

SEA Environmental Report Cover Note

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An SEA Scoping Report is attached for the plan, programme or strategy (PPS) entitled: Supplementary Guidance Aquaculture.	
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Non-technical summary

Supplementary Guidance Aquaculture comprises an Introduction, a Spatial Strategy, a suite of ten Development Criteria and a section which provides Further Information, along with Annex 1: The role of other statutory bodies and Annex 2: Potentially significant natural heritage impact pathways arising from aquaculture operations in Orkney waters..

Summary of the assessment of Supplementary Guidance Aquaculture

Biodiversity, flora and fauna

Implementation of Supplementary Guidance Aquaculture is likely to lead to broadly neutral effects on biodiversity, although the potential remains for minor to moderate impacts, e.g. in terms of wildlife entanglement and impacts on wild salmonids.

To help address the risk of entanglement, the SG recommends the preparation of adaptive Environmental Management Plans which would enable the collection and reporting of entanglement data, allowing anti-predator strategies to be monitored and amended where necessary.

There is evidence of an effect of sea lice from fish farms on sea trout; however the extent to which fish populations are affected is not clear. The Aquaculture Science and Research Strategy (2014), produced on behalf of the Scottish Government by the Ministerial Group for Sustainable Aquaculture (MGSA) acknowledges that further research will be required to help underpin the Scottish aquaculture industry's 2020 sustainable production targets, and identifies a range of science and research programmes which could contribute to the future sustainability of the aquaculture industry in Scotland and internationally. The following topics are identified as high priorities for further research:

- the dispersal of sea trout and salmon and subsequent dispersion in relation to the Scottish coast;
- the effects of sea lice at a population level in wild salmonids;
- improving understanding of sea lice dynamics;
- investigations of routes of emergence from subclinical infection of wild fish to disease in farmed fish.

Annex 2 is an important addition to the SG as it identifies a range of pathways through which aquaculture interacts with habitats and species, as well as describing the potential for significant effects. The table uses the headings from the Scottish Aquaculture Research Forum (SARF) EIA scoping templates to identify issues for consideration, as well as the information that developers will be required to provide to support their application. Potential mitigation measures are outlined, along with sources of further useful information, e.g. the Feature Activity Sensitivity Tool (FEAST), the National Marine Plan interactive (NMPi) and SEPA's marine cage fish farming procedures manual, Annex F Seabed Monitoring and Assessment.

The assimilation of this information into a single table should prove helpful to developers during the preparation of EIAs by enabling a clearer understanding of the

vulnerabilities of the natural environment to the effects, as well as the types of mitigation that can be incorporated to avoid or minimise adverse effects.

Water

The SG explains the Scottish Environment Protection Agency's (SEPA) role in regulating the aquaculture industry through the Water Environment (Controlled Activities) (Scotland) Regulations 2011 and confirms that the Planning Authority will be advised by SEPA on issues relating to water quality and benthic impacts.

Although further development of the aquaculture industry in Orkney waters will lead to additional localised impacts on the water column and benthic environment (seabed), effects on the wider water and seabed environments are likely to be broadly neutral.

Geology and sediments

Effects are likely to be neutral.

Three new Nature Conservation Marine Protected Areas – North-west Orkney, Papa Westray and Wyre and Rousay Sounds - have been designated in Orkney waters since the previous Planning Policy Advice Aquaculture was prepared. The qualifying features of the latter two sites include sand waves within the Orkney carbonate production area, an internationally important example of a shelf carbonate system. These features may be vulnerable to certain aspects of fish farm development, e.g. scouring at anchorage points.

The OLDP policy on natural heritage sites and the wider geology is set out in DC2. Sites where the qualifying interests include geological / geomorphological features are also illustrated in Map DC2b.

Landscape

Effects are likely to be broadly neutral, with potential for localised minor impact. Guidance is provided on aspects of the development that should be assessed, along with references to a number of publications which provide more detailed guidance on how to accommodate aquaculture into landscapes / seascapes. These include the recently published North Caithness and Orkney Coastal Character Assessment.

DC1 Confirms that proposals should be supported by a Landscape and Visual Impact Assessment (LVIA) including, where appropriate, a full cumulative assessment (CLIVIA) which takes account of any existing and proposed developments.

It highlights the requirement to consider impacts on the National Scenic Area, including its special qualities, as well as the Hoy area of Wild Land

Cultural heritage

Effects are likely to be broadly neutral. The SG explains how aquaculture development has potential to affect cultural heritage resources either directly or

indirectly, e.g. by impacting upon the setting of the resource. It also confirms the requirement for the historic environment to be included in an Environmental Impact Assessment and sets out a range of issues that should be considered. The potential requirement for a visual impact analysis or Cultural Heritage Impact Assessment is also highlighted.

Population

Effects are likely to be broadly neutral. The SG requires aquaculture development to avoid or appropriately mitigate adverse impacts on statutory access rights, core paths, other public footpaths and rights of way. The SG includes a new Development Criterion – DC7 Social and Economic Impacts which requires developers to demonstrate that significant adverse effects on existing activities have been avoided or appropriately mitigated.

Material assets

Effects are likely to be broadly neutral. Developers are required to prepare a Site Waste Management Plan which demonstrates steps that will be taken to reduce, re-use and recycle waste materials and how any remaining wastes will be disposed of.

Interrelationships

Human settlement in Orkney has traditionally focused on the coast and coastal landscapes include much evidence of the islands’ cultural heritage. The effects of aquaculture development on the settings of cultural heritage sites are therefore closely linked with effects on the wider landscape.

There are also strong links between biodiversity and water receptors as water bodies are classified in terms of their chemical and ecological quality.

Mitigation

The SG identifies and explains ways in which aquaculture development can adversely affect the environment and includes guidance and further information on how potential impacts should be addressed. Additional mitigative measures were highlighted through the SEA process and incorporated into the SG. These are set out below.

Section of SG Aquaculture.	Environmental issue.	Suggested mitigation.
DC5: Water quality and benthic impacts.	Reference to the Shellfish Waters Directive is out of date. The Directive was repealed in December 2013 and has been replaced by the Water Environment (Shellfish Water Protected Areas: Designation) (Scotland) Order 2013 which came into force on 22 December 2013.	Amend reference to the Shellfish Waters Directive.

Section of SG Aquaculture.	Environmental issue.	Suggested mitigation.
DC9: Construction and operational impacts.	The section on waste management does not address the disposal of fish mortalities and other fish wastes.	Include a requirement for the Site Waste Management Plan to detail how fish mortalities and other fish wastes would be disposed of.

Monitoring

The purpose of monitoring is to ensure that the proposed mitigation is effective and that any unexpected effects can be detected at an early stage so that appropriate remedial action can be put in place. Monitoring will be used to provide essential information on which to base future development. The proposed SEA monitoring programme is as follows:

SEA receptor	SEA Objective	Indicator
Biodiversity.	Protect biodiversity, enabling and encouraging habitat enhancement or restoration where appropriate, and contribute towards achievement of Orkney LBAP actions and targets.	Number of instances of fatal entanglement of wild birds or mammals
		Number of new aquaculture developments which incorporate synchronous fallowing and single year classes within defined Management Areas.
Water.	Promote the protection and improvement of the water environment, including burns, lochs, estuaries, wetlands, coastal waters and groundwater.	Annual water monitoring data.
Landscape.	Facilitate positive change while maintaining distinctive landscape and seascape character.	Number of aquaculture proposals approved that do not fully accord with OLDP Policy 9 Natural Heritage & Landscape.
Cultural heritage.	Safeguard cultural heritage features and their settings.	Number of proposals approved where effective mitigation has not been achieved.
Population.	Retain and, where appropriate, improve quality and quantity of	Number of complaints received from members of the public which

SEA receptor	SEA Objective	Indicator
	publicly accessible open space.	involve aquaculture-related impacts on countryside access.

Next steps

Anticipated milestones in the SEA and planning processes related to Supplementary Guidance Aquaculture are set out below.

Expected date.	Milestone.
16 th February 2017.	Supplementary Guidance Aquaculture and associated Environmental Report considered at a meeting of the Council's Development & Infrastructure Committee.
9 th March 2017.	Supplementary Guidance Aquaculture and associated Environmental Report considered at a General Meeting of the Council.
16 th March 2017.	Public consultation begins.
27 th April 2017.	Deadline for Consultation Authorities' responses to SG Aquaculture and the Environmental Report.
April – May 2017.	Consultation responses taken into account in the final SG Aquaculture.
6 June 2017.	Revised Supplementary Guidance Aquaculture and associated Environmental Report considered at a meeting of the Council's Development & Infrastructure Committee.
4 July 2017.	Final adoption date for Supplementary Guidance Aquaculture at meeting of General Council.
July 2017.	Preparation of Post-Adoption Statement.
July 2017.	Supplementary Guidance Aquaculture reported to the Scottish Government.

Introduction

As part of the preparation of Supplementary Guidance Aquaculture, Orkney Islands Council is carrying out a Strategic Environmental Assessment (SEA). SEA is a systematic method for considering the likely environmental effects of certain PPS. SEA aims to:

- integrate environmental factors into PPS preparation and decision-making;
- improve PPS and enhance environmental protection;
- increase public participation in decision making; and
- facilitate openness and transparency of decision-making.

SEA is required by the Environmental Assessment (Scotland) Act 2005. The key SEA stages are:

Screening - determining whether the PPS is likely to have significant environmental effects and whether an SEA is required.

Scoping - deciding on the scope and level of detail of the Environmental Report, and the consultation period for the report – this is done in consultation with Scottish Natural Heritage, the Scottish Environment Protection Agency and Historic Environment Scotland.

Environmental Report - publishing an Environmental Report on the PPS and its environmental effects, and consulting on that report.

Adoption - providing information on: the adopted PPS; how consultation comments have been taken into account; and methods for monitoring the significant environmental effects of the implementation of the PPS.

Monitoring - monitoring significant environmental effects in such a manner so as to also enable the Responsible Authority to identify any unforeseen adverse effects at an early stage and undertake appropriate remedial action.

The purpose of this Environmental Report is to:

- provide information on Supplementary Guidance Aquaculture;
- identify, describe and evaluate the likely significant effects of the PPS and its reasonable alternatives; and
- provide an early and effective opportunity for the Consultation Authorities and the public to offer views on any aspect of this Environmental Report.

The key facts relating to Supplementary Guidance Aquaculture are set out in **Table 1** below.

Table 1: Key facts relating to Supplementary Guidance Aquaculture

Name of Responsible Authority:	Orkney Islands Council
Title of plan, programme or strategy (PPS):	Supplementary Guidance Aquaculture
What prompted the PPS:	<p>The Planning etc. (Scotland) Act 2006. The Council is required by law to prepare and keep under review a Development Plan which sets out the Council's planning policies on the use and development of land in the County.</p> <p>This Supplementary Guidance document provides the detail for Orkney Local Development Plan Policy 12D Aquaculture.</p>
Subject:	Town and Country Planning and Land Use
Period covered by the PPS:	2017-2022
Frequency of updates:	Following adoption, the Supplementary Guidance will be monitored and reviewed every five years and updated if required.
Area covered by the PPS:	The administrative area of the Orkney Islands.
Purpose of the PPS:	The document provides additional policy guidance on the range of issues which must be considered during the determination of planning applications.
Contact point:	<p>Eileen Summers</p> <p>Tel. 01856 873535 ext. 2828</p>

SEA activities to date

Table 2 summarises SEA activities to date in relation to Supplementary Guidance Aquaculture.

Table 2: SEA activities to date

SEA Action / Activity	When carried out
Screening to determine whether the PPS is likely to have significant environmental effects.	Screening was deemed unnecessary as the SG was considered to qualify for SEA.
Scoping the consultation periods and the level of detail to be included in the Environmental Report.	23 June 2016.
Outline and objectives of the PPS.	September – December 2016
Relationship with other PPS and environmental objectives.	June 2016
Environmental baseline established.	November 2016
Environmental problems identified.	November 2016.
Assessment of future of area without the PPS.	January 2017.
Alternatives considered.	SG Aquaculture results from a review and update of the current Planning Policy Advice document. No other alternatives were considered.
Environmental assessment methods established.	June 2016.
Identification of environmental problems that may persist after implementation and measures envisaged to prevent, reduce and offset any significant adverse effects.	January 2017.
Monitoring methods proposed.	January 2017.
Consultation timescales.	January 2017.
Notification/publicity action.	March 2017.

Supplementary Guidance Aquaculture and its context

Supplementary Guidance Aquaculture comprises three sections, along with two annexes.

Section 1 provides an introduction to the supplementary guidance, explaining how to use the document and setting out the policy context, including the Orkney Local Development Plan policy for aquaculture development. It also includes the Spatial Strategy.

Section 2 comprises the set of ten Development Criteria, against which all proposals for aquaculture development will be assessed. Guidance provided in a number of the Development Criteria is further supplemented by maps. A summary of the Development Criteria and related maps is provided in **Table 3** below.

Table 3: Development Criteria and Development Criteria Maps

Development Criterion.	Topic.	Maps.
DC1.	Landscape, coast, siting and design.	Map DC1 – Landscape Designations and Wild Land Area 41: Hoy.
DC2.	Natural heritage designations, protected species and the wider biodiversity.	Map DC2a – International Nature Conservation Designations. Map DC2b – National Nature Conservation Designations. Map DC2c – Designated Seal Haul-Outs.
DC3.	Predator control and interaction with other species.	No map.
DC4.	Wild salmonid fish populations.	Map DC4 – Principal Sea Trout Burns.
DC5.	Water quality and benthic impacts.	Map DC5 – Water Environment.
DC6.	Historic environment.	Map DC6 – Historic Environment.
DC7.	Social and economic impacts.	No map.
DC8.	Other marine users.	Map DC8a – Active Aquaculture Sites. Map DC8b – Ports, Harbours,

Development Criterion.	Topic.	Maps.
		Ferries, Shipping and Navigation. Map DC8c – Marine Renewable Energy. Map DC8d Pipelines, Electricity, and Telecommunications Infrastructure.
DC9.	Construction and Operational Impacts.	No map.
DC10.	Decommissioning and Reinstatement.	No map.

Section 3 provides links to sources containing more detail on many of the issues that are addressed in Sections 1 and 2. It also includes a list of the main legislation that is relevant to aquaculture.

Annex 1 sets out the role of other statutory bodies in the determination of aquaculture proposals.

Annex 2 provides information on potentially significant natural heritage impact pathways arising from aquaculture operations in Orkney waters.

Relationship with other Plans, Programmes and Strategies and their environmental protection objectives

The Supplementary Guidance will have a significant influence on, and will draw from, other plans produced by Orkney Islands Council. It will also be guided by a range of relevant plans, programmes and strategies (PPS) produced at international, national and local level. PPS which are relevant to the SG Aquaculture are summarised in **Appendix A** of this report.

Relevant aspects of the current state of the environment

An environmental baseline describing the current state of the environment in Orkney is included in **Appendix B** of this report.

Environmental problems

A range of environmental problems that are relevant to development planning in Orkney were identified in the Proposed Local Development Plan Environmental Report. These have generally been addressed through the Proposed Plan policies. However, there is scope for the SG to provide additional guidance to address a number of issues which are summarised in **Table 4** below.

Table 4: Environmental Problems Relevant to Supplementary Guidance Aquaculture

Problem.	Implications for Supplementary Guidance Aquaculture.
BIODIVERSITY, FLORA AND FAUNA.	
<p>Potential for direct and indirect impacts on species and habitats, including entanglement in nets and ropes and displacement from routinely used areas.</p>	<p>The SG should highlight protected sites and species which are potentially vulnerable to aquaculture. There should be a clear indication of the planning authority’s policy on Natura and European Protected Species, along with reference to the requirement for a Habitats Regulations Appraisal to be undertaken where necessary. Benthic habitats which are vulnerable to aquaculture development should be highlighted. The potential for indirect impacts should be addressed, e.g. those which may arise from the deployment of inappropriately designed or deployed anti-predator methods. The SG should stress the importance of selecting a suitable location, which in turn can avoid high levels of predator pressure. Information should be provided on the range of factors which should be included when assessing the likelihood of effects on the natural environment.</p>
<p>Risk of parasite and disease transfer to wild fish populations;</p> <p>Disruption of genetic integrity and local adaptations of wild stocks arising from interbreeding with escaped farmed fish;</p> <p>Introduction of non-native farmed species.</p> <p>High numbers of diving birds are found in the seas around Orkney and due to the risk of entanglement there are considerable constraints around the use of gill nets to trap escaped fish.</p>	<p>The SG should explain the potential hazards posed by aquaculture to wild fish populations, including wild salmonids such as sea trout and Atlantic salmon. It should highlight the risks of infection by the sea louse <i>Lepeophtheirus salmonis</i>, a common ectoparasite of farmed salmon, and in particular the vulnerability of juvenile sea trout to sea lice infection as they enter the sea from the spawning burns. The location of principle sea trout spawning burns should be illustrated spatially and the importance of site selection should be clearly stated as a means of minimising adverse effects on juvenile sea trout. The SG should explain what is required of fish farm operators in terms of sea lice and disease management as well as containment and dealing with fish escapes. It should explain the constraints around the use of gill nets for the recapture of escaped fish and should note that their use as an emergency response measure may prove unfeasible.</p>

Problem.	Implications for Supplementary Guidance Aquaculture.
WATER.	
Potential for adverse impacts on water quality	<p>The SG should explain what is meant by 'carrying capacity' and should illustrate the locations of Orkney's two Category 3 areas, as well as areas that are currently classified as Shellfish Water Protected Areas.</p> <p>It should highlight the role of the planning authority in contributing towards River Basin Management Planning objectives to ensure that water bodies achieve good ecological status and that there is no deterioration in current status.</p>
Geology.	
Potential for adverse effects on geomorphological features.	<p>The SG should highlight protected sites which are potentially vulnerable to the effects of aquaculture. Information should be provided on the range of factors which should be included when assessing the likelihood of effects on the natural environment.</p>
Landscape.	
Potential for adverse impacts on landscapes and coastal character.	<p>The SG should provide guidance on how development may be best accommodated in the landscape and should also refer to other publications which can address specific design and layout issues in more detail. It should also highlight the possible requirement for the assessment of landscape and visual impact, listing factors which should be included in the assessments.</p>
Cultural heritage.	
Potential for adverse impacts on cultural heritage resources, in particular on the setting of Scheduled Monuments and Listed Buildings.	<p>The SG should highlight the range of cultural heritage resources in Orkney, which may be vulnerable to the effects of aquaculture development. It should set out the issues that should be addressed when assessing the likelihood of effects on the cultural heritage environment.</p>
Population.	
Excessive light and noise from aquaculture developments may affect public amenity.	<p>The SG should highlight the need for mitigation measures to be identified which will minimise the effects of lighting and noise.</p>
Material assets.	
Waste from aquaculture has	The SG should highlight the requirement for planning

Problem.	Implications for Supplementary Guidance Aquaculture.
been a significant problem in the past.	applications to be supported by a waste management plan, as appropriate.
Miscellaneous.	
Aquaculture is regulated by a number of public bodies, the roles of which may not always be clearly understood.	The SG should clearly set out the roles of other regulatory bodies in licensing and monitoring the aquaculture industry.
Tensions are possible due to a desire by the aquaculture industry to expand, in line with Scottish Government targets, and the requirement to ensure that development is sustainable.	SG Aquaculture should ensure that adequate information is provided to highlight the potential for environmental effects. This will enable informed decisions to be made on those issues which can be addressed through the planning process.
Pressure on available space, due to increasing levels of development within the marine environment.	SG Aquaculture should be compatible with the national marine plan and the Pentland Firth and Orkney Waters Pilot Marine Spatial Plan. Through its spatial guidance and development criteria it should inform the development of any future regional marine spatial plan.

Likely evolution of the environment without Supplementary Guidance Aquaculture

A new Orkney Local Development Plan is nearing completion and is scheduled for adoption by the Council during March 2017. The new Supplementary Guidance will be a statutory document which will provide additional guidance relating to Policy 12 Coastal Development - Aquaculture, informing potential developers and stakeholders of the current policy and guidance that is available to guide any proposed expansion of the aquaculture industry within Orkney waters.

Marine planning in Scotland has undergone a period of significant development, including the publication of the following documents:

- Scotland's National Marine Plan (2015), which is supported by the National Marine Plan interactive, an interactive mapping tool which has been designed to assist in the development of national and regional marine planning.
- The Pentland Firth and Orkney Waters Marine Spatial Plan (2016), a pilot process undertaken by a working group consisting of Marine Scotland, Orkney Islands Council and Highland Council in advance of statutory regional marine planning.

Both Plans set out integrated planning policy frameworks to guide marine development, activities and management decisions, whilst ensuring the quality of the marine environment is protected.

- Scottish Planning Policy was updated in 2014 and sets out revised planning advice relating to aquaculture developments, in particular updated guidance on spatial planning.

Also during this period, with the support of the Scottish Government, the aquaculture industry has identified the following sustainable growth targets, with due regard to the marine environment, by 2020:

- Marine fish production to increase sustainably to 210,000 tonnes. (In 2014 181,045 tonnes of whole wet fish were produced, comprising 179,022 tonnes salmon, 1,909 tonnes marine rainbow trout, 66 tonnes halibut and 48 tonnes brown trout/sea trout.)
- Farmed shellfish production to increase to 13,000 tonnes. (In 2014 production was 7,980 tonnes).

Without the updated guidance there would be potential for confusion and inconsistency of approach between the terrestrial and marine planning systems. Preparation of the SG also provides an opportunity to improve awareness of the wide range of information that is available to help inform the siting of new development and promote sustainability in the industry.

SEA objectives

A set of environmental objectives was identified in the Environmental Report which was prepared alongside the Orkney Local Development Plan. These objectives represented the criteria against which the policies and proposals of the Main Issues Report and the Proposed Plan were assessed. The relevant SEA objectives have been used as criteria against which to assess the environmental effects of Supplementary Guidance Aquaculture and these are reproduced in **Table 5** below.

Table 5: The SEA Objectives

BIODIVERSITY, FLORA AND FAUNA.
Conserve protected sites and species.
Safeguard valuable habitat from loss and fragmentation through development.
Protect biodiversity, enabling and encouraging habitat enhancement or restoration where appropriate, and contribute towards achievement of Orkney LBAP actions and targets.
WATER.
Promote the protection and improvement of the water environment, including burns, lochs, estuaries, wetlands, coastal waters and groundwater.
GEOLOGY & SEDIMENTS.
Protect designated and undesignated sites which are recognised and valued for their geological or geomorphological importance.
LANDSCAPE.
Facilitate positive change while maintaining distinctive landscape and seascape character.
CULTURAL HERITAGE.
Safeguard cultural heritage features and their settings.
POPULATION.
Retain and, where appropriate, improve quality and quantity of publicly accessible open space.
MATERIAL ASSETS.
Promote the efficient use of resources and the minimisation of wastes through their re-use or their recovery through recycling, composting or energy recovery, in line with 2020 national targets.

Assessment of environmental effects and measures envisaged for mitigation of significant adverse effects

This chapter sets out the method used for the environmental assessment of Supplementary Guidance Aquaculture. It confirms which parts of SG Aquaculture were considered and also provides a summary of the findings of the assessment.

Alternatives to which SEA was applied

The current version of Supplementary Guidance Aquaculture replaces the draft Planning Policy Advice Aquaculture which was adopted in October 2012. The PPA has been reviewed and updated to take account of changes to national policy and also to incorporate links to other, recently published aquaculture-related guidance.

No further alternatives were considered.

Elements of Supplementary Guidance: Aquaculture which were assessed

Strategic Environmental Assessment was undertaken alongside the Council's previous document Planning Policy Advice Aquaculture (2012) and the findings were presented in an Environmental Report. The current SG Aquaculture is a result of a review and update of the previous PPA document; therefore it includes certain elements which have already undergone environmental assessment.

The approach taken in this SEA has been to assess the suite of 10 Development Criteria and Annex 2, focusing mainly on changes and additions to the guidance. The Spatial Strategy has not been assessed as it summarises information set out in the Development Criteria.

A matrix-based approach has been used for the assessment and the findings are presented in **Appendix C** of this Environmental Report.

Assessment Summary

Biodiversity

Effects are likely to be broadly neutral, with potential for minor to moderate adverse effects, in particular wildlife mortalities due to entanglement in fish farm equipment and potential for impacts on wild salmonid populations.

DC2: Natural Heritage Designations, Protected Species and the Wider Biodiversity and Geodiversity includes the relevant parts of OLDP Policy 9 Natural Heritage and Landscape. Designated sites are illustrated in Maps DC2a and DC2b. Designated seal haul-outs are illustrated in Map DC2c.

Guidance is provided on measures that should be taken to minimise the risk of wildlife entanglement in anti-predator nets. The risks posed to marine mammals (seals and cetaceans) by Acoustic Deterrent Devices (ADDs) are also clearly explained, along with guidance on areas where the use of ADDs is unlikely to be supported.

The SG also recommends the preparation of an adaptive Environmental Management Plan which would enable entanglement data to be recorded and reported to SNH and the planning authority. This would allow anti-predator strategies to be amended, if necessary, during their lifetime.

DC4: Wild Salmonid Populations outlines the following risks that are posed by aquaculture to wild salmonids:

- Transfer of sea lice and disease from farmed fish to wild fish;
- Disruption of genetic integrity and local adaptation of wild stocks arising from interbreeding with escapees from salmon farms;
- Introduction of non-native farmed species

It confirms that the planning authority will be advised by Marine Scotland as to whether a proposed development is likely to have significant effects on wild salmonid populations, and that development proposals with potential for significant adverse effects that are not addressed through effective mitigation will not be supported.

DC4 explains that juvenile fish entering the sea from spawning burns are particularly vulnerable to the effects of sealice infestation. It goes on to advise that, in assessing risk of parasite or disease transfer, consideration will be given to site position, husbandry techniques, the hydrology of the surrounding area, as well as interaction among sites. Map DC4 illustrates the locations at which Orkney's principal seatrout burns enter the sea, with the aim of steering developers away from these sensitive areas for juvenile seatrout.

Area Management Agreements are also promoted as a means of taking a coordinated approach to issues such as sea lice control, for example through measures such as synchronous following of sites, where clusters of sites operate as single year-class sites. In practice, synchronous following within defined Management Areas is not always undertaken and these instances the operator is required to prepare and submit a risk assessment which details the measures that will be put in place to reduce the risks of sealice infestation, maturation and larval distribution.

The purpose of Disease Management Areas is outlined, along with confirmation that there is a general presumption against farming at new sites that bridge existing Disease Management Areas.

The SG confirms that, due to the entanglement risk to seals and diving birds, there are considerable constraints around any proposed use of gill nets or other static nets to retrieve escaped fish.

There is evidence of an effect of sealice from fish farms on seatrout; however the extent to which fish populations are affected is not clear. The Aquaculture Science and Research Strategy (2014), produced on behalf of the Scottish Government by the Ministerial Group for Sustainable Aquaculture (MGSA) acknowledges that further research will be required to help underpin the Scottish aquaculture industry's 2020 sustainable production targets, and identifies a range of science and research programmes which could contribute to the future sustainability of the aquaculture

industry in Scotland and internationally. The following topics are identified as high priorities for further research:

- the dispersal of sea trout and salmon and subsequent dispersion in relation to the Scottish coast;
- the effects of sea lice at a population level in wild salmonids;
- improving understanding of sea lice dynamics;
- investigations of routes of emergence from subclinical infection of wild fish to disease in farmed fish.

Water

Further development of the aquaculture industry in Orkney waters will lead to additional localised adverse impacts on the water column and benthic environment (seabed); however the effects on the wider water and seabed environments are likely to be broadly neutral

DC5: Water Quality and Benthic Impacts includes the section of the OLDP Proposed Plan Policy 9 Natural Heritage and Landscape which relates to the water environment and is relevant to aquaculture development.

It also requires development proposals to be supported by modelling and calculations which demonstrate that the water column and benthic impacts are localised and within environmental limits, taking account of cumulative impacts.

It explains the Scottish Environment Protection Agency's (SEPA) role in regulating the aquaculture industry through the Water Environment (Controlled Activities) (Scotland) Regulations 2011 and confirms that the Planning Authority will be advised by SEPA on issues relating to water quality and benthic impacts.

Annex 2 provides additional information on how aquaculture developments impact on the benthic environment, highlighting issues for consideration, as well as the information that developers will be required to provide to support their application. Potential mitigation measures are outlined, along with sources of further useful information, e.g. the Feature Activity Sensitivity Tool (FEAST), the National Marine Plan interactive (NMPi) and SEPA's marine cage fish farming procedures manual, Annex F Seabed Monitoring and Assessment.

DC5 has been updated to take account of Scotland's National Marine Plan policy 4 Aquaculture.

It confirms that the planning authority supports the development of new shell fish growing sites, particularly in Shellfish Water Protected Areas. Where this is not possible, the location of new shellfish sites in proximity to existing sewage discharges or waters with diffuse pollution inputs should be avoided in consultation with SEPA. The locations of major water treatment discharges are shown on map DC8d.

Map DC8d also identifies the Flotta Oil Terminal pipeline Restricted Area, through which North Sea crude oil is imported.

Geology and sediments

Effects are likely to be neutral.

The OLDP policy on natural heritage sites and the wider geology is set out in DC2. Sites where the qualifying interests include geological / geomorphological features are also illustrated in Map DC2b. These include the recently designated Nature Conservation Marine Protected Areas at North-west Orkney, Papa Westray and Wyre and Rousay Sounds. The qualifying features of the latter two sites include sand waves within the Orkney carbonate production area, an internationally important example of a shelf carbonate system. These features may be vulnerable to certain aspects of fish farm development, e.g. scouring at anchorage points. The North-west Orkney site also includes geomorphological features of interest; however it is located outwith the 3 nautical mile zone, therefore any aquaculture development in this area would not fall within the remit of the land use planning system.

Landscape

Effects are likely to be broadly neutral with potential for minor adverse effects.

DC1: Landscape, Coast, Siting and Design includes the section of the OLDP Proposed Plan Policy 9 Natural Heritage and Landscape which relates to landscape and is relevant to aquaculture development.

Guidance is provided on aspects of the development that should be assessed, along with references to a number of publications which provide more detailed guidance on how to accommodate aquaculture into landscapes / seascapes. These include the recently published North Caithness and Orkney Coastal Character Assessment.

DC1 Confirms that proposals should be supported by a Landscape and Visual Impact Assessment (LVIA) including, where appropriate, a full cumulative assessment (CLIVIA) which takes account of any existing and proposed developments.

It highlights the requirement to consider impacts on the National Scenic Area, including its special qualities, as well as the Hoy area of Wild Land; both areas are illustrated in Map DC1.

Cultural heritage

Effects are likely to be broadly neutral.

DC6: Historic Environment includes the section of OLDP Proposed Plan Policy 8 Historic Environment and Cultural Heritage which is relevant to aquaculture and it lists the range of cultural heritage sites which have legal protection. Where relevant, these are illustrated in Map DC6.

It also explains how aquaculture development has potential to affect cultural heritage resources either directly or indirectly, e.g. by impacting upon the setting of the resource. It also confirms the requirement for the historic environment to be included in an Environmental Impact Assessment and sets out a range of issues that should

be considered. The potential requirement for a visual impact analysis or Cultural Heritage Impact Assessment is also highlighted.

Population

Effects are likely to be broadly neutral.

DC9: Construction and Operational Impacts highlights the potential for aquaculture development to impact on the local transport network during the construction, operation and decommissioning phases and requires the developer to provide sufficient information regarding vehicular and pedestrian access to and egress from the site. It also requires aquaculture development to avoid or appropriately mitigate adverse impacts on statutory access rights, core paths, other public footpaths and rights of way, in accordance with Orkney LDP Policy 10 Green Infrastructure

In an island community marine and coastal areas are important to people in terms of economic activity as well as recreation, sport and leisure. The SG also includes a new Development Criterion – DC7 Social and Economic Impacts which requires developers to demonstrate that significant adverse effects on existing activities have been avoided or appropriately mitigated.

DC8: Other Marine Users also requires aquaculture development proposals to identify potential impacts on recreation, sport or leisure activities in consultation with affected stakeholders and ensure that any significant disturbance or disruption is minimised or appropriately mitigated.

Material assets

Effects are likely to be broadly neutral.

DC9: Construction and Operational Impacts explains that there is potential for aquaculture to generate waste during construction, operation and decommissioning and that this can affect both visual amenity and the natural environment. Developers are required to prepare a Site Waste Management Plan which demonstrates steps that will be taken to reduce, re-use and recycle waste materials and how any remaining wastes will be disposed of.

DC10: Decommissioning and Reinstatement requires developers to provide a detailed account of the necessary works and the method of reinstatement of the site to its original condition, with the removal of all equipment associated with the development.

Interrelationships

Orkney is a group of islands where human settlement has traditionally focused on the coast and coastal landscapes include much evidence of Orkney's cultural heritage. The effects of new developments on the settings of cultural heritage sites are therefore closely linked with effects on the wider landscape.

DC1: Landscape, Coast, Siting and Design includes reference to a number of publications which provide detailed guidance on how to accommodate aquaculture

into coastal landscapes and seascapes. These include the Orkney Landscape Capacity for Aquaculture: Scapa Flow and Wide Firth (2011) and the North Caithness and Orkney Coastal Character Assessment (2016). In both documents the landscape summaries for each defined area of coastline highlight cultural heritage features which should be taken into consideration when assessing the effects of an aquaculture proposal.

Mitigation measures

The SG identifies and explains ways in which aquaculture development can adversely affect the environment and includes guidance and further information on how potential impacts should be addressed. Additional mitigative measures were highlighted through the SEA process and incorporated into the SG. These are set out in **Table 6** below.

Table 6: Mitigation measures identified by the SEA process

Section of SG Aquaculture.	Environmental issue.	Suggested mitigation.
DC5: Water quality and benthic impacts.	Reference to the Shellfish Waters Directive is out of date. The Directive was repealed in December 2013 and has been replaced by the Water Environment (Shellfish Water Protected Areas: Designation) (Scotland) Order 2013 which came into force on 22 December 2013.	Amend reference to the Shellfish Waters Directive.
DC9: Construction and operational impacts.	The section on waste management does not address the disposal of fish mortalities and other fish wastes.	Include a requirement for the Site Waste Management Plan to detail how fish mortalities and other fish wastes would be disposed of.

Monitoring

The purpose of monitoring is to ensure that the proposed mitigation is effective and that any unexpected effects can be detected at an early stage so that appropriate remedial action can be put in place. Monitoring will be used to provide essential information on which to base future development. The proposed SEA monitoring programme is set out in **Table 7** below.

Table 7: Proposed SEA Monitoring Programme

SEA receptor	SEA Objective	Indicator	Data source	Monitored by
Biodiversity	Protect biodiversity, enabling and encouraging habitat enhancement or restoration where appropriate, and contribute towards achievement of Orkney LBAP actions and targets.	Number of instances of fatal entanglement of wild birds or mammals	Predator defence strategy reported entanglement data.	OIC Environment Officer.
		Number of new aquaculture developments which incorporate synchronous fallowing and single year classes within defined Management Areas.	Planning applications.	OIC Environment Officer.
Water	Promote the protection and improvement of the water environment, including burns, lochs, estuaries, wetlands, coastal waters and groundwater.	Annual water monitoring data.	Scotland's Environment Web http://www.environment.scotland.gov.uk/	OIC Environment Officer.
Landscape	Facilitate positive change while maintaining distinctive landscape and seascape character.	Number of aquaculture proposals approved that do not fully accord with OLDP Policy 9 Natural Heritage & Landscape.	Planning decisions.	OIC Environment Officer.
Cultural heritage	Safeguard cultural heritage features and their settings.	Number of proposals approved where effective mitigation has not been achieved.	Planning decisions.	OIC Environment Officer.
Population	Retain and, where appropriate, improve quality and quantity of publicly accessible open space.	Number of complaints received from members of the public which involve aquaculture-related impacts on countryside access.	Development & Marine Planning team.	OIC Access Officer.

Next steps

The Environmental Report will be presented for public consultation during the same period as that proposed for the draft Supplementary Guidance. This consultation period is likely to commence on 16th March 2017, and a period of six weeks will be allowed for representations to be made in respect of the Environmental Report.

Anticipated milestones in the SEA and planning processes related to Supplementary Guidance Aquaculture are set out in **Table 8** below.

Table 8: Anticipated plan-making and SEA milestones

Expected date.	Milestone.
16 th February 2017.	Supplementary Guidance Aquaculture and associated Environmental Report considered at a meeting of the Council's Development & Infrastructure Committee.
9 th March 2017.	Supplementary Guidance Aquaculture and associated Environmental Report considered at a General Meeting of the Council.
16 th March 2017.	Public consultation begins.
27 th April 2017.	Deadline for Consultation Authorities' responses to SG Aquaculture and the Environmental Report.
April – May 2017.	Consultation responses taken into account in the final SG Aquaculture.
6 June 2017.	Revised Supplementary Guidance Aquaculture and associated Environmental Report considered at a meeting of the Council's Development & Infrastructure Committee.
4 July 2017.	Final adoption date for Supplementary Guidance Aquaculture at meeting of General Council.
July 2017.	Preparation of Post-Adoption Statement.
July 2017.	Supplementary Guidance Aquaculture reported to the Scottish Government.

Responses to the SEA Scoping Report

Consultation Body.	Scoping Report Ref.	Consultation Body Comment.	Response and Action.
Historic Environment Scotland.	General comment.	I note that OIC intends to scope the historic environment into the assessment and I am content to agree with this.	Noted.
	SEA Objectives.	The use of an SEA objective for the historic environment is welcomed. However, I would advise that the objective be amended to remove “through responsible design and siting of development” as this relates to the mitigation of identified effects. The SEA objective and its associated questions should aim to identify the potential effect, with mitigatory steps coming from a consideration of the form of these effects. Design and siting may not always be the appropriate form of mitigation.	Noted. The SEA objective has been amended and now reads: <i>Safeguard cultural heritage features and their settings.</i>
	Table 5: Assessment of Environmental Effects of the Plan.	I am content to agree with the assessment approach laid out in this section. In assessing the relevant parts of the guidance within the provided matrix I would point you to my previous comments on the SEA Objective. The provided commentary section should clearly set out the reasoning behind any given findings.	Noted – please see above.
	Appendix A: Plans, programmes and strategies (PPS) and other documents that are relevant to	In noting the reference to the Protection of Wrecks Act 1973 I can confirm that on 1 November 2013, section 1 of the 1973 Act was repealed in Scotland. Historic shipwreck sites previously designated under this legislation have now been designated as Historic MPAs under the Marine (Scotland) Act 2010. While dealing more specifically with guidance for wave and	Reference to the Protection of Wrecks Act has been removed A number of historic shipwrecks in Orkney are protected through scheduling;

Consultation Body.	Scoping Report Ref.	Consultation Body Comment.	Response and Action.
	SG Aquaculture, including their environmental objectives.	<p>tidal energy project development, Historic Environment Guidance for Wave and Tidal Energy contains background information that may be of use to you in considering your assessment. The guidance can be accessed at https://www.historicenvironment.scot/archives-and-research/publications/publication/?publicationId=00ec7e2d-6d0d-4444-8aa2-a60b009ea34f</p> <p>The Protection of Military Remains Act 1986 should also be included here. This act makes it an offence to interfere with the wreckage of any crashed, sunken or stranded military aircraft or designated vessel without a licence. All crashed military aircraft receive automatic protection, but vessels must be individually designated, either as controlled site or protected places.</p>	<p>however as yet there are no Historic MPAs in Orkney waters.</p> <p>Reference to The Protection of Military Remains Act 1986 has been included.</p>
	Appendix B: Environmental baseline.	I welcome the information contained within this section relating to the historic environment. The baseline suggested is appropriate and I welcome the early consideration given at this stage to the potential for effects on these assets.	Noted.
Scottish Natural Heritage (SNH).	General comment.	We are content with the proposed scope of the assessment and with the suggested approach.	Noted.
	SEA Objectives.	We note that the landscape objective currently only mentions landscape character. We recommend that impacts on seascape could also be considered as part of	The landscape objective has been amended to include

Consultation Body.	Scoping Report Ref.	Consultation Body Comment.	Response and Action.
		this objective.	seascape.
	Appendix A: Plans, programmes and strategies (PPS) and other documents that are relevant to SG Aquaculture	Within Appendix A: Plans, programmes and strategies (PPS) and other documents that are relevant to SG Aquaculture, we note the list of landscape related documents. Another potential useful source of information is the Coastal Character Assessment for Orkney Islands and Northern Caithness which is due to be published soon.	Reference has been included to the Orkney and North Caithness Coastal Character Assessment.
	Consultation period.	We note that a period of at least six weeks is proposed for consultation on the Environmental Report and we are content with this proposed period.	Noted.
Scottish Environment protection Agency (SEPA).	General comment.	Taking into consideration the fact that the previous version of the guidance and the local development plan have both been subject to SEA it is not absolutely clear to us at this stage that the new guidance will have any new significant effects against the topics in which we have an interest. However, we appreciate that you have a better understanding of the emerging guidance than we do and so we accept your views on scoping.	Noted. Annex 2 provides additional guidance in terms of the assessment of benthic effects. Two new NC MPAs have been designated since the last guidance was prepared. The qualifying features of these sites include benthic features which are potentially vulnerable to aquaculture.

Consultation Body.	Scoping Report Ref.	Consultation Body Comment.	Response and Action.
	Consultation period.	We can also confirm that we are satisfied with the proposal for a six week consultation period for the Environmental Report.	Noted.