Strategic Environmental Assessment (SEA)
Scoping Report

Seaweed Policy Statement

September 2012
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1 INTRODUCTION

1.1 Background

1.1.1 Marine Scotland is currently developing a Seaweed Policy Statement (SPS) to set out the Scottish Government’s policy on seaweed cultivation and harvesting. At this early stage of its development, it is anticipated that the SPS will provide an overarching framework to manage and regulate the cultivation of seaweed within Scottish waters (0-12 nautical mile limit), and facilitate the sustainable development of a seaweed cultivation industry within Scotland.

1.1.2 It is also expected that a key focus of the SPS will be on environmental issues, looking at both the positive and negative effects of seaweed cultivation for the marine environment.

1.2 Strategic Environmental Assessment

1.2.1 The SPS falls under Section 5(4) of the Environmental Assessment (Scotland) Act 2005 (“the Act”). Marine Scotland has undertaken screening and has determined, as the Responsible Authority, that the SPS has the potential to give rise to significant environmental effects, both adverse and beneficial\(^1\). An environmental assessment will therefore be undertaken by the Scottish Government’s Environmental Assessment Team, in accordance with the requirements of the Act.

1.3 Purpose of the Scoping Report

1.3.1 The purpose of this scoping report is to set out sufficient information to enable the Consultation Authorities to form a view on:

- The proposed assessment method.
- The scope and level of detail of the assessment.
- The duration of the proposed consultation period.

1.4 Report Structure

1.4.1 This report is structured as follows:

- Section 2 presents a brief introduction to the seaweed production industry and Scotland’s current position in it. It introduces the SPS by providing an overview on its likely content and its legislative and policy context.

\(^1\) The determination has been sent to the SEA Gateway and published in The Edinburgh Gazette and The Herald.
• **Section 3** defines the context for the SEA, including an overview of relevant environmental protection objectives, and information on the environmental baseline to which the SPS relates.

• **Section 4** sets out the proposed approach to and scope of the assessment.

• **Section 5** provides detail on the next steps in the SPS and SEA development processes, including the proposed timescales and milestones for each.

• **Appendix 1** presents the detail of the environmental protection objectives for the SPS.
2 CONTEXT

2.1 Background into Seaweed Use and Production

What is Seaweed?

2.1.1 The term 'seaweed' is the collective name for a number of different groups of large algae (or macroalgae) living on seashores and in the shallow waters of seas throughout the world. This collective group is often classified into three broad groups, based largely on their pigmentation, but also sharing other biological characteristics:

- Brown seaweeds (Phaeophyceae) are usually large in size, ranging from giant kelp (often 20m long) to thick and leather-like seaweeds (2-4m long) and much smaller species between 30-60cm in length.
- Red seaweeds (Rhodophyceae) are usually smaller and generally range from a few centimetres to a metre in length. They also include seaweeds of purple and brownish-red pigmentation.
- Green seaweeds (Chlorophyceae) are also small, with a similar size range to the red seaweeds.

2.1.2 Seaweeds are considered to be at the base of the marine food chain, with many marine animals relying on them for the food and shelter they can provide. Seaweed also forms the basis for a large worldwide industry involved in harvesting and, more recently, cultivation of seaweed for a variety of uses.

2.1.3 The four large groups of seaweed identified by Scottish Natural Heritage (SNH) in Scotland’s fresh and marine waters include:

- Kelp: a brown seaweed growing on underwater rocks all around Scotland’s coasts. They grow best in areas of strong water movement, require good levels of sunlight and can grow in depths of 5m in sheltered sea lochs or greater than 30m in clear waters.
- Wrack: a brown seaweed which can grow anchored to rocks between the tides on the seashore (egg wrack or Ascophyllum nodosum) or unattached, flowing with sea loch tides, rather than attaching to rocks (wig wrack). Wig wrack is unique to Scotland, prompting identification as a priority for action under the UK Biodiversity Action Plan (UKBAP).
- Maerl: a purple/pink “coraline” (or coral-like) seaweed that provides shelter for a wide range of marine creatures, growing unattached on the bed.

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seabed. Commercial scale extraction of the rich lime resource in maerl has been proposed, but never taken forward, in the Western Isles in the past.

- Stoneworts: a green seaweed with some 33 known species identified in the UK, growing in clear fresh and brackish water in coastal pools. Stoneworts are highly sensitive to pollution and many species are now rare in the UK.

**Use of Seaweed**

2.1.4 The harvesting and use of seaweed by human beings has a long history, particularly in south-east Asia, where it has been a key food source for centuries and where seaweed extracts are commonly used in many products ranging from animal feed, nutrachemicals, fertilisers and bathing gels amongst others. In recent times, a large amount of research has been conducted on the use of seaweed as a biofuel source although questions remain over its economic feasibility in the short to medium-term.

2.1.5 The use of seaweed in the wastewater treatment process has been investigated. The treatment of sewage and some agricultural wastes to reduce the total nitrogen and phosphorus-containing compounds, and the removal of toxic metals from industrial wastewater, have both been demonstrated in some studies.

2.1.6 The use of seaweed in Integrated Multitrophic Aquaculture (IMTA), the multitrophic form of integrated mariculture, has also been widely investigated. The FAO describes IMTA as “a practice that combines the cultivation of fed aquaculture species (e.g. finfish) with organic extractive aquaculture species (e.g. shellfish or herbivorous fish) and inorganic extractive aquaculture species (e.g. seaweed) to create balanced systems for environmental sustainability (biomitigation), economic stability (product diversification and risk reduction) and social acceptability (better management practices)”

2.1.7 In finfish aquaculture, waste loadings (comprising uneaten feed and faecal matter) are dispersed within the water column around the farm cages,

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8 SAMS (2012) Macroalgae for Biofuels [online] Available at: http://www.sams.ac.uk/marine-bioenergy-scotland


and a substantial portion of this material settles on the seabed. Adverse impacts in benthic ecosystems beneath fish farm sites include increases in organic matter, changes to the nature and chemistry of sediments, and reductions in biodiversity in these areas\textsuperscript{12}.

2.1.8 The effectiveness of coupling low trophic (i.e. suspension feeder) to higher trophic fed (i.e. finfish) organisms has been demonstrated\textsuperscript{13} for a wide range of species combinations in both fresh and marine waters. Benefits including the potential for the bio-remediation and bio-mitigation of benthic impacts, and the potential advantages in economic aspects of the industry (i.e. potential for increased production, creation of a more diverse business) have been identified for IMTA\textsuperscript{10}.

\textit{Seaweed on an industrial scale}

2.1.9 While harvests of wild seaweeds were once the only source of seaweed, since the mid-twentieth century demand has gradually outstripped supply and methods of seaweed cultivation have been developed. Today, seaweed production on the world scale comes mainly from farming rather than from wild or natural sources.

2.1.10 In 2010, the worldwide production of seaweed and other aquatic algae reached 19.9 million tonnes, of which some 95% was produced by aquaculture\textsuperscript{14}. It is estimated that current seaweed markets are worth up to US$6 billion annually\textsuperscript{2}. The culture of aquatic plants has shown consistent expansion in production since 1970, with estimates of 7% growth per year over this period.

2.1.11 World seaweed production is currently focused in the far east, accounting for 99% of global production in 2008. Historically, large quantities of seaweed have been cultivated for human consumption within Asia. In Europe, the principal producers of seaweed are France, Ireland and Norway, with smaller amounts harvested in Portugal and Spain. In contrast with south-east Asia, the majority of seaweed production in Europe is wild harvested, with only small-scale cultivation undertaken in France\textsuperscript{15}.

2.1.12 The wild harvesting and foraging of seaweed (i.e. sourcing of seaweed from beaches) has a long history in Scotland, dating back over a millennium\textsuperscript{16}. Today, Scottish seaweed production is relatively small in scale, with wild harvesting in Scottish waters contributing an estimated 2% of the European market. Currently, Scotland’s seaweed production is centered around the harvesting of wild seaweed stocks on the Western and Northern Isles.

\textsuperscript{12} Fisheries Research Services (undated) Environmental Impacts of Fish Farming [online] Available at: www.scotland.gov.uk/Uploads/Documents/AE01EnvironImpact.pdf
\textsuperscript{16} Flora Celtica (unknown) A Brief History of Scottish Seaweed Use [online] Available at: http://193.62.154.38/celtica/historyb.htm
only a few small-scale sites in use for the harvesting of brown, red and green seaweeds by hand. At present, the main two types of seaweed harvested in Scotland are the egg wrack (Ascophyllum nodosum) and kelp (Laminara hyperborea)\textsuperscript{17}.

2.1.13 The potential emergence of seaweed cultivation as an industry in Scotland has been identified by the Scottish Government and the mariculture industries alike, particularly relating to interest in IMTA from existing aquaculture operations and for potential biofuel production. Figure 1 illustrates the number and location of known seaweed production sites in Scottish waters\textsuperscript{18}.


\textsuperscript{18}
Figure 1: Seaweed Production Sites in Scottish Waters

- Active shellfish production sites
- Inactive shellfish production sites
- Seaweed production sites with ML
- Seaweed production sites without ML
2.2 Existing Legislation and Drivers for Reform

European Regulations

2.2.1 There are a number of European Council (EC) Regulations that refer to the cultivation of seaweed. These are:
- EC 834/2007 provides the basis for EU rules on organic production, including aquaculture and seaweed harvesting and cultivation\(^{19}\).
- EC 889/2008 provides for controls on the production and labelling of organic products, including seaweed\(^{20}\).
- EC 710/2009 which amends EC 889/2008 in laying down detailed rules for the implementation of Regulation EC 834/2007\(^{21}\).

Scottish Regulations

2.2.2 At present, seaweed cultivation is not regulated in Scotland. The Town and Country Planning (Marine Fish Farming) (Scotland) Order 2007 gives planning authorities full planning responsibility for aquaculture developments in marine waters. However, the definition of fish farming set out in Section 26(6) of the Town and Country Planning (Scotland) Act 1997 does not include seaweed and refers only to the farming of finfish, shellfish or sea urchins.

2.2.3 Under the Marine (Scotland) Act 2010, the Scottish Government is responsible for the marine licensing of activities carried out in Scottish waters (i.e. 0-12 nm). This includes activities such as making deposits in the sea, or on, or under, the seabed. This broadly includes the deposit of equipment in the water to grow seaweed, and at present, seaweed cultivation can only be regulated under the marine licensing regime by licensing the deposit of equipment in the water.

2.2.4 The potential for reform and options for regulation were discussed in the recent consultation for the Aquaculture and Fisheries Bill\(^{22}\). The options included provision for making seaweed cultivation a licensable marine activity under Section 21 of the Marine (Scotland) Act 2010, and/or the amendment of the Town and Country Planning (Scotland) Act 1997 to bring seaweed cultivation into the planning system.

2.2.5 The responses to the consultation indicated that there was strong support from all stakeholder areas for the cultivation of seaweed to be regulated, and for the regulatory framework to be the same for all seaweed farms. Marine licensing was supported by marine fisheries and the voluntary and

\(^{22}\) http://www.scotland.gov.uk/Topics/marine/Fish-Shellfish/bill
The aquaculture industry felt that, unless all aquaculture planning consents moved to the marine licensing system, the regulatory system for seaweed should also sit with the Planning Authority under the Town and Country Planning (Scotland) Act 1997. All Planning Authorities also felt that the regulatory regime should be the same for seaweed, finfish and shellfish farms (i.e. with Planning Authorities under the 1997 Act). The view was also expressed that commercial-scale seaweed harvesting should be subject to regulation.

2.3 Description of the Seaweed Policy Statement

2.3.1 The SPS will provide an overarching framework for the management and regulation of seaweed cultivation in Scottish waters (0-12 nm), and facilitate the sustainable development of the seaweed cultivation industry in Scotland. The SPS is at an early state of development, and it is intended that the SEA and consultation processes will be key contributors to that development.

2.3.2 It is anticipated that the SPS will contain both a legislative component and policy component.

2.3.3 The SPS is being prepared in consultation with a range of stakeholders, including the various public bodies with an interest in seaweed cultivation (including the Scottish Environment Protection Agency (SEPA), Scottish Natural Heritage (SNH), Historic Scotland (HS), Crown Estate Scotland (CES) and Local Authorities), existing harvesting and cultivation operators in Scotland, and other industries with an interest in the future expansion of the seaweed production industry.

2.4 Legislative and Policy Context

2.4.1 As shown in Figure 2.1, there are a significant number of policy and legislative drivers at the European, UK and Scottish levels that apply to not just the seaweed production sector, but to other sectors that make use of the marine environment.

2.4.2 “Safeguarding our Seas”\(^{23}\) sets out the UK Government’s vision and the principles that underpin UK policy for the marine environment. “Our Seas – a Shared Resource”\(^{24}\) takes forward this vision, and sets out the high-level marine objectives for the UK as a whole, while allowing for the distinctive circumstances and responsibilities for each of the devolved administrative areas. Together, these documents set the policy context and overarching goals within which the SPS will be prepared.

2.4.3 Upon its introduction, the Marine (Scotland) Act 2010 created a new legislative and management framework for Scotland’s marine environment.

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to manage demands for the use of the sea. Part 3 of the Act includes a requirement for the preparation and adoption of a National Marine Plan (NMP). The NMP is in preparation, and a pre-consultation draft NMP was published in March 2011. Once finalised, the NMP will sit alongside and interact with Scotland’s existing planning regimes in managing the sustainable development of our marine resources. The pre-consultation draft NMP set out overarching objectives for the support and encouragement of the sustainable growth of non-salmon sectors within aquaculture, including seaweed production for food and non-food uses, and in IMTA. The SPS will be developed in accordance with these objectives.
## 2.5 Key Facts

2.5.1 Key facts about the SPS are summarised in Table 1.

**Table 1: Key facts about the SPS**

<table>
<thead>
<tr>
<th>Responsible Authority</th>
<th>Marine Scotland</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Title of PPS</strong></td>
<td>Seaweed Policy Statement (SPS)</td>
</tr>
<tr>
<td><strong>Purpose of PPS</strong></td>
<td>Marine Scotland’s Aquaculture Planning Team intend to prepare a statement to set out the Scottish Government policy on seaweed cultivation. The SPS will identify the impacts of different proposals for the development of industry, and provide a framework through which decisions can be taken.</td>
</tr>
<tr>
<td><strong>What prompted the PPS</strong></td>
<td>Recognition of growing interest in seaweed cultivation practices within Scotland.</td>
</tr>
<tr>
<td><strong>Subject</strong></td>
<td>Seaweed cultivation</td>
</tr>
<tr>
<td><strong>Period covered by PPS</strong></td>
<td>Not defined</td>
</tr>
<tr>
<td><strong>Frequency of updates</strong></td>
<td>Not specified</td>
</tr>
<tr>
<td><strong>Area covered by PPS</strong></td>
<td>Scottish waters (0-12 nautical miles)</td>
</tr>
<tr>
<td><strong>Summary of nature/content of PPS</strong></td>
<td>The specific nature and content of the SPS is uncertain at this stage of the SEA process. The SEA will be used to front-load the Policy Statement, and will be used to actively contribute to the development of the SPS, and vice versa, via an iterative development process.</td>
</tr>
<tr>
<td><strong>Are there any proposed PPS objectives?</strong></td>
<td>Yes. The broad purpose of the policy has been defined (see “Purpose of PPS”).</td>
</tr>
</tbody>
</table>
| **Contact**           | Amanda Chisholm, Environmental Assessment Team 2J South Victoria Quay Edinburgh EH6 6QQ tel. 0131 244 7806 email: amanda.chisholm@scotland.gsi.gov.uk  
Fiona Watt, Operational Delivery Marine Scotland: PARF:Aquaculture Planning Team 1B North, Victoria Quay Edinburgh EH6 6QQ tel: 0131 244 6418 email: Fiona.m.watt@scotland.gsi.gov.uk |
Figure 2: Policy Context for the Seaweed Policy Statement

- National Marine Plan
- Marine (Scotland) Act 2010
- European Council (EC) Regulations
  - EC834/2007 – Basis for EU Rules on organic aquaculture and seaweeds
  - EC889/2008 – Control, production and labelling of organic products

- Regional Marine Plans
- Town and Country Planning (Scotland) Act 1997
- Our Seas – A Shared Resource (2009)
  - Objective: Clean, healthy, safe, productive and biologically diverse
- Safeguarding Our Seas (2002)
- Aquaculture and Fisheries Bill (2012)
3 ENVIRONMENTAL CONTEXT

3.1 Policy Framework

3.1.1 The Environmental Assessment (Scotland) Act 2005 requires the responsible authority to identify the broader policy context (set out in Section 2) and the environmental protection objectives relevant to the plan, programme or strategy (PPS) under assessment.

3.1.2 The relevant environmental protection objectives are set out in Appendix 1, and a summary of those of particular relevance to the SPS is set out in this section of this report.

- **Climatic factors** – the relevant objectives are aimed at raising awareness of climate change, and reducing greenhouse gas emissions at the national and international levels whilst mitigating against, and managing adaptation to, the likely effects of climate change.

- **Biodiversity, flora and fauna** – the identified policies range from broad commitments to the protection and enhancement of key species and habitats, to objectives that focus specifically on conserving marine ecosystems. The list of priority habitats and species is lengthy, with marine features accounting for a significant proportion of all protected resources. Particular protection is afforded to migratory birds and cetaceans through international agreements. The inclusion of maerl beds, egg wrack beds, kelp and seaweed communities as priority marine features (habitats) emphasises the importance of seaweed to Scotland’s biodiversity.

- **Population and human health** – the objectives support the protection of marine ecosystems and human health via the protection of recreational water users, including the management of bathing waters.

- **Water** – the objectives focus on reducing water pollution, improving the water quality and ecological status of coastal and marine waters, and improving coastal flood defences where necessary. Water quality and ecological status have the potential to be significantly influenced by the development of the seaweed cultivation industry in Scottish waters and, as such, should be considered in the development of the SPS.

- **Soil, geology and coastal processes** – while largely concerning terrestrial soils, the objectives also relate to coastal soils and marine sediments, and as such, should be considered in the development of the SPS.

- **Cultural heritage** – the objectives include commitments to protect the historic environment whilst increasing understanding and awareness of its value. The key objectives relate to coastal and offshore features (designated and non-designated) including archaeological features and wrecks and, as such, have the potential to influence siting decisions for seaweed cultivation activities in the future.
• **Landscapes and seascapes** – the relevant objectives reflect the broader framework provided by the European Landscape Convention, emphasising a broad and inclusive approach to landscape protection and enhancement. The diversity and scenic value of coastal landscapes and seascapes is outlined as a key theme, which is of particular relevance for the siting of seaweed cultivation sites in the future.

• **Material assets** – the objectives set the basis for rules on organic aquaculture and seaweeds, including controls on the production and labelling of seaweeds and regulating seaweed cultivation. In addition, given the potential use of seaweed cultivation in IMTA, and operational commonalities between seaweed cultivation and shellfish farming, it is likely that some objectives for finfish and shellfish aquaculture activities are relevant to this SEA. These objectives are aimed at improving water quality and minimising adverse impacts of these, and other commercial activities, on the marine environment.

### 3.2 Environmental Baseline

3.2.1 It is a requirement of the Environmental Assessment (Scotland) Act 2005 that the Responsible Authority describe the character of the environment which may be affected by the proposed plan, including any existing environmental problems.

3.2.2 The data sources presented in this section of this report provide an outline of the baseline information we expect to collect and use in the course of the SEA and in the SPS (particularly for front-loading the development of the policy).

3.2.3 We would welcome views on the inclusion of this data, and advice on any additional sources that should be included.

**Climatic factors**

3.2.4 The baseline information will include climate change predictions including increases in water temperatures, sea level rise, changes to the coastline, and wave heights, amongst others.

3.2.5 Data sources will include the UKCIP09 scenarios\(^{25}\), UK Climate Change Risk Assessment\(^{26}\), Scotland’s Marine Atlas\(^{27}\), Marine Climate Change

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Impacts Partnership reports\textsuperscript{28} and information from Sniffer (Scotland & Northern Ireland Forum For Environmental Research)\textsuperscript{29}.

\textit{Biodiversity, flora and fauna}

3.2.6 The consideration of habitats within the baseline assessment will include marine, coastal, intertidal, benthic and terrestrial habitats, as considered appropriate. The baseline information will include:

- Natura sites (Special Areas of Conservation (SACs) and Special Protection Areas (SPAs)), including offshore SPAs, and Ramsar sites.
- European Protected Species, including cetaceans and other marine mammals (e.g. dolphins and seals).
- Scottish Marine Protected Areas (MPAs) for biodiversity and the identified Priority Marine Features. In October 2011, Marine Scotland published search locations for MPAs that have been identified as a starting point for consultation on potential areas\textsuperscript{30}. These areas will be taken into account within the baseline assessment, along with the baseline information that was used to identify them.
- UK biodiversity action plan (UKBAP) species and habitats.
- Coastal sites with biodiversity interests (i.e. Sites of Special Scientific Interest (SSSIs)).

3.2.7 Data sources will include Scotland’s Marine Atlas\textsuperscript{27}, SNH – Protecting Scotland’s Nature\textsuperscript{31} and the UK BAP\textsuperscript{32}.

\textit{Population and human health}

3.2.8 The baseline information will include:

- Bathing water quality.
- Coastal and marine recreation including Royal Yachting Association (RYA) sailing routes and areas.

3.2.9 Data sources will include Scotland’s Marine Atlas\textsuperscript{27}, SEPA Bathing Water Sampling Results\textsuperscript{33} and Marine Accident Investigation Branch (MAIB)\textsuperscript{34}.

\textsuperscript{29} Sniffer (2006) A Handbook of Climate Trends Across Scotland, [online] Available at: www.sniffer.org.uk
\textsuperscript{30} http://www.scotland.gov.uk/Topics/marine/marine-environment/mpanetwork/location
\textsuperscript{32} JNCC (2011) UK BAP Priority Species and Habitats [online] Available at: http://jncc.defra.gov.uk/page-5705
\textsuperscript{33} SEPA (2011) Bathing Waters: Sampling and Results [online] Available at: http://www.sepa.org.uk/water/bathing_waters/sampling_and_results.aspx
\textsuperscript{34} MAIB (2011) Reports by Incident – Collision/Contact, [online] Available at: http://www.maib.gov.uk/publications/investigation_reports/reports_by_incident/collision_contact.cfm
Water

3.2.10 The baseline information will include:

- Status of inshore, coastal, intertidal and marine waters.
- Ecological status of coastal and transitional water bodies.
- Pollution incidents from marine vessel activities in Scottish waters.

3.2.11 Data sources will include Scotland’s Marine Atlas, SEPA Bathing Water Sampling Results and Advisory Committee on Protection of the Sea (ACOPS).

Soil, geology and coastal processes

3.2.12 Baseline information will include:

- Coastal Sites of Special Scientific Interest (SSSIs) designated for their geological and/or geomorphological interest.
- Areas of the coast sensitive to changes in coastal processes and where previous erosion/accretion has been identified.
- Information on Priority Marine Features with geodiversity interest, where this is available.

3.2.13 Data sources will include Eurosion 2000, SNH Futures, SCAPE Coastal Zone Assessment Survey, Scotland’s Marine Atlas and SNH research reports.

Cultural heritage

3.2.14 Baseline information will include locations of key historic environment features in the coastal and marine environment, including:

- Listed buildings.
- Scheduled monuments.
- Gardens and Designed Landscapes.
- Protected wrecks and those with military remains.
- Information on marine archaeology (where available).


37 Scottish Natural Heritage (2001) Natural Heritage Futures – Coasts and Seas, [online] Available at: www.snh.gov.uk/docs/A306281.pdf


3.2.15 Data sources will include PASTMAP\(^{40}\) and Scotland’s Environment website\(^{41}\).

*Landscapes and seascapes*

3.2.16 Baseline information will include:
- Location and special qualities of National Scenic Areas (NSAs).

3.2.17 Data sources will include SNH National Designations\(^{42}\) and SNH Natural Heritage Futures Prospectus\(^{43}\).

*Material Assets*

3.2.18 The baseline information will include:
- Locations of finfish and shellfish aquaculture sites.
- Locations of natural seaweed resources and existing seaweed cultivation and harvesting operations in Scottish Waters.
- Maritime navigation routes, particularly in relation to marine industry travel and shipping routes.

3.2.19 Data sources will include Scotland’s Marine Atlas\(^{27}\), GIS applications, and consultation with existing aquaculture and seaweed producers and other stakeholders.

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\(^{40}\) RCAHMS (2011) Pastmap [online] Available at: [http://www.rcahms.gov.uk/pastmap.html](http://www.rcahms.gov.uk/pastmap.html)


4 APPROACH TO THE ASSESSMENT

4.1 Overall Approach

4.1.1 The SEA will be undertaken in parallel with the SPS development, with the findings of the SEA used to actively inform the policy development, and vice versa. It is proposed that the SEA be used to frontload detailed environmental information and the consideration of policy alternatives into the development of the draft SPS.

4.2 Scope of the SPS

4.2.1 The proposed SPS will cover Scottish territorial waters, i.e. 0-12 nautical miles. It will set out policy direction for both the cultivation and harvesting of seaweed, and both these areas will be subject to SEA.

4.3 Scope of the Assessment

4.3.1 The SEA will consider potential effects on the marine, coastal and terrestrial environments associated with the implementation of the proposed SPS (see Table 2).

4.3.2 An initial review of the draft SPS content and the receiving marine environment suggests that effects on most of the specific environmental topic areas cannot be entirely ruled out at this stage of the assessment process. As such, Marine Scotland proposes that all the environmental topics will be scoped into the assessment (see 2).

4.4 Assessment methodology

4.4.1 A series of SEA objectives has been developed based on an initial review of the environmental baseline and the environmental protection objectives presented in Section 3. These objectives, outlined in Table 3, have been developed for each of the environmental topics scoped into the SEA.

4.4.2 The SEA will investigate the potential environmental effects of the SPS in the context of these objectives, and identify appropriate mitigation measures that could be introduced on a strategic scale for each topic area.

Identifying and assessing reasonable alternatives

4.4.3 The SEA will also be used to assist the policy development process in the identification and comparison of options for inclusion in the SPS.
### Table 2: Proposed scoping in / out of SEA topics

<table>
<thead>
<tr>
<th>Topic</th>
<th>Potential Effect</th>
<th>Scope in?</th>
</tr>
</thead>
</table>
| Landscape / seascape                       | • Temporary effects of development on seascapes / landscapes and visual amenity associated with installation of infrastructure for cultivation sites and vessel operations during harvesting periods.  
• Longer term effects on seascapes / landscapes and visual amenity arising from the presence of infrastructure associated with cultivation sites.  
• Potential impacts on visual amenity arising from navigation lighting and signage requirements during operation of sites. | Yes       |
| Climatic factors                           | • Contribution to climate change adaptation via increased capacity for carbon storage (i.e. blue carbon).  
• Providing increased localised storm protection of coastal through reduction of wave impacts.                                                                                                            | Yes       |
| Biodiversity, flora and fauna              | • Potential impacts on benthic habitats from installation of seabed mounted infrastructure for cultivation sites.  
• Potential for changes to light conditions and benthic shading.  
• Potential adverse impacts on species (e.g. disturbance / loss during harvesting, entanglement of mammals in infrastructure, attraction of non-native species to new habitats).  
• Changes to coastal processes / wave patterns and associated impacts on coastal habitats.  
• Potential positive effects arising from habitat enhancement including potential creation of new habitats.                                                                                   | Yes       |
| Population and human health               | • Likely effects on marine and coastal recreation and access.  
• Impacts on local communities.                                                                                                                                      | Yes       |
| Water and marine environment               | • Potential benefits for water quality and ecological status in the vicinity of seaweed farming areas (i.e. absorption of pollutants for IMTA sites).  
• Potential increases in suspended sediments / turbidity and pollution incidents during installation of infrastructure and harvesting.  
• Potential changes to coastal processes / wave patterns.                                                                                                               | Yes       |
| Marine geology and coastal processes       | • Potential changes to coastal processes / wave patterns and associated impacts on coastal habitats (i.e. erosion and accretion of coastal areas).  
• Potential change to sand-dune development processes (i.e. coastal processes, changes in driftweed deposition).  
• Disturbance of seabed sediments, particularly during installation of infrastructure and harvesting.                                                                         | Yes       |
| Air quality                                | • Potential air quality / odour issues associated with waste materials and driftweed (i.e. washing up on shore).  
• Potential for localised air quality issues associated with some seaweed species (i.e. potential sulphur emissions from some species).                                                         | Yes       |
| Cultural heritage                          | • Potential loss of and/or damage to historic environment features and their settings (i.e. coastal and marine archaeology) associated with siting and operation of seaweed farms.                              | Yes       |
| Material assets                            | • Effects of farming sites, seaweed crop and farm infrastructure on other users of the marine environment (e.g. physical disturbance of fishing grounds, effects on fish stocks, navigational safety, collision risk for vessels, military activity proximity and displacement of fishing activity). | Yes       |
### Table 3: Proposed SEA Objectives

<table>
<thead>
<tr>
<th>SEA Topics</th>
<th>Proposed SEA Objectives</th>
</tr>
</thead>
</table>
| Landscape                              | • To avoid where possible, or minimise, adverse effects on landscape / seascape.  
• To promote the protection of seascape and coastal landscapes.  
• To avoid or minimise adverse visual effects.                                                                                                                                                                                                                                                                                                       |
| Climatic factors                       | • To contribute to climate change adaptation.                                                                                                                                                                                                                                                                                                              |
| Biodiversity, flora and fauna          | • To safeguard marine and coastal ecosystems, including species and habitats, and their interactions.  
• To avoid pollution of the coastal and marine water environment.  
• To avoid the introduction of invasive non-native species.  
• To maintain or work towards good ecological status.  
• To maintain integrity of sediment and coastal processes  
• To maintain and protect the character and integrity of the seabed  
• To avoid adverse effects on the integrity of protected sites (e.g. Natura sites).                                                                                                                                                                                                                                                                    |
| Population and human health            | • To avoid adversely affecting the health and safety of other users of the marine environment.                                                                                                                                                                                                                                                            |
| Water                                  | • To avoid pollution of the coastal and marine water environment.  
• To maintain, or work towards, good ecological status.                                                                                                                                                                                                                                                                                                  |
| Marine geology and coastal processes   | • To maintain integrity of coastal processes, including erosion/accretion patterns.  
• To maintain and protect the character and integrity of the seabed and coastlines.                                                                                                                                                                                                                                                                       |
| Air quality                            | • To avoid reductions in air quality in marine and coastal locations.                                                                                                                                                                                                                                                                                        |
| Cultural heritage                      | • To protect and, where appropriate, enhance the historic marine environment.  
• To avoid damaging known and unknown coastal and marine archaeology and historic sites/buildings.                                                                                                                                                                                                                                                       |
| Material Assets                        | • To avoid adversely affecting existing and planned infrastructure and marine activities.                                                                                                                                                                                                                                                                                                                           |

### 4.4.4

At this early stage of policy development, the policy alternatives have not been defined. However, several broad alternatives may be considered, for example:

- “Do nothing”, i.e. allow the industry to proceed under existing legislation.
- Progress legislative requirements for licensing or planning consent.
- Include regulation of wild harvesting and foraging in the SPS.
- Include spatial data in the SPS.
4.4.5 All reasonable alternatives will be assessed once they have been identified. Alternatives may also be identified as mitigation measures, where necessary, and these would also be subject to assessment.

**Assessment framework**

4.4.6 The SEA will be undertaken using matrices to record the effects. Thematic cumulative and synergistic effects will be assessed and recorded, as will characterisation of effects. The matrices will be appended to the Environmental Report for reference.

4.4.7 The proposed format for these matrices is set out in Table 4.

**Table 4: Proposed assessment matrix**

<table>
<thead>
<tr>
<th>Receptor</th>
<th>Effect</th>
<th>Characteristic</th>
<th>Mitigation</th>
<th>Residual Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Landscape / seascape</td>
<td>e.g. Disturbance / noise impact of installation of infrastructure for</td>
<td>e.g. Significant negative effect: temporary, direct, primary</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>seaweed farms(^45).</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Climatic factors</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Biodiversity, flora and fauna</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Population and human health</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water and marine environment</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marine geology and coastal</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>processes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Air quality</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cultural heritage</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Material assets</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4.4.8 The results of the assessment will be reported in the Environmental Report as a summarised narrative, supported by the detail in the assessment matrices that will be appended to the report. The narrative will include, as appropriate:

- Baseline characteristics of the areas likely to be affected by the activity.
- The results of the appraisal of the proposals (and their reasonable alternatives) in the SPS.

\(^44\) Timescale, primary / secondary, cumulative, synergistic, etc.

\(^45\) Included as example only.
- The results of the assessment of potential cumulative effects.
- Proposed mitigation and residual effects.

*Identifying mitigation and monitoring proposals*

4.4.9 Mitigation measures will be identified as an integral part of the SEA and policy development processes. Monitoring proposals are likely to focus on the significant environmental effects that are identified during the course of the SEA, and on implementation of mitigation measures where appropriate.

4.4.10 Where possible, existing data sources and indicators will be linked with relevant indicators, to minimise resourcing requirements for additional data collection.
5  NEXT STEPS

5.1  Timeline and Milestones

5.1.1  This section sets out the next steps for the SPS development and the SEA, including an indicative timeline and milestones, as shown in Table 5.

Table 5: Key milestones for the SPS and SEA Development

<table>
<thead>
<tr>
<th>Indicative Date</th>
<th>SEA Development Milestone</th>
<th>SPS Development Milestone</th>
</tr>
</thead>
<tbody>
<tr>
<td>September 2012</td>
<td>Completion of SEA Scoping Report.</td>
<td>Undertake scoping and complete Draft SPS.</td>
</tr>
<tr>
<td></td>
<td>Commence consultation on SEA Scoping Report.</td>
<td></td>
</tr>
<tr>
<td>October 2012</td>
<td>Close consultation on SEA Scoping Report.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Completion of SEA Environmental Report.</td>
<td>Commence consultation on Draft SPS.</td>
</tr>
<tr>
<td></td>
<td>Commence consultation on SEA Environmental Report.</td>
<td></td>
</tr>
<tr>
<td>December 2012</td>
<td>Close consultation on SEA Environmental Report.</td>
<td>Close consultation on SPS.</td>
</tr>
<tr>
<td>January 2012</td>
<td>Consultation analysis undertaken.</td>
<td>Consultation analysis undertaken.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Preparation of Final SPS.</td>
</tr>
<tr>
<td>February 2013</td>
<td>Publication of Post Adoption Statement.</td>
<td>Publication of SPS.</td>
</tr>
</tbody>
</table>

5.2  Consultation

5.2.1  In addition to the statutory requirement for consulting with the Consultation Authorities at key stages in the process, the Environmental Assessment (Scotland) Act 2005 includes the requirement for public engagement in the development of a qualifying PPS and its associated SEA.

5.2.2  The SEA Consultation Authorities were consulted on the screening stage and again at the scoping stage of the SEA process. The final stage of consultation will be undertaken upon completion of the assessment and publication of the SEA Environmental Report, where the views of the Consultation Authorities and other interested parties will be sought on the content of the Environmental Report and the draft SPS.

5.2.3  Marine Scotland have proposed a consultation period of 12 weeks, after which all responses to the this consultation will be recorded and considered in the development of the final SPS. Detail on how these responses have
been considered in the preparation of the final SPS will be presented in a Post-Adoption Statement (PAS) published with or shortly following adoption of the SPS.
## Appendix 1: Environmental Protection Objectives

<table>
<thead>
<tr>
<th>Plan, Programme or Strategy</th>
<th>Objectives</th>
<th>Implications / Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Marine Policy</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>International</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UN Convention on the Law of the Sea 1982 (UNCLOS)(^{46})</td>
<td>Defines the rights and responsibilities of nations in their use of the world’s oceans, establishing guidelines for businesses, the environment, and the management of natural resources. It enshrines the notion that all problems of ocean space are closely interrelated and need to be addressed as a whole. Provides the framework for the establishment of territorial waters to 12 nautical miles.</td>
<td>This framework emphasises the need to balance competing interests and objectives within the marine environment.</td>
</tr>
<tr>
<td><strong>European</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>European Marine Strategy Framework Directive 2008 (MSFD)(^{47})</td>
<td>The MSFD is the most recent marine obligation on EU Member States. It extends the requirements of the Water Framework Directive (WFD) into seas beyond 1nm. The MSFD requires Member States to &quot;take necessary measures to achieve or maintain good environmental status in the marine environment by the year 2020 at the latest&quot;. Coastal waters are also covered by the directive, and the Directive sets out the requirement for member states to develop a marine strategy.</td>
<td>Important overarching protective policy for the marine environment, and the SPS should seek to ensure that it supports the objectives of good environmental status.</td>
</tr>
<tr>
<td>European Integrated Maritime Policy 2007(^{48})</td>
<td>Aims to deliver a sustainable development approach for Europe’s oceans and seas. Its scope includes: a marine transport strategy and new ports policy; research and data collection and management strategies, and work to mitigate climate change and reduce the impact of and adapt to the effects of climate change on coastal regions. It aims to promote the development of an environmentally safe aquaculture industry.</td>
<td>Recognises the conflicting demands on the marine environment and supports improved management. This provides an important framework within which the SPS will be developed.</td>
</tr>
<tr>
<td><strong>United Kingdom</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coast Protection Act 1949 (as amended by The)</td>
<td>Sets out the licensing and regulatory framework within which activities including navigation and flood defences are set. Aims to protect the coast</td>
<td>The potential changes in coastal processes associated with...</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Plan, Programme or Strategy</th>
<th>Objectives</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Coast Protection (Notices) (Scotland) Regulations 1988 and The Coast Protection (Notices) (Scotland) Amendment Regulations 1996</td>
<td>from erosion and encroachment and to ensure safety in navigation. Excludes some tidal waters in Scotland. Local authorities which include coastline within their boundaries are designated as coastal protection authorities and given specific duties and powers to undertake coastal defence works where necessary.</td>
<td>seaweed industry activities suggest that the SPS should consider the aims of the legislation (coastal and navigational protection) in its development.</td>
</tr>
<tr>
<td>Marine and Coastal Access Act 2009</td>
<td>The key issues covered by the Act comprise: the creation of a Marine Management Organisation (MMO); planning in the marine area; licensing activities in the marine area; marine nature conservation and access to coastal land.</td>
<td>This sets out the broader policy context within which the SPS is being developed.</td>
</tr>
<tr>
<td>Our seas – a shared resource – High level marine objectives for the UK</td>
<td>Sets out high level objectives for the UK marine environment. This includes achieving a sustainable marine economy, ensuring a strong, healthy and just society, living within environmental limits, promoting good governance and using sound science responsibly.</td>
<td>This provides a broader framework within which the SPS will be developed, supporting sustainable development of the marine environment.</td>
</tr>
<tr>
<td>Scotland</td>
<td>Provides a framework to manage activities with Scotland’s marine environment in a sustainable way. Notes the importance of protecting seas whilst facilitating sustainable economic growth. Introduces a new statutory marine planning system, a simpler licensing system, improved marine nature and historic conservation with new powers to protect and manage areas of importance for marine wildlife, habitats and historic monuments; improved protection for seals and enforcement powers.</td>
<td>This provides a broader framework within which the SPS will be developed.</td>
</tr>
<tr>
<td>Biodiversity, Flora &amp; Fauna</td>
<td>The three main objectives of the CBD are:</td>
<td>This broader framework sets the</td>
</tr>
<tr>
<td>International</td>
<td></td>
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<tr>
<td>UN Convention on</td>
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SEA Scoping Report
Seaweed Policy Statement, September 2012
<table>
<thead>
<tr>
<th>Plan, Programme or Strategy</th>
<th>Objectives</th>
<th>Implications / Comments</th>
</tr>
</thead>
</table>
| Biological Diversity (1992) | • the conservation of biodiversity;  
• the sustainable use of biodiversity; and  
• the sharing of benefits from the use of genetic resources (including by appropriate access to these resources).  

Article 6 requires that all parties to the Convention develop national biodiversity strategies, plans or programmes, and that they seek to integrate the provisions of these across other policy sectors. Article 7 requires the identification of key resources and their protection. Monitoring of potentially damaging processes and activities should also be undertaken.  

Two policy decisions came from the 1995 Conference of the Parties known as the Jakarta Mandate on marine and coastal biodiversity. Commitments include the development of a global system of marine and coastal protected areas, blocking the pathways of invasions of alien species, increasing ecosystem resilience to climate change, and developing, encouraging, and enhancing implementation of wide-ranging integrated marine and coastal area management. |

context within which specific environmental protection objectives have been developed.  
The principles defined within the Convention should be supported by the SPS. |
| Bonn Convention on the Conservation of Migratory Species of Wild Animals 1979 | Aims to conserve terrestrial, marine and avian species throughout their range through international co-operation.                                                                                                                                                  | As with the previous Convention, these conservation objectives should be considered in the development of the SPS.                                                                 |
| Convention on Wetlands of International Importance 1971 (amended 1982/87) | Otherwise known as the Ramsar Convention, this emphasises the special value of wetlands, particularly as a key habitat for waterfowl, and this includes estuaries, tidal flats and near shore marine areas. The Convention resulted in designation of sites for management, sustainable use and conservation. | The SPS should uphold commitments to environmental protection.                                                                                                           |

---

54 Convention on Biological Diversity [available online]  [http://www.cbd.int/convention/text/](http://www.cbd.int/convention/text/)
55 CBD and the Jakarta Mandate  [http://www.cbd.int/idb/2012/?ttle](http://www.cbd.int/idb/2012/?ttle)
56 Introduction to the Convention on Migratory Species [available online]  [http://www.cms.int/about/intro.htm](http://www.cms.int/about/intro.htm)
<table>
<thead>
<tr>
<th>Plan, Programme or Strategy</th>
<th>Objectives</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR Convention) (1992) and Council Decision 2000/340/EC of 8 May 2000 concerning the approval, on behalf of the Community, of the new Annex V to the Convention for the Protection of the Marine Environment of the North-East Atlantic</td>
<td>The aim of the OSPAR Convention is to prevent and eliminate pollution and to protect the maritime area against the adverse effects of human activities. This Convention led to establishment of a cross-regional commission promoting an ecosystems approach to marine management, including establishment of a network of Marine Protected Areas. Its five work areas are biodiversity and ecosystems, eutrophication, hazardous substances, offshore industry, and radioactive substances. Climate change is also a key cross-cutting theme. Also includes a Biological Diversity and Ecosystems Strategy. The scope of the OSPAR Convention was limited to four main areas defined in four Annexes (on the prevention and elimination of pollution from land-based sources, by dumping or incineration, and from offshore sources, and on the assessment of the quality of the marine environment). A new Annex V was prepared, on the protection and conservation of the ecosystems and biological diversity of the maritime area. Under it, the Contracting Parties must adopt the necessary measures in order to protect and conserve the ecosystems and the biological diversity of the maritime area, and to restore, where practicable, maritime areas which have been adversely affected.</td>
<td>The ecosystems approach to marine planning should be considered in the development of the SPS.</td>
</tr>
<tr>
<td>Agreement on the Conservation of African-Eurasian Migratory Waterbirds 1995 (AEWA)</td>
<td>An independent international treaty developed under the auspices of the UNEP/Convention on Migratory Species. The AEWA covers 255 species of birds ecologically dependent on wetlands for at least part of their annual cycle, including species of divers, grebes, cormorants, herons, ducks, swans, geese, waders, gulls, and terns. An action plan addresses issues including: species and habitat conservation, management of human activities, research, monitoring, education and implementation.</td>
<td>The development of the SPS should take into account the priority afforded to protecting bird species which are present within the Scottish terrestrial, coastal and marine environment.</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>Plan, Programme or Strategy</th>
<th>Objectives</th>
<th>Implications / Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conservation of Small Cetaceans of the Baltic, North East Atlantic, Irish and North Seas 1992 (ASCOBANS)(^{61})</td>
<td>migratory nature of dolphins, porpoises and whales means that they can be vulnerable to a range of marine activities and issues including marine pollution and bycatch.</td>
<td>given to protection of these species should be taken into account in the development of the SPS.</td>
</tr>
<tr>
<td><strong>European</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (the Habitats Directive)(^{62})</td>
<td>Established a commitment to designating networks of sites of ecological importance across Europe. These are known as Natura 2000 sites and include special protection areas (SPAs designated under the Birds Directive – see following paragraph) and special areas of conservation (SACs).</td>
<td>Commitments to protecting habitats and species should be upheld within the SPS.</td>
</tr>
<tr>
<td>Council Directive 79/409/EEC on the conservation of wild birds (the Birds Directive)(^{63})</td>
<td>Protects all wild birds (together with their nests and eggs) and their associated habitats. Commitment to designation of SPAs (included in Natura 2000 sites - see preceding paragraph).</td>
<td>Objectives to protect important species and habitats, including internationally designated sites, should be supported within the SPS.</td>
</tr>
<tr>
<td>Bern Convention on the Conservation of European Wildlife and Natural Habitats (1979)(^{64})</td>
<td>Aims to ensure conservation and protection of wild plant and animal species and their natural habitats and to promote co-operation between European states to protect biodiversity. Implemented in UK law by the Wildlife and Countryside Act (1981 and as amended).</td>
<td>The broader framework for environmental protection across Europe should be supported by the SPS.</td>
</tr>
<tr>
<td>The Pan-European Biological and Landscape Diversity Strategy (1995)(^{65})</td>
<td>The Strategy aims to reverse the decline of landscape and biological diversity, by promoting innovation and proactive policy making. It supports preceding measures for protecting natural heritage, and aims to supplement this by further promoting a number of action themes relating to different environmental resources. The long-term objectives of the strategy are: • The establishment of a Pan-European Ecological Network to</td>
<td>The SPS should support the objectives of conservation and sustainability.</td>
</tr>
</tbody>
</table>

\(^{61}\) Convention on migratory species Agreement on the conservation of small cetaceans of the Baltic and North Seas  [http://www.cms.int/species/ascobans/asc_bkrd.htm](http://www.cms.int/species/ascobans/asc_bkrd.htm)  
\(^{64}\) The Convention on the Conservation of European Wildlife and Natural Habitats  [http://conventions.coe.int/Treaty/EN/Treaties/Html/104.htm](http://conventions.coe.int/Treaty/EN/Treaties/Html/104.htm)  
<table>
<thead>
<tr>
<th>Plan, Programme or Strategy</th>
<th>Objectives</th>
<th>Implications / Comments</th>
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</thead>
</table>
|                             | conserve ecosystems, habitats, species and landscapes that are of European importance.  
• The sustainable management and use of Europe's biodiversity.  
• Integrating biodiversity conservation and sustainability into the activities of other sectors, such as agriculture, forestry, fisheries, industry, transport and tourism.  
• Improving information on and awareness of biodiversity and increasing public participation in conservation actions.  
• Improving our understanding of the state of Europe's biodiversity.  
• Assuring that adequate funds are made available to implement the strategy. | |
| Our life insurance, our natural capital: an EU Biodiversity Strategy to 2020 | The strategy has six main targets and 20 actions to halt the loss of biodiversity and ecosystem services in the EU by 2020.  
The six targets cover:  
• Full implementation of EU nature legislation to protect biodiversity  
• Better protection for ecosystems, and more use of green infrastructure  
• More sustainable agriculture and forestry  
• Better management of fish stocks  
• Tighter controls on invasive alien species  
• A bigger EU contribution to averting global biodiversity loss | The SPS should support these targets by taking into account integration of biodiversity protection and enhancement. |
| United Kingdom | | |
| Wildlife and Countryside Act 1981 | Provides the framework for protection of species other than European Protected Species. Sets out protection objectives for specified birds and wild animals. The Act’s various schedules detail the species that are protected under the Act, including dolphins, porpoises, and numerous birds such as geese and ducks. This was reviewed and updated in December 2008 and it was recommended that several further species of marine fish should be added to the lists attached to the Act, including shark, seahorse and ray species. | The SPS should take into account the particular protection afforded to key terrestrial, coastal and marine species. |

66 Our life insurance, our natural capital: an EU biodiversity strategy to 2020 [http://ec.europa.eu/environment/nature/biodiversity/comm2006/pdf/2020/1_EN_ACT_part1_v7%5b1%5d.pdf](http://ec.europa.eu/environment/nature/biodiversity/comm2006/pdf/2020/1_EN_ACT_part1_v7%5b1%5d.pdf)

<table>
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<tr>
<th>Plan, Programme or Strategy</th>
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<th>Implications / Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Conservation (Natural Habitats, &amp;c) Regulations 1994(^{68})</td>
<td>Transposes the requirements for protection of designated sites under the Habitats and Birds Directives, and the framework for protection of European Protected Species. Applies within 12nm. Several marine species are protected by various development consenting regimes covered by the Act. This includes marine turtles, all species of dolphins, porpoise and whale, seals and several types of marine fish (Atlantic salmon, barbel etc.)</td>
<td>The SPS should take into account the particular protection afforded to key terrestrial, coastal and marine species.</td>
</tr>
<tr>
<td>UK Biodiversity Action Plan 1994 (UKBAP) (Since the creation of the UK BAP, devolution has led the four countries of the UK (England, Northern Ireland, Scotland and Wales) to produce their own country biodiversity groups and country biodiversity strategies. In 2007, however, a shared vision for UK biodiversity conservation was adopted by the devolved administrations and the UK governments, and is described in ‘Conserving Biodiversity – the UK Approach’(^{69}))</td>
<td>In response to the 1992 Convention on Biological Diversity, this describes the UK's biological resources, commits a detailed plan for the protection of these resources. Sets out 1150 species and 65 habitats which are priorities for conservation action in the UK. The list was last updated in 2007 and includes 87 species in the marine group. Numerous habitats are also relevant to Scotland’s marine environment, including several which are specific to coastal areas (salt marsh, sand dunes) or the marine environment (including machair, maerl beds, kelp and seaweed communities, and sea loch egg wrack beds amongst others).</td>
<td>The UKBAP specifically identified numerous habitats and species in the coastal and marine environment which should be protected. The SPS should seek to ensure that fisheries activity does not adversely affect these priorities.</td>
</tr>
</tbody>
</table>
| Conserving Biodiversity – the UK Approach (2007)\(^{70}\) | A framework document for biodiversity identifies six priorities for implementing biodiversity objectives within the integrating framework of an ecosystem approach:  
- protecting the best sites for wildlife; | Emphasises an ecosystem approach to managing biodiversity, and recognises the need to allow for the impacts of |

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<table>
<thead>
<tr>
<th>Plan, Programme or Strategy</th>
<th>Objectives</th>
<th>Implications / Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• targeting action on priority species and habitats;</td>
<td>climate change within the network of marine protected areas.</td>
</tr>
<tr>
<td></td>
<td>• embedding proper consideration of biodiversity and ecosystem services in all relevant sectors of policy and decision-making;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• engaging people, and encouraging behaviour change;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• developing and interpreting the evidence base;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Ensuring that the UK plays a proactive role in influencing the development of Multilateral Environmental Agreements, and contributes fully to their domestic delivery.</td>
<td></td>
</tr>
</tbody>
</table>

Scotland

Nature Conservation (Scotland ) Act 2004\(^{71}\) Introduced a ‘duty to further the conservation of biodiversity’ for all public bodies, and sets out more specific provisions within this including for Sites of Special Scientific Interest. Also states a requirement for the preparation of a Scottish Biodiversity Strategy, to which all public bodies should pay regard. Applies to 12nm around Scotland and includes protection measures for marine species. Biodiversity protection objectives cover the coast and the immediate offshore environment. The SPS should seek to contribute positively to biodiversity protection objectives.

Scotland’s Biodiversity – It’s In Your Hands. A strategy for the conservation and enhancement of biodiversity in Scotland (2004) (Scotland’s Biodiversity Strategy is currently being reviewed and will be consulted on in summer 2012) Sets out Scottish aims relating to biodiversity over 25 year period. Seeks to go beyond a previous emphasis on protecting individual sites to achieve conservation at a broader scale. Aims to halt loss and reverse decline of key species, to raise awareness of biodiversity value at a landscape or ecosystem scale, and to promote knowledge, understanding and involvement amongst people. The Strategy notes the importance and health of Scotland’s ecosystems, and summarises key trends. The SPS should note and aim to support recognised ecosystems and recognise potential impacts on these.

Population and Human Health

United Kingdom

Food and Environment Protection Act 1985\(^{72}\) Part II protects the marine ecosystem and human health by controlling the deposit of articles or materials or scuttling of vessels in the sea, tidal waters or seabed. The SPS should contribute to the protection of health via the marine environment.

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<tr>
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<tr>
<td>Bathing Waters (Scotland)</td>
<td>Details the requirement for the designation of bathing waters and determination of bathing season, monitoring and investigations to be undertaken by SEPA and local authorities, and classification of bathing waters as “poor”, “sufficient”, “good” or “excellent” from 2015.</td>
<td>The SPS should contribute to the protection of health via the marine environment.</td>
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<td><strong>Water</strong></td>
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<td>International</td>
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<tr>
<td>IMO International Convention for</td>
<td>Aims to prevent marine pollution from ships from operational or accidental causes. It includes annexes covering pollution by oil, noxious liquids, harmful substances, sewage, garbage and air pollution. Recent changes focus on reducing the sulphur content and particulate emissions from fuel in the shipping sector.</td>
<td>The SPS should be developed taking into account the broader protection provided by the convention.</td>
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<td>the Prevention of Pollution from</td>
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<td>Ships 1973 (MARPOL)</td>
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<tr>
<td>International Convention on Oil</td>
<td>Provides a framework for international co-operation in combating major incidents or threats of marine pollution from ships or offshore units.</td>
<td>The SPS should recognise the protective framework provided by this Convention.</td>
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<tr>
<td>Pollution Preparedness, Response</td>
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<tr>
<td>and Co-operation, 1990</td>
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<tr>
<td>London Convention on the</td>
<td>Prohibits the dumping of certain hazardous materials, requires a prior special permit for the dumping of a number of other wastes, and a prior general permit for other wastes or materials. It also creates a basis in international law to allow and regulate carbon capture and storage (CCS) in sub-seabed geological formations.</td>
<td>The SPS should recognise the protective framework provided by this Convention.</td>
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<tr>
<td>Prevention of Marine Pollution</td>
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<td>by Dumping of Wastes and Other</td>
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<td>Matter 1972 (as amended) and</td>
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SEA Scoping Report
Seaweed Policy Statement, September 2012
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<tr>
<td>Water Framework Directive 2000/60/EC(^{77})</td>
<td>This provides an overarching strategy, including a requirement for EU Member States to ensure that they achieve 'good ecological status' by 2015. River Basin Management Plans (RBMPs) were defined as the key means of achieving this. The Recent Marine Strategy Directive will extend coverage of coastal waters beyond 1nm.</td>
<td>The WFD sets out an overarching framework that aims to ensure that good ecological status is met by 2015. Plans to achieve this are detailed in the RBMPs.</td>
</tr>
<tr>
<td><strong>United Kingdom</strong></td>
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<tr>
<td>Environmental Protection Act 1990</td>
<td>Covers pollution control and waste management. Also covers litter, radioactive substances and genetically modified organisms. Pollution at sea is specifically controlled and covers deposits of substances and articles in the sea and oil pollution from ships.</td>
<td>Provides for control of pollution at sea.</td>
</tr>
<tr>
<td>Pollution Prevention and Control Act 1999</td>
<td>Aims to prevent or minimise emissions to air, water and soil, as well as waste, from industrial and agricultural installations.</td>
<td>The SPS should take into account wider pollution prevention measures relating to the water environment.</td>
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<tr>
<td><strong>Scotland</strong></td>
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<tr>
<td>Environmental Liability (Scotland) Regulations 2009 (transpose the EU)</td>
<td>Covers incidents of significant damage to biodiversity, water or land. In accordance with the European Environmental Liability Directive (2004/35/EC), aims to apply the polluter pays principle by requiring</td>
<td>This forms an important regulatory context within which the SPS should be developed.</td>
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<td>Water Environment and Water Services (Scotland) Act 2003 (WEWS Act)(^80)</td>
<td>Transposes the Water Framework Directive into Scots law and gives Scottish ministers powers to introduce regulatory controls over water activities, in order to protect, improve and promote sustainable use of Scotland’s water environment. This includes wetlands, rivers, lochs, transitional waters (estuaries), coastal waters and groundwater</td>
<td>The SPS should support the protection of the water environment.</td>
</tr>
<tr>
<td>The Water Environment (Controlled Activities) (Scotland) Regulations 2011(^81)</td>
<td>Sets out the process by which activities that have the potential to affect Scotland’s water environment are regulated. Authorisation under the CAR is required for discharging to waters, disposal of pollutants to land, abstractions, impoundments and engineering works affecting water bodies.</td>
<td>The CAR provides an important tool for controlling activities relating to the water environment.</td>
</tr>
<tr>
<td>Pollution Prevention and Control (Scotland) Regulations 2000</td>
<td>See Pollution Prevention and Control Act 1999</td>
<td>The SPS should support the protection of the water environment.</td>
</tr>
<tr>
<td>River Basin Management Plans for the Scotland and Solway Tweed River Basin Districts 2009 - 2015(^82)</td>
<td>Notes the key pressures and their environmental impacts on Scottish water bodies including coastal areas. Key issues affecting coastal areas include diffuse and point source pollution, organic matter and ammonia, faecal pathogens, toxic substances, and loss of intertidal areas. Some of these issues may be exacerbated by climate change. Environmental objectives for coastal waters include improving the status of coastal waters and estuaries, and improving the structure and condition of the bed and shores</td>
<td>The objectives defined by RBMPs covering Scotland are of indirect relevance to the SPS.</td>
</tr>
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</table>

\(^79\) Environmental Liability (Scotland) Regulations 2009 – Summary [available online] [http://www.scotland.gov.uk/Topics/Environment/waste-and-pollution/Pollution-1/ELD](http://www.scotland.gov.uk/Topics/Environment/waste-and-pollution/Pollution-1/ELD)


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<td>Flood Risk Management (Scotland) Act 2009&lt;sup&gt;83&lt;/sup&gt;</td>
<td>Includes new measures for sustainable flood risk management. This includes co-ordination and co-operation between relevant organisations, development of flood risk assessment and planning and tools for delivery and enforcement. Applicable to coastal flood protection measures.</td>
<td>The SPS should consider this, particularly as potential impacts have been identified in increased storm protection for coastal areas in the vicinity of seaweed cultivation and harvesting sites.</td>
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**Soil, Geology and Coastal Processes**

**Scotland**

**Scottish Soil Framework 2009** | Provides an overarching policy framework for protection of soils in Scotland. While this relates largely to the onshore environment, it includes coastal areas and the principles are applicable more widely. | The SPS should consider potential effects in coastal zones. |

**Climatic Factors**

**Scotland**

**Climate Change Sector Adaptation Action Plan: Marine and Fisheries (2011)<sup>84</sup>** | Sets out a number of objectives including raising awareness of climate change to the wider marine stakeholder community (through the Marine Strategy Forum). Also aims to build evidence to support future adaptation action and build further policies that respond to impacts. | The SPS and its assessment should take into account the need to adapt to the impacts of climate change in the future. |

**Cultural Heritage**

**International**

**UNCLLOS 1982 was ratified by the UK in 1997<sup>85</sup>** | Article 303 stipulates that 'states have the duty to protect objects of an archaeological and historical nature found at sea and shall co-operate for this purpose' and provides for coastal states to exert a degree of control over the archaeological heritage to 24 nautical miles. | The SPS should support commitments to protect the offshore historic environment. |

**United Kingdom**

**Protection of Wrecks Act 1973** | The 1973 Act provides protection for designated wrecks and for the designation of dangerous sites. | The SPS should take into account effects on protected wrecks. |

**Ancient Monuments and Archaeological Areas Act** | Provides for the protection of archaeological heritage, including the scheduling of 'monuments'. The Act, which is administered by Historic | The SPS should take into account potential impacts on nautical |

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<td>1979</td>
<td>Scotland, primarily deals with terrestrial locations but there is provision to designate nautical sites.</td>
<td>archaeology as a result of fishing activities.86</td>
</tr>
<tr>
<td>Protection of Military Remains Act 1986</td>
<td>Identifies scope for protected places and controlled sites, covering vessels. This reflects the status of these sites as war graves.</td>
<td>The SPS should take into account the protection afforded to these types of sites.</td>
</tr>
<tr>
<td>Scotland</td>
<td>Provides the overarching framework for historic environment policy in Scotland, consolidating and replacing the previously separate SHEPs. Aims to promote effective conservation and to enhance enjoyment and understanding of the historic environment, linking it with the Scottish Government’s central purpose. Recognises the importance of the historic environment as an economic resource and also states a Ministerial commitment to connecting the population with their cultural legacy. Ministers have consulted on policy on the Marine Historic Environment and finalised policy on this subject will be incorporated in a future revision of the SHEP.</td>
<td>The aims of protecting the historic environment should be taken into account in development of the SPS.</td>
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</table>
| SHEP on the Marine Historic Environment Strategy for the protection, management and promotion of marine heritage 2011-16 (Consultation Document consultation closed January 2012)88 | Sets out Historic Scotland’s priorities for protecting, managing and promoting marine heritage under new marine legislation. Objectives include:  
• Improving the record of the marine historic environment and disseminating this information  
• Making recommendations on the selection, designation and management of Historic Marine Protected Areas (HMPAs)  
• To use marine planning and marine licensing systems to guide the sustainable development of offshore resources  
• To improve understanding of the processes and operations that impact on marine heritage sites and how to address these.  
• To increase sustainable access to HMPAs and promote information | The SPS should take account of any Marine Protected Areas proposed for the historic environment, where available, and to support sustainable planning of the marine environment. |

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<td><em>Scotland</em></td>
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| SNH Natural Heritage Futures Coasts and Seas (2002)\(^{89}\) Update: Coasts and Seas (2009)\(^{90}\) | Provides baseline information and draws attention to particularly important issues, assets and changes. The key objectives for nature and landscape are to:  
- Achieve sustainable use of our coasts and seas through better management, knowledge and understanding of the marine environment.  
- Manage the coast in sympathy with natural processes;  
- Safeguard and enhance maritime biodiversity and ecosystems.  
- Safeguard and enhance the fine scenery and diverse character of coastal seascapes and landscapes.  
- Achieve sustainability in Scottish sea fisheries through responsible fishing that keeps stocks within safe biological limits and minimises adverse impact on the marine ecosystem.  
- Ensure that salmon farming and other types of aquaculture are environmentally sustainable.  
- Improve the water quality of estuaries and seas; and  
- Promote access to the sea and coast for public enjoyment and recreation. | The SPS should consider the principles and issues identified in the Futures documents. |

| Material Assets (Infrastructure and Harvest Stocks) | Provides clearly defined goals, principles and general rules for organic production, including farm management and food production systems that combine best environmental practices, a high level of biodiversity and the preservation of natural resources. | The SPS should promote the principles and measures detailed in the regulations. |
| European | Contains |  
Council Regulations EC 834/2007 on organic production and labelling of organic products and repealing Regulation (EEC) No 2092/91\(^{19}\) |  
The regulation provides a basis for EU rules on organic aquaculture and |

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\(^{89}\) SNH Natural Heritage Futures Coasts and Seas (2002) [available online] [http://www.snh.gov.uk/docs/A306281.pdf](http://www.snh.gov.uk/docs/A306281.pdf)

\(^{90}\) Update: Coasts and Seas (2009) [available online] [http://www.snh.gov.uk/docs/A306270.pdf](http://www.snh.gov.uk/docs/A306270.pdf)
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<td>seaweeds, including:</td>
<td>The growing areas are to be of high ecological quality as defined by Directive 2000/60/EC of the European Parliament. The seaweed product is not unsuitable from a health point of view. The collection does not affect the long term stability of the natural habitat or the maintenance of the species in the collection area. Sustainable practices are used in all stages of production, from collection of juvenile seaweed to harvesting. Ensuring that a wide gene-pool is maintained. The collection of juvenile seaweed in the wild should take place on a regular basis to supplement indoor culture stock.</td>
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<td></td>
<td>The regulations cover the control, production and labelling of organic products, including seaweed. Provisions include:</td>
<td>The SPS should promote the principles and measures detailed in the regulations.</td>
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<td>Limited use of fertilisers and conditioners of low solubility. Restricted use of pesticides that may have detrimental effects. Giving preference to the application of preventive measures in pest, disease and weed control.</td>
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<td></td>
<td>Regulates seaweed cultivation, contains detailed rules on organic aquaculture production and seaweed cultivation, and applies to the production of all multi-cellular marine algae or phytoplankton and micro-algae for further use as feed for aquaculture animals. The provisions state:</td>
<td>The SPS should promote the principles and measures detailed in the regulations.</td>
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<td>Member State authorities may designate locations or areas which they consider to be unsuitable for organic aquaculture or seaweed harvesting. Promotes sustainable management to ensure wild seaweed beds are not over-harvested in order to allow regeneration. Production does not cause a significant impact on the state of the aquatic environment. Promotes the use of renewable energy sources and re-cycle materials by aquaculture and seaweed business operators. Seaweed culture at sea to utilise nutrients naturally occurring in the</td>
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<td>Scotland</td>
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<td>Scottish Aquaculture: A Fresh Start: The Renewed Strategic Framework for Scottish Aquaculture (2009)</td>
<td>environment or from organic aquaculture animal production, preferably located nearby as part of a polyculture system. Limits on culture density or operational intensity to maintain the integrity of the aquatic environment.</td>
<td>Given the potential use of seaweed cultivation in IMTA, the development of the SPS should consider the principles in this framework.</td>
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<tr>
<td>Shellfish Waters Directive 2006/113/EC (supersedes the Shellfish Growing Waters Directive (79/923/EC)</td>
<td>Update to the existing aquaculture strategy. This includes five main themes: healthier fish and shellfish – in relation to sea lice management and disease control; improved systems for licensing aquaculture developments – taking a strategic approach to the siting of sites for aquaculture in Scotland; improved containment – managing escapes and welfare issues around control of seals; better marketing and improved image – developing the shellfish sector.</td>
<td>While not strictly relevant, given the commonalities between shellfish and seaweed cultivation (i.e. potential locations, importance of water quality, etc) the SPS should consider these principles, and support the protection and improvement of the quality of designated coastal and brackish waters.</td>
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<tr>
<td>The Surface Waters (Shellfish) (Classification) (Scotland) Regulations 1997</td>
<td>The Directive concerns the quality of shellfish growing waters. Along with other Member States, the UK has designated those coastal and brackish waters needing protection or improvement in order to support shellfish (bivalve and gastropod molluscs) life and growth and to contribute to the high quality of directly edible shellfish products. There are 80 designated shellfish waters in Scotland. The Regulations establish classification and sampling criteria and confer a duty on SEPA to investigate and adopt appropriate measures where monitoring results indicate that the waters do not meet the minimum quality standards specified in the Directive.</td>
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