped on four or more consecutive days. 	Entanglement and entrapment	No
Wildlife Logbook Monitoring	The Proposed Development will keep a logbook of all wildlife noted in the vicinity. This will include a comment on the interaction type, e.g., distant sighting, or direct interaction with fish farm infrastructure. This wildlife logbook will help understand patterns in species utilisation of the area over time.	Linked to all potential impacts, indirectly.	Yes

3. European Sites

3.1 Step One: Is the Proposal Directly Connected with or Necessary for Site Management for Nature Conservation?

The Proposed Development is not directly connected with or necessary for the site management for nature conservation of a European Site. Therefore, consideration of step two is required.

3.2 Step Two: Is the Proposal Likely to have a Significant Effect on the Site?

3.2.1 Identification of European Sites Relevant to the Proposed Development.

As detailed within the Scoping Report, submitted in support of the formal Screening and Scoping Request (22/00290/FFSCSC) to CnES, the potential for LSE in relation to European Sites with potential connectivity to the Proposed Development was assessed, in order to scope in the European Sites for which significant effect could not be ruled out, and therefore require further assessment within the HRA RIAA.

It is important to note that neither the Scoping Opinion, issued by CnES, nor the Scoping Advice, provided by the respective consultees, highlighted the potential for significant effect in regard to any of the European Sites that were assessed and scoped out within the Scoping Report, with the Scoping Opinion specifically stating that: “**The SAC and SPA sites are correctly identified, and Shadow HRA/AA is welcomed to support the EIAR.**”

Furthermore, no additional European Sites with the potential for LSE, as a result of the Proposed Development, were highlighted through the Scoping Opinion, or consultee Scoping Advice. A summary of the European Sites that have been scoped in for further assessment within the RIAA is presented in **Table 3.1**.

Table 3.1: Summary of the European Sites identified and scoped in through the formal Screening and Scoping Request.

European Site Name	Qualifying Features (Features with Potential Connectivity to the Proposed Development are in Bold)
Inner Hebrides and the Minches SAC	harbour porpoise (<i>Phocoena phocoena</i>)
St. Kilda SPA	northern fulmar (<i>Fulmarus glacialis</i>) breeding, northern gannet (<i>Morus bassanus</i>) breeding, great skua (<i>Stercorarius skua</i>) breeding, common guillemot (<i>Uria aalge</i>) breeding, black-legged kittiwake (<i>Rissa tridactyla</i>) breeding, Leach’s petrel (<i>Hydrobates leucorhous</i>) breeding, Manx shearwater (<i>Puffinus puffinus</i>) breeding, Atlantic puffin (<i>Fratercula arctica</i>) breeding, razorbill (<i>Alca torda</i>) breeding, seabird assemblages breeding, storm petrel (<i>Hydrobates pelagicus</i>) breeding.
Seas off St. Kilda SPA	Northern fulmar (<i>Fulmarus glacialis</i>) breeding,

European Site Name	Qualifying Features (Features with Potential Connectivity to the Proposed Development are in Bold)
The Atlantic puffin qualifying feature of the Seas of St. Kilda SPA has connectivity with the Proposed Development based on mean foraging range data. However, the SPA represents a foraging habitat not a breeding site.	northern gannet (<i>Morus bassanus</i>) breeding, common guillemot (<i>Uria aalge</i>) breeding, Atlantic puffin (<i>Fratercula arctica</i>) breeding, seabird assemblages breeding, storm petrel (<i>Hydrobates pelagicus</i>) breeding.
North Rona and Sule Sgeir SPA	northern fulmar (<i>Fulmarus glacialis</i>) breeding, northern gannet (<i>Morus bassanus</i>) common guillemot (<i>Uria aalge</i>) breeding, black-legged kittiwake (<i>Rissa tridactyla</i>), breeding, Leach's petrel (<i>Oceanodroma leucorhoa</i>) breeding, European storm-petrel (<i>Hydrobates pelagicus</i>) breeding, Atlantic puffin (<i>Fratercula arctica</i>) razorbill (<i>Alca torda</i>) breeding, storm petrel (<i>Hydrobates pelagicus</i>)
Sule Skerry and Sule Stack SPA	breeding, northern gannet (<i>Morus bassanus</i>) breeding, Leach's petrel (<i>Oceanodroma leucorhoa</i>) breeding, European storm-petrel (<i>Hydrobates pelagicus</i>) breeding, European shag (<i>Phalacrocorax aristotelis</i>) breeding, common guillemot (<i>Uria aalge</i>), breeding, Atlantic puffin (<i>Fratercula arctica</i>)

As the Scoping Opinion and supporting Scoping Advice did not conclude potential significant effects in relation to the European Sites scoped out within the Scoping Report, these designated sites were not carried forward for further assessment within the HRA RIAA. For reference the scoped out European Sites are listed within **Table 3.2**.

Table 3.2: Summary of the European Sites that were identified and scoped out of further assessment within the Scoping Report.

Designated Site Name	Designation Type
Lewis Peatlands	SAC
Lewis Peatlands	SPA
Shiant Isles	SPA
Shiant Isles	SSSI

3.2.2 Screening Relevant European Sites for AA

Table 3.3, below, presents the results of the screening assessment to determine which impact pathways relevant to the qualifying features require further assessment through AA.

Table 3.3: Impact pathway screening assessment for the identified European Sites.

European Site Name	Screened In Qualifying Feature	Distance (Proposed Development Centre to closest point of European Site)	Potential Impact Pathway	Potential for LSE	Screening Decision
St. Kilda SPA; Seas off St. Kilda SPA; and North Rona and Sula Sgeir SPA	Northern fulmar	123.36 km, west-northwest (St. Kilda SPA)	Entanglement and entrapment	<p>Northern fulmar are known to forage over large areas with a mean foraging range of 224.70 km⁹. Northern fulmar are an oceanic species and their preferred marine habitat, in Scotland, is the continental shelf-break to the north and west. As such, they are unlikely to utilise the coastal waters of the Isle of Lewis for foraging.</p> <p>Moreover, northern fulmar are a surface feeding species that may prefer shallow splash-dives. As such, they have an extremely low risk of drowning as a result of entanglement.</p> <p>As a result, LSE is not predicted in relation to the northern fulmar qualifying feature of the St. Kilda, Seas off St. Kilda SPAs and North Rona and Sula Sgeir SPA's.</p>	Screened Out
		73.69 km, west-northwest (Seas off St. Kilda SPA)			
		112.17 km, north (North Rona and Sula Sgeir)			

⁹ Woodward, I., Thaxter, C.B., Owen, E and Cook, A.S.C.P. (2019). Desk-based revision of seabird foraging ranges used for HRA screening. Report of work carried out by the British Trust for Ornithology on behalf of NIRAS and The Crown Estate. BTO Research Report No. 724. [Online] Available at: <https://www.marinedataexchange.co.uk/>

European Site Name	Screened In Qualifying Feature	Distance (Proposed Development Centre to closest point of European Site)	Potential Impact Pathway	Potential for LSE	Screening Decision
				<p>marine vessels^{10,11}. Sensitivity to marine structures is also low^{10,11}. As such, in the event that northern fulmar are within the Zol of the Proposed Development, it is unlikely that this impact pathway will impact the feature.</p> <p>As a result, LSE is not predicted in relation to the northern fulmar qualifying feature of the St. Kilda, Seas off St. Kilda, and North Rona and Sula Sgeir. SPAs.</p>	
			<p>Direct displacement from the Proposed Development's footprint</p>	<p>As outlined above, northern fulmar are unlikely to utilise the coastal waters of the Isle of Lewis for foraging. The baseline condition, identified within Section 10 of the EIAR, identified 3 individual northern fulmar within 10 km of the Proposed Development.</p> <p>Northern fulmar display low sensitivity to marine structures^{10,11} so are unlikely to be significantly displaced. Moreover, due to their large foraging range they are unlikely to be significantly constrained by local structures.</p> <p>As a result, LSE is not predicted in relation to the northern fulmar</p>	<p>Screened Out</p>

¹⁰ Furness, R.W., Wade, H.M., Robbins, A.M. and Masden, E.A., 2012. Assessing the sensitivity of seabird populations to adverse effects from tidal stream turbines and wave energy devices. *ICES Journal of Marine Science*, 69(8), pp.1466-1479. [Online] Available at: <https://academic.oup.com/icesjms/article/69/8/1466/704765>

¹¹ MMO (2018). Displacement and habituation of seabirds in response to marine activities. A report produced for the Marine Management Organisation. MMO Project No: 1139, May 2018, 69pp. [Online] Available at:

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/715604/Displacement_and_habituation_of_seabirds_in_response_to_marine_activities.pdf

European Site Name	Screened In Qualifying Feature	Distance (Proposed Development Centre to closest point of European Site)	Potential Impact Pathway	Potential for LSE	Screening Decision
				qualifying feature of the St. Kilda, Seas off St. Kilda, and North Rona and Sula Sgeir. SPAs.	
			Loss of or damage to prey supporting habitats in the vicinity of the Proposed Development	<p>As outlined above, northern fulmar are unlikely to utilise the coastal waters of the Isle of Lewis for foraging. The baseline condition, identified within Section 10 of the EIAR, identified 3 individual northern fulmar within 10 km of the Proposed Development.</p> <p>Through embedded mitigation, the potential depositional impacts of the Proposed Development are reduced through NewDEPOMOD modelling and compliance to benthic quality standards set up SEPA.</p> <p>As a result, LSE is not predicted in relation to the northern fulmar qualifying feature of the St. Kilda, Seas off St. Kilda, and North Rona and Sula Sgeir. SPAs.</p>	Screened Out
St. Kilda SPA; Seas off St. Kilda SPA; North Rona and Sula Sgeir; and Sule Skerry and Sule Stack SPA	Northern gannet	123.36 km, west-northwest (St. Kilda SPA)	Entanglement and entrapment	Northern gannets are potential at risk of entanglement and entrapment in relation to pole mounted top netting deployed at fish farms ⁷ .	Screened In
		73.69 km, west-northwest (Seas off St. Kilda SPA)		The Proposed Development will be fitted with a pole mounted top net system to mitigate impacts. Therefore, there is the potential for LSE. Further assessment is required, and this should be advanced to AA.	
		112.17 km, north (North Rona and	Disturbance in vicinity of the	Northern gannets are known to forage over large areas with a mean foraging range of 170.40 km ⁹ . Therefore, local disturbance is	Screened Out

European Site Name	Screened In Qualifying Feature	Distance (Proposed Development Centre to closest point of European Site)	Potential Impact Pathway	Potential for LSE	Screening Decision
		Sula Sgeir) 148.64 km north-east (Sule Skerry and Sule Stack)	Proposed Development	<p>unlikely to significantly constrain this species. Moreover, northern gannets are considered to display low sensitivity to marine vessel activity^{10,11}. Therefore, northern gannets are unlikely to be significantly disturbed due to the Proposed Development.</p> <p>As a result, LSE is not predicted in relation to the northern gannet qualifying feature of the St. Kilda and Seas off St. Kilda SPAs.</p>	
			Direct displacement from the Proposed Development's footprint	<p>Due to the large mean foraging range of the northern gannet, 170.40 km⁹. They are unlikely to be significantly constrained by local structures, such as the Proposed Development¹⁰.</p> <p>As a result, LSE is not predicted in relation to the northern gannet qualifying feature of the St. Kilda and Seas off St. Kilda SPAs.</p>	Screened Out
			Loss of or damage to prey supporting habitats in the vicinity of the Proposed Development	<p>Due to the large mean foraging range of the northern gannet, 170.40 km⁹. They are unlikely to be significantly constrained by local-scale habitat impacts, such as the Proposed Development¹⁰.</p> <p>Through embedded mitigation, the potential depositional impacts of the Proposed Development are reduced through NewDEPOMOD modelling and compliance to benthic quality standards set up SEPA.</p> <p>As a result, LSE is not predicted in relation to the northern gannet qualifying feature of the St. Kilda, Seas off St. Kilda, North Rona and Sula Sgeir, and Sule Skerry and Sule Stack SPAs.</p>	Screened Out

European Site Name	Screened In Qualifying Feature	Distance (Proposed Development Centre to closest point of European Site)	Potential Impact Pathway	Potential for LSE	Screening Decision
St. Kilda SPA	Great skua	123.36 km, west-northwest (St. Kilda SPA)	Entanglement and entrapment	<p>Great skua forage over a large area with a mean foraging range of 98.50 km⁹.</p> <p>The great skua is a dietary generalist exploiting a wide range of prey. It searches for and catches food exclusively on the wing, mainly by splash-diving onto surface fish shoals. As such, great skuas are at very low risk of drowning as a result of entanglement¹⁰.</p> <p>As a result, LSE is not predicted in relation to the great skua qualifying feature of the St. Kilda SPAs.</p>	Screened Out
			Disturbance in vicinity of the Proposed Development	<p>Great skua forage over a large area with a mean foraging range of 98.50 km⁹. As such, they are unlikely to be significantly constrained by local-scale disturbance inducing activities, such as the operation of the Proposed Development.</p> <p>Great skua, being a dietary generalist, are also known to forage in association with fishing vessels. As such, the scientific literature indicates that great skua display very low sensitivity to marine vessel activity^{10,11}.</p> <p>As a result, LSE is not predicted in relation to the great skua qualifying feature of the St. Kilda SPA.</p>	Screened Out
			Direct displacement from the Proposed Development's	Great skua forage over a large area with a mean foraging range of 98.50 km ⁹ . As such, they are unlikely to be significantly constrained by local-scale displacement.	Screened Out

European Site Name	Screened In Qualifying Feature	Distance (Proposed Development Centre to closest point of European Site)	Potential Impact	Potential for LSE	Screening Decision
			footprint	<p>Great skua have a low level of habitat specialism, in part, due to their generalist foraging strategy, as well as their ability to forage over large areas. The scientific literature also indicates that great skuas display a very low to low sensitivity to marine structures^{10,11}.</p> <p>As a result, LSE is not predicted in relation to the great skua qualifying feature of the St. Kilda SPA.</p>	
			Loss of or damage to prey supporting habitats in the vicinity of the Proposed Development	<p>Great skua forage over a large area with a mean foraging range of 98.50 km⁹. As such, they are unlikely to be significantly constrained by local-scale impacts on foraging habitat.</p> <p>Their generalist foraging strategy also allows this species to target a variety of food resources.</p> <p>As a result, LSE is not predicted in relation to the great skua qualifying feature of the St. Kilda SPA.</p>	Screened Out
St. Kilda SPA and North Rona and Sula Sgeir SPA	Black-legged Kittiwake	123.36 km, west-northwest (St. Kilda SPA); 112.17 km, north (North Rona and Sula Sgeir SPA)	Entanglement and entrapment	<p>Black-legged kittiwakes are known to forage over large areas with a mean foraging range of 105.10 km⁹.</p> <p>This species is known to be pelagic in its foraging preference, typically foraging over the continental shelf within the 200 m depth contour¹⁰. As such, it is unlikely that they rely on the coastal waters around the Isle of Lewis as a primary foraging location. Connectivity with the Proposed Development is therefore unlikely. Black-legged</p>	Screened Out

European Site Name	Screened In Qualifying Feature	Distance (Proposed Development Centre to closest point of European Site)	Potential Impact Pathway	Potential for LSE	Screening Decision
				<p>kittiwakes are also known to utilise a surface based foraging strategy and, as such, they have a very low risk of drowning due to entanglement¹⁰.</p> <p>As a result, LSE is not predicted in relation to the black-legged kittiwake qualifying feature of the St. Kilda and North Rona and Sula Sgeir SPAs.</p>	
			<p>Disturbance in vicinity of the Proposed Development</p>	<p>Black-legged kittiwakes forage over a large area with a mean foraging range of 105.10 km⁹. As such, they are unlikely to be significantly constrained by local-scale disturbance inducing activities, such as the operation of the Proposed Development.</p> <p>This species is known to be pelagic in its foraging preference, typically foraging over the continental shelf within the 200 m depth contour¹⁰. As such, it is unlikely that they rely on the coastal waters around the Isle of Lewis as a primary foraging location. Connectivity with the Proposed Development is therefore unlikely.</p> <p>Moreover, black-legged kittiwakes are only believed to display slight avoidance at short range, in response to marine vessel activity. Therefore, disturbance is unlikely.</p> <p>As a result, LSE is not predicted in relation to the black-legged kittiwake qualifying feature of the St. Kilda and North Rona and Sula Sgeir SPAs.</p>	<p>Screened Out</p>

European Site Name	Screened In Qualifying Feature	Distance (Proposed Development Centre to closest point of European Site)	Potential Impact Pathway	Potential for LSE	Screening Decision
			Direct displacement from the Proposed Development's footprint	<p>Black-legged kittiwakes forage over a large area with a mean foraging range of 105.10 km⁹. As such, they are unlikely to be significantly constrained by local-scale displacement.</p> <p>This species is known to be pelagic in its foraging preference, typically foraging over the continental shelf within the 200 m depth contour¹⁰. As such, it is unlikely that they rely on the coastal waters around the Isle of Lewis as a primary foraging location. Connectivity with the Proposed Development is therefore unlikely.</p> <p>Due to their large foraging range, they are also unlikely to be significantly constrained by local-scale displacement, particularly from unfavourable coastal locations.</p> <p>Black-legged kittiwakes are also believed to display very low to low sensitivity to marine structures^{10,11}.</p> <p>As a result, LSE is not predicted in relation to the black-legged kittiwake qualifying feature of the St. Kilda and North Rona and Sula Sgeir SPAs.</p>	Screened Out
			Loss of or damage to prey supporting habitats in the vicinity of the Proposed	Due to the large foraging range of the black-legged kittiwake, 105.10 km ⁹ , they are able to exploit a range of habitats over a large area. This means that they are unlikely to be significantly constrained by local-scale impacts on habitats ¹⁰ .	Screened Out

European Site Name	Screened In Qualifying Feature	Distance (Proposed Development Centre to closest point of European Site)	Potential Impact Pathway	Potential for LSE	Screening Decision
			Development	<p>Black-legged kittiwakes are also pelagic in terms of their foraging habit, typically feeding within the 200 m depth contour over the continental shelf¹⁰. As such, they are unlikely to rely on the coastal location of the Proposed Development as a primary foraging area.</p> <p>As a result, LSE is not predicted in relation to the black-legged kittiwake qualifying feature of the St. Kilda and North Rona and Sula Sgeir SPAs.</p>	
St. Kilda SPA; North Rona and Sula Sgeir; and Sule Skerry and Sule Stack SPA	Leach's petrel	<p>123.36 km, west-northwest (St. Kilda SPA)</p> <p>73.69 km, west-northwest (Seas off St. Kilda SPA)</p> <p>112.17 km, north (North Rona and Sula Sgeir)</p> <p>148.64 km north-east (Sule Skerry and Sule Stack)</p>	<p>Entanglement and entrapment</p> <p>Disturbance in vicinity of the Proposed Development</p> <p>Direct displacement from the Proposed Development's footprint</p> <p>Loss of or damage to prey supporting habitats in the vicinity of the Proposed Development</p>	<p>Leach's petrel forage over very large areas with a mean foraging range of 657.00 km⁹. Leach's petrel are oceanic in their habits and typically forage in association with the shelf break, and further offshore over very deep waters¹⁰.</p> <p>The Proposed Development is located within a coastal environment along the east coast of the Isle of Lewis. Therefore, despite overlap with the mean foraging range of the Leach's petrel, connectivity is not anticipated due to the foraging ecology of the feature.</p> <p>As a result, LSE is not predicted in relation to the Leach's petrel qualifying feature of the St. Kilda, Seas off St. Kilda, North Rona and Sula Sgeir, and Sule Skerry and Sule Stack SPAs.</p>	Screened Out
St. Kilda SPA	Manx	123.36 km, west-	Entanglement and	Manx shearwaters forage over large areas with a mean foraging	Screened

European Site Name	Screened In Qualifying Feature	Distance (Proposed Development Centre to closest point of European Site)	Potential Impact Pathway	Potential for LSE	Screening Decision
	shearwater	northwest (St. Kilda SPA)	<p>entrapment</p> <p>Disturbance in vicinity of the Proposed Development</p> <p>Direct displacement from the Proposed Development's footprint</p> <p>Loss of or damage to prey supporting habitats in the vicinity of the Proposed Development</p>	<p>range of 224.80 km⁹. Manx shearwaters are pelagic in their habits and typically range over most of the North Atlantic continental shelf during the summer months¹⁰.</p> <p>The Proposed Development is located within an inshore, coastal environment along the east coast of the Isle of Lewis. Therefore, despite overlap with the mean foraging range of the manx shearwater, connectivity is not anticipated due to the foraging ecology of the feature.</p> <p>As a result, LSE is not predicted in relation to the manx shearwater qualifying feature of the St. Kilda SPAs.</p>	Out
St. Kilda SPA; Seas off St. Kilda; North Rona and Sula Sgeir; and Sule Skerry and Sule Stack SPA	Storm petrel	<p>123.36 km, west-northwest (St. Kilda SPA)</p> <p>73.69 km, west-northwest (Seas off St. Kilda SPA)</p>	<p>Entanglement and entrapment</p> <p>Disturbance in vicinity of the Proposed Development</p> <p>Direct displacement from the Proposed Development's footprint</p>	<p>Storm petrels are known to forage over large areas with a mean maximum foraging range of 336.00 km⁹ (mean foraging range not provided). Storm petrels are pelagic in their habits and are therefore generally found over the continental shelf¹⁰.</p> <p>The Proposed Development is located within an inshore, coastal environment along the east coast of the Isle of Lewis. Therefore, despite overlap with the mean maximum foraging range of the storm petrel, connectivity is not anticipated due to the foraging ecology of the feature.</p>	Screened Out

European Site Name	Screened In Qualifying Feature	Distance (Proposed Development Centre to closest point of European Site)	Potential Impact Pathway	Potential for LSE	Screening Decision
		<p>112.17 km, north (North Rona and Sula Sgeir SPA)</p> <p>148.64 km north-east (Sule Skerry and Sule Stack SPA)</p>	<p>Loss of or damage to prey supporting habitats in the vicinity of the Proposed Development</p>	<p>As a result, LSE is not predicted in relation to the storm petrel qualifying feature of the St. Kilda, Seas off St. Kilda, North Rona and Sula Sgeir, and Sule Skerry and Sule Stack SPAs.</p>	
<p>Inner Hebrides and the Minches SAC</p>	<p>Harbour porpoise</p>	<p>Within the SAC</p>	<p>Marine vessel activity, with the potential to cause disturbance, injury and mortality</p>	<p>Harbour porpoise are reportedly at risk of collision with marine vessels¹².</p> <p>However, there is little evidence available in the literature to suggest a high frequency of collision between marine vessels and harbour porpoise within UK waters¹³.</p> <p>Evidence is only available to support incidental levels of collision, with the UK Cetacean Strandings and Investigation Programme (CSIP) only identifying 0.48 % of harbour porpoise (5/1,041 necropsies) with injuries consistent with fatal collision with marine vessels between 2000 and 2010.</p>	<p>Screened Out</p>

¹² NatureScot. Conservation and Management Advice. Inner Hebrides and the Minches SAC. [Online] Available at: <https://sitelink.nature.scot/site/10508>

¹³ IAMMWG, Camphuysen, C.J. & Siemensma, M.L. 2015. A Conservation Literature Review for the Harbour Porpoise (*Phocoena phocoena*). JNCC Report No. 566, Peterborough. 96pp. [Online] Available at: <https://data.jncc.gov.uk/data/e3c85307-1294-4e2c-9864-f4dd0f195e1e/JNCC-Report-566-FINAL-WEB.pdf>

European Site Name	Screened In Qualifying Feature	Distance (Proposed Development Centre to closest point of European Site)	Potential Impact Pathway	Potential for LSE	Screening Decision
				<p>The Proposed Development would result in a negligible increase in marine vessel activity.</p> <p>As a result, LSE is not predicted in relation to the harbour porpoise qualifying feature of the Inner Hebrides and the Minches SAC.</p>	
			<p>Underwater noise, with the potential to cause disturbance and exclusion</p>	<p>ADDs, the primary impact pathway for underwater noise to impact harbour porpoise¹⁴, will not be deployed at the Proposed Development. Proactive passive predator control measures will be utilised, as detailed within Section 2.</p> <p>There is emerging evidence suggesting that harbour porpoise are sensitive to the high frequency component of engine noise, with disturbance responses detected up to 1 km from the source¹⁵.</p> <p>However, the baseline assessment (Section 10 of the EIAR) identified low levels of abundance and density in association with the Proposed Development. As a result, the waters surrounding the Proposed Development were determined to be of low importance to harbour porpoise within the West Scotland MU.</p>	<p>Screened Out</p>

¹⁴ NatureScot. Conservation and Management Advice. Inner Hebrides and the Minches SAC. [Online] Available at: <https://sitelink.nature.scot/site/10508>

¹⁵ Dyndo, M., Wiśniewska, D.M., Rojano-Doñate, L. and Madsen, P.T., 2015. Harbour porpoises react to low levels of high frequency vessel noise. Scientific reports, 5(1), pp.1-9. [Online] Available at: <https://www.nature.com/articles/srep11083>

European Site Name	Screened In Qualifying Feature	Distance (Proposed Development Centre to closest point of European Site)	Potential Impact Pathway	Potential for LSE	Screening Decision
				<p>The Proposed Development would result in a negligible increase in marine vessel activity.</p> <p>As a result, LSE is not predicted in relation to the harbour porpoise qualifying feature of the Inner Hebrides and the Minches SAC.</p>	Screened Out
			<p>Entanglement in fish farm infrastructure, with the potential to cause injury or mortality</p>	<p>Harbour porpoise are considered to be sensitive to entanglement¹².</p> <p>The Proposed Development will deploy high rigidity netting, limiting the potential for entanglement (Section 2).</p> <p>The baseline assessment (Section 10 of the EIAR) identified high levels of abundance and density in association with the Proposed Development. As a result, the waters surrounding the Proposed Development were determined to be of moderate to high importance to harbour porpoise within the West Scotland MU.</p> <p>As a result, LSE is not predicted in relation to the harbour porpoise qualifying feature of the Inner Hebrides and the Minches SAC.</p>	
			<p>Loss of, or damage to prey supporting habitats</p>	<p>Harbour porpoise are considered sensitive to habitat and prey species loss¹².</p> <p>They feed of a variety of prey species with sandeel, whiting, herring, and sprat being of particular importance.</p>	

European Site Name	Screened In Qualifying Feature	Distance (Proposed Development Centre to closest point of European Site)	Potential Impact Pathway	Potential for LSE	Screening Decision
				<p>The baseline assessment (Section 10 of the EIAR) identified low levels of abundance and density in association with the Proposed Development. As a result, the waters surrounding the Proposed Development were determined to be of low importance to harbour porpoise within the West Scotland MU.</p> <p>NewDEPOMOD modelling indicates that the Proposed Development will comply with the SEPA benthic quality standards. Therefore, no significant effect is likely.</p> <p>As a result, LSE is not predicted in relation to the harbour porpoise qualifying feature of the Inner Hebrides and the Minches SAC.</p>	
Langavat SAC	Atlantic salmon (<i>Salmo salar</i>)	20.62	<p>Potential sea lice transfer from farmed to wild salmonids</p> <p>Potential disease transfer from farmed to wild salmonids</p> <p>Potential genetic introgression and competition between farmed and wild salmonids</p>	<p>Scoped out due to at sea distance being in excess of 35 km. The Langavat SAC discharges into Loch Roag on the west coast of the Isle of Lewis.</p> <p>As a result, LSE is not predicted in relation to the Atlantic salmon qualifying feature of the Langavat SAC.</p>	Screened Out

3.2.3 Screening Statement and Conclusions

To determine whether the Proposed Development is likely to have an LSE on any European Site, either individually or in-combination with other plans or projects, a HRA screening assessment was carried out.

Consultation, through the formal Screening and Scoping Request, identified four European Sites with the potential for connectivity and therefore LSE. These four European Sites were then subject to enhanced screening, focusing on the capability of the impact pathways to cause LSE in relation to the European Site’s qualifying features. This enhanced screening stage screened out one European Site, leaving two requiring further assessment through AA.

A summary of the European Sites and specific impact pathways triggering LSE is detailed in **Table 3.4** below.

Table 3.4: HRA screening assessment summary.

European Site Name	Relevant Qualifying Feature	Pressure – Receptor Pathway	Screening Conclusion
St. Kilda SPA	Northern gannet (<i>Morus bassanus</i>)	Entanglement and entrapment	Screened In
Seas off St. Kilda SPA	Northern gannet (<i>Morus bassanus</i>)	Entanglement and entrapment	Screened In
North Rona and Sule Sgeir	Northern gannet (<i>Morus bassanus</i>)	Entanglement and entrapment	Screened In
Sule Skerry and Sule Stack	Northern gannet (<i>Morus bassanus</i>)	Entanglement and entrapment	Screened In

3.3 Step Three: Can it be Ascertained that the Proposal will not Adversely Affect the Integrity of the Site?

As LSE on the qualifying features of four European Sites have been identified as a result of the Proposed Development, the competent authority, in this instance CnES, must carry out an AA to ascertain that the Proposed Development will not adversely affect the integrity of any of the European Sites. Information is provided in this section to inform that AA.

In determining whether the construction (and decommissioning) and operation of the Proposed Development has the potential for AEOSI, the potential impacts have been considered for each of the qualifying features taking into consideration knowledge of their behavioural ecology, along with the characteristics and context of the Proposed Development to assess whether there is any potential for the relevant conservation objectives to be undermined.

In reaching a determination on AEOSI, an assessment must be made on the in-combination effects of the Proposed Development, along with other identified plans or projects that have the potential to affect the qualifying features of the four 'screened in' European Sites. Plans and projects have only been considered that have the potential to affect the qualifying features through the same impact pathways that have been identified for the Proposed Development.

The following data sources were used to identify relevant plans and/or projects:

- Marine Directorate: National Marine Plan interactive (NMPi);
- Marine Directorate: Marine Licence Application Public Register;
- CnES Planning Portal; and
- Scottish Government: Scotland's Aquaculture Map.

The resulting search of these data sources identified two existing fish farms for inclusion within the in-combination assessment:

- BFS: Gravir Outer; and
- BFS: Gravir West;

3.3.1 St. Kilda SPA, the Seas of St. Kilda SPA, North Rona and Sula Sgeir SPA and Sule Skerry and Sula Stack SPA

3.3.1.1 Qualifying Features

As determined within Sub-Section 3.2, only the northern gannet qualifying feature has been screened as having the potential for LSE as a result of the Proposed Development. Therefore, this AA will focus on where or not the Proposed Development is likely to result in AEOSI in relation to the SPA Conservation Objectives.

3.3.1.2 Conservation Objectives

3.3.1.2.1 St. Kilda SPA and Seas of St. Kilda SPA

At the time of writing this RIAA, NS are currently preparing Conservation and Management Advice for the St. Kilda and Seas off St. Kilda SPA. Therefore, the high-level Conservation Objectives of these SPAs are only in draft form. However, NS state that they are unlikely to change. The draft Conservation Objectives are:

1. To ensure that the qualifying features of St Kilda SPA and the Seas off St Kilda SPA are in favourable condition and make an appropriate contribution to achieving Favourable Conservation Status (FCS).
2. To ensure that the integrity of St Kilda SPA and the Seas off St Kilda SPA is restored in the context of environmental changes by meeting objectives 2a, 2b and 2c for each qualifying feature:
 - 2a. The populations of qualifying features are viable components of St Kilda SPA and Seas off St Kilda SPA.
 - 2b. The distributions of the qualifying features throughout St Kilda SPA and Seas off St Kilda SPA are maintained by avoiding significant disturbance of the species.
 - 2c. The supporting habitats and processes relevant to qualifying features and their prey/food resources are maintained, or where appropriate restored, at St Kilda SPA and/or Seas off St Kilda SPA.

Given the extensive mean foraging range of the northern gannet and the distance of the Proposed Development from the SPAs it is unlikely that interactions will significantly affect the following

Conservation Objectives:

- The distributions of the qualifying features throughout St Kilda SPA and Seas off St Kilda SPA are maintained by avoiding significant disturbance of the species;
- The supporting habitats and processes relevant to qualifying features and their prey/food resources are maintained, or where appropriate restored, at St Kilda SPA and/or Seas off St Kilda SPA.

Therefore, only the Conservation Objective; **'The populations of qualifying features are viable components of St Kilda SPA and Seas off St Kilda SPA'** is assessed in greater detail below.

3.3.1.2.2 North Rona and Sula Sgeir SPA and Sula Skerry and Sula Stack SPA

Conservation Objectives for Noth Rona and Sula Sgeir SPA and Sula Skerry and Sule Stack SPA set by NatureScot are as follows:

1. To avoid deterioration of the habitats of the qualifying species or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained; and
2. To ensure for the qualifying species that the following are maintained in the long term:
 - a. Population of the species as a viable component of the site;
 - b. Distribution of the species within the site;
 - c. Distribution and extract of habitats supporting the species;
 - d. Structure, function and supporting processes of habitats supporting the species;
 - e. No significant disturbance of the species.

Given the extensive mean foraging range of the northern gannet and the distance of the Proposed Development from the SPAs it is unlikely that interactions will significantly affect the following Conservation Objectives, 1, 2 b,c,d,e.

Therefore, only the Conservation Objective; **'The populations of qualifying features are viable components of Noth Rona and Sula Sgeir SPA and Sula Skerry and Sule Stack SPA'** is assessed in greater detail below.

3.3.1.3 Baseline Condition

Northern gannet are an endemic species to the North Atlantic, with two separate populations. One population is associated with the northwest Atlantic (east coast of Canada) and the other is associated with the northeast Atlantic. The northern gannet biogeographic population is large, at 967,000 birds¹⁶. It is believed that approximately 660,000 of the biogeographic population breed in the UK¹⁷.

For most of the year northern gannet are distributed widely around the coast of the UK. However, during the breeding season (May to August) the highest densities are found in relation to the major breeding colonies of; St Kilda, Bass Rock, and Ailsa Craig, together holding 70 % of the Scottish population¹⁸. Northern gannet feed opportunistically on a variety of prey species as they move in and out of inshore

¹⁶ AEWA 2012. Report on the conservation status of migratory waterbirds in the agreement area. Agreement on the conservation of African-Eurasian migratory waterbirds. [Online] Available at: <https://www.unep-awa.org/fr/document/report-conservation-status-migratory-waterbirds-agreement-area-fifth-edition>

¹⁷ JNCC. Site Selection Document. The Scientific Case Supporting Site Selection. Seas off St. Kilda SPA. [Online] Available at: <https://data.jncc.gov.uk/data/da761bd3-6968-429c-87a6-835a966c34fc/seas-off-st-kilda-sas-site-selection-document.pdf>

¹⁸ Murray, S., Harris, M.P. and Wanless, S., 2015. The status of the gannet in Scotland in 2013-14. Scottish Birds, 35(1), pp.3-18. [Online] Available at: <http://nora.nerc.ac.uk/id/eprint/510050/>

waters throughout the breeding season.

3.3.1.3.1 St. Kilda SPA and Seas of St. Kilda SPA

Northern gannets have an extensive mean foraging range of 120.40 km (+/- 50.00 km)⁹, which means that the Proposed Development has potential connectivity with the St. Kilda colony. Count data for the St. Kilda gannetry indicate that the population has been fairly stable over recent years, with the 2003 – 2004 census recording a total of 59,622 AON/AOS, in comparison to 60,290 AON/AOS recorded in 2013. This change represents an increase of 1.12 % over the complete temporal period, which equates to an increase of 0.11 % per annum¹⁹.

Northern gannets from the St. Kilda SPA are known to predominantly forage within the Seas off St. Kilda SPA, taking advantage of the productive and readily accessible foraging grounds, well within their foraging range. The Seas off St. Kilda SPA represents the largest at-sea aggregation of northern gannets during the breeding season and is also the only marine area defined for northern gannets, in UK waters, which regularly represents over 1 % of the biogeographic population¹⁷.

As can be seen within **Figure 3.1**, the areas of high importance for foraging northern gannets, from the St. Kilda gannetry, are predominantly located to the northwest of St. Kilda, where 30 or greater birds per km² are likely to occur. Smaller areas of important foraging habitat are also identified to the south of the gannetry, where 3 to 15 birds per km² are likely to occur. However, these areas are in close association with the island of St. Kilda.

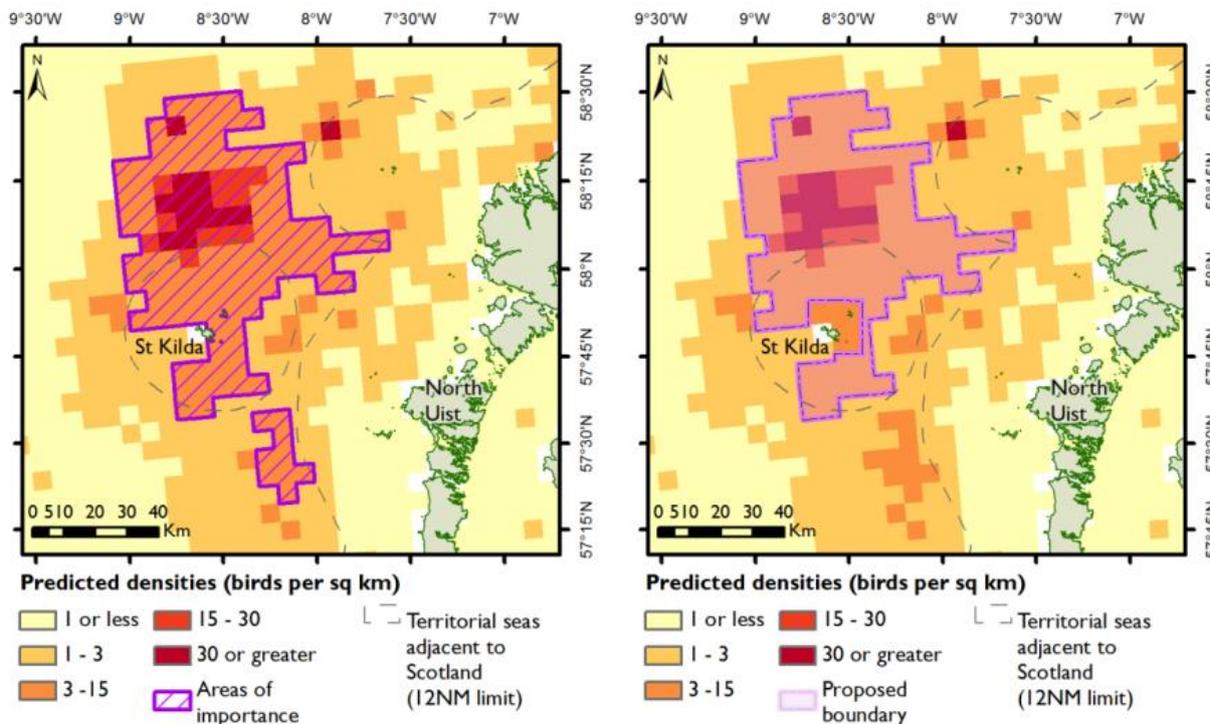


Figure 3.1: Spatial representation of the areas of the marine environment surrounding the St. Kilda SPA that are heavily utilised by northern gannets.

¹⁹ JNCC. Northern Gannet. [Online] Available at: <https://jncc.gov.uk/our-work/northern-gannet-morus-bassanus/>

3.3.1.3.2 North Rona and Sula Sgeir SPA

Northern gannets have an extensive mean foraging range of 120.40 km (+/- 50.00 km)⁹, which means that the Proposed Development has potential connectivity with the gannets of North Rona, Sula Sgeir, Sula Skerry and Sula Stack, as can be seen within **Figure 3.2** and **Figure 3.3**. This proximity in addition to only 4 individuals recorded in close proximity in the Proposed Development since 2009, indicates that the development location to the southeast of the Isle of Lewis does not support high densities of northern gannets, as such it is determined that the inshore waters around the Proposed Development do not represent an important foraging area for northern gannets.

Count data for the North Rona and Sula Sgeir gannetry indicate that the population has been stable, with Nature Scot classifying its condition as “Favourable Maintained” with the 1994 census recording a total of 10,400 AON/AOS²⁰. This population represented 4% of the North Atlantic biogeographic population. Further analysis from an aerial survey carried out in 2013 showed that the populations in Sula Sgeir have increased to 11,230 AOS²¹. Sule Skerry and Sula Stack SPA supports up to 2.2% of the World biogeographic population of norther gannets, with Nature Scot classifying its condition as “Favourable Maintained” with the 1994 census recording a total of 5,900 AON/AOS²². These were also analysed in 2013 by visual survey, and it was found that the population of Sule Stack has remained stable with a population of 4,550 AOS recorded. Sule Skerry has shown a rapid increase from 2004 to 2013 with the populations increasing from 60 to 1,870²³

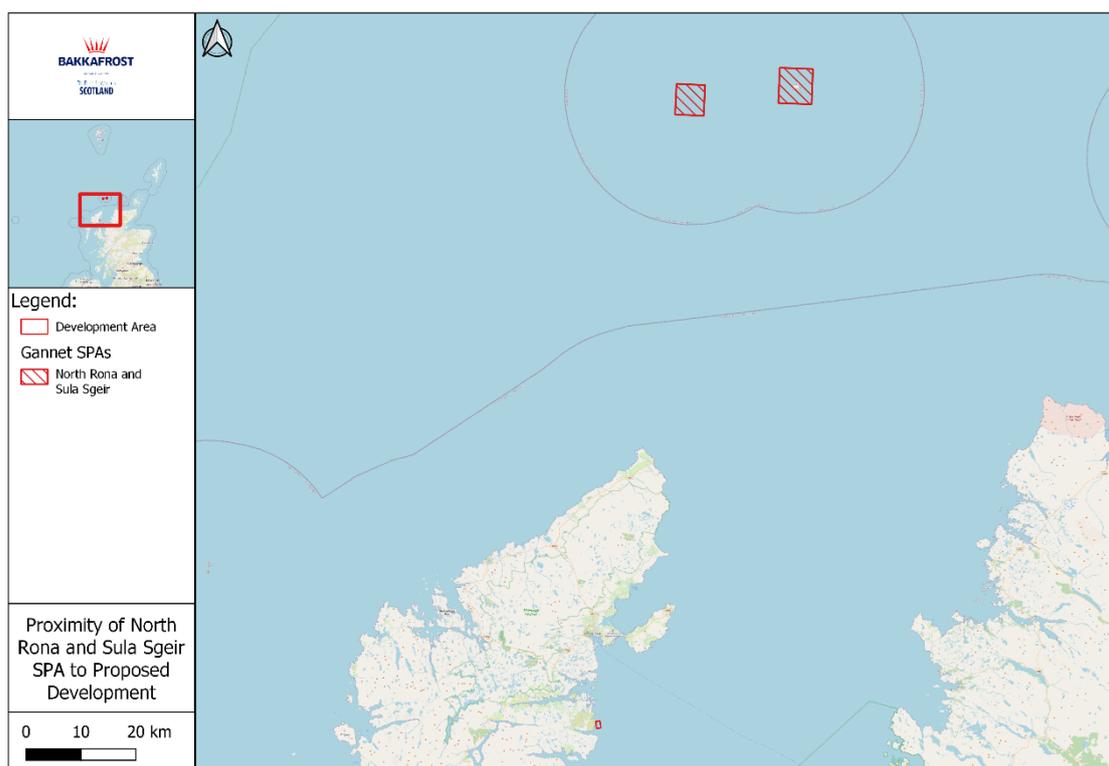


Figure 3.2: Proximity of North Rona and Sula Sgeir SPA to Proposed Development.

²⁰ sitelink.nature.scot. (n.d.). *SiteLink*. [online] Available at: <https://sitelink.nature.scot/site/8558> [Accessed 8 Apr. 2024].

²¹ Heritage, S. N. (2015). Aerial survey of northern gannet (*Morus bassanus*) colonies off NW Scotland 2013. [Online]

²² sitelink.nature.scot. (n.d.). *SiteLink*. [online] Available at: <https://sitelink.nature.scot/site/8581> [Accessed 8 Apr. 2024].

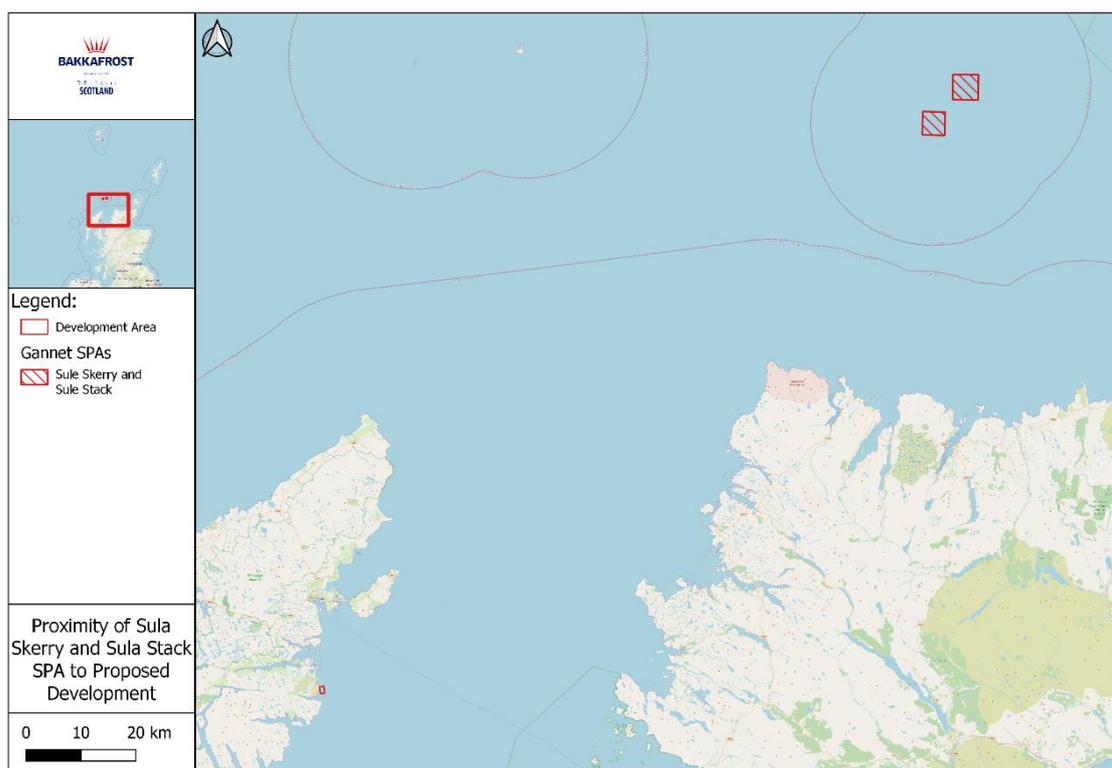


Figure 3.3: Proximity of Sula Skerry and Sula Stack SPA to Proposed Development.

3.3.1.4 Mortality and Sub-Lethal Effects of Entanglement and Entrapment

3.3.1.4.1 Nature of Impact

As detailed in the NS Interim Technical Briefing Note on Pole-mounted Top Nets and Birds⁷ a potential negative impact pathway has been identified with respect to entanglement and entrapment of northern gannet, when plunge diving into fish farm pens with pole-mounted top net systems in search of an easy food resource. Without mitigation measures in place, this impact pathway could lead to entangled birds suffering fatal injuries and entrapped birds suffering sub-lethal effects, namely increased stress, increased energy expenditure, and lost foraging time, which could have significant implications on individual survival and subsequent breeding success.

Such interactions therefore have the potential to undermine the Conservation Objective; **‘the populations of qualifying features are viable components of St Kilda SPA, Seas off St Kilda SPA, North Rona and Sula Sgeir SPA and Sula Skerry and Sula Stack SPA’**, through negatively influencing population level adult survival and breeding success.

However, as part of the embedded operational mitigation the Proposed Development will implement an entanglement and entrapment monitoring and reporting programme for all avian species, including northern gannet. This programme will help to develop a robust evidence base which can be used to improve understanding of the nature and extent of bird interactions with pole-mounted top nets.

3.3.1.4.2 Magnitude of Unmitigated Impact

Northern gannets utilise a plunge diving foraging strategy, where they dive once prey have been located

from the air^{24,25}. Foraging strategy varies from shallow plunge dives to longer and deeper, wing propelled active pursuit dives²⁶. The Furness *et al.*, report¹⁰ assigned a drowning risk score of 2 out of 5, which is indicative of a low risk. Evidence within the literature indicates that northern gannet are recorded as bycatch in inshore fisheries²⁷. Therefore, due to the combination of plunge diving and active pursuit diving northern gannets may interact with both the surface and sub-surface netting of the Proposed Development.

Northern gannet have a large mean foraging range of 120.40 km (+/- 50.00 km)⁹, which when applied to a central place, such as a breeding colony, represents a potential foraging area of 91,019.24 km². In comparison the total surface area over which entanglement and entrapment in surface netting may take place is limited to 0.012 km², this represents 0.00001 % of their potential foraging area, based on mean foraging range data⁹. Moreover, as determined within the baseline condition (**Sub-Section 3.3.1.3**), northern gannets from the St. Kilda gannetry primarily utilise the waters of the Seas off St. Kilda SPA for foraging, with high importance areas, predicted to support 30 or more birds, identified to the northwest. These waters are located over continental shelf edge regions, where waters depths of around 400 m are recorded. These shelf edge locations support shelf-break fronts, which are regions of enhanced plankton production, which leads to higher fish production, and therefore prey availability. Therefore, northern gannets from the St. Kilda gannetry are likely foraging here to take advantage of an easily accessible and highly productive foraging area. It is expected that northern gannets from North Rona and Sule Sgeir SPA, and Sule Skerry and Sule Stack SPA would also forage to the north of the Proposed Development where the habitat is more suitable. In comparison, the development location, along with much of the east coast of the Outer Hebrides, is determined to be of negligible to low importance to northern gannets from St. Kilda, Sule Sgeir, Sule Skerry and Sule Stack, with 1 bird or less per km² likely to utilise the development location. As a result, the spatial extent of the impact is determined to be **negligible**.

Northern gannet entanglement in commercial fishery netting is associated with larger mesh size and light tensioning. This light tensioning allows the netting to deform on contact, creating a pocket of netting around the animal which results in entanglement. Mesh size is also an important characteristic that influences the probability and frequency of entanglement, with fishing nets with a mesh size of 60 mm or greater resulting in six times higher bycatch rates than netting with mesh between 18 and 25 mm²⁸.

In contrast, the proposed rigid netting (Sapphire Seal Pro netting, or similar) that will be deployed as embedded mitigation at the Proposed Development will have a standard mesh size of 18 mm along with high structural rigidity, which ensures it does not easily deform. As a result, the specific netting

²⁴ Hamer, K.C., Humphreys, E.M., Magalhaes, M.C., Garthe, S., Hennicke, J., Peters, G., Grémillet, D., Skov, H. and Wanless, S., 2009. Fine-scale foraging behaviour of a medium-ranging marine predator. *Journal of Animal Ecology*, 78(4), pp.880-889. [Online] Available at: <https://besjournals.onlinelibrary.wiley.com/doi/full/10.1111/j.1365-2656.2009.01549.x>

²⁵ Ropert-Coudert, Y., Daunt, F., Kato, A., Ryan, P.G., Lewis, S., Kobayashi, K., Mori, Y., Grémillet, D. and Wanless, S., 2009. Underwater wingbeats extend depth and duration of plunge dives in northern gannets *Morus bassanus*. *Journal of Avian Biology*, 40(4), pp.380-387. [Online] Available at: <https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1600-048X.2008.04592.x>

²⁶ Garthe, S., Benvenuti, S. and Montevecchi, W.A., 2000. Pursuit plunging by northern gannets (*Sula bassana*)" feeding on capelin (*Mallotus villosus*)". *Proceedings of the Royal Society of London. Series B: Biological Sciences*, 267(1454), pp.1717-1722. [Online] Available at: <https://royalsocietypublishing.org/doi/abs/10.1098/rspb.2000.1200>

²⁷ Žydelis, R., Small, C. and French, G., 2013. The incidental catch of seabirds in gillnet fisheries: a global review. *Biological Conservation*, 162, pp.76-88. [Online] Available at: <https://www.sciencedirect.com/science/article/abs/pii/S0006320713000979>

²⁸ Dagys, M. and Žydelis, R., 2002. Bird bycatch in fishing nets in Lithuanian coastal waters in wintering season 2001–2002. *Acta Zoologica Lituanica*, 12(3), pp.276-282. [Online] Available at: <https://www.tandfonline.com/doi/abs/10.1080/13921657.2002.10512514>

characteristics that increase the risk of entanglement are not associated with the proposed sub-surface rigid netting. This, in combination with an effective sinker tube tensioning system (80 kg/m) will ensure that the primary netting presents as a ‘wall’ to any northern gannet engaged in an active pursuit dive. Therefore, both the probability and frequency of entanglement in sub-surface netting are determined to be **negligible**.

Due to the plunge diving strategy of the northern gannet, they are also at risk of entanglement or entrapment in the pole-mounted top net system. The bird netting will have a ceiling and sidewall mesh size of 75 mm, in line with NS requirements⁷. This, in combination with effective daily checks, is anticipated to significantly reduce the potential for entanglement and entrapment. Monitoring and reporting requirements, outlined within **Section 2**, will ensure accurate monitoring of any interaction events to allow a proactive approach to future mitigation, if needed. Specific details of the pole mounted top net system intended for deployment at the Proposed Development are outlined in **Table 3.5**.

Table 3.5: Pole mounted top net system specifications for the Proposed Development.

Component Infrastructure	Information
Pole Support System	
Pole supports (Height)	8 m (fibreglass)
Number of poles per pen	25
Top Netting	
Material	Polyethylene
Colour	Grey
Sidewall Mesh Size	75 mm x 75 mm
Ceiling Mesh Size	75 mm x 75 mm
Method of Measuring Mesh Size	Half mesh size

Entanglement and entrapment data for the existing BFS fish farms within the same Farm Management Area (FMA) (W-4), indicate that there has been no incidence of entanglement or entrapment of any ornithological feature, including northern gannets, since the initiation of the reporting and monitoring log.

Therefore, due to the deployment of high rigidity sub-surface netting, and pole mounted top netting in line with NS guidance⁷, in combination with the fact that the development location does not represent an area of high northern gannet abundance and density. It is determined that both the frequency and probability of the impact are **negligible**.

As a result, the overall magnitude of the impact of entanglement and entrapment on the northern gannet is determined to be **negligible**.

3.3.1.4.3 Additional Mitigation

No mitigation measures other than the embedded mitigation outlined within **Section 2** are proposed.

3.3.1.4.4 Determination of Effects on Site Integrity

The implementation of the embedded mitigation measures, outlined within **Section 2**, will ensure that mortality and sub-lethal impacts on the northern gannet feature will be minimised to the extent that the conservation objective ‘**the populations of qualifying features are viable components of St Kilda SPA, Seas off St Kilda SPA, North Rona and Sula Sgeir SPA and Sula Skerry and Sula Stack SPA**’ will not be undermined. As a result, it can be concluded that beyond reasonable scientific doubt the Proposed development will have **no AEOSI** on St Kilda SPA, Seas off St Kilda SPA, North Rona and

Sula Ggeir SPA or Sula Skerry and Sula Stack SPA.

3.3.1.4.5 Determination of In-Combination Effects on Site Integrity

The Proposed Development will be located within FMA W-4. Within W-4 there are two existing and operational BFS owned and operated fish farms (Gravir Outer and Gravir West). These farms currently deploy pole mounted top net systems, details of which are provided in **Table 3.6**, below. The pole mounted top net systems of the three existing and active fish farms are all in line with the NS guidance⁷.

Table 3.6: Summary of the pole mounted top net systems deployed at Gravir Outer and Gravir West.

Component Infrastructure	Information	
Pole Support System		
Fish Farm Name	Gravir Outer	Gravir West
Number of Pens	10	2
Pen Circumference	120	120
Perimeter Pole Supports (Height)	5 m	5 m
Number of Pole Supports per Pen	16	16
Top Netting		
Material	Ultra-high-molecular-weight polyethylene	Ultra-high-molecular-weight polyethylene
Colour	Grey	Grey
Sidewall Mesh Size	75 mm	75 mm
Ceiling Mesh Size	75 mm	75 mm

As Gravir Outer and Gravir West currently deploy pole mounted top net systems, there exists the potential for northern gannet to become entangled or entrapped over a wider spatial extent than just the Proposed Development, with top netting covering a cumulative surface area of 0.016 km². This cumulative ZoI for entanglement and entrapment represents 0.01 % of the mean foraging range of the northern gannet.

As detailed within the baseline condition (**Sub-Section 3.3.1.3**), northern gannet from the St. Kilda gannetry predominantly feed in the highly productive waters encompassed by the Seas of St. Kilda SPA, with areas to the northwest of the gannetry supporting densities of over 30 birds per km². In direct contrast, the waters off the eastern seaboard of the Outer Hebrides appear to be of negligible to low importance to the St. Kilda northern gannets, with densities of 1 bird or less predicted. Based on the maximum spatial extent over which the impact is likely to occur (0.048 km²) and the predicted density of northern gannet along the coastline covering the three fish farms, at 1 bird or less per km², it is possible to estimate that based on a density of 1 bird per km², there is the potential for 0.048 birds to interact with the pole mounted top net systems of the four fish farms. Therefore, it is unlikely that interaction with significant numbers of northern gannet will occur. As such, population level impacts are not predicted.

Moreover, whilst the wildlife logs for the area reported 4 recorded sightings of northern gannet within the vicinity of the farms, since 2009, these sightings were incidental and did not represent any form of direct interaction between the northern gannet and the fish farms. This indicates that northern gannet, when present in the area, are not actively targeting the fish farms as a foraging resource.

Furthermore, the two existing and active fish farms currently implement the embedded mitigation planned for the Proposed Development. The combination of the deployment of specific top net mesh size, to reduce the likelihood of entanglement and entrapment, along with an effective daily assessment and maintenance schedule, and the adaptive monitoring and reporting programme requirements ensures the mortality and sub-lethal effects of entanglement and entrapment are avoided and reduced to the extent that the conservation objective **‘the populations of qualifying features are viable components of St Kilda SPA, Seas off St Kilda SPA, North Rona and Sula Sgeir SPA and Sula Skerry and Sula Stack SPA’** will not be undermined.

As a result, it can be concluded beyond reasonable scientific doubt that the Proposed development will have **no AEOSI** on St Kilda SPA, Seas off St Kilda SPA, North Rona and Sula Sgeir SPA or Sula Skerry and Sula Stack SPA as a result of in-combination effects.

4. Conclusion

This report has considered the potential for LSE on European Sites as a result of the construction (and decommissioning) and operation of the Proposed Development, both in isolated and in-combination.

Through consultation with NS and CnES during the formal Screening and Scoping Request (22/00290/FFSCSC) a number of European Sites were identified as having potential connectivity with the Proposed Development. These sites were then assessed to determine if LSE was anticipated. This assessment screened out all but 4 SPAs, leaving the following European Sites with potential for LSE:

- St. Kilda; and
- Seas of St. Kilda SPA.
- North Rona and Sula Sgeir SPA
- Sule Skerry and Sule Stack SPA

These European Sites with identified LSE were then assessed to determine if it can be ascertained that the proposal will not adversely affect the integrity of the site. To do this, the identified impact pathways between the site’s qualifying features and the Proposed Development were assessed in relation to the site-specific conservation objectives. In-combination effects of the Proposed Development and other projects/plans with the potential to exert pressure on the screened-in European Sites, through the same impact pathways as the Proposed Development were also assessed when determining AEOSI.

It has been concluded through assessment that that beyond all reasonable scientific doubt mortality and sub-lethal effects due to entanglement and entrapment in top netting of the northern gannet qualifying feature of the St. Kilda, Seas off St. Kilda, North Rona and Sule Sgeir and Sule Skerry and Sule Stack SPAs will **not result in AEOSI**, as the proposed mitigation sufficiently reduces and avoids the impact to ensure that the site’s conservation objectives will not be undermined.

Under Regulation 48 (1) of the ‘Conservation (Natural Habitats & c.) Regulations 1994’ the competent authority, in this case CnES, shall make an AA of the implications for the site in view of that site’s conservation objectives. BFS, under the requirements of Regulation 48 (2), has provided within this report, such information reasonably required to allow the CnES to come to a reasoned determination.