



# **BRING HEAD FISH FARM EXPANSION**

## **Environmental Impact Assessment Report Non-technical Summary**

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**August 2021**



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## List of Acronyms

CAR	Controlled Activities Regulations
EIA	Environmental Impact Assessment
LCCA	Local Coastal Character Areas
NTS	Non-technical Summary
SEPA	Scottish Environment Protection Agency
SPA	Special Protection Area
SSF	Scottish Sea Farms

# 1. PROPOSAL CONTEXT AND DESCRIPTION

Scottish Sea Farms (SSF) are pioneers in the farming of superior quality Scottish salmon since 1974. SSF views the quality of their product to be the highest corporate priority and operates under various quality assurance schemes to ensure that high standards are maintained. SSF's production systems satisfy the requirements of various well known quality assurance standards including ISO 9001, ISO 14001, Global Standard for Food Safety, Freedom Food (RSPCA monitored), GLOBALGAP (International Standard for Safe and Sustainable Agriculture), various customer codes of good practice (Marks & Spencer, Waitrose, Label Rouge and others), and product specifications and industry standards, including those of the Scottish Salmon Producers Organisation.

SSF arrived in Orkney in 2007 buying five existing farms and developing new farms in the Region to a current total of nine. SSF proposes to expand two of the SSF farms in Scapa Flow namely Bring Head and Toyness (refer to Figure 1-1). Separate applications are being submitted in respect of each site. This Non-technical Summary (NTS) has been prepared in support of the application submitted for the Bring Head proposal and provides a summary of the key findings of the Environmental Impact Assessment (EIA) Report.



**Figure 1-1 Location plan for the Scapa Flow expansion proposals**

The existing site at Bring Head located at 58°54.037N, 03°15.720W (site centre) has been operating since 2001 (since 2007 under SSF ownership). The existing farm consists of 10 x 80m circumference cages in a 50m mooring grid and is serviced by a 50T feed barge. Planning permission (FFA/ORK/007) for the existing site was granted on 7th May 2014 and planning permission (09/031/MAR) for the existing associated feed barge and underwater lighting was granted on 21st May 2009 under the Town and Country Planning (Scotland) Act 1997. A biomass of 968 tonnes is currently consented (SEPA licence CAR/L/1015854).

SSF propose to relocate the site centre 190m NE (refer to [Figure 1-2](#)) and expand the existing farm, replacing the existing infrastructure with 12 x 120m circumference cages in a 70m mooring grid. The proposal will facilitate a biomass increase of 1532T to a new maximum biomass of 2500T. The cages to be installed at the expanded farm will have a similar design to those currently used at the existing farm (i.e., low in profile and constructed of black, non-reflective material) but will be larger in circumference. Top nets will be changed from the current hamster-wheel design to a pole-mounted design. The proposed cage group will have more cages and have a larger surface area than the existing site. The site will be serviced by a 420T capacity feed barge, which will be located between the cage group and the shore (refer to [Figure 1-3](#)). The total surface area of the reconfigured and expanded site will increase from 5,270m<sup>2</sup> to 14,065m<sup>2</sup> and the expanded moorings area will be 490,200m<sup>2</sup> overlapping with a portion (168,645m<sup>2</sup>) of the existing mooring extent.

An application will be made to the Scottish Environment Protection Agency (SEPA) for a variation of the existing Controlled Activities Regulations (CAR) licence for the proposed reconfigured and expanded farm with a maximum biomass of 2500T. Orkney Islands Council 'the Planning Authority' has adopted a Screening Opinion such that the proposed development is an EIA development. The EIA Report has therefore been compiled in support of the planning application submitted under the Town and Country Planning (Scotland) Act 1997 (as amended) for the proposal. The specific content of the EIA Report was guided by pre-application consultation and the Screening Opinion provided by the Planning Authority on 9 August 2021 which requested that certain pertinent aspects specific to the proposal be addressed.



Figure 1-2 Location map of the proposed expanded farm

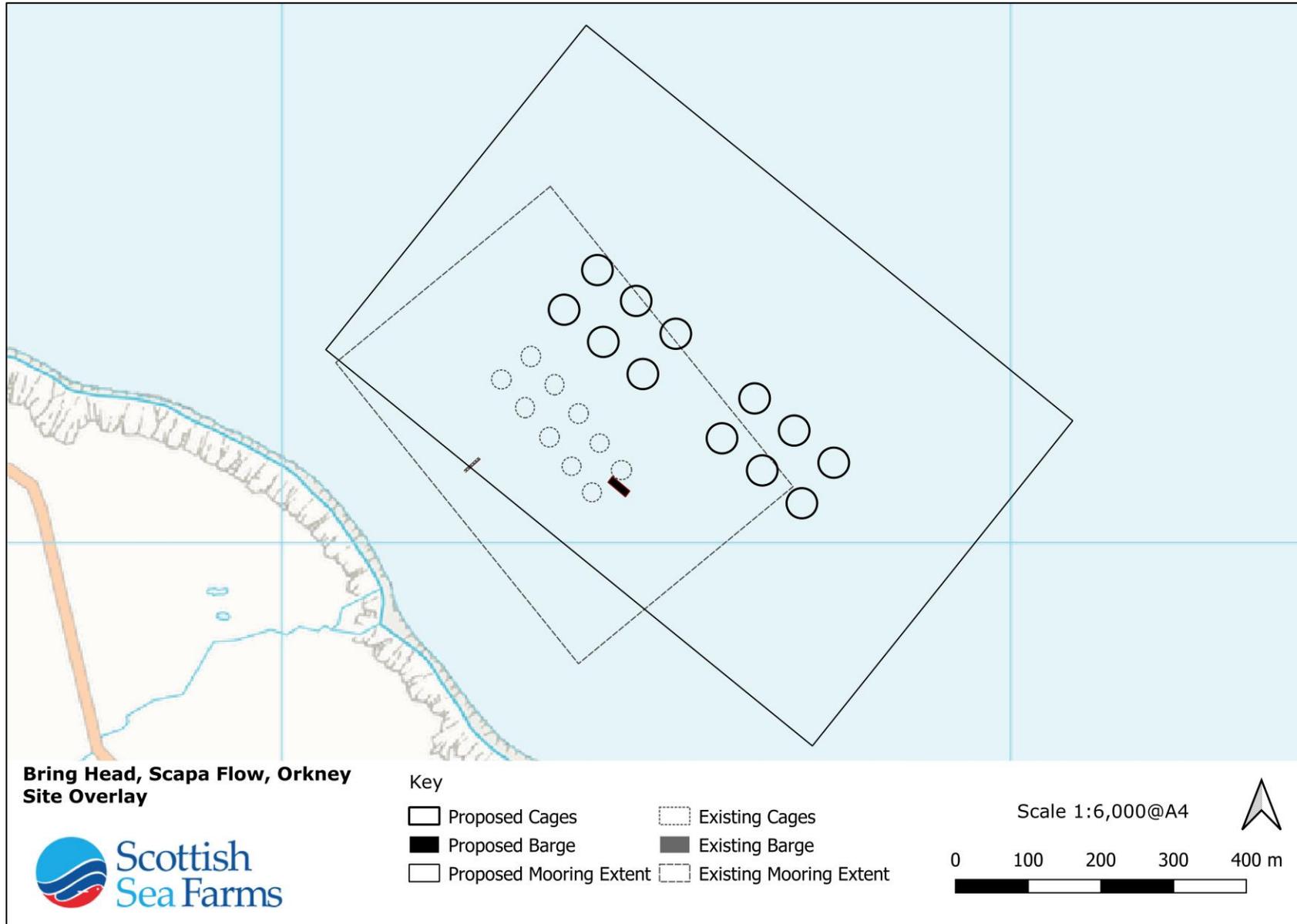


Figure 1-3 Proposed and existing farm comparison

The Planning Authority has a statutory duty to meet the requirements of numerous pieces of legislation when determining planning applications for aquaculture developments. The main legislative requirements relevant to aquaculture developments are listed in [Table 1-1](#).

**Table 1-1 Main legislative requirements relevant to aquaculture developments**

Legislation	Description	Applicability to the proposed development
<p><b>Town and Country Planning (Scotland) Act 1997, as amended</b></p> <p><b>Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017</b></p>	<p>Since 2007 marine fish farming has required planning permission from Local Authorities in accordance with the 1997 Act. This applies to all new fish farms out to 12 nautical miles including modifications to existing ones.</p> <p>The 2017 Regulations transpose the requirements of the EIA Directive 85/337/EC (as amended) into the Scottish regulatory system. The Directive sets out the EIA procedure to draw together, in a systematic way, an assessment of a project's likely significant environmental effects.</p>	<p>Planning permission (FFA/ORK/007) for the existing site was granted on 7th May 2014 and planning permission (09/031/MAR) for the existing associated feed barge and underwater lighting was granted on 21st May 2009 under the Town and Country Planning (Scotland) Act 1997.</p> <p>The proposal represents the reconfiguration and expansion of an existing fish farm.</p> <p>The EIA Report is being submitted in support of an application for planning permission for the proposed reconfiguration and expansion from the local Planning Authority (in this case Orkney Islands Council).</p>
<p><b>Conservation (Natural Habitats and Conservation) Regulations 1994</b></p>	<p>In Scotland, the EC Habitats Directive and Wild Birds Directive are transposed through a combination of the Regulations through the designation of Natura 2000 sites which are a Europe-wide network of protected sites namely Special Areas of Conservation or bird Special Protection Areas.</p> <p>Proposals which are likely to have a significant effect on the integrity of a Natura 2000 site must be subject to an Appropriate Assessment. An Appropriate Assessment is carried out by the competent authority and is an assessment of the implications of the proposed development on the conservation interests for which the site is designated. A Habitats Regulations Appraisal may therefore be required in support of applications for such proposals.</p> <p>Certain species listed on Annex IV of the Habitats Directive are given special protection in Scotland as European Protected Species. European Protected Species in Scotland include otters, cetaceans, and marine turtles. It is an offence to deliberately or recklessly injure, capture, kill, harass, or disturb a European Protected Species. A European Protected Species licence from Marine Scotland Licensing Ops Team is required to authorise an activity which results in an</p>	<p>The existing farm and proposed expansion area are located within the Hoy Special Protection Area which has eight qualifying features with potential to interact with the proposal namely red-throated diver, great black-backed gull, great skua, Arctic skua, black-legged kittiwake, northern fulmar, common guillemot and Atlantic puffin. The existing farm and proposed expansion area are located adjacent to the Hoy Site of Special Scientific Interest.</p> <p>Scapa Flow proposed Special Protection Area encompasses the whole of Scapa Flow and the existing farm and proposed expansion area is therefore located within this area. Wintering season interests include great northern diver, black-throated diver, Slavonian grebe, common eider, common goldeneye, long-tailed duck, red breasted merganser and European shag. Breeding season interests include Arctic tern, common guillemot and red-throated diver.</p> <p>The Bring Head expansion area is also within foraging range of several species of seabirds that are qualifying features of Special Protection Areas</p>

Legislation	Description	Applicability to the proposed development
	<p>offence relating to a European Protected Species.</p>	<p>designated to protect breeding seabird populations in the wider area. Of the other Special Protection Area qualifying features identified as having connectivity with the expansion area, European storm-petrel, northern gannet and Manx shearwater, herring gull and razorbill have potential to interact with the proposal.</p> <p>Harbour porpoise and other small cetacean species, all of which are European Protected Species, listed in the EC Habitats Directive, are regularly sighted within Scapa Flow. Acoustic deterrent devices are currently not used at the farm and will <u>not</u> be used at the expanded farm thus avoiding disturbance to cetaceans.</p> <p>Otter are European Protected Species, listed in the EC Habitats Directive, are known to be present within Scapa Flow.</p> <p>A Predator Exclusion Plan (refer to Appendix 7 of the EIA report) has been prepared which identifies preventative measures to avoid and minimise the risk of adverse interactions, such as entanglement of predatory species, to ensure that all impacts are minimised to the extent where significant effects will be avoided.</p>
<p><b>Water Environment and Water Services (Scotland) Act 2003</b></p> <p><b>Water Environment (Controlled Activities) (Scotland) Regulations 2011</b></p>	<p>The purpose of the Act and Regulations is to protect the water environment including river basin management planning, controlled activities regulations, provision of water and sewerage services.</p> <p>Operators wishing to establish a fish farm in the sea around Scotland must apply for and be granted a SEPA CAR licence. SEPA sets limits on the number of fish that can be held in the cages and thus the amount of feed used. SEPA also limits the amount of certain medicines that can be administered and discharged from fish farm sites. It requires that effluent be assimilated and broken down by natural processes, without irreversible or lasting benthic impacts or accumulation of pollutants.</p>	<p>The existing development has an authorised SEPA CAR Licence (CAR/L/1015854). An application to vary the CAR licence is being sought from SEPA for the expanded farm.</p>
<p><b>Marine (Scotland) Act 2010</b></p>	<p>The Act provides a framework to help balance competing demands on Scotland's seas. It introduces duties to protect and enhance the marine environment. The main measures</p>	<p>The existing farm has a Marine Licence (MS-00008810) from Marine Scotland, in respect of placement of works in the sea and navigation matters. A variation</p>

Legislation	Description	Applicability to the proposed development
	<p>include marine planning, marine licensing, marine conservation, and enforcement.</p> <p>All public authorities taking authorisation or enforcement decisions that affect or might affect the UK marine area must do so in accordance with the UK Marine Policy Statement, the Scottish National Marine Plan and any subsequent Regional Marine Plan, unless relevant considerations indicate otherwise.</p>	<p>to the existing licence will be sought for the expanded farm.</p> <p>The proposal is also considered to be consistent with National Marine Planning policies.</p>
<p><b>Aquaculture and Fisheries (Scotland) Act 2013</b></p> <p><b>Aquatic Animal Health (Scotland) Regulations 2009</b></p>	<p>The Act provides for a series of information gathering, inspection and enforcement measures aimed at controlling parasites on fish farms and shellfish farms and at improving, in respect of fish farms only, the containment of, prevention or escape and recovery of, escaped fish. It also contains measures which regulate the movement of live fish with a view to preventing 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 Marine Scotland.</p> <p>In addition, the Marine Scotland Fish Health Inspectorate are responsible for ensuring integrity of sites with regard to containment and equipment standards, escape incidents and sea lice issues.</p>	<p>SSF are already authorised to farm at the current farm location. An amendment to the registration will be applied for.</p> <p>Fish health at the expanded farm will be managed in accordance with Marine Scotland Fish Health Inspectorate and RSPCA Freedom Foods requirements, as well as being managed with adherence to industry Code of Good Practice and best company practice.</p>
<p><b>Crown Estate Act 1961</b></p>	<p>Equipment sited below Mean Low Water Springs will generally require a seabed lease from Crown Estate Scotland in discharge of its functions under the Act.</p>	<p>SSF has a Seabed Lease from the Crown Estate Scotland (OR-59-6) and an application for the variation thereof will be submitted for the expanded farm.</p>

Section 25 of the Town and Country Planning (Scotland) Act 1997, as amended requires planning applications to be determined in accordance with the development plan unless material considerations indicate otherwise. This essentially means that the application requires to be assessed against all relevant policies of the Development Plan, national and local policy guidance and all other material considerations relevant to the application. The proposal was considered against relevant policy and guidance. The development complies with, and is supported by, the aims and objectives of both national and local planning policy.

## 1.1. DEVELOPMENT RATIONALE

Population growth is challenging food systems. Fisheries and aquaculture sectors have a crucial role in the fight against poverty, hunger and all forms of malnutrition. This is central to delivering the 2030 Agenda for global sustainable development, which Scotland has committed to. Aquaculture is a sustainable alternative to fisheries as wild stocks alone cannot satisfy the growing demand. At the global level, aquaculture is the main source of fish available for human consumption. In 2018, this share was 52 percent, a figure that can be expected to continue to increase in the long term.

Aquaculture is contributing not just to delivering global sustainable development goal 2 (hunger and malnutrition) through making agri-food systems more inclusive, resilient and sustainable; but also to goal 8 (decent work and economic growth) through providing skilled jobs in vulnerable communities and making a significant contribution to the local and national economy; as well as goal 12 (responsible production and consumption) and goal 14 (life below water) by conserving the wild fish stocks through reducing the requirement for overfishing.

The 2020 Marine Scotland commissioned report – Estimation of the Wider Economic Impacts of the Aquaculture Sector in Scotland found that Scottish salmon represents the UK's largest food export by value. The aquaculture sector spent £1.4 billion on supplies and capital investments in 2018, with the majority (76%) of these goods and services purchased from within Scotland and the majority of this impact came from salmon farming and the processing of aquaculture products.

According to the Scottish Salmon 2018 Economic Report, for every £100 of turnover within the Scottish aquaculture industry another £93 is sustained elsewhere in Scotland's economy through supply chains and high street spending from the wages paid to employees. Given an industry turnover of £1,027 million, this suggests that the economic impact of the industry could support nearly £2 billion of turnover in Scotland's economy and several thousand Scottish jobs. The Scottish salmon farming industry pays £50 million in corporation tax and a further £24 million in income tax and national insurance and directly employs 2,300 people in some of Scotland's most remote, rural economies. The industry also has around 250 employees that are engaged in modern apprenticeships each year.

SSF take pride in being a food producer have been successfully growing, processing and packing premium quality salmon since 1974, steadily growing in terms of number of farms, facilities and employees. The Scapa Flow expansion proposals are an important part of the SSF growth plan for the Orkney region which will contribute to ensuring the resilience of the Scottish agri-food system, support economic growth and secure livelihoods in vulnerable rural communities. The development proposal will contribute to the long-term sustainability of the existing operations by increasing the economic viability thereof and subsequently safeguarding and contributing to employment and other associated socio-economic benefits. The proposal adheres to the legislative requirements and benefits from general support from national and local planning policy, which together recognise the contribution of the aquaculture sector to the rural economy, and which seek to support sustainable economic development. These support the expansion of marine fish farming where it can take place in environmentally sustainable locations, where it does not exceed carrying capacity of the water body within which it is to be located, and where it does not give rise to significant adverse effects upon nature conservation, wild fish, historic environment or other commercial or recreational users.

## 2. ALTERNATIVES

Alternatives in terms of culture techniques, site layout and site location were considered before determining the preferred proposal. SSF Orkney farms have an excellent performance history in terms of production and fish welfare and the SSF teams have achieved a 95% average fish survival rate across SSF farms. SSF assessed all of the existing Orkney sites and Bring Head and Toyness were identified as sites with the greatest potential for sustainable expansion being situated in open water and well flushed, with no barriers to water exchange. There is therefore scope for a biomass increase within the assimilative capacity of the environment. There is also physical space for expansion.

The alternative configurations to the preferred layout (12 x 120m cages) considered included 6 x 160m cages as well as the alternatives of expanding the mooring extent in the current configuration to accommodate the larger cage grid or stepping it out by shifting the site centre northeast. SEPA confirmed in response to the screening/scoping request that the increase in cage size should result in less deposition per unit area onto the seabed. In addition, the reconfiguration of the farm to the deeper more dispersive waters of Bring Deeps is expected to mitigate against the effects of increased production at the site on the benthic habitat. Orkney Fisheries Association also highlighted that their members would prefer more space between the farm and the shore to allow passage.

The option of using 160m cages was explored but not pursued at this stage as it requires further investigation to ensure the availability of suitable support vessels. To optimise stocking density in terms of both fish welfare and deposition per unit area on the seabed the option of 12 x 120m cages was selected. To minimise seabed impacts, the option to shift the site centre northeast stepping the proposed farm out into deeper and more dispersive water was also selected. This reconfiguration would also allow equal or more space between the shore and the farm equipment (cages and feed barge) compared with the existing farm accommodating passage by other marine users. The preferred layout and optimal biomass (2500T) were informed by the local tidal velocities as well as water depth and was identified as having the most favourable attributes in terms of the location's assimilative capacity for salmon aquaculture.

The design and assessment process adopted by SSF has represented a good practice approach to responsible development. All potential areas of interaction between the proposal and the environment have been assessed, resulting in suitable site selection and a well-designed development incorporating appropriate measures to mitigate potential significant effects. The development would make a valuable contribution towards the ambitious growth targets set for the aquaculture industry as well as contribute towards economic recovery and ensuring food security.

## 3. CONSULTATION

In addition to EIA screening, pre-application consultation was conducted with the Planning Authority as well as the following statutory consultees:

- NatureScot.
- Orkney Islands Council Marine Services.
- Orkney Fisheries Association and Orkney Sustainable Fisheries.
- Marine Scotland Science.
- The Scottish Environment Protection Agency (SEPA) were contacted in July 2021 in terms of pre-application consultation for the application to vary the existing CAR Licence.

In addition to the above, Orphir Community Council and Graemsay, Hoy and Walls Community Council were initially informed of the proposed development via email in June 2021 and further information provided through the SSF website and comments invited.

The key concerns raised during pre-application consultation process include:

- Potential impacts on the water column and seabed as a result of waste (fish excrement and limited amounts of waste feed) and medicinal discharges.

- Potential landscape and seascape impact on the National Scenic Area.
- Potential impacts on designated sites.
- Potential impacts on wild salmonid populations.

## 4. IMPACT ASSESSMENT

### 4.1. ASSESSMENT METHODOLOGY

A qualitative approach has been taken to the assessment informed by the Screening Opinion and advice received by statutory consultees. To ensure that the EIA Report is both proportionate and fit-for purpose, an initial assessment has been undertaken to identify the potential interactions between the development and receptors (specific feature of the environment likely to be impacted by a proposed development such as the water column, benthos, visual landscape, fisheries, natural heritage etc.) as well as any potential impacts (the change which occurs as a result of the development) or effects (the consequence of the change) likely to be significant requiring further assessment in the EIA process.

A common approach has been used for the assessment:

- Establishing the **baseline conditions** through a combination of desk review using existing information as far as possible, consultations and site surveys or technical reports.
- Identifying potential interactions between the development and receptors as well as any **potential environmental impacts and resultant potential for significant effects to arise**. Where no likely significant effects are anticipated, those topics are addressed at an appropriate level of detail. Under the EIA regulations, such impacts or effects may be of little or no significance for the particular development in question and, if included in the EIA Report, would need only very brief treatment to indicate that their possible relevance has been considered. Where likely significant effects are anticipated those topics are progressed for further assessment.
- Identifying **mitigation** measures (both standard and additional) to avoid, reduce and, where possible offset any impacts which could either by themselves, or in combination with other impacts have a significant adverse effect.
- Assessing the level of significance of any **residual effects** after the implementation of mitigation measures (both standard and additional). The level of significance is only assessed for residual effects, rather than both prior to and post mitigation, as most of the standard mitigation measures to avoid or minimise potential adverse environmental impacts and effects are inherent to successful fish farming. It would therefore not be practical to assess the level of significance of an impact and associated effects without their implementation as it is improbable that this would ever be the case.

Significance is not defined in the EIA Regulations. The definition of a significant effect which was adopted in the assessment is one which the project team considered to be material to the decision-making process. Significance is a matter of professional judgement. However, in general it is arrived at from an analysis of:

- The weighting of the receptor in terms of the importance of preserving the baseline due to the role of the receptor in a wider context and/or its capacity to accommodate the effects of the development.
- The nature of the effects of the development, often referred to as the magnitude, which encompasses the sensitivity of the receptor to the development; severity, extent and duration of the effect; as well as the likelihood of the effect occurring.
- Receptor weighting and magnitude of the effect of the development are overlaid to inform the level of significance of the effect. Residual effects of moderate or major significance are considered **likely significant effects** for the purposes of the EIA.

Refer to Section 6 of the EIA report for further detail on the impact assessment methodology including overviews of: the receptor weighting criteria considered; factors which inform magnitude determination; and how receptor weighting and magnitude of the effect of the development are overlaid to inform the level of significance of the effect.

## 4.2. OVERVIEW OF ENVIRONMENTAL FEATURES / RECEPTORS ASSESSED

An initial assessment was undertaken to: -

- provide an overview of the environmental features / receptors that the development may interact with and potentially exert an impact on;
- identify impacts with the potential to result in significant effects to be progressed for further assessment; and
- provide a proportionate assessment of the impacts which are unlikely to result in a significant effect thereby preventing excessive detail relating to issues that are considered irrelevant or of little importance to the decision.

**Table 4-1 Findings of the initial assessment**

Features (Receptors)	Findings
Benthic habitat	According to available records, there are records of the priority marine feature maerl beds located 900m to the north-east of the nearest cage of the proposed expanded farm. During pre-application consultation NatureScot also highlighted that there are records of the priority marine feature Ocean Quahog ( <i>Arctica islandica</i> ) in proximity to the proposal. <b>Due to the proximity of the priority marine features and the known potential for the discharge of waste from farms to alter benthic communities within a farm’s depositional footprint, it was progressed for further assessment (refer to Section 4.3).</b> The assessment was informed by a baseline visual seabed survey carried out within the proposed development area (Appendix 2 of the EIA report) as well as biomass and chemotherapeutant modelling undertaken for the proposal to inform the SEPA CAR Licence variation application (Appendix 3 of the EIA report).
Water column	In terms of water quality assessments, Scapa Flow is uncategorised for the combined nutrient enhancement and benthic impact risk by Marine Scotland (Locational Guidelines) as it has unrestricted flow. <b>Due to the potential for marine aquaculture developments to affect the water column in general and the potential for cumulative effects as a result of both expansion proposals in Scapa Flow it was progressed for further assessment (refer to Section 4.4).</b> The assessment was informed by the equilibrium concentration enhancement assessment which considered all existing farms and other development proposals (Appendix 4 of the EIA report) as well as biomass and chemotherapeutant modelling undertaken for the proposal to inform the SEPA CAR Licence variation application (Appendix 3 of the EIA report).
Interaction with predators (seabirds assessed separately below under natural heritage)	<p><b>Seals</b></p> <p>SSF is aware of the importance of the Orkney Islands as an important breeding ground for the UK’s population of grey seals as well as the concerns surrounding the significant decline in common seal numbers. There are designated seal haul outs in proximity to the site, the nearest of which (the breeding colony and haul-out NE Hoy, BC-035) is located on the north-east banks of Hoy, approximately 680m south-east of the proposed cages. The next nearest designated sites are located more than 3km from the proposed expansion area.</p> <p>With traditional nylon nets, a hungry seal will push its snout against the soft twine in the hope that salmon will swim close enough for it to grab. A single attack can lead to hundreds of fish being killed or injured, and cumulatively these add up. This damage to fish is contrary to salmon farmers’ obligations to protect fish welfare. One predator management tool is the installation of 'anti-predator' nets. At SSF’s farms in Orkney, the protective Sapphire Seal Pro nets were first trialled in 2016 before being rolled-out as a reduction in seal predation was noted in the trial. Traditional unknotted nylon netting for fish pens is relatively flexible and seals can push their heads against it and grab or bite salmon that swim close by. In contrast, Seal Pro netting has an altogether tougher, more rigid, knotted netting manufactured from high density polyethylene. Less pliable than nylon and with a steel wire core, this offers greater resistance against seal attacks and discourages hunting around farms. Seals also appear to find the knots on the outside of the nets uncomfortable to their sensitive snouts which helps deter seals and, in turn, improve fish welfare. Securing the nets in place is a system of individual weights placed at designated intervals or a</p>

Features (Receptors)	Findings
	<p>circular sinker tube at the net base, which increases tension, prevents the netting from flexing and reduces potential entry points for seals.</p> <p>In addition, Seal Pro netting also has several environmental benefits. Unlike traditional nylon nets which are treated with a copper-based anti-foulant to protect against marine growth in the same way that the hulls of boat or ships are, Seal Pro nets require no such treatment. Engineered from high density polyethylene, they have a stronger frame that can withstand regular cleaning <i>in-situ</i> and a smoother surface that is harder for marine organisms to adhere to and is also easier to clean.</p> <p>The key seal predation <b>mitigation</b> measures are tensioned cage netting, net maintenance and regular removal of fish mortalities. The existing Seal Pro netting is proposed for use at the expanded farm. These cage nets will also be tensioned using sinker tubes, providing a higher degree of net tensioning. Acoustic deterrent devices are not currently used at the existing farm and will not be used at the expanded farm.</p> <p>No change to the level of current seal interaction is anticipated as a result of the proposal. Seal interaction will be minimised by the implementation of a Predator Exclusion Plan (refer to Appendix 7 of the EIA report) and a Vessel Management Plan (refer to Appendix 8 of the EIA report) to avoid disturbance to seals.</p> <p><u>Otters</u></p> <p>NatureScot highlighted during pre-application consultation and confirmed in the response to the screening/scoping request that the use of the proposed 75mm netting on the side of the cages should deter any interaction with otters.</p> <p><b>No likely significant effects are anticipated.</b></p>
<p>Natural heritage (designated sites and species or habitats of conservation importance – wild salmonids addressed separately below)</p>	<p>The proposed development is situated within the bounds of the Hoy SPA classified for the breeding birds Arctic skua, Fulmar, Great skua, Great-black backed gull, Guillemot, Kittiwake, Peregrine, Puffin, Red-throated diver and seabird assemblages. The proposal also lies within the Scapa Flow pSPA classified for its aggregations of breeding Red-throated diver and aggregations of non-breeding wintering waterfowl, including Black-throated diver, Eider, Goldeneye, Great northern diver, long-tailed duck, Red-breasted merganser, Shag and Slavonian grebe.</p> <p><b>As the potential for likely significant effects was highlighted in the initial assessment, it was progressed for further assessment (refer to 4.5).</b></p> <p>The assessment was informed by a baseline visual seabed survey carried out within the proposed development area (Appendix 2 of the EIA report); biomass and chemotherapeutant modelling undertaken for the proposal to inform the SEPA CAR Licence variation application (Appendix 3 of the EIA report); the equilibrium concentration enhancement assessment; and the 'shadow' Habitats Regulations Appraisal (refer to Appendix 6 of the EIA report).</p>
<p>Wild salmonids</p>	<p>A wild salmonids impact assessment, including a cumulative assessment, was compiled for the Scapa Flow expansion proposals to inform the assessment (refer to Appendix 10 of the EIA report).</p> <p>The assessment area encompassed the wider Scapa Flow. The interactions between salmon farms and wild salmonids highlighted as pressures on wild salmonid stocks (i.e., the potential increase in sea lice infestation, the potential for disease transfer and the potential effects of genetic interactions between wild Atlantic salmon and escaped farmed fish) form the focus of the assessment. The interactions were assessed in relation to the expansion proposals as well as any cumulative effects arising from existing farms within the Farm Management Area (FMA-03).</p> <p>As there are no Atlantic salmon rivers in Orkney, the potential effect of genetic interactions between wild Atlantic salmon and escaped farmed fish was briefly assessed. There has not been an escape event at an SSF farm in the Farm Management Area (FMA-03). Escape prevention is a priority in order to avoid potential negative environmental effects and associated significant financial losses. SSF employs industry-leading fish farm design standards on cages, netting and moorings that meet or exceed the Scottish Technical Standard taking into account the worst conditions expected at the farm location and applying safety factors to account for 1 in 50-year</p>

Features (Receptors)	Findings
	<p>storm events (refer to Appendix 17 of the EIA report – Equipment attestation). In addition, a Containment Plan and an Escape Prevention and Contingency Strategy (refer to Appendix 15 and Appendix 16 of the EIA report respectively) are implemented, which are consistent with the industry Code of Good Practice and set out measures and operational procedures to ensure equipment is used and maintained appropriately and ultimately minimise the risk of fish escapes. The latter also identifies procedures which must be followed in the unlikely event of an escape or suspected escape. Based on performance, standard mitigation measures currently implemented are deemed adequate in preventing escapes and the likelihood of escapes is considered low. The developments will also result in new cage, moorings and net infrastructure being installed at the farms allowing the utilisation of ongoing technological advances and improvement in design and strength compared with the existing infrastructure. The magnitude of the contribution to the potential effects of genetic interactions with escaped farmed fish on the wild salmonid population from the current farms or as a result of the proposals is considered to be low due to the record of effectively preventing escapes. SSF endeavour to achieve a target of zero escapes across all sites. Based on demonstrated performance at the current farms proposed for expansion, as well as across all SSF farms within the Farm Management Area (FMA-03), the potential impacts of escape are considered to be of low magnitude. The standard mitigation measures are considered adequate to minimise the effects to an acceptable degree. The residual effects are therefore expected to be of minor significance.</p> <p>The interactions applicable to trout (potential increase in sea lice infestation and the potential for disease transfer) occur in the marine environment and therefore the assessment focuses on these potential impacts on sea trout. The farms proposed for expansion are not located within a designated site in terms of conservation importance for sea trout. However, the proposed biomass increase has the potential to impact sea trout which is listed as a Priority Marine Feature. There are limited data available to inform the status of local sea trout populations. The proposals are located in proximity to burns draining into Scapa Flow where evidence of anadromous activity has been identified (Kirkbister, Eyrlund, Bu, Mill Burn, Whaness, Lyrawa, Mill and Ore) and sea trout are expected to be present within the coastal waters of Scapa Flow.</p> <p>Salmon smolts stocked at marine farm sites are free from disease and parasites at the time of stocking and are at risk of the transfer of parasites and disease from wild fish and potentially other farms. Smolts are therefore vaccinated against common bacterial and viral infections. The risk of transmission of diseases and parasites (other than sea lice) from farmed salmon to wild salmonids is managed through a Fish Husbandry Manual (refer to Appendix 20 of the EIA report) which ensures that high fish health and welfare standards are met on the farm, with contingency measures to deal with unexpected or unknown parasites and disease to ensure staff are prepared for any event. Existing SSF farms within Disease Management Area 8c have not had any notifiable diseases (listed under the Aquatic Animal Health (Scotland) Regulations 2009) since 2003. Standard mitigation measures are deemed adequate in ensuring fish health is managed in a manner preventing risks to wild salmonids. Therefore, the magnitude of the contribution from the current farms or as a result of the proposals to the effects of transmission of disease on the sea trout population is considered to be low. SSF are committed to maintaining high fish health standards. Based on demonstrated performance at the current farms proposed for expansion, as well as across all SSF farms within the Farm Management Area (FMA-03), the potential impacts of potential disease transmission are considered to be of low magnitude. The standard mitigation measures are considered adequate to minimise the effects to an acceptable degree. The residual effects are therefore expected to be of minor significance.</p> <p>SSF are committed to effectively controlling sea lice levels through a Sea Lice Management Strategy (refer to Appendix 11 of the EIA report) which seeks to prevent, monitor and control sea lice so that intervention measures are not required on the farm. The strategy is underpinned by well-resourced farms, experienced farmers, good husbandry, area management (stocking strategy and single year class), physical exclusions methods (lice shields), biological control (focused deployment of cleaner fish), mechanical intervention methods (physical delousing), medicinal intervention, functional feeds and a fully resourced and qualified Fish Health Team. The control of sea lice on SSF farms is a fully integrated holistic approach with prevention backed up by continuous control measures as the core strategy, and immediate measures actioned only when</p>

Features (Receptors)	Findings
	<p>required. In addition, in 2020 SSF committed to increased investment in intervention capacity through the purchase of a thermolicer vessel. Past performance has shown that sea lice loading on salmon farms in Orkney is minimal in comparison with those in other regions in Scotland. Farm sea lice monitoring data for Bring Head for the current and previous two farm cycles (refer to Appendix 21 of the EIA report – Sea Lice Attestation) show that levels of adult female sea lice were generally maintained below the industry Code of Good Practice threshold for intervention. Despite a recent increasing trend, sea lice numbers continue to be actively being managed below Code of Good Practice thresholds. Reported lice data also demonstrate effective management of sea lice levels at active farms in the Farm Management Area (FMA-03) with levels generally being maintained below the industry Code of Good Practice threshold.</p> <p>There are however gaps and uncertainties in current knowledge on the potential interactions between farm derived sea lice and wild salmonids. In light of the uncertainties, as detailed in the assessment (refer to Appendix 10 of the EIA report), a precautionary approach was adopted, and the potential impact was assessed as having a high magnitude. The residual effect is expected to be of moderate significance. This area requires further investigation through farm and wild fish monitoring to address the uncertainties. It is anticipated that with the implementation of the proposed Environmental Management Plan (refer to Appendix 12 of the EIA report), including effective adaptive management in response to wild fish and farm monitoring findings as required, the significance of the residual effect could be reduced to minor.</p> <p><b>No likely residual significant effects are anticipated with the implementation of adaptive management facilitated through the implementation of the Environmental Management Plan.</b></p>
<p>Navigation, anchorage, commercial and other maritime uses (commercial fisheries addressed separately below)</p>	<p>The proposal has been considered against the Development Planning Policy Principles outlined in the Orkney Harbours Masterplan Phase 1 (2020) and no constraints to ensuring existing and future harbour operations in Scapa Flow are safeguarded were identified.</p> <p><u>Navigation</u></p> <p>Passenger ferry routes are operational within the wider Scapa Flow: The Houton – Lyness – Flotta – Longhope service operated by Orkney Ferries, and the Stromness to Scrabster service operated by Serco/Northlink. The proposal will not have any impact on local ferry traffic.</p> <p>The scale of the expanded footprint of the farm is unlikely to affect safe navigation. There should be no obstruction or significant effects to other sea users and their activity due to the expansion of the fish farm (location and servicing) as the following <b>mitigation</b> measures will be adhered to:</p> <ul style="list-style-type: none"> <li>• Navigational marking and lighting will be installed as recommended by the Northern Lighthouse Board to ensure safe navigation in proximity of the proposed fish farm.</li> <li>• The development will not be installed until a variation of the marine licence from Marine Scotland is granted, and the location of the farm will then be marked on navigational charts and almanacs when they are next updated.</li> <li>• SSF will issue a Notice to Mariners of intended installation period when undertaking cage towage and laydown of moorings to ensure vessels can safely navigate around such activity.</li> <li>• The skipper and crew of SSF vessels are responsible for adhering to safe navigational conduct and SSF management protocols and procedures, including adherence to the Scottish Wildlife Watching Code.</li> </ul> <p><u>Anchorage</u></p> <p>SSF confirmed with OIC Marine Services during pre-application consultation that the proposed expansion area is not in proximity to designated anchorages and outwith associated exclusion areas.</p> <p><u>Other users</u></p>

Features (Receptors)	Findings
	<p>SSF have been in contact with SSE regarding the power cable to the west of Bring Head and have agreed to develop a proximity agreement to safely manage our interests.</p> <p><b>No likely significant effects are anticipated.</b></p>
Commercial fisheries	<p>A commercial fisheries impact assessment, including a cumulative assessment, has been compiled for the Scapa Flow expansion proposals to inform the assessment (refer to Appendix 5 of the EIA report).</p> <p>The assessment focussed on the direct (loss of access to fishing grounds due to presence of the farm and associated economic effects and potential changes to the abundance of key target species as a result of changes to benthic community assemblages), indirect (displacement of fishers and potential adverse impacts on the income of individual fishers) and the cumulative effects of the expansion proposals. The assessment area encompassed the Bring Head and Toyness existing farms and proposed expansion areas and immediate surroundings as well as the wider Scapa Flow where relevant. Edible crab, European lobster and king scallops are the key target species in terms of commercial fisheries in the assessment area and were therefore selected as the point of focus of the assessment.</p> <p>Although suitable habitat for the key target species is present within the assessment area, the proposed expansion areas are not significant in comparison to the wider habitat availability, as the distribution ranges of the key target species are extensive at a regional and national level. The scale of the loss of access and habitat changes within the mixing zones is therefore not expected to be significant.</p> <p>In 2019, the Orkney port district shellfish landings (3,024 tonnes) accounted for 4.8% of the national landings (62,217 tonnes). Localised areas of high value fishing ground occur within the assessment area. The worst case total combined area to be lost due to the proposals takes up approximately 0.56km<sup>2</sup> which represents 0.2% of the total area of Scapa Flow. The worst case total combined fishing ground area to be lost due to the proposals represent a total anticipated cautious estimate annual value of £1096 and £934 for crab and lobster pots and scallop diving, respectively. The 2019 monetary value of the annual landings for the Orkney port district for crab and lobster was £5,404,000 and the monetary value of the annual landings of scallops was £1,215,000. Therefore, the worst-case loss of earnings equates to 0.02% and 0.07% of the annual landings, respectively.</p> <p>The fleet utilising the assessment area comprises smaller vessels (&lt;15 m in length) that fish for crab and lobster by creeling, and scallops by diving. The number of fishing vessels that may be directly affected by the proposals is estimated to be between 6 and 11 crab and lobster pot fishing vessels (5 - 9% of the Orkney port district fleet) and between 4 and 6 scallop diving vessels (3 - 5% of the Orkney port district fleet). This may increase to 20 overall in winter.</p> <p>It is anticipated that the activities of a low number of fishing vessels comparable to the port district fleet would only be partially impacted if the proposed sites were to be developed suggesting that the developments are unlikely to have a significant adverse impact on commercial fishery in the district as a whole. Considering the fishing grounds available within the region, any degree of change and potential economic effects as a result of the proposals are likely to be localised and of a low magnitude.</p> <p>Commercial fisheries within the assessment area are considered to have a medium weighting as it is an area of high local importance as a source of revenue and employment due to localised high value fishing areas being present within the assessment area.</p> <p>Areas suitable for fish farming in terms of tidal flow and depth tend to overlap with those suitable for shellfish habitat due to the site conditions in these areas. Fishers will be excluded from the entire moorings extent to prevent hazards through interactions between of vessels and equipment associated with farming and fishing activities. Therefore, there is no available mitigation against the loss of access to fishing ground. However, as the effects of the proposals in isolation and cumulatively were determined as having a low magnitude, they are therefore anticipated to be of minor significance to commercial fisheries in the region.</p>

Features (Receptors)	Findings
	<p>The effects arising from the proposals on the benthic community (from deposition of organic material and medicinal residues) will generally be limited to the site and a local scale (limited to the mixing zone) and the consequence minimal, considering the wider habitat availability for the key target species. The effects are therefore determined as having a low magnitude overall. The <b>mitigation</b> measures (SEPA regulation through CAR licensing to ensure that Environmental Quality Standards are adhered to) are considered adequate to minimise the effects on benthic habitat to an acceptable degree. It is anticipated that residual effects of the proposals in isolation and cumulatively will therefore be of minor significance.</p> <p>Due to the anticipated low magnitude of the effects of the direct impacts of loss of access to fishing grounds and changes to the distribution and abundance of key target species, no significant indirect effects (adverse impacts on the income of individual fishers or the displacement of fishers) are anticipated. However, it is possible that any proportional loss of landings may result in a greater impact on individual fishers' income should they be affected by the proposals.</p> <p><b>No likely significant effects are anticipated.</b></p>
Noise	<p>As the proposed development involves the expansion of an existing site, the additional contribution in terms of noise exposure is not expected to be significant as the proposal will not involve any additional noise sources.</p> <p>Main sources of noise at the existing site are from vessel activity and the operation of machinery on the feed barge. Vessel activity associated with the existing operations (and the proposal) include daily work boat movements for staff transfer and occasional larger vessels (deliveries to and collections from the feed barge; and well-boats for stocking, harvest or treatment). Acoustic deterrent devices are currently not used at the farm and there is no intention to use them at the expanded farm.</p> <p>Noise sources on vessels include boat engines, hydraulic power-packs and associated machinery. On board pumps on well-boats and other equipment used in non-medicinal treatment of fish also produce noise. Effects of noise from vessel activity are transient and variable in nature. Vessel activity associated with the proposed expansion will be in line with that of existing operations and the degree of change in noise levels are not anticipated to be significant. A Vessel Management Plan, which will set out measures to avoid disturbance to wildlife, is attached as Appendix 8 of the EIA report.</p> <p>The primary fixed potential source of noise is the operation of machinery on the feed barge. This will include cranes, generators and associated hydraulic systems, all of which sound like diesel engines. Noise on the feed barge will also occur due to feeding operations, with feed blowers on the barge introducing a background noise of a fan, comparable to a large air conditioning unit. The feed passing down pipes will manifest as an audible rattle (the degree of audibility varying with feeding depth). Feed selectors that serve to connect the feed outflow from the barge to the appropriate delivery pipe may introduce an occasional metallic thump (impulse) to the sound from the site. The new feed barge, although having a larger feed storage capacity compared with the existing barge, will have the same primary potential noise sources (cranes, generators and associated hydraulic systems, feed blowers and the sound of feed passing down pipes) as on the existing barge. These systems will not be significantly different to those on the existing barge and the degree of change in noise levels is not expected to be significant when compared to noise levels from existing operations. In addition, the equipment will be based on newer technology and noise sources will be housed in internal or enclosed compartments which will act as acoustic enclosures reducing noise levels.</p> <p><b>Mitigation</b></p> <p>SSF is committed to ensuring that every effort is made to keep operations as unobtrusive as possible by the use of noise insulation on relevant equipment and by restricting and adjusting hours of installation and operational activity as far as is practicable to limit the potential for nuisance. Installation activities will be temporary (for a period of up to six weeks) and will be limited to daylight hours.</p>

Features (Receptors)	Findings
	<p>All noise on site normally ceases during the period between 18h00 and 06h00. Potential noise levels will be comparable to those currently experienced at the existing farm. Generally, noise is intermittent and confined to the working hours of the site and is unlikely to be a nuisance to sensitive receptors along the coast taking into consideration background noise and noise levels from existing operations.</p> <p><b>No likely significant effects are anticipated.</b></p>
Cultural heritage	<p>Scapa Flow is one of the largest natural harbours in the world and is a nationally important historic site. The area has a number of WWI and WWII shipwrecks making it a popular destination for recreational divers. The nearest wreck is located approximately 530m north-east of the proposed expansion area, there are however no protected wrecks in proximity to the proposal (nearest located 3.7km to the south-east). There are no listed buildings or scheduled monuments within the immediate vicinity of the proposed expansion area (the nearest being Scad Head, coast artillery battery, camp located 1.4km to the south-east). The expanded farm is therefore not considered likely to affect the setting and experience of local cultural heritage interests which was confirmed by Historic Environment Scotland in response to the screening/scoping request. <b>No likely significant effects are anticipated.</b></p>
Landscape and visual amenity	<p>A Seascape, Landscape and Visual Impact Assessment, including a cumulative assessment and supported by landscape visualisations, has been compiled to inform the assessment (refer to Appendix 9 of the EIA report)</p> <p>The proposal would be located within the Sea Geo to Red Geo Local Coastal Character Areas (LCCA) and would have minor effects on its character, principally because it would form an expansion of an existing fish farm. It would have either negligible or minor and not significant effects on other nearby LCCAs. The proposed Development would consolidate and expand fin fish development in the wider context of the Bring Deeps, a seascape area where aquaculture is already a characteristic feature. The proposed Development would not overwhelm the broad scale of the marine component of this seascape and would fit with the relatively simple character of the coastal edge, avoiding intrusion on the higher cliffs of Bring Head in key views from the north.</p> <p>The proposal would lie within the Hoy and West Mainland National Scenic Area (the existing fish farm at Bring Head also lies in this designated landscape). The assessment found that the proposed Development would not have a significant effect on the special qualities of the National Scenic Area, and it would consequently therefore have no effect on the integrity of the area or the qualities for which it has been designated in terms of the test set out in Policy 9 of the Local Development Plan.</p> <p>Seven representative viewpoints have been considered in the assessment and these include views from hill summits, the sea and from nearby coasts. The proposal would comprise a relatively small incremental change to present views of the existing Bring Head fish farm from the majority of the representative viewpoints. There is however potential for significant adverse effects to occur on views from two viewpoints namely the viewpoint located on the B9047, as it lies very close to Bring Head, and a greater number and extent of fish cages and close detail of the development would be perceptible as well as from the viewpoint located on the south-eastern part of Graemsay. These significant effects are based on the sensitivity of the viewpoint being considered in the assessment to be high, due to the National Scenic Area designation and susceptibility of receptors who are likely to comprise walkers and visitors. However, the magnitude of additional change is considered to be medium rather than high because of the presence of the existing fish farm in this location.</p> <p>The proposal would not significantly affect settlements or residential buildings due to the sparsely settled nature of the immediate area. Core Paths and other popular walking routes and views from ferry routes would also not be significantly affected by the proposal.</p> <p>The proposal is considered unlikely to incur significant adverse cumulative effects in combination with the consented expanded Chalmers Hope fish farm on coastal character and on views. While there would be some adverse cumulative effects experienced sequentially from the B9047, both</p>

Features (Receptors)	Findings
	<p>the proposal and the consented Chalmers Hope fish farm would appear to be associated with a simpler stretch of coastline reducing their intrusion to some degree.</p> <p>In terms of policy and guidance in relation to landscape matters, the 2017 Orkney Local Development Plan and Supplementary Guidance on Aquaculture states that proposals should be sited and designed to minimise negative impacts on the landscape, townscape and seascape characteristics and landscape sensitivities that are identified in the Orkney LCA. Consideration is also required on the siting, scale and design of the proposal as well as the potential for cumulative effects with other developments. Local Development Plan Policy 12 Coastal Development and Supplementary Guidance on Aquaculture states that proposals for finfish developments will be supported where it can be demonstrated that there will be no significant adverse effects on the natural built and cultural environment including landscape/seascape character and visual amenity, considering the 2014 SNH commissioned report Orkney Landscape Capacity for Aquaculture Scapa Flow and Wide Firth. The proposal (and the existing Bring Head fish farm) lie within LCCA 28, defined in the Orkney Landscape Capacity for Aquaculture Scapa Flow and Wide Firth study. The study concludes that this LCCA would have a moderate sensitivity to additional development and some potential to accommodate a small to medium scale development or an extension to an existing fish farm. The proposal would occupy no more than a quarter of the extent of LCCA 28 as stipulated in the guidance set out in the study.</p> <p>In terms of compliance with other opportunities, constraints and guidance set out in the capacity study, the proposal would benefit from the backdrop of dark cliff which provides camouflage in long, low views from the north. The convex landform of the hinterland to the coast would also provide some screening from close views on Hoy, for example from the B9047. Although the proposed expanded farm would be further from the coast than the existing fish farm and would therefore increase the extent of visibility from the B9047 near Bring Head, the absence of nearby residential receptors and coastal footpaths in this area reduces sensitivity to some degree.</p> <p>The presence of the National Scenic Area is noted as a potential constraint to development in the capacity study although the Seascape, Landscape and Visual Impact Assessment concluded that there would be no significant effect on the special qualities of the National Scenic Area. Similarly, cumulative effects with other fish farms, which are noted as another potential constraint to additional development in this LCCA in the capacity study, were not judged in the Seascape, Landscape and Visual Impact Assessment to be significant.</p> <p><b>No likely significant effects are anticipated.</b></p>
Socio-economics, recreation and tourism	<p><u>Socio-economic</u></p> <p>The proposal will contribute to the long-term sustainability of the existing operations, and SSF farms in the region, by increasing the economic viability thereof and subsequently safeguarding direct farm employment and increasing other associated socio-economic benefits.</p> <p>There will be continued positive economic effects with existing staffing levels being maintained with potential additional indirect employment opportunities in the form of support and processing staff and indirect supply chain benefits being increased. Existing employment provides local opportunities for training and up-skilling of locals, and rural year-round permanent employment of three full time staff members at an annual cost to company of approximately £114k. In addition, a further three seasonal staff are employed at the farm. As most of the employees live locally other local businesses benefit, and the employment provided contributes to the general sustainability of local communities.</p> <p>As well as providing local jobs directly, management and support functions within fish farming companies generate significant employment in Scotland through manufacture of equipment and feed. The industry also supports significant employment in the haulage, engineering, and technical sectors. There is therefore an indirect positive effect on secondary employment levels both locally and further afield. The investment in new equipment and associated installation costs for the proposal is estimated at £5 million. Annual operating costs for the existing farm are in the region of £1.7 million annually resulting in direct economic benefits to the regional and national supply chain. This operational spend is likely to increase as a result of the expansion to around £2.85</p>

Features (Receptors)	Findings
	<p>million annually. Ongoing spend on replacement of farm equipment (cages, nets, and moorings) over a 20-year period will be higher should the expansion be approved. <b>The socio-economic effects are positive in nature.</b> Potential negative socio-economic effects include possible effects associated with the loss of commercial fishing ground which are addressed under commercial fishing above.</p> <p><u>Recreation</u></p> <p>Orkney has many remarkable coastal and marine places to visit and locations to undertake a wide variety of sport, recreation and leisure activities. Local coastal and marine recreation and sport activities include walking and climbing, sailing and coastal rowing, scuba diving, recreational fishing, kayaking, sea swimming and snorkelling. Orkney is also an attractive destination for visiting recreational vessels, with 653 visiting in 2018.<sup>1</sup></p> <p>Coastal walking is a key attraction for visitors and is enjoyed by local communities providing day to day opportunities to enjoy the marine and costal environment. Much of Orkney's coast is low lying, with rolling landscapes of heather moorland and inclined coastal pasture, with exceptions including Hoy, where the landscape is rugged and steep, with areas of wilderness.<sup>1</sup>The Seascape, Landscape and Visual Amenity Impact assessment (refer to Appendix 9 of the EIA report) assessed the impact of the proposal on the coastal walking paths with views of the proposal and the assessment found that there will be no significant impact on the views from these areas should the proposal go ahead.</p> <p>Recreational sailing craft can be regularly sighted within Scapa Flow. Leisure and recreational AIS data indicate moderate intensity use in the vicinity of the proposed expansion area. There are six sailing clubs and around 10 regattas throughout the summer across the islands. Orkney Rowing Club is well established both recreationally and competitively. Stromness Rowing Club was re-established in 2018. The proposal is not considered likely to affect access and passage in terms of sailing or coastal rowing.<sup>1</sup></p> <p>The most popular area for scuba diving in Orkney is Scapa Flow, which is considered one of the finest wreck diving sites in Europe and has ranked among the top five wreck diving areas in the world. Recreational diving is predominantly charter based from Stromness with approximately 12 dive boats and an estimated 3,000 visiting divers annually.<sup>1</sup> The proposal is not considered likely to affect the setting and experience of local wrecks which was confirmed by Historic Environment Scotland in response to the screening/scoping request.</p> <p>Sea angling in Orkney consists mostly of rough ground fishing for cod and ling, with pollock caught closer in or over the shelves<sup>2</sup>. Fly fishing for sea trout is a popular recreational pursuit in Orkney.<sup>3</sup> Other shore angling take place around the Orkney coastline. According to the Marine Recreation and Tourism Survey, 2015 heat map<sup>4</sup> the existing farm and proposed expansion area is located in an area of low intensity for angling by both boat and shore.</p> <p>The Orkney Kayaking Club and the Kirkwall Kayak Club focusses mainly on sea kayaking. According to the Marine Recreation and Tourism Survey, 2015<sup>4</sup> heat map the existing farm and proposed expansion area is located in an area of low intensity for kayaking.</p> <p>Due to the high current speeds at the site, the area is not popular for sea swimming and snorkelling activities.</p> <p>As the development involves the expansion of an existing site, no significant effects have been identified in relation to recreation as users have been utilising the area alongside fish farming at</p>

<sup>1</sup> [online]. Available from: [State of the Marine Environment Assessment \(orkney.gov.uk\)](https://orkney.gov.uk) accessed on 13 August 2021.

<sup>2</sup> [online]. Available from: [www.anglingorkney.co.uk](http://www.anglingorkney.co.uk) accessed on 16 June 2021.

<sup>3</sup>[online]. Available from: [Orkney Trout Fishing Association Fishing](https://orkneytroutfishing.org.uk) accessed on 16 June 2021.

<sup>4</sup> [online]. Available from: [Scottish Marine Recreation & Tourism Survey 2015 | Marine Scotland Information](https://www.marinescotland.gov.uk) accessed on 16 June 2021.

Features (Receptors)	Findings
	<p>the existing farm at this location since 2001. Therefore, the proposal is unlikely to significantly affect recreational users.</p> <p><u>Tourism</u></p> <p>Tourism is a vital part of the local economy, with over 288,000 visitors in 2017. Significant growth in visitor numbers in recent years can in large part be attributed to the increase in cruise passenger numbers over recent years, from 50,765 passengers in 2013 to 132,000 passengers in 2019. The Orkney Islands Council and Visit Scotland visitor survey in 2018, based on over 5,000 participants, noted over 70% of visitors came to Orkney for leisure purposes and around 70% were from the UK.<sup>1</sup></p> <p>Commercial fish farming has taken place in conjunction with tourism in Scotland since the 1970s and both industries have continued to grow. There is no evidence that suggests that current levels or future expansion of fish farming impacts tourists' willingness to visit Scotland or carry out any recreational activities. Available research, although limited, suggests that fish farms do not have a negative impact on tourism<sup>5</sup>.</p> <p><b>No likely significant effects on recreation or tourism are anticipated.</b></p>

### 4.3. BENTHIC IMPACTS

The findings of the benthic impact assessment are summarised below. Please refer to the full impact assessment in Section 7.2 of the EIA report for the detailed context of these findings.

The existing and proposed expanded Bring Head farm is currently not within any Marine Protected Area designated for benthic habitats or species. The only Priority Marine Feature that may be present adjacent to the existing farm is the ocean quahog (*Arctica islandica*), a long-lived mollusc which is found around all Scottish coasts and is known to be present in the Scapa Flow area. No Priority Marine Features were definitively identified within the predicted Mixing Zone and surrounds during the visual seabed survey. The ocean quahog is not considered to be sensitive to the impacts of change in siltation rate and organic enrichment. Therefore, the potential effects of salmon farming are unlikely to cause mortality to this species or affect the national status of this Priority Marine Feature.

The benthic community covering 179,375m<sup>2</sup> (the predicted Mixing Zone) of seabed in the immediate vicinity of the cages is predicted to be affected by the deposition of organic material extending out to a maximum distance of 433m from the cages in the main direction of deposition (127°). A negligible degree of overlap between the proposed and the existing depositional footprints is predicted. Therefore, the recovery of the benthic footprint of the existing farm is anticipated due to the cessation of farming activities in the existing configuration. The distance between Bring Head and nearby farms (in excess of 1km from site centres) precludes any overlap of each farm's Mixing Zone, thus there is no mechanism for cumulative impacts resulting from overlap to arise.

The increase in cage size and number facilitates the optimal stocking density in terms of fish welfare and results in less deposition per unit area onto the seabed. In addition, the reconfiguration of the farm into the deeper more dispersive waters of Bring Deeps is expected to mitigate the effects of increased production at the site on the benthic habitat.

NewDEPOMOD modelling indicated that there will be a notable degree of export. As such, hydrodynamic modelling was undertaken to determine areas where deposition (at levels where potential effects may arise) may occur out-with the predicted Mixing Zone. The preliminary hydrodynamic modelling findings indicate that there will be localised areas of deposition (at levels where potential effects may arise) out-with the depositional footprint located to the west and northeast of Cava. An assessment of the potential interactions between the areas of deposition and Priority Marine

<sup>5</sup> [online]. Available from: [Does fish farming impact on tourism in Scotland? \(consult-poseidon.com\)](https://www.poseidon.com/does-fish-farming-impact-on-tourism-in-scotland/) accessed on 16 June 2021.

Features was undertaken, considering the Bring Head proposal as well as any potential cumulative effects as a result of other existing and proposed salmon farms in Scapa Flow. The preliminary hydrodynamic modelling findings indicate that there will be some additional deposition from other farms in Scapa Flow within the same localised areas of deposition out-with the Mixing Zone identified for Bring Head, but Bring Head is the largest contributor. Based on available records, it was determined that any potential effects as a result of deposition in these localised areas out-with the Mixing Zone are not anticipated to be significant as interactions with valuable areas in terms of Priority Marine Features are not foreseen. There is potential for interaction with an isolated occurrence of the Priority Marine Feature horse mussel beds (*Modiolus modiolus*). This species is considered sensitive to smothering but not sensitive to organic enrichment. Any potential interactions with an isolated horse mussel bed are not expected to impact the national status of the Priority Marine Feature.

The overall magnitude of the potential effect of changes to habitats and species due to nutrient enhancement and smothering is considered to be **low** due to the low sensitivity of the benthic habitat and that fish farming activities in this area will not impact the national status of any Priority Marine Feature. In addition, no significant cumulative effects are anticipated.

The benthic impacts of the proposal are required to be assessed by SEPA, through the process of determining the CAR Licence. The Environmental Quality Standards for chemical therapeutants have been set to ensure that concentrations of medicinal residues in the environment remain below the threshold at which unacceptable effects are likely to occur. The effects of the proposal have been predicted not to exceed the appropriate benthic Environmental Quality Standards and an application to SEPA for a variation to the existing CAR licence will be made in respect of medicinal treatments and discharges from the site for the proposed biomass (2500T).

The use of chemical therapeutants is infrequent (should medicinal treatments be required at all). Medicine use on farms is limited to occasions warranting the use thereof and the number of medicinal treatments required at a given farm therefore varies. On average no medicinal bath treatments have been administered per production cycle (a 24-month period) at SSF Scapa Flow farms in previous production cycles. A single treatment has recently been administered at a farm in Scapa Flow in the current production cycle. No bath medicine treatments have been administered at the Bring Head farm. The average number of medicinal in-feed treatments administered at SSF Scapa Flow farms, based on treatment data over the last three production cycles, is 1-2 treatments per production cycle with none at some farms. Each treatment is usually carried out over 7 days. In-feed treatments have been administered at Bring Head in recent production cycles for seasonal *Caligus*.

Due to the precautionary consent limits set by SEPA in the CAR licence to ensure that Environmental Quality Standards are not breached, as well as the infrequent use of chemical therapeutants, the overall magnitude of the effect of medicinal residues on benthic habitat is considered to be **low**.

### Significance of residual effects

The receptor (benthic habitat) is considered to have **medium weighting** due to the potential presence of the Priority Marine Feature species ocean quahog, but this species not being afforded additional protection at this location as a feature of a designated area and not considered sensitive to the potential effects of salmon farming. The effects arising from the proposal on the benthic community will generally be limited to the site (within the predicted Mixing Zone) and a local scale (localised areas out-with the Mixing Zone with the potential for interaction with an isolated horse mussel bed), be long-term (persist for the duration fish farming activities after which recovery can take place), and the consequence minimal due to the low sensitivity of the benthic habitat and that fish farming activities in this area will not impact the national status of any Priority Marine Feature. The effects are therefore determined as having a **low magnitude** overall. The standard mitigation measures are considered adequate to minimise the effects to an acceptable degree (refer to [Table 4-5](#)). It is anticipated that residual effects will therefore be of **minor significance**. Refer to [Table 4-2](#) for a summary of the potential impacts and effects.

Table 4-2 Summary of potential benthic impacts and effects

Development Activity / Aspect	Characterisation of unmitigated impact on the feature / receptor	Characterisation of potential significant effect without mitigation	Mitigation	Residual effect (post mitigation) and level of significance
<b>Direct Impacts – Bring Head Proposal Only</b>				
Fish excrement and to a lesser extent waste feed	Potential nutrient enhancement and smothering		Restrict biomass in accordance with the SEPA CAR Licence limits and minimise waste feed to ensure the depositional footprint does not extend past the regulated acceptable area	The Mixing Zone has been defined to limit the extent of fish farm footprints and intensity standards set to prevent the occurrence of unacceptable effects. Therefore, significant effects are rendered unlikely post mitigation <b>(residual effect of minor significance)</b> .
Medicinal lice treatments	Potential for deposition of medicinal residues on seabed sediments	Degradation and modification of benthic community assemblages	Minimise the management of sea lice through medicinal measures and when used comply with the SEPA CAR Licence chemotherapeutant limits to ensure residues remain below the Environmental Quality Standards	The Environmental Quality Standards have been set to ensure that doses or concentrations in the environment for specific medicines remain below the threshold at which unacceptable effects are expected to occur. Therefore, significant effects are rendered unlikely post mitigation <b>(residual effect of minor significance)</b> .
<b>Cumulative Impacts – existing farms and Scapa Flow expansion proposals</b>				
The distances between sites preclude any overlap of each sites expected area of effect. There will be some additional deposition from other farms in Scapa Flow within the same localised areas of deposition out-with the depositional footprint identified for Bring Head. There is potential for interaction with an isolated occurrence of the Priority Marine Feature horse mussel beds ( <i>Modiolus modiolus</i> ). However, any potential interactions are not expected to impact the national status of the Priority Marine Feature. No significant cumulative effects are therefore anticipated.				

#### 4.4. WATER COLUMN IMPACTS

The findings of the water column impact assessment are summarised below. Please refer to the full impact assessment in Section 7.3 of the EIA report for the detailed context of these findings.

The water column impacts of the proposal will be assessed by SEPA, through the process of determining the CAR Licence variation application. The effects have been predicted not to exceed the Environmental Quality Standards. The EIA study area encompasses Scapa Flow as it includes the assessment of the potential effects of the Bring Head expansion proposal as well as the cumulative impacts of the existing and proposed fish farms. Scapa Flow is located in an open water location and as such is uncategorised within the Locational Guidelines. The equilibrium concentration enhancement assessment predicted that enhancements in the average nitrogen concentration of the study area are low in relation to all standards and since the predicted enhancement values are less than 50% of the Dissolved Inorganic Nitrogen reference baseline, in relation to Water Framework Directive waterbody classification, no deviation from 'High' to 'Good' Dissolved Inorganic Nitrogen status is triggered for the water body. The magnitude of the effect of the predicted enhancements on the nutrient status of the water body as a result of each site (including the Bring Head proposal) in isolation or cumulatively are considered to be **low** due to the significant potential for development in this water body before any measurable or significant change in nutrient levels are likely to occur.

The magnitude of direct or cumulative effects from the use of bath treatments as sought in the Bring Head SEPA CAR Licence variation application and the SEPA CAR licences for other fish farms within the Farm Management Area are considered to be **low**. This is because the use of chemical therapeutants will be infrequent (should medicinal treatments be required at all). Medicine use on farms is limited to occasions warranting the use thereof and the number of medicinal treatments required at a given farm therefore varies. On average no medicinal bath treatments have been administered per production cycle (a 24-month period) at SSF Scapa Flow farms in previous production cycles. A single treatment has recently been administered at a farm in Scapa Flow in the current production cycle. However, no bath medicine treatments have been administered at the Bring Head farm. In addition, chemical therapeutants are typically rapidly broken down into non-toxic derivatives or bind to particles in the water or sediment reducing their bioavailability and as such no measurable impacts to the surrounding water column and biota are anticipated. These chemical therapeutants are also licenced by SEPA and their use is restricted, based on site specific modelling, such that prescribed Environmental Quality Standards will not be breached ensuring that no significant effects arise while they are being broken down into non-toxic derivatives. With the occasional, controlled administration (only in the event that medicinal intervention is necessary), within the area with continuous water circulation, it is considered that impacts arising from the use of bath medicines will be transitory and that medicine residues will rapidly disperse in the receiving marine environment.

##### Significance of residual effects

The receptor (water column) is considered to have a **low weighting** due to the relevant waterbodies being unclassified according to the Locational Guidelines (open water) and being unconstrained with a high assimilative capacity. The effects arising from the proposal on the water column will generally be short-term (due to the medicinal residues rapidly breaking down or binding to the sediment, making them unavailable to uptake by biota) and reversible in nature, and the consequence will be minor taking into account the precautionary consent limits set by SEPA in the CAR licence to ensure that Environmental Quality Standards are not breached, the infrequent use of chemical therapeutants, as well as the assimilative capacity of the receiving environment. Therefore, the effects are determined as having a **low magnitude** overall. The standard mitigation measures are considered adequate to minimise the effects to an acceptable degree (refer to [Table 4-5](#)). It is anticipated that residual effects will therefore be of **negligible significance**. Refer to [Table 4-3](#) for a summary of the potential impacts and effects.

Table 4-3 Summary of potential water column impacts and effects

Development Activity / Aspect	Characterisation of unmitigated impact on the feature / receptor	Characterisation of potential significant effect without mitigation	Mitigation	Residual effect (post mitigation) and level of significance
<b>Direct Impacts – Bring Head Proposal Only</b>				
Fish excrement and to a lesser extent waste feed	Potential for nutrient enhancement		Restrict biomass in accordance with the SEPA CAR Licence limits and minimise waste feed to minimise nutrient enrichment	The potential nutrient enhancement is considered minimal due to the high assimilative capacity of the receiving environment. Therefore, significant effects are rendered unlikely post mitigation <b>(residual effect of negligible significance)</b> .
Medicinal sea lice bath treatments	Potential pollution by medicinal residues	Degradation of water quality and impacts on marine biota	Minimise the management of sea lice through medicinal measures and when used comply with the SEPA CAR Licence chemotherapeutant limits	The Environmental Quality Standards have been set to ensure that doses or concentrations in the environment for specific medicines remain below the threshold at which unacceptable effects are expected to occur. Therefore, the significant effects are rendered unlikely post mitigation <b>(residual effect of negligible significance)</b> .
<b>Cumulative Impacts – existing farms and Scapa Flow expansion proposals</b>				
Measures to mitigate direct effects as described above will serve to mitigate any cumulative effects. The potential nutrient enhancement is considered minimal due to the high assimilative capacity of the receiving environment. With controlled administration (which would be prescribed in a new SEPA CAR Licence for Bring Head and the SEPA CAR licences for fish farms within the Farm Management Area) and continuous water circulation in the area, it is considered that impacts arising from the use of bath medicines will be transitory and that residual medicine plumes will rapidly disperse in the receiving marine environment and the anticipated cumulative impacts are minimal.				

## 4.5. DESIGNATED SITES

The findings of the designated site impact assessment are summarised below. Please refer to the full impact assessment in Section 7.4 of the EIA report for the detailed context of these findings.

The existing and proposed expanded farm are situated within the bounds of the Hoy Special Protection Area (SPA) classified for the breeding birds Arctic skua, Fulmar, Great skua, Great-black backed gull, Guillemot, Kittiwake, Peregrine, Puffin, Red-throated diver. The existing and proposed expanded farm also lies within the Scapa Flow pSPA classified for its aggregations of breeding Red-throated diver and aggregations of non-breeding wintering waterfowl, including Black-throated diver, Eider, Goldeneye, Great northern diver, long-tailed duck, Red-breasted merganser, Shag and Slavonian grebe. There are also a number of other SPAs further afield with potential for connectivity with the proposal.

An assessment was undertaken to determine whether the proposal is likely to have a significant effect on any of the qualifying interests with potential connectivity with the proposal. Impacts on designated sites as a result of farming operations with the potential to result in likely significant effects include the potential disturbance of Red-throated diver through vessel movements during decommissioning/installation; entanglement of northern gannet, great skua, great black-backed gull, herring gull, Manx shearwater and European storm-petrel in pole-mounted top nets; and loss of or damage to supporting prey habitats of qualifying bird species of the Scapa Flow proposed SPA (pSPA).

The adherence to the Vessel Management Plan (refer to Appendix 8 of the EIA report) will ensure that effects as a result of vessel movements during decommissioning and installation activities are minimised and avoided to the extent that the Scapa Flow pSPA draft conservation objective 'to avoid significant mortality, injury and disturbance of Red-throated diver, so that the distribution of the species and ability to use the site are maintained in the long-term' will not be undermined. The SPA conservation objectives 'to avoid significant disturbance of Red-throated diver' and 'to maintain the population of Red-throated diver as a viable component of the site' will not be undermined for the Hoy SPA or Orkney Mainland Moors SPA. It can therefore be concluded that there will be **no adverse effects on site integrity** for any of these sites. Therefore, the magnitude of the potential effect is considered to be **low**.

Implementation of an adaptive management approach to potential entanglement, in line with current NatureScot guidance related to pole-mounted top nets, as well as systematic recording and reporting of entanglement/entrapment, will ensure that mortality due to entanglement in pole-mounted top nets is minimised and avoided to the extent that the SPA conservation objective 'to ensure that the population of northern gannet, great skua, great black-backed gull, herring gull, Manx shearwater and European storm-petrel as a viable component of the site is maintained in the long-term' and the Scapa Flow pSPA draft conservation objective 'to avoid significant mortality, injury and disturbance of European shag, so that the distribution of the species and ability to use the site are maintained in the long-term' will not be undermined. It can therefore be concluded that there will be **no adverse effects on site integrity**. Therefore, the magnitude of the potential effect is considered to be **low**.

Benthic impacts at salmon farms arise primarily from solids deposition and discharge of medicinal residues. These impacts may indirectly affect pSPA species through loss of foraging habitat or damage to prey-supporting habitat. A degree of degradation of the benthic habitat is expected within the Mixing Zone and there is potential for benthic habitat degradation to occur in the localised areas of solids deposition out-with the Mixing Zone located to the west of Cava and to the east and northeast of Cava. The Bring Head expansion site is located in an area where no Black-throated divers, Common goldeneye or Slavonian grebes were recorded. The Bring Head expansion site and surrounding area is located in an area of relatively low density for Great northern diver; moderate density for Red-breasted merganser; and high density for shags, Common eider and Long-tailed duck. The Mixing Zone does not overlap with any areas used by foraging Red-throated diver however, the additional localised areas of deposition out-with the Mixing Zone, partially overlap with areas predicted to hold Red-throated diver to the west of Cava. The benthic footprint of the site is a relatively small proportion of the total available prey-supporting habitat for all the pSPA species which may be indirectly impacted. The potential benthic habitat and water column impacts have been assessed separately (refer to the summaries in the

sections 4.3 and 4.4 above). The proposed mitigation measures will ensure that direct impacts on seabed and water column habitats are minimised, whilst subsequently minimising potential indirect impacts on the pelagic and benthic prey species that the qualifying pSPA species depend on as a food source. Implementation of the mitigation, monitoring and reporting measures detailed within the EIA report (refer to [Table 4-5](#)) will ensure that loss or damage to supporting habitats is minimised and avoided to the extent that the Scapa Flow pSPA draft conservation objective '*to maintain the habitats and food resources of common eider in a favourable condition*' will not be undermined. Therefore, the magnitude of the contribution to the effect is considered to be **low**.

There is potential for cumulative interactions to arise which may affect Red-throated diver as a result of vessel movements associated with decommissioning and installation activities associated with the proposed Bring Head expansion in-combination with the Toyness proposal. Cumulative interactions may also arise in terms of entanglement of qualifying bird species in pole-mounted top nets as a result of the Bring Head expansion site when considered cumulatively and in-combination with the other two expansion sites in Scapa Flow (namely Chalmers Hope and Toyness). There is also potential for cumulative interactions to arise on Scapa Flow pSPA qualifying species sensitive to loss or damage to supporting habitats as a result of the proposed Bring Head expansion in-combination with the Toyness and Chalmers Hope expansion sites. However, any potential interactions are not expected to result in adverse effects on the site integrity of any designated sites. Measures to mitigate direct effects as described above will serve to mitigate any cumulative effects. No significant cumulative effects are therefore anticipated.

### Significance of residual effects

The receptor (designated sites) in the study area is considered to have a **high** weighting as the proposal is within protected designated sites (Hoy SPA and Scapa Flow pSPA) with potential for interactions with qualifying bird species of these protected sites as well as those of other wider SPAs. The potential effects on designated sites are determined as having a **low magnitude** overall as **no adverse effects on site integrity are anticipated**. The mitigation measures (refer to [Table 4-5](#)) are considered adequate to minimise the effects to an acceptable degree. It is anticipated that residual effects will therefore be of **minor-moderate significance**. Refer to Table 4-4 for a summary of the potential impacts and effects.

Table 4-4 Summary of potential impacts and effects on designated sites

Development Activity / Aspect	Characterisation of unmitigated impact on the feature / receptor	Characterisation of potential significant effect without mitigation	Mitigation	Residual effect (post mitigation) and level of significance
<b>Direct Impacts – Bring Head Proposal Only</b>				
Vessel movements associated with existing site decommissioning and installation of equipment at the proposed expanded site	Potential for disturbance to Red-throated diver, a qualifying bird species of designated sites	Potential adverse effect on the integrity of designated sites	Adhere to the measures outlined in the Vessel Management Plan to ensure that a number of measures are implemented to reduce disturbance to Red-throated divers in the area	Implementation of these mitigation measures will ensure that disturbance to Red-throated divers due to vessel movements during decommissioning and installation activities is minimised and avoided to the extent that adverse effects on the integrity of designated sites are prevented. Therefore, significant effects are rendered unlikely post mitigation <b>(residual effect of minor-moderate significance)</b> .
Pole-mounted top nets	Potential for entanglement of qualifying bird species of designated sites	Potential adverse effect on the integrity of designated sites	Implement an adaptive management approach to potential entanglement in line with current NatureScot guidance related to pole-mounted top nets as well as systematic recording and reporting of entanglement/ entrapment	Implementation of the adaptive management approach will ensure that mortality due to entanglement in pole-mounted top nets is minimised and avoided to the extent that adverse effects on the integrity of designated sites are prevented. Therefore, significant effects are rendered unlikely post mitigation <b>(residual effect of minor-moderate significance)</b> .
Fish excrement and to a lesser extent waste feed	Potential nutrient enhancement and smothering	Potential degradation and modification of benthic community assemblages with indirect effects on pSPA qualifying bird species through loss of foraging habitat or	Restrict biomass in accordance with the SEPA CAR Licence limits and minimise waste feed to ensure the depositional footprint does not extend past the regulated acceptable area	The Mixing Zone has been defined to limit the extent of fish farm footprints and intensity standards set to prevent the occurrence of unacceptable effects. Therefore, significant effects are rendered unlikely post mitigation <b>(residual effect</b>

Development Activity / Aspect	Characterisation of unmitigated impact on the feature / receptor	Characterisation of potential significant effect without mitigation	Mitigation	Residual effect (post mitigation) and level of significance
		damage to prey-supporting habitat		of minor-moderate significance).
Medicinal lice treatments	Potential for deposition of medicinal residues on seabed sediments		Minimise the management of sea lice through medicinal measures and when used comply with the SEPA CAR Licence chemotherapeutant limits to ensure residues remain below the Environmental Quality Standards	Environmental Quality Standards have been set to ensure that doses or concentrations in the environment for specific medicines remain below the threshold at which unacceptable effects are expected to occur. Therefore, significant effects are rendered unlikely post mitigation ( <b>residual effect of minor-moderate significance</b> ).
<b>Cumulative Impacts – existing farms and Scapa Flow expansion proposals</b>				
<p>There is potential for cumulative interactions to arise which may affect Red-throated diver as a result of vessel movements associated with decommissioning and installation activities associated with the proposed Bring Head expansion in-combination with the Toyneess proposal. Cumulative interactions may also arise in terms of entanglement of qualifying bird species in pole-mounted top nets as a result of the Bring Head expansion site when considered cumulatively and in-combination with the other two expansion sites in Scapa Flow (namely Chalmers Hope and Toyneess). There is also potential for cumulative interactions to arise on Scapa Flow pSPA qualifying species sensitive to loss or damage to supporting habitats as a result of the proposed Bring Head expansion in-combination with the Toyneess and Chalmers Hope expansion sites. However, any potential interactions are not expected to result in adverse effects on the site integrity of any designated sites. Measures to mitigate direct effects as described above will serve to mitigate any cumulative effects. No significant cumulative effects are therefore anticipated.</p>				

## 4.6. MANAGEMENT AND MONITORING

Table 4-5 summarises the proposed measures to monitor and mitigate adverse effects of the proposal as detailed throughout the EIA report.

**Table 4-5 Schedule of mitigation**

Development Activity / Aspect	Potential Impact	Mitigation
Increased biomass	Increased sea lice infestation potential on wild salmonids	<ul style="list-style-type: none"> <li>• Operate in accordance with the Farm Management Agreement.</li> <li>• Adhere to the Sea Lice Management Strategy and where appropriate, coordinate sea lice treatments across the Farm Management Area to maximise the benefit of treatment options and reduce the potential for transfer of lice between farms.</li> <li>• Adhere to the Environmental Management Plan and implement adaptive management measures, as necessary.</li> </ul>
	Potential for transmission of disease from farmed to wild salmonids	<ul style="list-style-type: none"> <li>• Ensure staff are adequately trained in aspects of fish health so that they are prepared for any event.</li> <li>• Adhere to the Fish Husbandry Manual.</li> </ul>
	Potential for escapes and resultant potential for genetic interactions and competition for resources between escaped farmed fish and wild salmonids	<ul style="list-style-type: none"> <li>• Ensure cages, netting and moorings are designed to meet or exceed the Scottish Technical Standard taking into account the worst weather conditions expected at the farm location and potential for predator interactions.</li> <li>• Adhere to the Containment Plan and the Escapes Prevention and Contingency Strategy.</li> </ul>
Waste feed and fish faeces	Nutrient enhancement in benthos and water column and smothering of benthic communities	<ul style="list-style-type: none"> <li>• Limit biomass to the consented biomass in the SEPA CAR Licence.</li> <li>• Train staff in feed usage and methods to reduce waste feed. Manage feeding in a manner to prevent overfeeding and minimise the discharge of waste feed by monitoring feed levels and the fish during feeding to ensure optimum feeding rates and termination of feeding when the fish are satiated.</li> <li>• Select feed pellet size appropriate to the size of the fish.</li> <li>• Conduct routine compliance monitoring, as stipulated in the SEPA CAR Licence, to ensure the Environmental Quality Standards are adhered to.</li> </ul>
Medicinal lice treatments	Medicinal residues in water column and seabed sediments	<ul style="list-style-type: none"> <li>• Adhere to the Sea Lice Management Strategy and limit the use of medicinal treatments where possible.</li> <li>• Where medicinal treatment is administered, adhere to quantities stipulated in the SEPA CAR Licence.</li> <li>• Conduct routine compliance monitoring, as stipulated in the SEPA CAR Licence, to ensure the Environmental Quality Standards are adhered to.</li> </ul>

Development Activity / Aspect	Potential Impact	Mitigation
Pole-mounted top nets	Potential for bird entanglement (including species of conservation interest such as gannets)	<ul style="list-style-type: none"> <li>• Maintain daily records of wildlife entanglement / entrapment using a standardised proforma and submit regular (typically six-monthly) returns to the Planning Authority copied to NatureScot.</li> <li>• Immediately notify the Planning Authority and NatureScot in event of any significant entrapment or entanglement (e.g., involving three or more birds of any named species on any one day and/or a total of ten or more birds in the space of any seven-day period and/or or repeat incidents involving one or more birds on four or more consecutive days).</li> <li>• Implement adaptive management approaches based on monitoring findings (as agreed with the Planning Authority in consultation with NatureScot).</li> </ul>
Feed barge	Potential for noise impacts (although not anticipated)	<ul style="list-style-type: none"> <li>• Ensure that every effort is made to keep operations as unobtrusive as possible by the use of noise insulation on noisy equipment and by restricting adjusting hours of operation as far as is practicable to limit the potential for nuisance.</li> </ul>
Predator interactions	Potential fish welfare issues and potential for escape due to damage to cages	<ul style="list-style-type: none"> <li>• Adhere to the Predator Exclusion Plan.</li> <li>• Adhere to the Containment Plan and the Escapes Prevention and Contingency Strategy.</li> </ul>
Presence of the farm infrastructure and vessel operations	Potential for navigational hazards and wildlife interactions with vessels as well as potential for disturbance of qualifying bird species of designated sites	<ul style="list-style-type: none"> <li>• Issue a Notice to Mariners of intended installation period when undertaking cage towage and laydown of moorings to ensure vessels can safely navigate around such activity.</li> <li>• Install and maintain the required navigational markings and lighting in accordance with the Marine Licence and any recommendations from the Northern Lighthouse Board.</li> <li>• Notify the UK Hydrographic Office (<a href="mailto:sdr@ukho.gov.uk">sdr@ukho.gov.uk</a>) on completion of the development and provide the mooring grid coordinates in order that the appropriate chart can be revised accordingly.</li> <li>• Position of cages should be checked using GPS equipment at least once every cycle prior to stocking and as well as when any significant changes to equipment are made and records kept. The position of anchors along with condition of the anchors and associated equipment should be checked at least annually and records kept.</li> <li>• Skipper and crew of SSF vessels are responsible for adhering to safe navigational conduct and SSF management protocols and procedures, including adherence to the Scottish Wildlife Watching Code.</li> <li>• Adhere to the Vessel Management Plan.</li> </ul>

## 4.7. CONCLUSION

The impact assessment summary (refer to Section 4.2) outlines the potential interactions between the proposal and environmental receptors. Only benthic habitat, water column and designated sites were identified as receptors upon which the proposal may exert impacts with the potential to result in likely significant effects. As such, these were progressed for further detailed assessment in the EIA report. The detailed impact assessment chapters (Sections 4.3 to 4.5) found that the proposal will not result in any residual effects of moderate or major significance (significant effects) as appropriate mitigation measures have been identified and committed to by SSF (refer to the schedule of mitigation in Table 4-5). As such, no likely significant effects are anticipated as a result of the proposal going ahead with strict adherence to the proposed mitigation.