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The Finest Salmon from
SCOTLAND



Environmental Impact Assessment Report: Non- Technical Summary

North Gravir, Isle of Lewis

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1. Introduction

This Non-Technical Summary (NTS) summarises and presents the findings of the Environmental Impact Assessment (EIA) Report (EIAR) which has been prepared by Bakkafröst Scotland Limited (BFS) to support the submission of a planning application under the Town and Country Planning (Scotland) Act 1997 (as amended) for a new Atlantic salmon marine fish farm, North Gravir (the Proposed Development), located off the east coast of the Isle of Lewis, Western Isles. The EIAR is intended to provide the consenting authority, Comhairle nan Eilean Siar (CnES), a systematic assessment of the likely significant environmental effects resulting from the Proposed Development, ensuring the determination regarding the application's consent is in accordance with the Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017.

2. The Applicant

BFS aims to become the leading, most sustainable producer of salmon in Scotland. With 50 sites in remote and rural communities of the West Coast of Scotland and Hebridean Islands and Head Office in Edinburgh, BFS is committed to the environmental, cultural, and economic growth and sustainability of rural Scotland.

Bakkafrost Scotland is engaged in all stages of the value chain, from freshwater and marine farming, to processing, sales and marketing, ensuring total value chain integrity, full traceability and Scottish provenance.

BFS rears Atlantic salmon at both freshwater and marine sites across the west coast of Scotland and the Western Isles, producing, on average, 32,358 T (gutted weight) of Atlantic salmon per annum. BFS employs over 400 staff across remote and rural communities and engages with many suppliers and contractors throughout the supply chain. Over 60 % of production is exported to 26 countries around the world, with a key focus on North America and the Far East. BFS was the recent recipient of two Scotland Food & Drink Excellence Awards with the Native Hebridean Smoked Scottish Salmon product, winning both the 'Product of the Year' award and the 'Artisan Product of the Year' at the Scottish Food and Drink Awards 2022.

Aquaculture contributes significantly to global food production, with aquaculture currently accounting for 52 % of global seafood consumption¹. BFS is focused on sustainable business development following international demand for Scottish salmon, the UK's largest food export. BFS is committed to Scottish provenance and takes great pride in producing quality Scottish salmon, whilst being committed to the environmental, cultural, economic growth, and sustainability of rural Scotland. BFS is the first salmon producer in Europe to be awarded 4-star Best Aquaculture Practice (BAP), with certification covering feed production, freshwater, marine, harvesting and processing operations.

2.1 National Legislative Landscape

There are a number of national legislative mechanisms that directly relate to aquaculture development within Scotland. **Table 2.1**, provides an outline of the primary legislation, at a national level, which drives the decision-making process for aquaculture development within Scotland.

¹ FAO, (2020). The State of World Fisheries and Aquaculture 2020. Sustainability in action. Rome. <https://doi.org/10.4060/ca9229en>

Table 2.1: Primary national legislation relevant to aquaculture development

Legislation	Description	Relevance to the Proposed Development
<p>Town and Country Planning (Scotland) Act 1997 (as amended)</p> <p>Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017</p>	<p>Since 01 April 2007 all new fish farm development (inclusive of existing farm modifications) in Scotland has required planning permission under the Town and Country Planning (Scotland) Act 1997, from the relevant Local Planning Authority (LPA).</p> <p>The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017 implement the European Union (EU) Directive 2014/52/EU, which amended Directive 2011/92/EU on the 'assessment of the effects of certain public and private projects on the environment'.</p> <p>The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017 outline the process of an EIA and the relevant thresholds and criteria that determine if a planning application requires EIA or not (Screening).</p> <p>The EIA Regulations further define what relevant environmental data is required (Scoping), how the LPA and the respective consultees assess this environmental data, and how the Town and Country Planning (Scotland) Act 1997 (as amended) implement the requirements of the Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017 through planning consent.</p>	<p>The Proposed Development represents the establishment of a new marine fish farm, requiring planning permission under the Town and Country Planning (Scotland) Act 1997 (as amended).</p> <p>A combined Screening and Scoping Request (22/00290/SCRSCO) was submitted to CnES in June 2022.</p> <p>The Screening Opinion identified that the Proposed Development classified as EIA Development and is therefore required to undergo the EIA process.</p> <p>The Scoping Opinion identified the specific environmental interactions which may result in significant effect, and therefore require further assessment through the EIA process.</p> <p>An EIAR has been compiled, which details the findings of the EIA process. This document, along with the associated technical appendices will be submitted in support of the planning application.</p> <p>As such, the compilation and submission of the EIAR satisfies the requirements of the Town and Country Planning (Environmental Impact Assessment) Regulations 2017.</p>
<p>Conservation (Natural Habitats, & c.) Regulations 1994</p>	<p>Within Scotland, the Conservation (Natural Habitats, &c.) Regulations 1994 transpose both the Habitats Directive (92/42/EEC), and the Wild Birds Directive (2009/147/EC) into national legislation.</p> <p>Under the requirements of the Conservation (Natural Habitats, &c.) Regulations 1994, European</p>	<p>A full assessment of the Proposed Development's potential impact on European Sites has been undertaken and is presented within Appendix O.</p> <p>There is potential connectivity with northern gannet, during the breeding season, from the St. Kilda and Seas of St Kilda SPAs. This connectivity exists due</p>

Legislation	Description	Relevance to the Proposed Development
	<p>Sites are designated to protect habitats and non-bird species as well as being designated to protect wild birds species that are rare or vulnerable in Europe as well as all migratory birds that are regular visitors. These European Sites form part of the Emerald Network, which is a network of protected sites that span Europe and Africa.</p> <p>The Conservation (Natural Habitats, &c.) Regulations 1994 also ensure that any plan or project that may damage a European Site is assessed and can only go ahead if certain strict conditions are met. This process is known as the Habitats Regulations Appraisal (HRA).</p>	<p>to an overlap with the average foraging range of northern gannet and the location of the Proposed Development.</p> <p>Through thorough, scientific assessment, it has been determined that no significant effects, leading to Adverse Effect on Site Integrity (AEOSI) are predicted for the St. Kilda and Seas of St. Kilda SPAs.</p> <p>Whilst the Proposed Development is located within the Inner Hebrides and the Minches Special Area of Conservation (SAC), which is designated to protect harbour porpoise, no potential significant effect was predicted, due to BFS's commit not to utilise Acoustic Deterrent Devices (ADDs), as standard practice.</p>
<p>Water Environment and Water Services (Scotland) Act 2003</p> <p>Water Environment (Controlled Activities) (Scotland) Regulations 2011</p>	<p>The requirements of the European Community (EC) Water Framework Directive (WFD) are transposed into Scottish legislation through the Water Environment and Water Services (Scotland) Act 2003.</p> <p>The Water Environment (Controlled Activities) (Scotland) Regulations 2011 apply regulatory controls over activities which may affect the water environment of Scotland.</p> <p>The regulations cover rivers, loch, transitional waters, coastal waters, groundwater, and groundwater dependent wetlands.</p> <p>As such operators wishing to establish a fish farm within Scotland's water environment must apply for and be granted a Scottish Environment Protection Agency (SEPA) Controlled Activities Regulations (CAR) Licence. The SEPA CAR Licence has a number of conditions, which limit the production</p>	<p>An application for a new CAR Licence for the Proposed Development, was submitted to SEPA on 10 May 2024. SEPA granted the CAR Licence for the Proposed Development on the 05 November 2024. The CAR Licence reference number is CAR/L/5002629.</p>

Legislation	Description	Relevance to the Proposed Development
	capacity of the farm, as well as the discharge of a number of treatment medicines.	
Marine (Scotland) Act 2010	<p>The Marine (Scotland) Act 2010 provides a framework which will help balance competing demands on Scotland's seas. It introduces a duty to protect and enhance the marine environment.</p> <p>The main measures outlined within the Marine (Scotland) Act 2010, include:</p> <ul style="list-style-type: none"> • Marine planning; • Marine licensing; • Marine conservation; • Seal conservation; and • Enforcement. <p>In accordance with Regulation 5 (1) of the Marine (Scotland) Act 2010, the Scottish Ministers must prepare and adopt a National Marine Plan. As such in March 2015, the Scottish Government published the first statutory National Marine Plan. The policies and objectives of the Plan establish how Scottish Ministers intend marine resources to be used and managed. The Plan supports development and activity in Scotland's seas while incorporating environmental protection into marine decision making to achieve sustainable management of marine resources.</p> <p>Under the requirements of the Marine (Scotland) Act 2010, the Marine Directorate (formerly Marine Scotland) are responsible for determining marine licence applications on behalf of the Scottish Ministers in the Scottish inshore regions (between zero and 12 nautical miles).</p> <p>As such, prior to installing fish farming infrastructure, the operator is required to obtain a</p>	<p>The Proposed Development has been considered against the relevant policies detailed within the National Marine Plan and has been determined to fully align with these policies as well as the objectives for the aquaculture industry.</p> <p>An application to the MD-LOT has been drafted and will be submitted at the same time as the application for planning permission is submitted to the LPA.</p>

Legislation	Description	Relevance to the Proposed Development
	marine licence from the Marine Directorate Licensing Operations Team (MD-LOT).	
<p>Aquaculture and Fisheries (Scotland) Act 2013</p> <p>Aquatic Animal Health (Scotland) Regulations 2009</p>	<p>The Aquaculture and Fisheries (Scotland) Act 2013 provides for a series of information gathering, inspection and enforcement measures aimed at monitoring and improving, where needed, fish health and welfare, as well as containment mechanisms.</p> <p>It also contains measures which regulate the movement of live fish to avoid and reduce the risk of the spread of fish diseases.</p> <p>The Regulations set statutory responsibilities for the health of farmed fish. The Regulations require the authorisation of all Aquaculture Production Businesses by the Marine Directorate. In addition, the Marine Directorate Fish Health Inspectorate (FHI) are responsible for ensuring integrity of farms with regard to containment and equipment standards, escape incidents and sea lice issues.</p>	<p>As the Proposed Development is a new fish farm, it does not have authorisation at present.</p> <p>As such, once all relevant consents have been granted BFS will contact the MD FHI to request an amendment to BFS's current authorisation, to allow the addition of the Proposed Development to the list of authorised farms owned and operated by BFS.</p>
Crown Estate Act 1961	The Crown Estate (Crown Estate Scotland, within the Scottish territory) owns and manages practically the entire seabed around the UK out to a distance of 12 nautical miles. As such, any developer must apply for a lease from the Crown Estate and pay rent to install and operate a fish farm on the seabed.	<p>As the Proposed Development is a new marine fish farm, there is not currently a lease agreement in place with Crown Estate Scotland.</p> <p>Once all relevant consents have been granted an application to secure a seabed lease from Crown Estate Scotland will be submitted.</p>

3. Description of the Proposed Development

The Proposed Development will be comprised of surface equipment (pens and feed barge), nets and moorings. There will be five 200 m circumference circular pens arranged in one group, in one line of five and a 600 T capacity feed barge will be permanently moored to the south of the group, as illustrated in **Figure 3.1**. In total the surface area of all surface equipment will equal 16,298.225 m². All surface and sub-surface equipment will be contained within the 1.02 km² mooring area of the Proposed Development. The proposed maximum standing biomass for the Proposed Development is 4,680 T. Proposed equipment and the associated surface areas are specified in **Table 3.1**. Production details are summarised in **Table 3.2**.

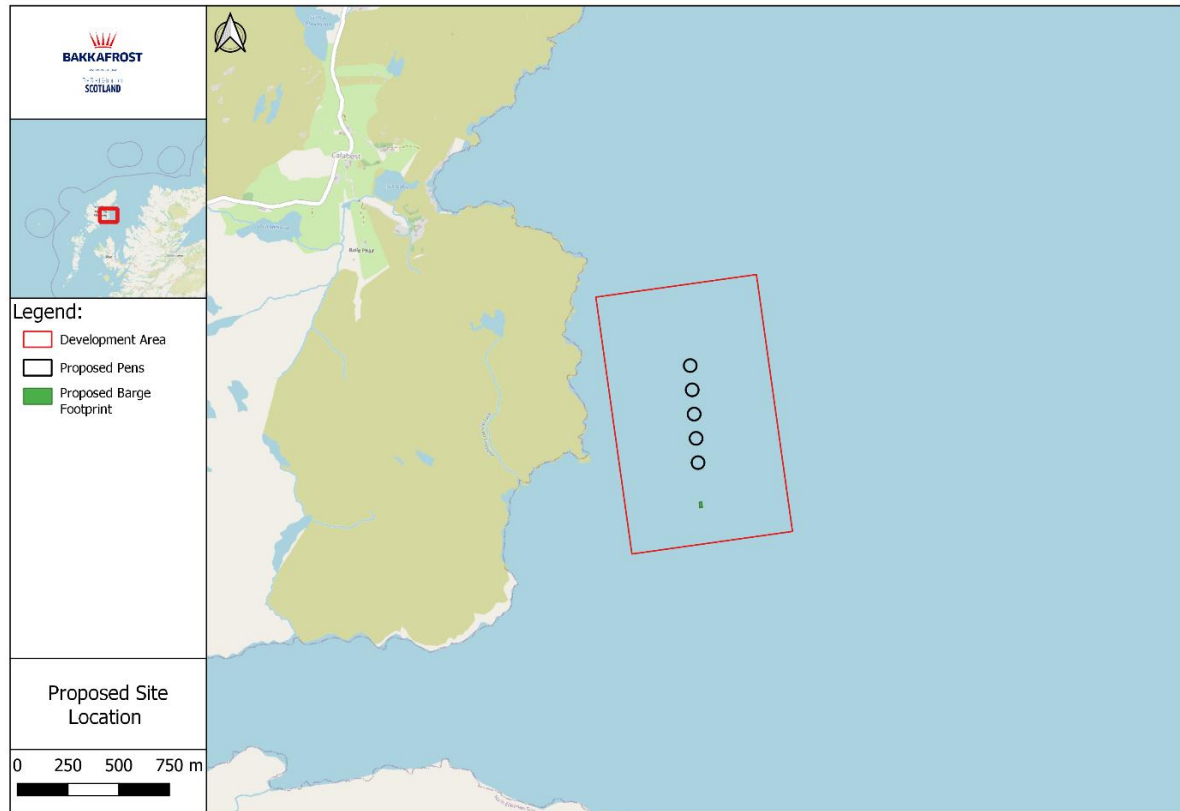


Figure 3.1: Layout of the Proposed Development

Table 3.1: Summary of the proposed equipment

Equipment	Number	Specification	Equivalent Surface Area (m ²)	
			Individual	Total
Pens	5	Circular, 200 m circumference black polyethylene pens.	3183.10	15,915.5
Top Net Supports	25 (per pen)	8 m fibreglass poles spaced at 8 m intervals around the pen.	N/A	
Subsurface Mooring Grid	1 grid containing 5 pen squares	One 120 m x 120 m grid square per pen. Total grid dimension of 120 m x 600 m.	14,400	72,000
Feed Barge	1	Length 28.35 m, width 13.5 m	382.725	
Mooring Area	n/a	Mooring area, within which all mooring lines, chains and anchors will be contained.	1,022,359	
Total Area of Surface Equipment Only			16,298.225	

Table 3.2: Summary of site details

Maximum Biomass	4,680 T
Maximum Stocking Density	19.60 kg/m ³
Fallow Period (minimum)	28 days

4. Alternative Sites and Design Innovation

Section 4 of the EIAR provides a detailed overview of the process of selecting the farming production system, the site location, and the specific design and layout of the Proposed Development.

The development selection process ensures that all aspects of site selection have been adequately considered prior to the final design and location being confirmed, the assessment includes consideration of the following key points:

- Farming production system;
- Location selection; and
- Site Layout.

4.1 Farming Production System

The first stage is to determine the most appropriate farming production system to use at the Proposed Development. Within this stage, three potential farming systems were reviewed to determine the most appropriate system to be utilised:

- Land-based marine recirculating aquaculture systems (RAS);
- Marine closed / semi closed containment production systems; and
- Marine open pen net production systems.

Marine RAS production involves significantly higher capital costs than traditional open net production systems. Due to the relatively novel technology involved and the combined lack of experienced marine RAS operatives there is a significant risk to operational reliability. RAS production is significantly more energy intensive than open net production, which results in an associated higher carbon footprint. Furthermore, the land requirements of RAS, and the need to have sufficient infrastructure readily available, could exclude marine RAS production from the most rural areas of Scotland. As a result of the above factors, land-based marine RAS was not considered to be a feasible alternative.

Whilst closed containment systems are established and used widely in other global aquaculture regions, it is a relatively novel technology with limited application in the Scottish environment. This, in combination with the exposure limitations and the greater energy demand of the system in comparison to the traditional open pen production system, suggested that closed containment was not a feasible option for the Proposed Development.

Open pen production is the main system of production that is used across the global commercial salmonid production industry, including for the Scottish salmonid industry. Open pen equipment and its performance in the local coastal environment is tried and tested, which reduces the risk of production issues generally associated with novel technologies such as marine RAS and closed containment. Technological developments in open pen production are also improving efficiencies and environmental performance. Therefore, it was determined that open pen production to be the most appropriate method of production for the Proposed Development.

4.2 Site Location

The location of the Proposed Development has been influenced by:

- BFS's sustainable growth strategy;
- Regulations and guidance for the aquaculture industry; and
- Environmental considerations.

BFS is investigating potential new farm locations to support its sustainable growth across the west coast of Scotland and the Outer Hebrides.

Through a comprehensive site search and feasibility exercise, BFS has considered a number of alternative locations for developing new marine fish farms. Several of these locations have been discounted from further consideration due to a range of environmental constraints. The Proposed Development was progressed as it has the appropriate characteristics for a marine fish farm, including:

- Sufficient water column depths beneath the pens;
- Very high dispersion potential;
- Proximity to existing BFS infrastructure;

- Not located within landscape designations;
- Alignment with the Marine Directorate Locational Guidelines for the Authorisation of Marine Fish Farms in Scottish Waters; and
- Located within a Code of Good Practice (CoGP) Management Area only operated in by BFS, allowing for greater biosecurity control.

4.3 Site Layout

A number of potential layout options were reviewed and modelled, with the aim of reaching a balance between maximum production volume, environmental capacity, and visual appearance. The design and layout of the Proposed Development was aligned to the NatureScot guidance 'The Siting and Design of Aquaculture in the Landscape: Visual and Landscape Considerations', to ensure that best practice layout and design considerations were included within the finalised site layout.

The finalised site layout is considered to reflect best practice in terms of design, making use of dark, muted colours and low profile infrastructure, where possible.

5. Consultation

BFS submitted a formal Screening and Scoping Request (22/00290/SCRSCO) to CnES in June 2022, with CnES issuing the Scoping Opinion on 2nd December 2022. During this Screening and Scoping process, CnES consulted with the following consultees:

- Environmental Health;
- Historic Environment Scotland;
- Local Biodiversity Officer;
- Marine Directorate of the Scottish Government;
- NatureScot;
- Northern Lighthouse Board;
- Outer Hebrides Regional Inshore Fisheries Group;
- Royal Society for the Protection of Birds
- Royal Yachting Association;
- Scottish Environment Protection Agency; and
- Western Isles and District Salmon Fisheries Board.

The Screening and Scoping process identified the Proposed Development as Schedule 2 development in The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017. A Schedule 2 development requires an EIA if it is likely to have significant effects on the environment by virtue of factors such as its nature, size or location. An EIAR was requested to be submitted alongside the formal planning application to CnES as the LPA.

The local stakeholders listed below were identified and consulted through the pre-application process. Whilst BFS sought to obtain comment from every identified stakeholder, not all stakeholders responded. Full detail of the consultation process is provided within **Section 5** of the EIAR:

- Ministry of Defence;
- Mallaig North West Fisheries Association;
- Scottish White Fish Producers Association;
- Outer Hebrides Regional Inshore Fisheries Group; and

As part of the pre-application consultation process BFS also an engagement event on the Isle of Lewis, in 2023. This event was designed to allow information sharing on the Proposed Development, covering both the SEPA and the planning application process. The event gave the community the opportunity to ask questions on the Proposed Development and BFS operations more generally. Whilst also allowing feedback on the Proposed Development to be communicated directly to the BFS Site Development Team.

6. EIA Process and Methodology

Due to the EIA assessing the potential for significant effects on a wide range of receptor types (ecological, physical, human / social) different assessment methodologies have been utilised to ensure the most robust assessment outcome.

As such the Sections of the EIAR listed below have used the standard Institute of Environmental Management and Assessment (IEMA) EIA methodology:

- Section 7: Benthic Habitats;
- Section 8: Water Column Impacts;
- Section 12: Navigation, Anchorage, Commercial Fisheries and Other Non-Recreational Maritime Uses;
- Section 13: Seascape, Landscape and Visual;
- Section 14: Socio-Economic, Access and Tourism;
- Section 15: Noise; and
- Section 16: Lighting.

Whilst the remaining Sections, listed below, have used the Chartered Institute of Ecology and Environmental Management (CIEEM) Ecological Impact Assessment methodology:

- Section 9: Interactions with Predatory Species;
- Section 10: Interactions with Wild Salmonids; and
- Section 11: Impacts on Species and Habitats of Conservation Importance.

6.1 IEMA Assessment Methodology

Under the IEMA assessment methodology the significance of an effect is based upon the sensitivity of the receptor being assessed and the magnitude of the impact giving rise to the effect. In order to assign a significance level to the effect, the sensitivity of the receptor and the magnitude of the potential impact are considered with regard to the significance matrix table, as presented in **Table 6.1**. For each technical assessment within the EIA, best practice methodology based on the latest available guidance has been followed. Effects can be adverse or beneficial, for example socio-economic effects associated with increased employment can be considered a beneficial effect.

Table 6.1: Matrix table for determining significance level of effect

Magnitude of Impacts	Sensitivity of Receptor				
	Very High	High	Medium	Low	Negligible
High	Major	Major	Moderate	Moderate	Minor
Medium	Major	Moderate	Moderate	Minor	Negligible
Low	Moderate	Moderate	Minor	Negligible	Negligible
Negligible	Minor	Minor	Negligible	Negligible	Negligible

6.2 CIEEM Assessment Methodology

Under the CIEEM assessment methodology, detailed assessment is only required in relation to Important Ecological Features (IEFs) (those features that are considered to be important and potentially affected by the project) within the baseline. Therefore, the first step of this methodology is to determine which ecological features (species, or habitat types) are considered important.

In accordance with the CIEEM guidance, the determination of whether an impact leads to significant effects is through a combination of professional judgement and consideration of the following:

- The importance of each ecological feature;
- The magnitude of each impact, inclusive of the;
 - Extent;
 - Duration;
 - Frequency and Timing; and
 - Reversibility.

The significance of an effect results from the interaction between its magnitude and the importance of the receptor that might be affected. Significant effects are quantified with reference to an appropriate geographic scale. However, unlike the IEMA assessment methodology that recommends the use of the matrix table for assigning significance, the CIEEM guidance discourages the use of a matrix table approach to significance categorisation, as the CIEEM guidance focuses on an evidence-based approach rather than a value based approach to significance categorisation.

6.3 Assessment Stages

Irrespective of whether the IEMA or CIEEM assessment methodology has been applied, the stages of assessment follow a systematic process. For each technical assessment these stages include:

- A detailed description of the embedded mitigation measures that are anticipated to avoid, reduce, or offset the potential for adverse impacts and subsequent effects;
- The identification of the current baseline, through a combination of desk-based assessment (DBA), consultation and field surveys, as necessary;
- Identification and assessment of all potential impacts of the construction, operation and eventual decommissioning of the Proposed Development, along with a determination of the level of significance of the effect;
- Identification and assessment of potential cumulative impacts, along with a determination of the level of significance of the cumulative effect; and
- A statement of significance, clearly detailing the conclusions of the assessment.

7. Planning Policy

The Town and Country Planning (Scotland) Act 1997 (as amended) states that proposals shall be determined in accordance with the Development Plan (National Planning Framework 4 (NPF4), the Local Development Plan (LDP), and Supplementary Guidance (SG)), unless material considerations (detailed below) indicate otherwise.

The Proposed Development has therefore been assessed against the Development Plan and all other material considerations considered to be of relevance to marine fish farm development, as outlined below:

- National Planning Framework 4 (NPF4);
- National Marine Plan (NMP);
- Outer Hebrides Local Development Plan (OHLDP);
- A Fresh Start: The Renewed Strategic Framework for Scottish Aquaculture (2009);
- Supporting Aquaculture Growth and Protecting Scotland's Environment (2017);
- Aquaculture Growth to 2030: A Strategic Plan for farming Scotland's Seas (2016);
- A Stronger and More Resilient Scotland: the Programme for Government 2022 to 2023;
- Environment, Climate Change and Land Reform Committee: Report on the Environmental Impacts of Salmon Farming;
- Rural Economy and Connectivity Committee: Salmon Farming in Scotland;
- Blue Economy Vision for Scotland; and
- Vision for Sustainable Aquaculture.

Through assessment of the Proposed Development against each of the above documents, it has been determined that the Proposed Development aligns with the policies and objectives of the Development Plan, whilst also meeting the intent of the relevant material considerations. As such, the Proposed Development is considered to be an example of sustainable aquaculture development and therefore supported by all relevant planning policy.

8. Assessment of Potentially Significant Environmental Effects

8.1 Benthic Habitats

The findings of the impact assessment on benthic habitats are summarised below, with the full assessment provided in **Section 7** of the EIAR.

The EIA has considered the impacts and subsequent effects on the benthic environment as a result of both organic material and in-feed residue deposition dispersed from the Proposed Development in both isolation and in-combination with the two existing fish farms off the Isle of Lewis (although Gravir Outer and Gravir West have separate consents they are operated as a single farm, Gravir). This assessment has focused on the general impacts on the benthic environment in relation to the SEPA criteria. This assessment was undertaken in line with the assessment methodology detailed within **Sub-Section 6.1**.

The development location is considered to be a key embedded mitigation measure, as it is a high energy, well flushed location with high dispersion potential. Dispersing any discharged waste to low levels over a wider area will reduce the magnitude of any potential effects. Other important embedded mitigation measures include:

- Farm Design and Layout (design);
- NewDEPOMOD modelling (design);
- Feed control and monitoring (operational);
- Pellet Detection Software (operational);
- SEPA CAR Licensing (operational);
- Environmental Monitoring Plan (operational);
- Environmental Quality Standards (operational);
- Fallowing (operational);
- Enforcement (operational); and
- Integrated Sea Lice Management Plan (ISLM) (operational).

In isolation, the Proposed Development is anticipated to meet the SEPA Mixing Zone criteria for both organic material and EmBz deposition. NewDEPOMOD model outputs have been reviewed and approved by SEPA. These outputs indicate that the Proposed Development's organic material Mixing Zone is 117.17 % of the permissible 120 %. Furthermore, average depositional intensity within the Mixing Zone was simulated to be 360.2 g/m²/yr⁻¹, which is considerably lower than the 4,000 g/m²/yr⁻¹ threshold set by SEPA. NewDEPOMOD model simulations indicate that EmBz deposition complies with the current interim Environmental Quality Standard (EQS). In light of the overall **negligible magnitude** of the impact of both organic material and in-feed residue deposition from the Proposed Development, the effect is determined to be of **minor significance** and therefore **not significant** in terms of the EIA Regulations.

In combination, the Proposed Development and the two existing fish farms were assessed via detailed three dimensional marine modelling to determine the cumulative impact of organic material deposition. The model simulations indicate that no medium to far field deposition, above the 250 g/m² threshold, is likely to occur as a result of all three fish farms operating at maximum biomass for a 365 day period. As a result, the overall magnitude of the cumulative impact is determined to be **negligible**. In light of the overall **negligible magnitude** of the cumulative impact, the cumulative effect is determined to be of **minor significance** and therefore **not significant** in terms of the EIA Regulations.

Cumulative impacts as a result of EmBz discharge from the three fish farms were also assessed. All three fish farms have approved EmBz discharge limits, based on the Mixing Zone criteria, which ensure that any environmental impacts are within acceptable levels, through compliance with the relevant EQSs. As a result, the overall magnitude of the cumulative impact of in-feed residue deposition from the Proposed Development, in combination, is determined to be **negligible**. In light of the overall **negligible magnitude** of the cumulative impact, the cumulative effect is determined to be of **minor significance** and therefore **not significant** in terms of the EIA Regulations.

8.2 Water Column Impacts

The findings of the impact assessment on the water column are summarised below, with the full detailed assessment provided in **Section 8** of the EIAR.

The EIA has considered the potential impacts and subsequent effects on the receiving water body as a result of nutrient enhancement through the operation of the Proposed Development. Due to the presence of additional sites in the vicinity of the Proposed Development, and the recommendation from SEPA that unconstrained waterbodies should be limited to a 10 km² domain, the existing fish farms to the northeast of the Isle of Lewis fall within the 10 km² domain for the Proposed Development, therefore cumulative impacts have been included in this assessment. This assessment was undertaken in line with the assessment methodology detailed within **Sub-Section 6.1**.

A DBA was undertaken to inform the baseline condition. The Proposed Development is located within the Scotland River Basin District, specifically within the 'Rubha na Creige More to Gob Rubh Uisinis', coastal waterbody (ID: 200179). This waterbody covers a surface area of 12.7 km². The Water Framework Directive (WFD) classification scheme assigned an overall status and overall ecological status of 'Good' in 2020. The Dissolved Inorganic Nitrogen (DIN) DIN status of the waterbody has been classified as 'High' from 2008 to 2023, which indicates that the waterbody has conditions that are associated with no, or very low, anthropogenic pressure. Therefore, the 'Rubha na Creige More to Gob Rubh Uisinis' waterbody is determined to be a 'High' sensitivity receptor.

A number of embedded mitigation measures have been incorporated into both the design and operation of the Proposed Development, including:

- Development location (design);
- Optimised feed composition (operational);
- Staff training programme (operational);
- Feeding strategy (operational); and
- Feed monitoring and control (operational).

The Equilibrium Concentration Enhancement (ECE) calculations for the Proposed Development indicate that nutrient concentrations released into the water column will be **negligible**, with a nitrogenous component value of 2.45 µg/L predicted, this value represents just 1.46 % of the SEPA EQS, of 168 µg/L, for DIN loading in coastal waters.

The 2.45 µg/L value of nitrogenous waste predicted to be released from the Proposed Development can be considered a 'worst-case scenario', as it has been assumed that the nitrogenous component will be dispersed into the water column at Mean Low Water Springs (MLWS), and that the released nitrogenous waste will be conserved and only removed by tidal flushing. Additionally, the source rate includes both dissolved and particulate nitrogen; whereas the SEPA EQS is only set for DIN (ammonia, nitrate, and nitrite). As a result, a higher nitrogen loading value, inclusive of both dissolved and particulate nitrogen, has been used for the comparisons against the SEPA EQS to determine significance, resulting in conservative findings.

There has been concern regarding the contribution from fish farms to the total coastal nutrient budget and waterbody carrying capacity, for these reasons the ECE equation has been developed. These data presented here indicate that the total impact of the nitrogenous waste component of the nutrient input from the Proposed Development within the 10 km² box model domain is of **negligible** overall magnitude. In light of the overall **negligible magnitude** of the impact, the effect is determined to be of **negligible significance** and therefore **not significant** in terms of the EIA Regulations.

8.3 Interactions with Predatory Species

The findings of the impact assessment on predatory species are summarised below, with the full detailed assessment provided in **Section 9** of the EIAR.

The EIA considers the potential impacts of the Proposed Development as a result of interactions with predatory species. Ecological Impact Assessment (EcIA) methodology, as outlined within **Sub-Section 6.2**, has been used to assess the impact of the Proposed Development on identified IEFs within the baseline. Impacts have been limited to direct interactions as a result of predatory behaviour, therefore the impact assessment relates only to entanglement and entrapment in sub-surface and surface netting.

Section 11 of the EIAR provides an assessment of the other potential impacts of the Proposed Development on identified IEFs within the baseline condition.

A number of data sources including the operational wildlife logbooks of the two existing fish farms to the east of the Isle of Lewis, the National Biodiversity Network (NBN) database, the Seabird Monitoring Programme (SMP) database, and the Geodatabase of Marine features adjacent to Scotland (GeMS) database were used to determine the presence of potential predatory species within the baseline. It was then determined which ecological features represented IEFs within the baseline. The predatory IEFs, outlined within **Table 8.1**, were identified within the baseline that have the potential to be significantly negatively impacted by the Proposed Development.

Table 8.1: Summary of the predatory IEFs identified within the baseline

IEFs Relevant to the Assessment of Interactions with Predatory Species	
Common seal	Grey seal
Great black-backed gull	Herring gull
Great cormorant	Northern gannet

A number of embedded mitigation measures have been incorporated into both the design and operation of the Proposed Development, including:

- Containment net strategy (design);
- Bird nets (design);
- Feed storage and feeding (design);
- Best practice husbandry procedures (operational);
- Pellet Detection Software (operational);
- Acoustic deterrent devices (ADDs) (will **NOT** be deployed) (operational);
- Anti-predator netting (will **NOT** be deployed) (operational);
- Predator Control Plan (PCP) (operational);
- Monitoring and reporting (operational); and
- Wildlife logbook monitoring (operational).

The identified IEFs within the baseline, whilst all displaying sensitivity to the pressure of entanglement and entrapment, display variation in the level of sensitivity. This is due to the differences in foraging ecology between the IEFs with some, such as the identified gull species, displaying surface feeding behaviour, making them more sensitive to surface pressures, whilst others, such as the European shag, display a visually guided pursuit dive strategy, which makes them more sensitive to sub-surface pressures. Whilst there was a degree of overlap between the Proposed Development and potential foraging areas of the identified IEFs, it is identified that considerable foraging habitat also exists outwith the footprint of the Proposed Development. In regard to certain IEFs the Proposed Development does not represent primary foraging habitat and therefore the potential for utilisation of the area by specific IEFs is much reduced.

In relation to the IEFs that are primarily at risk of entanglement and entrapment in surface netting (bird top netting), the embedded mitigation of incorporating top net mesh size aligned with the NS recommendations will reduce the magnitude of potential impacts. This will be further mitigated through the daily inspection and maintenance schedule for the top netting, that will ensure that top netting is maintained at an effective standard, resulting in effective deterrence of avian predator interactions, whilst also reducing the potential for entanglement and entrapment. The monitoring and reporting requirements will also help improve the understanding of top net interactions with ornithological features and will allow for an adaptive approach to mitigation, if needed.

In regard to the IEFs that are primarily at risk of entanglement and entrapment in sub-surface netting (pen containment netting), the embedded mitigation of deploying high rigidity primary netting and an effective sinker tube tensioning system to ensure uniform tension across the surface of the netting will sufficiently reduce the potential for sub-surface entanglement and subsequent drowning. The assessment of the potential effect of entanglement and entrapment in both surface and sub-surface netting of the Proposed Development in isolation, resulted in the final determination that, due to the proposed embedded mitigation, the overall magnitude of any impact would be **negligible** and the effect

not significant in relation to the EIA Regulations.

The Proposed Development, when assessed in-combination with the two existing fish farms to the northeast of the Isle of Lewis will result in an increase in the biomass of Atlantic salmon held within the surrounding waters of the Isle of Lewis, which may increase predatory attraction. However, due to the open and unconstrained nature of the Proposed Development location, and its relative isolation from the existing BFS Gravir sites, it is unlikely that there will be a significant cumulative attraction effect. Moreover, the two existing fish farms are currently operated in line with the identified embedded mitigation for the Proposed Development. As a result of the cumulative assessment carried out, it was determined that the overall magnitude of the cumulative impact of entanglement and entrapment would be **negligible** and the cumulative effect **not significant** in relation to the EIA Regulations.

8.4 Interactions with Wild Salmonids

The findings of the impact assessment on wild salmonids are summarised below, with the full detailed assessment provided in **Section 10** of the EIAR. This section utilised the EclA methodology, as described within **Sub-Section 6.2**.

The EIA assessed the potential impact of the Proposed Development on wild salmonid populations. This assessment focused on three potential impacts:

- Potential for sea lice transfer;
- Potential for disease transfer; and
- Potential for genetic introgression and competition.

To inform the baseline condition a detailed DBA was undertaken. The DBA sought to identify the existing condition of anadromous salmonid fishes within the local area. The DBA utilised rod catch data from the wild salmonid fishery statistics to determine the historic and contemporary trends in salmonid abundance, at a national, regional, and district level. The DBA also sought to identify important salmonid river systems with potential connectivity with the Proposed Development, this focused on the identification of SACs designated for wild salmonids and graded salmon rivers, under the Conservation of Salmon (Scotland) Regulations 2016.

Review of rod catch returns data for Atlantic salmon fisheries identified patterns of decline at national, regional and district level. However, these patterns of decline varied in their strength. Review of the trout fishery statistics also identified declining trends at national, regional and district level. These patterns varied with the geographical context of the analysis.

One SAC designated for wild salmonids was identified within the 35 km study area, however, the Langavat SAC was scoped out due to at-sea distance being significantly in excess of 35 km. The Langavat SAC discharges into Loch Roag located on the west coast of the Isle of Lewis. However, 23 graded salmon rivers were identified within the study area, the closest being the Eishken Estate - Loch Stiomrabhaigh system, at 8.94 km from the Proposed Development.

A number of embedded mitigation measures have been incorporated into both the design and operation of the Proposed Development, including:

- Development location (design);
- Containment net strategy (design);
- Mooring and grid system (design);
- Best Practice Husbandry Procedures (operational);
- Draft Farm Management Statement (FMS) (operational);
- Veterinary Health and Welfare Plan (VHWP) (operational);
- Escapes Contingency Plan (ECP) (operational);
- Predator Control Plan (PCP) (operational);
- Environmental Management Plan (EMP) (operational);
- Integrated Sea Lice Management (ISLM) Plan (operational); and
- Health Intervention Capacity (operational).

Due to the higher densities of Atlantic salmon held on fish farms, they have the potential to support large populations of sea lice, with *Lepeophtheirus salmonis* the most prolific species affecting the

salmonid aquaculture industry. In the event of the establishment of a substantial population of *L. salmonis* there is the potential for increased risk to wild salmonids utilising the marine environment. However, there are a number of factors that influence the overall magnitude of the potential sea lice impact of wild salmonids, including wild salmonid migration routes and behaviour, sea lice dispersal, and farm management practices.

Existing sea lice dispersal modelling studies indicate that copepodid abundance typically peaks at distances of 7 to 12 km from the source fish farm, with the dispersal influenced by sea lice behaviour and environmental conditions. As a result, larval densities and concentrations have been found to peak in bays and inlets where prevailing currents and winds influence dispersal. A key embedded design mitigation measure is the selection of a development location in an open and unconstrained marine environment with strong tidal and wind generated currents. As a result, it is expected that sea lice propagating from the Proposed Development will be dispersed to low levels over a large area and therefore areas of high sea lice densities in bays and inlets are not anticipated. The sea lice dispersal modelling undertaken for the Proposed Development supports this hypothesis, with dispersal from the Proposed Development resulting in low concentrations of sea lice per m².

A number of other embedded mitigation measures, centred around effective farm management are anticipated to further reduce the overall magnitude of the impact. These measures include the ISLM Plan, which details the health intervention strategy that will be implemented at the Proposed Development to ensure effective and proactive sea lice management throughout the production cycle with a preference for freshwater, biological and mechanical intervention over traditional medicinal intervention. The Proposed Development will also operate under an FMA-W4 EMP, this document outlines the proposed actions to ensure farming activity does not result in negative impacts on local wild salmonid populations and includes a commitment to undertake wild fish monitoring to further understand the potential for interactions. As a result of the full assessment carried out in the EIAR, it has been determined that the overall magnitude of the impact is **negligible**, and therefore the effect is assessed as **not significant** in terms of the EIA Regulations.

In regard to the potential impact of disease transfer from farmed to wild salmonids, fish farms are recognised as potential reservoirs of disease pathogens, primarily due to the volume and density of Atlantic salmon held on farms. There are a number of diseases that more commonly impact farmed Atlantic salmon within Scottish waters, including; Infectious Pancreatic Necrosis (IPN), Pancreas Disease (PD), Cardiomyopathy Syndrome (CMS), Heart and Skeletal Muscle Inflammation (HSMI), and Amoebic Gill Disease (AGD).

Current scientific evidence indicates that there is limited incidence of clinical disease within wild salmonids with very low to low prevalence of the causative viruses of the above diseases and low prevalence of *Neoparamoeba perurans*, the amoeba which causes AGD, documented. This low prevalence of disease within wild fish populations indicates that transmission is likely natural within wild populations, with no significant farm to wild transmission taking place.

The embedded mitigation measures will also further reduce the overall magnitude of the impact. Specifically, the VHWP outlines standard operating procedures to ensure optimal fish health throughout the production cycle, whilst also clearly outlining effective monitoring and reporting structures to allow for an effective and proactive response, should disease be detected at the Proposed Development. As detailed within the FMS (**Appendix H**), all stocked Atlantic salmon receive vaccinations against Furunculosis, IPN, and PD as standard. This effective vaccination strategy helps to reduce the likelihood of disease outbreak across BFS marine operations.

A full assessment has been carried out in the EIAR, which has determined that the overall magnitude of the impact is **negligible**, and therefore the effect is assessed as **not significant** in terms of the EIA Regulations.

The potential for genetic introgression and competition to occur is related to the potential for escape of farmed Atlantic salmon into the marine environment. The potential impact of escapee farmed Atlantic salmon on wild salmonid populations is dependent on the probability of escape and the magnitude, inclusive of the frequency of escape events. In general, escapes from open pen salmon farms are the result of large episodic events, where significant numbers of farmed fish may be lost.

Farmed Atlantic salmon have been artificially selected and bred to enhance economically valuable

traits, this process has resulted in the reduction in genetic variability within farmed Atlantic salmon stocks. Conversely, natural selection in wild salmonid populations selects for favourable biological traits that improve individual fitness and survival. There is also evidence to suggest that Atlantic salmon populations are distinct from one another and potentially exhibit local-scale adaptations to the specific biotic and abiotic factors associated with their natal river systems. Therefore, as a result of the genetic divergence between farmed and wild salmonid populations, interbreeding has the potential to compromise the fitness of hybrid offspring. However, current scientific evidence suggests that farmed Atlantic salmon survival and breeding success is much reduced in comparison to their wild counterparts, which inherently reduces the overall magnitude of the impact. Competition for food resource between farmed and wild salmonids, in both the freshwater and marine environment has the potential to impact survival at an individual level.

The embedded design and operational mitigation measures are anticipated to further reduce the overall magnitude of the impact, through significantly reducing the probability and frequency of escape events. High rigidity containment netting, with higher bite and cut resistance, in combination with an effective tensioning system will significantly reduce the potential for containment net failure as a result of predator interactions and extreme weather events. The Proposed Development will be held within a 120 m x 120 m grid, which has been selected specifically to reduce the potential for failure during high stress events. BFS containment measures have proven to be highly effective, with no escape events recorded within FMA W-4.

The full assessment carried out in the EIAR has determined that the overall magnitude of impact is **negligible**, and therefore the effect is assessed as **not significant** in terms of the EIA Regulations.

Cumulative impacts on wild salmonids as a result of the Proposed Development in combination with the existing BFS Gravir farms within FMA W-4 and the three existing farms within DMA 5a have been assessed. Embedded mitigation measures proposed for the Proposed Development are already implemented at the existing Gravir fish farm. The Gravir wide EMP, under which the Proposed Development will be operated, also covers the existing Gravir fish farm. As a result, the cumulative impacts are determined to be sufficiently avoided or reduced to overall **negligible magnitude**. In light of this negligible magnitude, the potential cumulative effects are determined to be **not significant** in relation to the EIA Regulations.

8.5 Impacts on Species and/or Habitats of Conservation Importance

The findings of the impact assessment on species, habitats and sites of conservation importance are summarised below, with the full detailed assessment provided in **Section 11** of the EIAR.

The EIA assessed the potential for the Proposed Development to impact on species, habitats and designated sites of conservation importance due to the construction, operation, and eventual decommissioning of the Proposed Development. This section utilised the EcIA methodology, as described within **Sub-Section 6.2**.

The baseline condition was informed by a DBA, which focused on the review of biological records from a number of data sources. Initially, a number of ecological features were identified within the study area, including a number of designated sites. The next step was to determine whether each of the features represented an IEF within the baseline. This was done by considering the relative importance, based on legislation, the relative abundance and density of each ecological feature within the baseline, and the potential for connectivity, based primarily on the ecological traits of each ecological feature and the associated potential for interaction with the Proposed Development. The ecological feature identified within **Table 8.2** was determined to be IEFs and therefore assessed in detail.

Table 8.2: IEFs identified within the Baseline

IEFs Relevant to the Assessment of Species and Habitats of Conservation Importance
Burrowed mud PMF

A number of embedded mitigation measures have been incorporated into both the design and operation of the Proposed Development to avoid, reduce or offset the potential for adverse significant effects, including:

- Development location (design);
- NewDEPOMOD modelling (design);
- Containment net strategy (design);
- Bird nets (design);
- Feed storage and feeding (design);
- Acoustic deterrent devices (ADDs) (will **NOT** be deployed) (operational);
- Anti-predator netting (will **NOT** be deployed) (operational);
- Pellet Detection Software (operational);
- Feed control and monitoring (operational);
- Fallowing (operational);
- Enforcement (operational);
- Best Practice husbandry (operational);
- Predator Control Plan (PCP) (operational);
- Mooring Installation Micro-Siting (operational); and
- Monitoring and reporting (operational).

In regard to benthic IEFs there is the potential that the Proposed Development may result in abrasion and disturbance, organic material deposition and in-feed residue deposition, resulting in damage to, or mortality of, characterising benthic communities that form discrete benthic habitats. Whilst the majority of finfish infrastructure floats upon the surface (pens and feed barge), the mooring lines and anchors of the grid and mooring system, do contact the benthos. As a result of the limited spatial extent of the impact and the one-off nature of the impact, coupled with the relative resilience of burrowed mud and the low presence of seapens within that habitat, the overall magnitude is determined to be **negligible**. Due to the low levels of deposition predicted through modelling over the identified biotopes, in addition to the low abundance of seapens across both biotopes within the ZoI, which inherently reduces the sensitivity to this impact pathway it is determined that organic deposition will not lead to the significant deterioration or loss of the identified biotopes. As a result, the overall magnitude is determined to be **negligible**. In addition, due to the limited extent of in-feed residue deposition and the prioritisation of non-medical interventions to control sea lice at the Proposed Development it is determined that in-feed residue deposition will not lead to the significant deterioration or loss of the identified biotopes. As a result, the overall magnitude is determined to be **negligible**.

The assessment of habitat biotopes, of conservation importance, determined that the overall magnitude of identified potential impacts were significantly reduced to the extent that the effects were **not significant** in relation to the EIA Regulations. The embedded design mitigation measures such as the selection of a high energy, highly dispersive development location and detailed modelling, ensured that impacts were reduced to insignificant levels.

Cumulative impacts were also assessed to determine whether the Proposed Development in combination with the existing BFS Gravir farms to the east of the Isle of Lewis would result in no significant effects on the identified IEF. It was determined that the embedded mitigation measures proposed for the Proposed Development, which are already implemented at the existing farms significantly reduces the overall magnitude of the identified potential impacts to levels that are anticipated to make the cumulative effects **not significant** in relation to the EIA Regulations.

8.6 Navigation, Anchorages, Commercial Fisheries, and Other Non-Recreational Maritime Uses

The findings of the impact assessment on navigation, anchorages, commercial fisheries and other non-recreational maritime uses are summarised below. The full detailed assessment is provided in **Section 12** of the EIAR.

The EIA assessed the potential impacts and subsequent effects of the Proposed Development on non-recreational marine uses. This assessment was carried out in line with the assessment methodology detailed within **Sub-Section 6.1**.

A DBA was undertaken to inform the baseline condition within the study area of the Proposed Development. The DBA centred around the review of publicly available data sources to determine to

what extent the waters around the Proposed Development and the Isle of Lewis are utilised for non-recreational marine use. The DBA identified a number of non-recreational users, including; commercial maritime activities and navigation, anchorages, sub-sea cables, Ministry of Defence (MOD) and commercial fisheries. Through the identification of the baseline condition, it was possible to scope out a number of receptors from the assessment, including anchorages, sub-sea cables, and MOD activities. The following receptors were scoped in and assessed in further detail:

- Commercial maritime activities and navigation; and
- Commercial fisheries (**Appendix U**).

A number of embedded mitigation measures have been incorporated into both the design and operation of the Proposed Development, including:

- Development location (design);
- Development lifespan (design);
- Farm layout and design (design);
- Minimisation of the mooring area (design);
- Navigational lighting and marking (operational); and
- Registration with the United Kingdom Hydrographic Office (UKHO) (operational).

The Proposed Development represents a long-term obstruction to commercial maritime activities and navigation. There is also the potential for marine vessel activity associated with the Proposed Development to interact with the existing baseline level of vessel activity. However, as a result of the limited spatial overlap of the development area, with areas of high maritime activity, along with the proposed embedded mitigation the assessment determined that the direct impact on commercial maritime activities and navigation would be of **negligible overall magnitude**. In light of the **medium sensitivity**, the effect is determined to be of **negligible significance** and therefore **non-significant** in relation to the EIA Regulations.

Exclusion, access, displacement and associated economic loss impacts on the identified and scoped in fisheries were determined to result in impacts of a **negligible overall magnitude**. The mobile Nephrops demersal trawling fishery was determined to be of **low sensitivity**, whilst the static pots and traps fishery was determined to be of **medium sensitivity**. As a result, the impact resulted in effects of **negligible significance** on both fisheries. Therefore, the effects were predicted to be **non-significant** in relation to the EIA Regulations.

Gear snagging, entanglement and navigational safety impacts on the identified and scoped in fisheries were determined to result in impacts of a **negligible overall magnitude**. The mobile Nephrops demersal trawling fishery was determined to be of **medium sensitivity**, whilst the static pots and traps fishery was determined to be of **low sensitivity**. As a result, the impact resulted in effects of **negligible significance** on both fisheries. Therefore, the effects were predicted to be **non-significant** in relation to the EIA Regulations.

Impacts resulting in changes to the local environment on the identified and scoped in fisheries were determined to be of a **negligible overall magnitude**. The mobile Nephrops demersal trawling fishery was determined to be of **low sensitivity**, whilst the static pots and traps fishery was determined to be of **medium sensitivity**. As a result, the impact resulted in effects of **negligible significance** on both fisheries. Therefore, the effects were predicted to be **non-significant** in relation to the EIA Regulations.

Significant cumulative effects on non-recreational marine uses, including commercial fishing (**Appendix U**) were determined to give rise to cumulative effects that were **non-significant** in relation to the EIA Regulations.

In summary, **no significant effects** on non-recreational marine users are predicted as a result of the

Proposed Development.

8.7 Seascape, Landscape and Visual

The findings of the Seascape, Landscape and Visual Impact Assessment (SLVIA) are summarised below, with the full detailed assessment provided in **Section 13** of the EIAR and **Appendix N**.

Section 13 and **Appendix N** of the EIAR assessed the potential for seascape, landscape and visual impacts as a result of the Proposed Development, during both construction and operational phases. The SLVIA was undertaken by an independent consultant and followed the methodology outlined within **Appendix N**.

The baseline condition was informed by a DBA, which focused on the review of existing guidance and technical documentation. The DBA was also supplemented with site visits and photomontages created from representative viewpoints within the study area.

Assessment of the baseline condition consisted of the determination of the existing environment through four distinct aspects;

- National / regional and local landscape character;
- Seascape Character Types;
- Landscape designations; and
- Visual receptors.

Under national / regional landscape character, the baseline condition identified 'Cnoc and Lochan LCT 324 and Dispersed Crofting LCT 319' as the Landscape Character Type (LCT).

Under Seascape Character Area, the baseline condition identified the 'North East Lewis, and specifically the Low Rocky Island Coasts (SCT) 13'.

The baseline condition identified the seascape local to the Proposed Development as 'Low Rocky Coast (SCT) 9'.

Within the baseline condition no landscape designations were identified with connectivity to the Proposed Development, therefore no landscape designations were considered within the SLVIA.

The following visual receptors, which have connectivity with the Proposed Development, have been identified within the baseline condition:

- Cnoc and Lochan LCT 324;
- Dispersed Crofting LCT 319;
- Low Rocky Coast SCT Seascape Unit 13; and
- Sea based recreational receptors.

A number of embedded mitigation measures have been incorporated into both the design and operation of the Proposed Development to avoid, reduce or offset the potential for adverse significant effects, including:

- Development location (design);
- Siting (design);
- Pens (design);
- Feed barge (design);
- Low profile infrastructure (design); and
- Bird top netting (design).

Effects are considered to be significant for the purposes of the EIA Regulations where the effect is classified as being of 'major', 'moderate – major' or 'moderate' significance.

It is concluded that locally significant effects on landscape / seascape character and visual amenity are inevitable as a result of commercial aquaculture development. The screening of views by the local distinctive cnoc and lochan landscape for local receptors from the Proposed Development results in significant visual effects to be concentrated within a 0.5 km radius for sea based activities only. There are no predicted views from the local road network, residential properties, or from the settlement of

Calbost. It is therefore considered that overall, the landscape and seascape has the capacity to accommodate the effects identified.

8.8 Socio-Economic, Access and Recreation

The findings of the impact assessment on socio-economic, access and recreation are summarised below, with the full detailed assessment provided in **Section 14** of the EIAR.

The EIA assessed the potential impacts of the Proposed Development on socio-economic, access and recreation, in isolation and in-combination with the existing BFS fish farms to the northeast of the Isle of Lewis. This assessment was undertaken in line with the assessment methodology detailed within **Sub-Section 6.1**.

The CnES Scoping Opinion confirms that it is possible to scope out access and recreation from the assessment. Therefore, **Section 14** of the EIAR assesses only the potential socio-economic impacts of the Proposed Development (in isolation and in-combination).

A DBA was undertaken to inform the baseline condition in terms of the socio-economic situation. The DBA defined three study areas that focused the determination of the baseline and the subsequent assessment. The study areas included local, regional and national spatial scales.

The local study area was defined as the Sgìre nan Loch electoral ward, with data specific to the Isle of Lewis provided where available. Within the local study area, it was identified that 57.34 % of the population were within the working age cohort (aged 16 to 64 (inclusive)), whilst 29.05 % of the population were in the 65+ cohort, indicating that the population of the Sgìre nan Loch electoral ward is ageing.

At a national level, there has been a general pattern of population increase throughout the temporal period assessed (1981 to 2021). However, since 2011, the proportion of the Scottish population comprised of the working age cohort has declined, mirroring the ageing trend identified within both the local and regional study area. In 2021, the Scottish population was estimated to be 5,479,900, with the working age cohort making up 64 % of the total population.

Particularly in relation to the local and regional study areas, the combination of a declining and ageing population may lead to labour shortages in key industries, particularly if the trend continues. Therefore, industry, such as aquaculture, that can attract and retain people within the working age cohort has the potential to positively contribute to improving population dynamics

A number of embedded mitigation measures have been incorporated into both the design and operation of the Proposed Development to avoid, reduce or offset the potential for adverse significant effects. The Proposed Development will create opportunities for local communities, including;

- Local sourcing (design);
- Local staffing (design); and
- Community fund (design).

The assessment of potential socio-economic impacts was centred around the determination of the Gross Value Added (GVA) of the Proposed Development. GVA is defined as an economic productivity metric that measures the contribution of a company to an economy, producer, sector or region. GVA was then split into three categories, direct (specific to the Proposed Development), indirect (the aquaculture supply chain), and induced (the wider Scottish economy).

In regard to direct GVA, it was estimated that the Proposed Development would contribute £606,000.00 per year to the wider Scottish economy, with the direct employment of a minimum of 5 full-time staff members. The overall magnitude of the impact was determined to be **medium**. As a result, the effect was determined to be of **moderate positive significance** and therefore **significant** in relation to the EIA Regulations.

Assessment of the indirect GVA estimated that the Proposed Development would contribute £424,200 per year, through the aquaculture supply chain, to the Scottish economy. Initial capital expenditure (CAPEX) for the Proposed Development was estimated to be £7,650,000.00. It was also estimated that the Proposed Development would generate 5 full-time jobs within the aquaculture supply chain. The

overall magnitude of the impact was determined to be **medium**. As a result, the effect was determined to be of **moderate positive significance** and therefore **significant** in relation to the EIA Regulations.

The Proposed Development was estimated to contribute £1,090,800 per year to the Scottish economy through induced economic activity. These induced impacts will be delivered through the spending of wages and salaries and through induced employment within the wider economy through increased demand as a result of economic activity. The Proposed Development is estimated to generate 12 full-time jobs through induced effects within the wider Scottish economy. The overall magnitude of the impact was determined to be **low**. As a result, the effect was determined to be of **minor positive significance** and therefore **not significant** in relation to the EIA Regulations.

Cumulative impacts of the Proposed Development were also considered and assessed. The cumulative assessment found that the Proposed Development in combination with the existing two fish farms to the northeast of the Isle of Lewis resulted in greater GVA contribution across direct, indirect and induced means. Cumulative effects were determined to be **positively significant** for direct and indirect GVA, but **not significant** for induced GVA, in relation to the EIA Regulations.

8.9 Noise

The findings of the impact assessment on noise are summarised below and the full detailed assessment provided in **Section 15** of the EIAR.

The technical assessment assessed the impact and subsequent effect of the Proposed Development on close by NSRs during the operational phase of the Proposed Development. This assessment does not form part of the formal EIA but has been undertaken to allow CnES to determine compliance to Development Policy 4 of the OH LDP. This assessment has been undertaken in line with the assessment methodology detailed within **Sub-Section 6.1**.

A DBA was undertaken to inform the baseline condition associated with the Proposed Development. The DBA identified seven residential properties at Calbost, to the northwest of the Proposed Development, the closest being 0.94 km from the Proposed Development.

The sound environment at the NSRs is anticipated to be typical of a coastal rural setting, with sound associated with waves dominating the soundscape. It is also anticipated that sound relating to bird song, bird activity and wind rustling vegetation will contribute to the baseline sound environment to varying degrees.

As a result, the receptor (residential properties) sensitivity is determined to be high, as the receptor is tolerant of change without detriment to its character.

A number of embedded mitigation measures have been incorporated into both the design and operation of the Proposed Development to avoid, reduce or offset the potential for adverse significant effects, including:

- Development location (design);
- Generator positioning (design);
- Sound insulation (design);
- Standard working hours (operational); and
- Automatic timer system (operational).

Several primary noise generating aspects of the Proposed Development have been identified, including; the feed barge generators, the feed selectors and blowers, and marine vessels associated with the Proposed Development.

Sound emitted from the generators and feed equipment (selectors and blowers) onboard the feed barge will be sufficiently reduced by the embedded design and operational mitigation, which will help reduce the propagation of sound from the feed barge. Feeding operations will take place throughout normal operating hours. Sound emitted as a result of these operations is determined to be of a high frequency and of a medium duration.

Sound generated from the primary service vessels will be transient in nature, as the area of audibility will move with the vessels as they transit from the shorebase to the Proposed Development. These

primary vessels will only make a single return journey per day under normal operating conditions and, as such, the frequency of the potential impact will be negligible and of short duration. There is already a degree of marine vessel sound associated with the baseline condition, with commercial and recreational vessels known to use the waters around the Isle of Lewis.

The assessment carried out in **Section 15** of the EIAR has determined that the overall magnitude of the identified impact has been sufficiently reduced to **negligible** levels, therefore the subsequent effects would be of **minor** significance.

8.10 Lighting

The findings of the impact assessment on lighting are summarised below, with the full detailed assessment provided in **Section 16** of the EIAR.

The EIA assessed the potential impacts of obtrusive lighting generated and propagated from the Proposed Development, in isolation and in-combination with the existing fish farms to the east of the Isle of Lewis. This assessment was undertaken in line with the assessment methodology detailed within **Sub-Section 6.1**.

The baseline condition at the Proposed Development location and more widely across the Isle of Lewis is characterised by negligible to low levels of anthropogenic light. The development location itself is a remote and natural location which has been assigned, within this assessment, as an E1 Environmental Zone. The largest source of anthropogenic lighting was determined to be the main settlement of Calbost, which is thought to have a light character typical of a village location. Due to the maritime nature of the coastal regions of the Isle of Lewis, marine vessels and associated navigational lighting also contribute to the baseline light condition. Through assessment of the baseline condition and the lighting characteristics of the Proposed Development it was possible to identify sensitive receptors that may be impacted by obtrusive light generation and propagation as a result of the operation of the Proposed Development. Sensitive receptors included residential properties (**medium sensitivity**), particularly at Calbost.

A number of embedded mitigation measures have been incorporated into both the design and operation of the Proposed Development to avoid, reduce or offset the potential for adverse significant effects, including:

- Northern Lighthouse Board (NLB) requirements (design);
- Lighting installations (design);
- Underwater lighting (design);
- Standard working hours (operational); and
- Best practice operational procedures (operational).

Impacts relating to the construction of the Proposed Development were scoped out due to the short-term and temporary nature of construction activities, coupled with the fact that the majority of construction work will be carried out during daylight hours.

Potential impacts were determined to be obtrusive light impacts as a result of the operation of the Proposed Development. Obtrusive lighting includes; light spill, glare, and sky glow.

However, due to the embedded mitigation proposed the overall magnitude of potential obtrusive light generation and propagation was determined to be **negligible**. Design mitigation (such as best practice lighting installation) and operational mitigation (such as best practice lighting procedures including; extinguishing all external lighting outwith work hours, ensuring only active task areas are illuminated, and ensuring that standard working hours predominately fall within daylight and normal working hours) will ensure impacts are sufficiently avoided and reduced.

Cumulative impacts were also determined to be **negligible**, as the two existing farms to the northeast of the Isle of Lewis currently implement the same embedded mitigation as is intended for the Proposed Development.

As a result, it is determined that, in light of the **medium** and **high** sensitivity of the identified receptors and the **negligible** overall magnitude of the impact, the effect of obtrusive lighting from the operation of the Proposed Development is **negligible** (residential properties). Therefore, the effect is determined

to be **not significant** in relation to the EIA Regulations.

9. Conclusion

There is local and national support for sustainable aquaculture development through the Outer Hebrides LDP and other material considerations (see **Section 7**). The Proposed Development would result in economic benefits including new employment, opportunities for local and regional contractors and support for existing aquaculture operations in the region.

The EIAR and associated Appendices provide a full and detailed description of the proposed infrastructure and practices to be used at the Proposed Development. The Proposed Development has been designed in such a way to ensure that environmental effects have been minimised through a combination of careful siting in an exposed, high energy location and embedded design and operational mitigation.

Where a potential risk to the surrounding environment has been identified, appropriate mitigation has been proposed, either through embedded design and operational mitigation, or through additional mitigation, where necessary.

It is determined that no significant adverse effects on natural heritage features, including the Inner Hebrides and the Minches SAC, and the St. Kilda and Seas of St. Kilda SPA, are likely as a result of the Proposed Development. The proposed embedded and additional mitigation, in combination with the varying ecological traits and sensitivities of the identified features, is anticipated to result in sufficient avoidance or reduction of impacts.

The design and assessment process adopted by BFS has represented a good practice approach to the reasonable development of marine aquaculture. All potential areas of significant interaction between the Proposed Development and the environment have been addressed, resulting in a well-designed development, incorporating appropriate mitigation measures, at a suitable development location.

The Proposed Development complies with, and is supported by, the aims and objectives of both national policy and the Development Plan and would make a valuable contribution towards the ambitious growth targets set for the aquaculture industry, whilst also contributing to the industry's role in achieving the United Nations (UN) Sustainable Development Goals (SDGs) outlined under Agenda 2030.