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Scottish Marine Bill

Strategic Environmental Assessment (SEA): Environmental Report (ER)

Scottish Government
October 2008

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Section 1: Introduction

1 Introduction

1.1 Introduction

This Environmental Report (ER) has been prepared as part of the Strategic Environmental Assessment (SEA) of the Scottish Government's proposed Scottish Marine Bill as set out in the consultation document *Sustainable Seas for All: A Consultation on Scotland's First Marine Bill*. The report presents the findings from the SEA, identifies options for mitigating adverse effects and opportunities for enhancing or improving the overall sustainability of the proposals to be set out in the Scottish Marine Bill.

1.2 Overview of the Scottish Marine Bill

The Scottish Marine Bill consultation document has been prepared in response to calls from environmental bodies, regulatory authorities, developers, NGOs and community groups, and recommendations from the Rural Development Committee and the Advisory Group on Marine and Coastal Strategy (AGMACS) for improved and more sustainable management of human activities within the marine environment and increased protection of Scotland's marine natural heritage.

At present, activities within the Scottish seas are regulated by more than 80 pieces of legislation and three different parliaments. The Scottish Government has devolved responsibility for the majority of activities that occur within 12 nautical miles (nm). However, a number of the activities occurring between 12 to 200 nm remain the responsibility of the UK Parliament (reserved matters). A summary of the key devolved and reserved matters is presented below.

Table 1.1: Devolved and Reserved Responsibilities for Marine Activities in Scotland

Activity	Within 12 Nautical Miles (nm)	12 to 200 Nautical Miles (nm)
Fishing	Devolved	Devolved
Aquaculture	Devolved	Not applicable
Nature and conservation	Devolved	Reserved
Harbours and harbours orders	Devolved	Not applicable
Control of land-based discharges (WEWS Act)	Devolved	Not applicable
Planning	Devolved	Reserved
Coastal Protection Act	Devolved	Not applicable
FEPA	Devolved	Executively devolved
Renewable energy	Executively devolved*	Executively devolved
Telecommunications	Reserved	Reserved
Oil and gas	Reserved	Reserved
Shipping	Reserved	Reserved
Historic heritage/environment	Devolved	Reserved

* Executively devolved – Scottish Government administers the activity but have no powers to change the legislation

Source: *Scotland's Seas: Towards Understanding their State*, FRS, SEPA and SNH (April 2008)

Whilst the distribution of responsibilities in terms of reserved and devolved matters is still under consideration, it is recognised that these are unlikely to change significantly under the Scottish Marine Bill. However, the Scottish Marine Bill does seek, where possible, to simplify and clarify the management of those activities for which the Scottish Government has responsibility.

Progress has also been made towards improved protection of the marine natural environment through the introduction of the European Marine Strategy Framework Directive (MSFD). This Directive, which was issued on 17th June 2008, requires member states to 'take the necessary measures to achieve or maintain good environmental status of the marine environment by 2020 at the latest'. The Scottish Marine Bill consultation document therefore forms a basis for which the MSFD can be transposed into domestic legislation.

1.2.1 *Content of the Scottish Marine Bill*

The Scottish Marine Bill will introduce a new framework for marine conservation and protection and the sustainable management of human activity within the marine and coastal environment. This will be achieved through five key policy areas:

- Creating Stability: Marine Planning and Integrated Coastal Zone Management
- Reducing the Burden: Licensing and Enforcement
- Securing the Future: Nature Conservation
- Understanding our Seas: Science and Data
- Managing our Seas: Marine Scotland

Each of these policy areas are discussed in further detail in Section 2: Chapters 8 to 12.

1.3 **Description of the Project**

1.3.1 *Subject of the SEA*

The plan which is the subject of this SEA is the Scottish Government's proposal to create a new legislative and management framework for the delivery of sustainable economic growth in the marine environment. Proposals relate to creating a stable investment environment, reducing the regulatory burden, enhanced nature conservation, improving our understanding of the seas with delivery through a Scottish Marine Management Organisation - Marine Scotland. The legislative and management framework will be set out in the Scottish Marine Bill.

The assessment is based on the information contained within the *Sustainable Seas for All: A Consultation on Scotland's First Marine Bill*. The consultation document sets out a programme of measures that will potentially impact upon fisheries, energy, industry, transport water management, tourism and therefore has been identified as requiring an SEA under clause 5(3)(i) of the Scottish SEA Act 2005. In addition the proposals in the consultation document will set the framework for future marine spatial planning and development consents which also require an SEA under Schedule 1 part 2 (7) of the Act.

In summary:

- The purpose of the SEA is to assess the effects of implementing the Scottish Marine Bill (which will ultimately become an Act)
- The draft plan of the Scottish Marine Bill is set out in the consultation document: *A Sustainable Seas for All*. This is the draft plan required by the SEA Act which must be made available for consultation with the Environmental Report
- Ultimately, the plan which will be adopted is the Scottish Marine Act

1.3.2 *Focus of the SEA*

The focus of this SEA is to strategically assess how each of the five key policy areas, and the Marine Bill as a whole, would affect the marine and coastal environment and identify options or solutions for minimising or avoiding any significant negative effects and maximising benefits.

1.3.3 *Study Area*

The area covered by this SEA includes the full seaward extent of Scottish territorial waters from the mean high water mark to the 200nm limit. It therefore covers the transitional zone between the landward limits of the marine environment (mean high water) and the recognised terrestrial planning boundary (mean low water). The SEA study area is illustrated in Figure 1.1.

1.3.4 *SEA Topics*

The environmental topics covered as part of the assessment are set out in Chapter 2. It should be noted that this SEA does not include socio-economic impacts. In accordance with the SEA Directive and the Scotland SEA Act 2005 the SEA has considered 'population' and 'human health' issues but only in terms of the effects that the different policy areas are likely to have on the main marine activities and how they interact with each other and the environment.

A full assessment of the potential social and economic effects of the Scottish Marine Bill would have required a detailed understanding of how the different marine activities/sea user groups support local communities in terms of employment and revenue as well their contribution to Scotland's national economy. Whilst it is fully acknowledged that it is important to have a full understanding of the wider impacts of the different marine activities on the economy and local communities in terms of the SEA, the ultimate focus of this SEA is on the 'environment'.

It is important to note that in parallel to this SEA, a Regulatory Impact Assessment (RIA) of the Scottish Marine Bill has also been carried out. The findings from this have been considered in conjunction with this SEA.

1.3.5 *Objectives of the Scottish Marine Bill SEA*

Taking account of the aims of the Scottish Marine Bill, the four main objectives of this SEA are:

1. To assess how each of the five main policy areas of the Scottish Marine Bill would affect the marine environment
2. To assess 'cumulatively' how through implementation of the five main policy areas of the Scottish Marine Bill would affect the environment
3. To determine whether the Scottish Marine Bill will tackle current environmental problems
4. To assess whether the Scottish Marine Bill will assist the Scottish Government in delivering its obligations to achieve Good Environmental Status (GES) of marine waters by 2020 as set out under the Marine Strategy Framework Directive (MSFD)

1.4 **How will the SEA Inform the Scottish Marine Bill?**

Having decided that an SEA is required, the main question to ask when carrying out the SEA is 'how will the findings of the SEA actually inform the Scottish Marine Bill?'

Ultimately the Scottish Marine Bill is a proposal for an Act of Parliament. Once enacted as domestic law there will be no opportunity to influence or review the content of that Act (although there will be opportunities to influence the legislation, plans or other activities that follow from the Act). It has therefore been accepted that to ensure that the Act is robust and sound from an environment perspective the proposals upon which the Act will be based i.e. the consultation document on the Scottish Marine Bill should be subject to an SEA.

Given that the main purpose of the Scottish Marine Bill is to improve environmental protection and to develop a framework for the sustainable management of all marine activities it is likely that the overall effect of the Scottish Marine Bill on the environment will be positive. However, there are a number of different policy areas within the Scottish Marine Bill, each of which has the potential to have both positive and negative effects on the environment.

Taking the above into account the following key points define the role of the SEA process in the preparation of the Scottish Marine Bill:

1. The Scottish Marine Bill is ultimately a proposal for new environmental legislation. Part of the role of the SEA is to therefore assess how the legislation will affect the environment.
2. Some of the proposals within the Scottish Marine Bill have a specific 'spatial' element e.g. marine planning. Therefore the SEA is required to assess whether the Scottish Marine Bill could have direct effects on the environment as a result of changes in coastal/marine planning policy.
3. Although some elements proposed within the Scottish Marine Bill will be subject to SEAs at the point of implementation e.g. marine spatial plans, this will not be the case for all policy areas. Carrying out an SEA at this level will therefore ensure that all aspects of the Scottish Marine Bill (the policy areas) are assessed in terms of their effect on the environment, providing the basis for identifying improvements to the overall robustness of the Scottish Marine Bill in terms of environmental protection.
4. The SEA provides an opportunity for measures for preventing, reducing or offsetting any potential significant adverse effects of the main policy areas on key SEA topics to be integrated into the Scottish Marine Bill prior to its adoption.
5. There is an opportunity as part of the SEA to examine wider environmental issues e.g. not just how the Scottish Marine Bill will promote environmental protection, but how it will assist the Scottish Government in achieving the targets of Good Environmental Status (GES) by 2020 set out in the MSFD. It will also determine whether it addresses the key environmental issues that are currently affecting Scottish seas.
6. The SEA provides a basis upon which opportunities for resolving potential competing or conflicting interests can be examined with the aim to minimising any indirect effects that these conflicts may have on the environment.

1.4.1

Mechanisms for Informing the Scottish Marine Bill

The main mechanisms by which the SEA process can inform the development of the Scottish Marine Bill include:

- Client liaison
- Stakeholder consultation (Scoping Workshop)
- Providing environmental information to inform consultation on the Scottish Marine Bill Consultation Document
- Consultation on the Environmental Report
- Review and analysis of consultation responses and providing feedback to the preparation of the final Scottish Marine Bill

In addition to providing information to the Scottish Government on the potential environmental effects of the Scottish Marine Bill, the main aim of this SEA and the Environmental Report is to provide consultees on the Scottish Marine Bill with the necessary environmental information to inform their views on the proposals within the consultation document. This Environmental Report has therefore been issued during the period of consultation on the Scottish Marine Bill to ensure that the findings of the SEA can be taken into consideration as part of that consultation process.

This Environmental Report will also be subject to public consultation. The main focus of this consultation is to ensure that the findings from the SEA are accurate and correct and that all potential environmental issues have been dealt with appropriately. All formal responses to the consultation on the Environmental Report will be taken into account in the preparation of the final Scottish Marine Bill.

1.5 Strategic Environmental Assessment (SEA)

1.5.1 *The Environmental Assessment (Scotland) Act 2005*

In 2005 the Scottish Government established the Environmental Assessment (Scotland) Act. This Act, which came into force on 20th February 2006, replaces the Environmental Assessment of Plans and Programmes (Scotland) Regulations 2004 as the transposition vehicle for the SEA Directive (European Directive 2001/42/EC “the assessment of the effects of certain plans and programmes on the environment”). The Act delivers on the Partnership Agreement commitment to widen the scope of SEA, and go further than obliged by the SEA Directive, by including strategies as well as all public plans and programmes (PPS).

The main benefits of the SEA process as set out in the 2005 Act are as follows:

- SEA improves the information base for PPS preparation, providing clear information on the possible impact on the environment and influencing the preparation of the PPS, while building in better environmental protection and outcomes
- SEA provides a rigorous system for including environmental factors in decision-making, thus supporting a sustainable development approach
- SEA facilitates an improved consultation process, including the rigorous assessment of reasonable alternatives
- SEA also facilitates transparency, by requiring that an analysis of public comments is undertaken and made publicly available
- SEA facilitates the consideration of cumulative effects and provides a means to prevent, reduce and, as fully as possible, offset any potentially adverse environmental effects

1.5.2 *Objectives of the SEA Directive*

The objectives of the SEA Directive, as set out in Article 1, are “to provide a high level of protection to the environment and to contribute to the integration of environmental considerations into the preparation and adoption of plans and programmes with a view to promoting sustainable development”. The objectives of the SEA¹ as set out in the Environmental Assessment (Scotland) Act 2005 are:

- To provide a systematic means of identifying, describing, evaluating and reporting on the environmental effects of PPS
- To require Responsible Authorities (i.e. plan, programme or policy-makers) to prepare a report on the likely significant environmental effects of the PPS and its reasonable alternatives
- To prevent, reduce and offset negative environmental effects. The enhancement of positive effects may also benefit from the SEA process
- To ensure wide consultation and engagement with the statutory Consultation Authorities, such as other bodies as the Responsible Authority considers appropriate (e.g. health), and the public at an early and effective stage of the PPS preparation
- To deliver a public statement demonstrating how the results of the environmental assessment and the opinions expressed during the SEA consultation process have been taken into account in a final adopted PPS
- To ensure that Responsible Authorities monitor the significant environmental effects of implementing their PPS, enabling them to also identify unforeseen adverse effects at an early stage and to take appropriate remedial action where necessary

¹ Strategic Environmental Assessment Toolkit: Natural Scotland (Scottish Government) 2006.

1.5.3 Requirements of the SEA Directive

The Strategic Environmental Assessment Toolkit: Natural Scotland (Scottish Government) 2006 was published in response to enforcement of the 2005 Act. The SEA Toolkit sets out the requirements of the 2005 Act and provides guidance for its practical application within Scotland. It incorporates advice set out in the UK Governments main guidance note on SEA 'A Practical Guide to the Strategic Environmental Assessment Directive' (ODPM September 2005).

The main requirements of the SEA Directive and the SEA Act 2005 include: the preparation of an environmental report; consultation; taking the results of the environmental report and consultations into account in decision-making; providing information on the decision making; and monitoring. The guidance breaks the requirements of the SEA Directive down into a series of 'Stages' (Stages A to E). Each of these stages will inform and interact with the assessment of the Scottish Marine Bill.

Stages A to E of the SEA process include:

- Stage A – Setting the context and objectives, establishing the baseline and deciding the scope
- Stage B – Developing and refining strategic alternatives and assessing effects
- Stage C – Preparing the Environmental Report
- Stage D – Consulting on the Environmental Report
- Stage E – Monitoring implementation of the marine energy strategy

Table 1.1 below lists the main requirements of each of the five stages of the SEA process.

Table 1.1: Requirements of the SEA Directive

SEA Stages
<p>Stage A: Setting the Context, Establishing the Baseline and Deciding the Scope:</p> <ul style="list-style-type: none"> ➤ Identify key environmental issues ➤ Identification/collection of baseline data ➤ Identify relevant plans, programmes and environmental protection objectives ➤ Consult with authorities with environmental responsibilities on scope of SEA
<p>Stage B: Developing Strategic Alternatives and Assessing Effects:</p> <ul style="list-style-type: none"> ➤ Predict the effects of the Scottish Marine Bill on the environment ➤ Use significance criteria to evaluate the effects of the Scottish Marine Bill the environment ➤ Outline potential measures to mitigate against any adverse effects ➤ Propose measures to monitor the environmental effects of the Scottish Marine Bill
<p>Stage C: Preparing the Environmental Report</p> <ul style="list-style-type: none"> ➤ Present the findings of the SEA in an Environmental Report ➤ Ensure the Environmental Report is accessible to all interested parties
<p>Stage D: Consulting and Decision Making:</p> <ul style="list-style-type: none"> ➤ Consult with SEPA, Historic Scotland and Scottish Natural Heritage and other key stakeholders ➤ Incorporate comments received from consultation and findings of the Environmental Report into development of the Scottish Marine Bill ➤ Issue a 'statement' (SEA Statement or Post Adoption Statement) of how the findings of the SEA were incorporated into the Scottish Marine Bill
<p>Stage E: Monitoring Implementation of the Plan:</p> <ul style="list-style-type: none"> ➤ Develop aims and methods for monitoring ➤ Respond to adverse effects

2 SEA Topics

2.1 Introduction

This chapter sets out the topics that have been covered by the SEA. The list is derived from the SEA Directive and refined to make it relevant to the coastal and marine environment. The SEA topics were identified through the authors' knowledge of the SEA process, the requirements of the Directive, an understanding of the Scottish Marine Bill and based on views given at the scoping workshop (see Chapter 3 Section 3.2).

As mentioned in the introduction, some of the important factors listed below are reserved matters (e.g. oil and gas, telecommunications and shipping) and therefore are not directly affected by the Scottish Marine Bill. However, there has been a need to consider these reserved matters as part of the SEA in particular where they influence, or interact with, devolved activities. The reserved matters have therefore been assessed both in terms of each of the policy areas (e.g. marine planning) and in terms of in-combination effects of the Scottish Marine Bill and the UK Marine Bill.

2.2 SEA Topics

Table 2.1: SEA Topics Covered in the SEA of the Marine Bill

SEA Directive Topics	Key Areas for Consideration	Important Factors
Biodiversity, Flora and Fauna	Protected sites and species	Natura 2000 Sites (SPAs and SACs) and Annex 2 species
		Biodiversity Action Plan species and habitats
		Sites of Special Scientific Interest (SSSIs)
		Marine Protected Areas (MPAs)
	Ecosystems and biological diversity	Plankton (phytoplankton and zooplankton)
		Benthic ecology
		Sea birds
		Marine mammals
		Fish
		Non-native species
Soil	Substrate	Sediment, geology, geomorphology (coastal processes)
Water	Water quality and ecological/environmental status of water	Munitions dumps
		Disposal sites
		Marine discharges
		Bathing Waters/Shellfish Waters Directive
		Water Framework Directive (WFD) targets
		Diffuse pollution
Air	Air Quality	Transport emissions (ships/coastal transport)
		Oil and gas emissions
		Atmospheric transport (nutrients and pollutants)
Climatic Factors	Affecting climate change	CO ₂ emissions from marine/coastal activities
		Renewable energy

SEA Directive Topics	Key Areas for Consideration	Important Factors
		Oil and gas exploration
		Carbon capture and storage
	Responding to climate change	Sea temperature change
		Increased 'storminess' and changes in weather patterns
		Storm surges
		Adapting to sea level rise
Cultural Heritage	Archaeological and historic natural/built environment	Wrecks e.g. ships and aircraft
		Submerged historic landscapes
		Marine archaeological features/remains
		World Heritage Sites
		Terrestrial archaeological remains/sites
		Listed buildings
		Conservation areas
		Gardens and designed landscapes
Landscape	Landscape and seascape and visual impacts	Landscape and seascape character and capacity
		World Heritage Sites
		National Scenic Areas
		National Parks
		Gardens and designed landscapes
		Areas of Great Landscape Value and Regional Scenic Areas
		Wild Land Search Areas
		Visual Amenity
Material Assets	Marine and coastal material assets	Cables and pipelines
		Ports and harbours
		Coastal infrastructure
		Telecommunications cables
		Oil and gas
		Electricity cables
		Renewable energy developments
Population	Marine activities/industries	Commercial fishing
		Aquaculture
		Shipping and navigation
		Recreation and tourism
		Ports and harbours
		Oil and gas
		Renewables (wave, tide and offshore wind)
Human health	Physical wellbeing	Bathing beaches
		Navigational safety (recreational/commercial)
		Food quality (fish and shellfish)
		Bathing waters/shellfish waters
		Nuclear emissions/discharge

3 Scoping Responses

3.1 Introduction

This chapter provides a summary of the main comments that were received on the scope of the SEA. The Scoping Report is available for download from www.scotland.gsi.gov.uk.

3.1.1 *Approach to Scoping*

The approach to scoping the SEA included:

- A Scoping Workshop
- Preparation of a formal SEA Scoping Report. This was issued on 22nd July 2008 by the Scottish SEA Gateway

3.2 Scoping Workshop

A Scoping Workshop was held on 19th June in Edinburgh. The main focus of the workshop was to discuss the scope of the SEA. The workshop was focused around two 'discussion sessions' with introductory Microsoft PowerPoint presentations. A scoping discussion note was issued prior to the workshop to inform the discussions.

The workshop attendees included:

- Representatives from the Sustainable Seas Task Force (SSTF)
- Representatives from Historic Scotland and SEPA (also on the SSTF)
- Representatives from various departments within the Scottish Government

A complete list of the workshop attendees is presented in Appendix A.

It should be noted that the focus of the workshop was to inform the preparation of the Scoping Report which was issued for formal consultation on 22nd July 2008. Therefore, whilst some stakeholders were unable to attend the Scoping Workshop there was still opportunity for those people to comment on the scope of the SEA as set out in this Scoping Report. Attendees at the Scoping Workshop are included in Appendix A1.

3.2.1.1 Discussion Topics and Feedback

The main comments and feedback received during the two discussion session are summarised in Table 3.1 below.

Table 3.1: Summary of Feedback from Scoping Workshop

Questions	Summary of Feedback
1: Do you agree with the approach to scoping in particular the review of baseline data?	<ul style="list-style-type: none"> ▪ The group generally agreed with the approach to scoping (as set out in this document) although there is a need for greater clarity in terms of 'high level assessment'. ▪ The group in general agreed that, given the recent (April 2008) publication of the Scotland Seas report, it would be appropriate to simply reference this document and other relevant reports as the key sources of baseline data that would be used during the assessment rather than reproduce the information in this scoping report. ▪ However, it was identified that Scotland Seas report and other reports may contain gaps (information and data gaps) and should be reviewed fully to identify those gaps and solutions for filling gaps where possible. ▪ There may also be a requirement to supplement the identified reports with other information relating to marine activities etc.
2: Do you agree with the SEA topics identified?	<ul style="list-style-type: none"> ▪ In general the group agreed with the SEA topics identified although the following modifications were suggested (this has been reflected in the list of SEA topics in Chapter 3): <ul style="list-style-type: none"> ➢ Designated sites should include MPAs as well as Natura 2000 sites ➢ Soil should refer to substrate, geology and geomorphology and could include coastal processes ➢ Air quality should cover emissions from oil and gas and the atmospheric transport of nutrients and pollutants ➢ Water quality should refer to the ecological status of water ➢ Proposals for carbon capture (offshore) should be included in reducing climate change ➢ The important factors relating to the adaptation to climate change should include sea temperature changes, changes to weather patterns and storm intensity and storm surges ➢ The important factors for landscape and seascape should be expanded to list key landscape designations etc ➢ Human health should include emissions from the nuclear industry
3 and 4: What do you think are the main marine activities, consenting procedures, environmental protection measures and mechanisms for data collection? And what are their effects on the environment?	<ul style="list-style-type: none"> ▪ There is a lot of information relating to this question in the Scotland Seas report and in the AGMACS meeting notes and reports which are accessible via the Scottish Government website. ▪ Key points included: <ul style="list-style-type: none"> ➢ Issues where there is limited knowledge e.g. role of the proposed Independent Planning Commission (IPC) in Scottish Waters ➢ How will the Marine Bill address international fishing fleets in 6 to 12 nm zone ➢ How does the Marine Bill integrate with Crown Estates objectives? ➢ There is a need for greater alignment in terms of data, research and monitoring across organisations and a central storage location ➢ How are actual pressures on the marine environment perceived and how will these be addressed in the SEA and the Marine Bill? ➢ Greater evidence base required to inform decision makers and consultees ➢ Current lack of planning below low water mark has negative effects on cultural and marine heritage ➢ Need to look at examples where different activities/user groups have managed to work collaboratively to reduce impacts and assist each other e.g. oil and gas and fisheries.
Workshop Session 2	
1: Do you agree with the proposed approach to the assessment? If not which areas could be modified?	<ul style="list-style-type: none"> ▪ In general the group agreed with the approach and felt that it was logical. A few suggestion were made including: <ul style="list-style-type: none"> ➢ Focus on assessing the effects of the 'objectives' of the different policy areas to help maintain the 'high level strategic' nature of the assessment ➢ Need to consider how to assess whether the Marine Bill and what it includes will provide a framework for achieving the targets for Good Environmental Status (GES) ➢ Also need to consider how the assessment will cover devolved and reserved matters ➢ In terms of alternatives need to consider Bill/No Bill and for each policy area e.g. MMO consider MMO or no MMO

Questions	Summary of Feedback
2: In the context of the SEA topics and Marine Bill policy areas where do you think negative or positive effects are likely to occur?	<ul style="list-style-type: none"> ▪ Only a few attendees had seen the draft Consultation Draft of the Scottish Marine Bill, limiting output from this session. ▪ Some of the key points identified include: <ul style="list-style-type: none"> ➢ Need to consider the potential for negative effect to occur in areas that cannot be regulated by the Scottish Government and how will these be addressed by the SEA? ➢ Need to ensure that the Marine Bill does not lead to over regulation which can be time consuming and costly ➢ Need to use the best available information in decision making ➢ Potential conflict between the Marine Bill and other environmental ambitions/policy e.g. Marine Energy. This needs to be addressed in assessment of cumulative effects/conflict resolution etc ➢ Assessment should consider the 'capacity' of the marine environment to accommodate an increase in certain activities e.g. shipping ➢ Will MPAs be primary designation/allocation of space or the left over areas once all other activities been considered? If the primary allocation need to consider the re-distribution of activities as a result of the designation of MPAs will affect other activities and the environment. Who will determine the designation and redistribution of activities
3: Where negative effects are identified suggest opportunities for reducing, avoiding or offsetting these effects through the Marine Bill	<ul style="list-style-type: none"> ▪ Mitigation should be inherent to the Scottish Marine Bill ▪ Judgements on mitigation will need to be made as the assessment progresses. ▪ Need to consider whether Marine Planning will constrain development and if so how to prevent this whilst improving efficiency and effectiveness of current planning system.
4: Identify the most likely cumulative effects associated with the Marine Bill and how these can be prevented reduced	<ul style="list-style-type: none"> ▪ Links to UK Marine Bill are important. ▪ Links to other marine strategies and environmental objectives. ▪ How will the Scottish Marine Bill achieve 'good environmental status'? ▪ In terms of cumulative effects need to consider OSPAR and WFD etc. ▪ Need to check phrasing in terms of cumulative and 'in combination'. ▪ Impact of Marine Bill on human wellbeing and economies – links? ▪ Oil and gas issues and other wider UK issues – how will these be dealt with?

3.3

Statutory Consultee Responses

In addition to the Scoping Workshop, a formal scoping opinion was requested from Scottish Natural Heritage (SNH), Scottish Environment Protection Agency (SEPA) and Historic Scotland. A summary of the responses received from all three consultees is presented in Table 3.2 below. A copy of the consultee responses are included in Appendix A2.

Table 3.2: Statutory Consultee Responses

Subject	Consultee	Comment
General comments received on the Scope of the SEA	Historic Scotland	<ul style="list-style-type: none"> ▪ Scoping Report provides a clear outline of the proposed approach to the SEA. ▪ Historic Scotland are happy with the scope and level of detail proposed for the SEA. ▪ A copy of Historic Scotland's SEA pre-screening report for the Marine SHEP (proposals for Scottish Ministers policy for the Marine Historic Environment and proposals for new legislation for the protection of marine historic sites) was provided as guidance/reference. ▪ Additional information on the definition of the marine environment was also provided. Historic Scotland requires consideration of the listed features within the baseline and assessment. ▪ Consultation period for scoping was appropriate ▪ Hard copies of the Environmental Report will be required for consultation.

Subject	Consultee	Comment
	SEPA	<ul style="list-style-type: none"> ▪ Scoping report provides a clear and concise view about the intended scope and level of detail of the assessment. ▪ SEPA is generally content with the proposed scope, level of detail and proposed methodology except two points of concern: <ul style="list-style-type: none"> ➢ Scoping report has been prepared and published after the consultation on the Scottish Marine Bill on which the assessment is to be made, indicating that the plan preparation and assessment processes have not been fully integrated ➢ It is not clear how the results of the SEA will be taken into account ▪ SEPA recognise the intention to issue the Environmental Report to coincide with the consultation on the Scottish Marine Bill and to review any comments received on the Environmental Report prior to <i>'adoption of the final bill'</i>. ▪ SEPA is also concerned that there is potential for the assessment to become unnecessarily long and overly detailed. SEPA identify that a strategic level assessment which identifies key issues and relevant mitigation measures should be sufficient for the Scottish Marine Bill and suggests that the assessment is therefore kept at a high level wherever possible.
	SNH	<ul style="list-style-type: none"> ▪ SNH generally support the proposed approach to preparing the Environmental Report and agree that due to the nature of the consultation it is appropriate to apply the assessment process at a high strategic level and focus on overarching objectives of the main policy areas and their environmental implications.
Detailed Comments: Introduction	Historic Scotland	<ul style="list-style-type: none"> ▪ Information presented in Section 1 clearly sets out the purpose of the Scottish Marine Bill and related information.
	SEPA	<ul style="list-style-type: none"> ▪ SEPA is content with the proposed period of consultation on the Environmental Report. ▪ Hard copies of the report, as well as digital copies, should be made available via the SEA gateway. ▪ SEPA is content with the proposed scope of the SEA (geographically and not covering socio-economic effects) ▪ It would be useful if the RIA and SEA were made available together to allow wider issues to be considered. ▪ SEPA welcomes and supports the main objectives and key deliverables in particular the intention to identify measures for enhancement as well as mitigation.
	SNH	<ul style="list-style-type: none"> ▪ SNH support the proposal that the SEA should consider how the Scottish Marine Bill can assist in achieving the targets of Good Environmental Status (GES) by 2020 as required under the Marine Strategy Framework Directive. ▪ SNH highlights the need to consider as part of the SEA the role of marine objectives and how competing priorities may be weighed up in planning and decision making. There is also a need to assess the possible duties that could be placed on public bodies in relation to the environment e.g. an offshore biodiversity duty or applying MEOs in carrying out their functions. ▪ SNH stress that whilst the marine planning system should build on the established land use planning system the nature of the marine environment is very different. There are deficiencies in the land use system that also needs to be taken into account. ▪ In relation to marine planning there is also a need to consider the status of plans and planning process, the role of objectives and the extent to which priorities and objectives are coherent at different levels or tiers of planning. ▪ SNH highlight concern over the reference to the <i>'wider seas measures being more in line with recognised T&CP land use policy'</i> given that many of the issues identified for consideration in the SEA like water quality, geology and coastal processes are not well covered by the traditional T&C planning process. ▪ The SEA should also consider options for the structure, function and remit of Marine Scotland as the statutory purpose and duties set out for the organisation will influence the importance given to environmental issues relative to other priorities.

Subject	Consultee	Comment
Review of other Plans and Programmes	Historic Scotland	<ul style="list-style-type: none"> ▪ Historic Scotland listed a number of relevant plans and programmes that need to be considered as part of the review ▪ In summary, the key environmental protection objective of the legislation and policy framework is 'to protect and, where appropriate, enhance the historic environment'. ▪ Further information is available in the SEA pre-screening report for the Marine SHEP
SEA Topics	Historic Scotland	<ul style="list-style-type: none"> ▪ Historic Scotland is happy with the listed SEA topics and the important factors listed for the historic environment. ▪ Gardens and designated landscapes may need to be considered for both landscape and the historic environment
	SEPA	<ul style="list-style-type: none"> ▪ SEPA assumes all of the topics identified will be included in the assessment and feel the list is very thorough, although it is suggested that under the water topic diffuse pollution is also considered
	SNH	<ul style="list-style-type: none"> ▪ SNH have suggested some amendments to the SEA topics and important features: ▪ Protected species – add Biodiversity Action Plan species and habitats and Habitats Directive Annex 2 species; ▪ Water Quality – include Water Framework Directive targets ▪ Landscape - should read Gardens and Designed Landscape. Also add landscape/seascape character and capacity
Approach and Method	Historic Scotland	<ul style="list-style-type: none"> ▪ Historic Scotland is content with the approach to focus the assessment on the SEA topics rather than SEA objectives due to the high strategic level of the SEA and the focus of the Scottish Marine Bill. ▪ Any assumptions made during the assessment should be clearly identified and documented ▪ It would also be helpful to include commentary in the assessment matrices ▪ Suggested amendment to Figure 4.1 to remove 'natural' from the 'improved protection of the marine environment' text box
	SEPA	<ul style="list-style-type: none"> ▪ SEPA agree that the baseline data sources identified in the Scoping Report will provided extremely comprehensive information. Other suggested useful information includes the water management issues reports for the Scotland and Solway Tweed River Basin Districts for providing information on pressures on coastal waters ▪ SEPA is content with the approach not to use SEA objectives as these are not always the most effective means of being able to identify environmental effects, particularly for high level plans ▪ SEPA identifies that the most important output from the assessment will be to identify key high level effects and address them through appropriate mitigation and enhancement. ▪ SEPA welcomes the commitment to mitigation and enhancement and identifies that mitigation is a crucial part of the SEA process in terms of addressing affects and improving the benefits of the plan. ▪ To assist the SEA SEPA suggest that it would be useful for the mitigation to be set out in a way that clearly identified the measures required in response to each adverse effect, when they would be required and who will be required to implement them. Therefore providing a clear framework for the delivery of mitigation. ▪ Figure 4.1 is helpful in setting out the focus of the SEA in relation to the five policy areas ▪ Figure 4.2 is helpful and clear on the assessment method ▪ It is not clear how alternatives will be considered in the preparation of the Marine Bill ▪ A concise summary of the alternatives considered and their assessment should be set out in the Environmental Report
Key Issues – Marine Activities	Historic Scotland	<ul style="list-style-type: none"> ▪ Historic Scotland identify that the assessment should consider the following points: ▪ Impacts of certain commercial fisheries e.g. scallop dredging and demersal trawling on key archaeological sites and how the Marine Bill will affect this; ▪ Impacts of recreational diving to certain historic shipwrecks and

Subject	Consultee	Comment
		<p>how the Marine Bill will affect this;</p> <ul style="list-style-type: none"> ▪ Impacts of marine renewables developments on key archaeological sites and how the Marine Bill will affect this; and ▪ Impacts of telecommunications/electricity cables on key archaeological sites and how the Marine Bill will affect this.
Key Issues – Marine Activities	SEPA	<ul style="list-style-type: none"> ▪ This section provides a useful summary. It is not clear how this information will be used in the assessment. However, a concise summary with appropriate signposting would be acceptable to SEPA.
	SNH	<ul style="list-style-type: none"> ▪ Coastal defences should be added to the list of key issues and considered as part of the assessment
Key Issues – Marine Activity Interventions	Historic Scotland	<ul style="list-style-type: none"> ▪ SEA should give consideration to potential conflict between historic environment site protection objectives and for example recreational use, commercial fisheries or development
Mitigation	Historic Scotland	<ul style="list-style-type: none"> ▪ The Environmental Report needs to describe the measures proposed to mitigate the Bill including: ▪ Changes made to the plan (the Marine Bill or resulting Act) ▪ More detailed mitigation to be implemented as the Marine Bill is delivered ▪ Recommendations or expectations for lower level plans ▪ Responsibility for ensuring mitigation measures are taken forward as the Marine Bill is implemented
Monitoring	Historic Scotland	<ul style="list-style-type: none"> ▪ In monitoring the effects of the Bill, indicators chosen for the historic environment should reflect both the actions to be taken within the Bill and potential impacts identified from the SEA ▪ Indicators may also be required for other aspects of the historic environment e.g. gardens and landscapes
Appendix B	Historic Scotland	<ul style="list-style-type: none"> ▪ Historic Scotland is content with the relevant European conventions and domestic legislation relating to the historic environment

4 Assessment Method

4.1 Introduction

This chapter sets out the method used to assess the effects of the Scottish Marine Bill on the environment based on the information set out in *Sustainable Seas for All – a Consultation on Scotland's First Marine Bill*.

4.2 Approach to the Assessment

Each policy area presented within the consultation document for the Scottish Marine Bill differs considerably in terms of what it aims to achieve and what will be delivered. The method of assessment selected for this SEA therefore needed to reflect, and take into account, these differences.

It was also determined from the outset that, due to the strategic nature of the Scottish Marine Bill and consequently the limited level of detail contained within the consultation document that, to maximise the benefit of the SEA and ensure that the results reflect the scale of the document being assessed, the assessment method needs to be applied at a very high strategic level.

In order to take account of the differences in the policy areas and to achieve the required high level assessment (and prevent the assessment becoming too detailed) the assessment method focuses specifically on assessing the implications of the overarching objective for each policy area, rather than the detail within the policy area.

This high level approach has been applied to both the assessment of potential effects of the policy areas and to the assessment of cumulative effects.

This general approach to the assessment of the Scottish Marine Bill is illustrated in Figure 4.1. A description of the method used to assess the effects of the policy areas and the cumulative effects is presented below and illustrated in Figure 4.2.

4.2.1 Assessment of Alternatives

As part of the SEA process there is a requirement to consider appropriate alternatives to the plan and the proposals or policies within the plan and their effect on the environment.

The focus of the SEA is to assess the main propositions and key proposals as set out in the Scottish Marine Bill consultation document '*Sustainable Seas for All*'. It has been identified that these propositions and key proposals ultimately comprise possible options or alternatives upon which the final Scottish Marine Bill will be based. Taking this into account, there has not been a specific process of developing 'alternative' propositions or proposals as part of the consultation document other than the 'do nothing scenario' and comparison with the proposals set out in the UK Marine Bill.

Therefore it has been identified that, in terms of this SEA, the assessment of alternatives should be integral to the overall assessment of the main propositions and key proposals set out in the consultation document. In considering the effects of these propositions and proposals relating to each of the main policy areas, the assessment will take full account of the options proposed and the likely effects on the environment in absence of the Scottish Marine Bill and the main policy areas. The main approach the assessment is discussed below.

4.3 Assessment Method

The assessment process comprises a series of four simple, logical stages, the output from each informing the following stage as set out below. These stages include:

1. Establishing the baseline
2. Assessing the effects of the marine policy areas (results presented in Section 2 of this report)
3. Assessing the cumulative and in-combination effects of the Scottish Marine Bill (results presented in Section 3 of this report)
4. Identification of appropriate mitigation measures to avoid, reduce or offset any adverse effects of the Scottish Marine Bill (for both policy areas and cumulative effects) and opportunities for improving the effectiveness of the Bill.

4.3.1 *Establishing the Baseline*

A summary of the relevant baseline data collated for the assessment of the Scottish Marine Bill is presented in Chapter 5 of this Environmental Report. The review of baseline data focuses on national level environmental characteristics and features only. This is in accordance with the level of detail presented in the Scottish Marine Bill consultation paper, the supporting 'Scotland Seas: Towards Understanding their State' report and the SEA Scoping Report.

4.3.2 *Assessing Effects of each of the Scottish Marine Bill Policy Areas*

This part of the assessment focuses purely on the individual Scottish Marine Bill policy areas. The main aim of this part of the assessment is to:

- Assess how each of the policy areas identified as part of the Marine Bill will affect current and future marine activities, licensing procedures, environmental protection measures and mechanisms for data collection and research and how any changes would consequently affect the environment
- Assess how each of the policy areas identified as part of the Marine Bill will affect the main interactions/conflicts associated with different marine activities, licensing procedures, environmental protection measures and mechanisms for data collection and research and how consequently any changes would affect the environment

The results from this part of the assessment are presented in Section 2 of this Environmental Report.

4.3.3 *Cumulative Effects of the Marine Bill*

This part of the assessment (Section 3) focuses on the wider cumulative or in-combination effects of the Scottish Marine Bill. The main aim of this part of the assessment is to draw together the key findings from the assessment of the policy areas (Section 2) to:

- Assess cumulative effects across the SEA Topics
- Assess cumulative/synergistic effects between different policy areas
- Assess in combination effects between the Scottish Marine Bill and other obligations/instruments/strategies/legislation etc
- Determine whether the Scottish Marine Bill tackles current and future environmental problems
- Determine whether the Scottish Marine Bill assist the Scottish Government in achieving the targets of the MSFD

4.3.4 *Mitigation Measures*

The main focus of the mitigation section (Section 4) of the SEA is to identify ways in which any adverse effects associated with the individual Scottish Marine Bill policy areas or the Scottish Marine Bill as a whole can be prevented, reduced or offset. This section also attempts to identify opportunities to improve the effectiveness of the Bill. In terms of this SEA, mitigation has not been included in the initial assessments (policy area and cumulative/in-combination). This is mainly because the mitigation that has been identified relates more the actual implementation of the Scottish Marine Bill rather than the specific content of the consultation paper.

4.4 **Assessment Criteria**

The assessment criteria used in the assessment of the proposals for the Scottish Marine Bill reflects the strategic high level nature of this SEA.

The general approach to SEA is to identify potentially significant adverse effects. Significance is a measure of the magnitude of a potential effect compared to/in relation to the sensitivity or importance of the receptor e.g. the SEA topics. An accurate and robust determination of effect magnitude or sensitivity of a receptor requires a certain level of qualification or quantification. This is generally based on the information contained within the plan, programme or strategy being assessed and the information contained within the baseline review.

It is recognised throughout this SEA Environmental Report and within the Scoping Report that the level of baseline data collated as part of the SEA process should reflect the level of detail within the plan, programme or strategy being assessed (Scottish Marine Bill). Consequently, both the Scottish Marine Bill consultation document and the relating SEA baseline data are of such a strategic nature that there is insufficient information available to enable an accurate or robust determination of effect magnitude, receptor sensitivity and consequently significance.

Taking this into account it was considered not appropriate to try and qualify the assessment in any great detail. This included any differentiation between high, medium or low as there was simply not the information available to accurately determine these measures. The assessment results presented in Sections 2 and 3 are therefore based on the criteria outlined below:

- Positive
- Negative
- Negligible (not significant positive or negative)
- Neutral (balanced effect e.g. there is potential for a slight positive and slight negative)
- No change from baseline. The baseline will change irrespective of the implementation of the Scottish Marine Bill. No change in baseline is where the proposed plan will not influence current trends or marine activities.

The assessment does not include any 'no effect' except in the assessment of 'reserved' matters as it is not possible at this level to accurately determine that there would be 'no effect'.

The following system of colour coding has been used in the presentation of the results from the assessment.

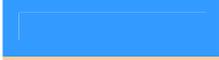
Assessment	Colour Coding
Positive	
Negative	
Negligible	
Neutral	
No Change from Baseline	

Figure 4.1: Relationship between the Scottish Marine Bill and SEA Process

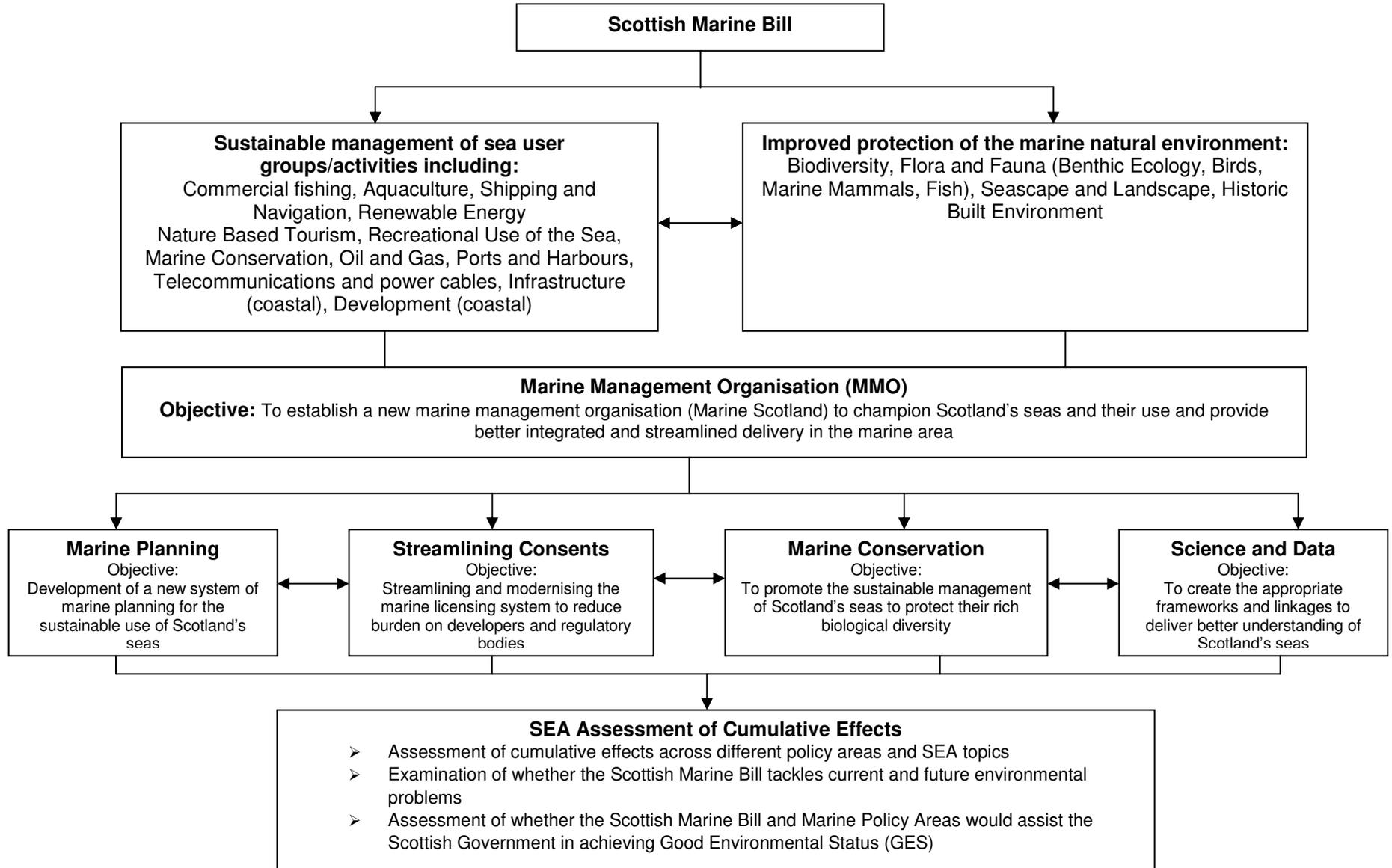
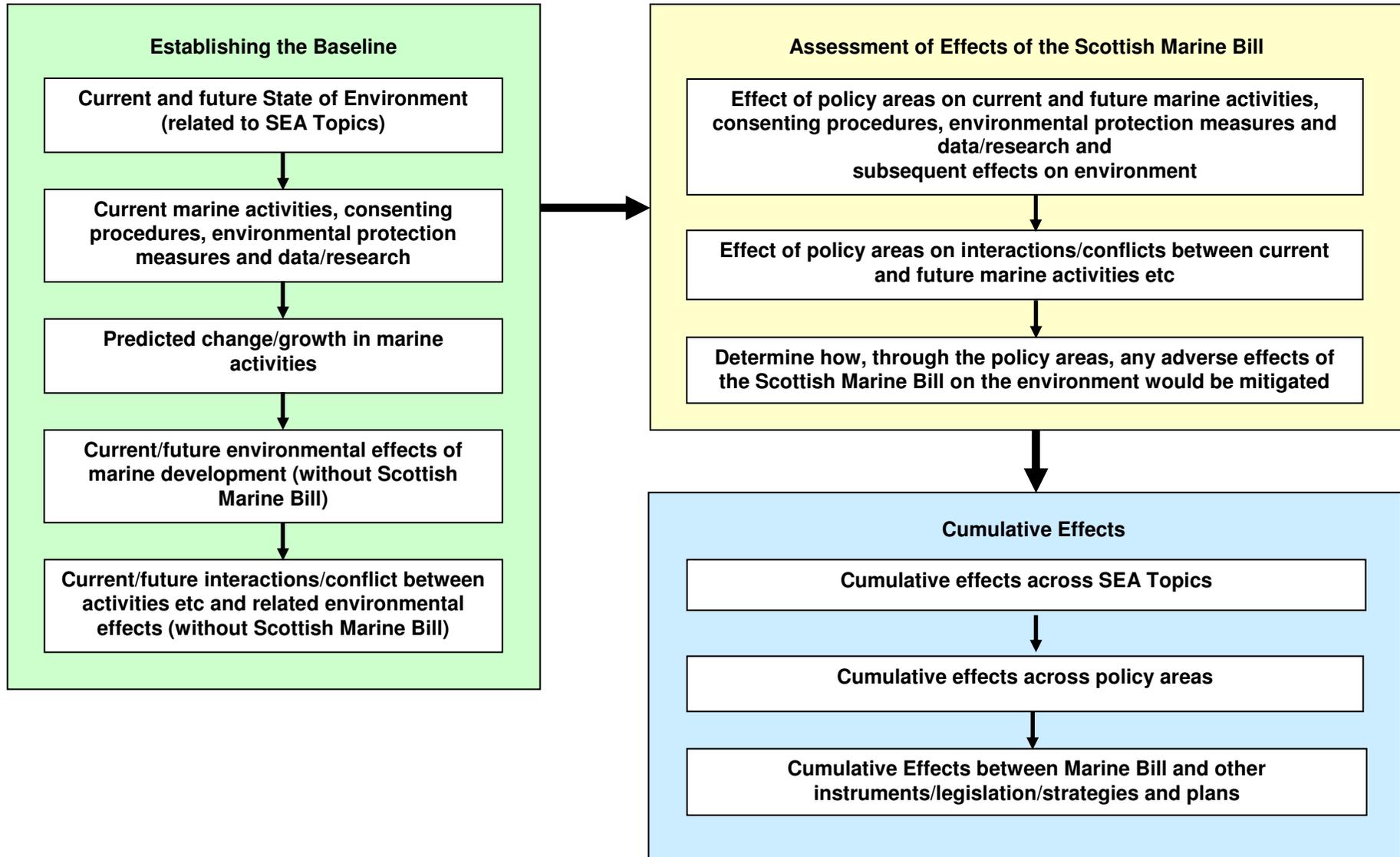


Figure 4.2: Assessment Methodology



5 Baseline Data and Trends

5.1 Introduction

Baseline data is information, either qualitative or quantitative, that is used to describe the status of the environment and population (including human health) that may potentially be affected by the plan. Baseline information is essential to the SEA process as it is necessary to understand the current baseline e.g. status or condition of the marine environment, to determine how it would change following the implementation of measures/policies proposed in the Scottish Marine Bill consultation paper.

It is important to note that the baseline is only a snap shot of the existing situation. It is subject to continual change, either from natural processes/change or human intervention. Therefore, when assessing how measures/policies introduced through the Scottish Marine Bill would affect the environment, consideration must be given to how the baseline would change in the absence of the Scottish Marine Bill. This required analysis of how the baseline has changed over time to predict how it may change in the future e.g. data trends. A summary of relevant baseline data and related trends is presented in Appendix B.

Baseline data should also reflect the level of detail, subject matter and geographical scale of the PPS that is being assessed. Consequently in terms of this SEA the baseline data that has been collated is very high level and strategic, reflecting the content of the Scottish Marine Bill Consultation Document.

5.2 Source of Baseline Data

During the last five years the amount of information and level of understanding of the character and condition of the marine environment around Scotland has increased significantly. The most recent development in terms of data compilation on the marine environment was the publication of the *Scotland's Sea: Towards Understanding their State* report in April this year. This report establishes a current baseline position in terms of the current (e.g. as at April 2008) condition of the seas around Scotland. A summary of the main contents of this report are presented in Appendix C.

In addition to the Scotland's Seas report there are a number of other key sources of information on the marine environment. In particular:

- Scottish Marine Renewables SEA (Faber Maunsell and Metoc), March 2007; and
- DTI/BERR Oil and Gas SEAs

5.3 Approach to Baseline Data Collection

It was determined as part of scoping of the SEA that, rather than reproducing large quantities of the baseline data/information which has already been comprehensively collated and presented in the report listed above, these reports would be reviewed and referenced as appropriate, to produce a high level summary of the current baseline and future trends.

A summary of the key baseline data/information that has been used to inform the assessment of the Scottish Marine Bill is presented in Appendix B.

6 Relevant Plans and Programmes

6.1 Introduction

As part of the process of SEA it is necessary to consider the relationship between the proposed plan and other relevant plans and programmes and the relevant environmental protection objectives which need to be taken into account. In the case of the proposed Scottish Marine Bill, the legal and regulatory framework comprises a range of international, European, UK and domestic regulatory instruments and obligations. There are also a number of UK and domestic strategies that need to be taken into account in the development of the Scottish Marine Bill.

A summary of the key regulatory instruments and strategies and their implications in terms of the development of the Scottish Marine Bill is presented in Appendix D.

6.2 Regulatory Instruments

6.2.1 *International*

International environmental law includes a large number of agreements, covering terrestrial, marine and atmospheric pollution, and the protection of wildlife and biodiversity. Key developments which set the framework, are (i) the 1972 United Nations Convention on the Human Environment 1972 (UNCHE), resulting in the Stockholm Declaration and the creation of the environmental agency known as UNEP; (ii) the 1987 Brundtland Report, which established the concept of environmental sustainability; and (iii) the 1992 Rio conference (also known as the Earth Summit), which led to the adoption of several important legally binding environmental treaties including the 1992 UN Framework Convention on Climate Change and the 1992 Convention on Biological Diversity. In addition to these the parties adopted a non-binding Declaration on Environment and Development (referred to as the Rio Declaration) and, Agenda 21, providing a guide to the implementation of treaties agreed at the Summit and a guide to the principles of sustainable development. A further meeting in 2002, known as the World Summit on Sustainable Development (WSSD) provided a renewed emphasis on the synergies between combating poverty and the environment.

The Marine Bill's consultation document *Sustainable Seas for All* (July 2008) sets out the Scottish Parliament's support for the Scottish Government in its proposal for the Bill and refers specifically to introducing legislation "sufficient to meet Scotland's international obligations under the Oslo Paris Convention and World Summit on Sustainable Development". These two regulatory measures and other key items of international law relevant to the proposed Bill are summarised in Appendix D. With the level of detail currently available it is possible only to indicate where international commitments will need to be taken into account, generically.

Scotland's responsibilities for complying with international conventions, treaties, protocols and other agreements principally come through UK and EC signature and ratification and then national (i.e. devolved or reserved implementation through national legislation, policies and commitments).

6.2.2 *European Instruments*

European Community legislation applies to all Member States of the European Union; the UK is one such State. Scotland, through both its devolved powers and those that are reserved, must comply with EC law. The Bill and resultant legislation must ensure that all commitments for compliance with EC legislation, already made, are retained. It is not yet clear how the Bill will approach existing legislation.

It may incorporate provisions that exist in other items of legislation and thereby replace other statutory provisions, or structure itself so that it does not conflict i.e. new, additional provisions to those already committed to or obligated by, European legislation can be introduced, but none can be rescinded by the Bill. Key EC Directives and policies are set out below. The Marine Bill's consultation document *Sustainable Seas for All* (July 2008) specifically identifies the European Marine Strategy Framework Directive 2007 (MSFD) as a key policy to be incorporated. Other Directives already transposed into UK/Scottish legislation are also referred to in Appendix D.

6.2.3

UK and Domestic Instruments

There are two levels of national legislation relevant to Scotland and its proposed Marine Bill. Devolution and the creation of a Scottish Parliament and Scottish Government has provided powers for Scotland to legislate and regulate certain issues that were previously the responsibility of the UK as a whole.

In developing the Scottish Marine Bill, particular account will need to be taken of the UK Marine Bill, which is further ahead in its development (published in April 2008).

As an item of Scottish legislation the Bill will be able to repeal, revoke or amend other items of Scottish legislation, providing that this does not compromise international or European agreements and obligations. The Government's consultation document does not currently indicate to the extent to which this is likely to take place, although it is not uncommon for new Acts of Parliament to consolidate and 'tidy-up' legislation that has either become redundant or would be duplicated in the new regime.

All items of national legislation referred to in Marine Bill's consultation document *Sustainable Seas for All* (July 2008) are discussed in Appendix D.

Section 2: Assessment Results

7 Introduction to Results Section

7.1 Introduction

Section 2 of the Environmental Report focuses on the assessment of the individual policy areas within the Scottish Marine Bill:

- Creating Stability: Marine Planning and Integrated Coastal Zone Management
- Reducing the Burden: Licensing and Enforcement
- Securing the Future: Nature Conservation
- Understanding our Seas: Science and Data
- Managing our Seas: Marine Scotland

This part of the assessment considers how individually each of the policy areas may affect the environment. The information obtained from this part of the SEA will then be used to identify key interactions between the policy areas, how these policy areas combined as part of the overall Scottish Marine Bill would affect the environment and whether the Scottish Marine Bill will ultimately be successful in promoting the sustainable management of Scottish seas and improving the protection and conservation of Scotland's marine environment.

7.2 Chapter Structure

Each of the chapters 8 to 12 including the following information:

- Objective of the marine policy area
- Description of the main proposals for the delivery of the policy area
- Discussion of the main environmental consequences of the policy area
- Results from the assessment of the effects that each of the policy areas may have on the different SEA Topics
- Discussion of the results from the assessment including any assumptions that were made as to the content and implementation of the policy area

8 Creating Stability: Marine Planning and Integrated Coastal Zone Management (ICZM)

8.1 Objective

To put in place a new system of marine planning for the sustainable use of Scotland's seas which reflects the established system of land use planning with an emphasis on local decision making and accountability guided by a set of agreed national objectives.

8.2 Description

The process of marine planning is becoming increasingly recognised as the mechanism for the sustainable management of the multiple, cumulative, and potentially conflicting uses of the sea. The Royal Town Planning Institute (RTPI) has been applying the principles of spatial planning to the management and allocation of land for various uses and activities for a number of years. This approach 'the land use planning system' is highly successful and is an integral component of the sustainable management of the use of the terrestrial environment.

The proposals for marine planning are therefore based upon the principals of the RTPI land use planning system. These include the adoption of an integrated and collaborative approach to ensure all relevant factors are considered during the preparation of the plan and in the delivery mechanisms; the consideration of the implications of different developments and activities with different interconnected scales and geographical significance; and the development of a plan that is associated with the activity of planning and a management process which must therefore be action orientated and linked to regulatory and proactive mechanisms for achieving results.

These principals of land use planning are already integrated into the existing concept of Integrated Coastal Zone Management (ICZM) which was introduced by the Scottish Coastal Forum (SCF) in 2000 in response to the publication of the "Integrated Coastal Zone Management: A Strategy for Europe" report (EC 2000) and a draft recommendation. The draft recommendation encourages member states to prepare national ICZM strategies and to report on progress after 2 years.

In 2004 the SCF published its strategy for the sustainable use of Scotland's Coasts and Inland Waters. The aims of the strategy are to take stock of the resources and key management issues and then, beyond the short term, to develop an influential vision based on a 25 year forward view.

The advice contained within the SCF strategy was taken forward by the Scottish Government in their publication of "*Seas of Opportunity: A Strategy for the Long-Term Sustainability of Scotland's Coasts and Seas*" released in September 2005. This sets out a new Scottish marine and coastal strategy underpinned by high level objectives and specific action-focused targets.

In September 2005 the Scottish Sustainable Marine Environment Initiative (SSMEI) was launched to take forward the Scottish Government's marine and coastal strategy. This initiative consists of a number of pilot studies around the Scottish coast whose aim is to trial new ways of managing the coastal and marine environment, including options for marine spatial planning and taking into account the principles of ICZM.

The SCF defines the purpose of marine spatial planning as "two fold: (a) to secure sustainable and integrated development which balances and, where appropriate advances, economic, social and environmental objectives, and considers the implications of the ecosystem approach; and (b) to allocate space in inshore waters in a rational manner which minimises conflicts of interest and maximises synergistic relations."

The marine planning process is expected to result in the production of a series of formal 'spatial plans' for the marine environment which, as identified above will be based upon the principals of the land use planning system and will be formally implemented by the Scottish Marine Bill.

The proposals for marine planning set out in the consultation document are based on an overall three tier approach. These tiers comprise:

1. Scotland (National) Level
2. Regional Level
3. International Level

At a national level, the marine plan would set out key objectives for the marine environment and would form part of a wider National Planning Framework for Scotland. The objectives would be developed to reflect International and European commitments and obligations. Regional level plans would focus on local marine planning which is suited to the needs and uses of smaller ecosystem units. The focus at an international level would be to set Scottish Waters within the wider UK, EU, North Atlantic and global frameworks.

Marine Scotland will be responsible for the creation of the Scottish National Marine Plan and its integration into the existing national planning framework and other national strategies. National Marine Plans will have statutory force and therefore will have to be accorded to by all Scottish Public Bodies in exercising their devolved functions.

The National Marine Plan for Scotland will set out policies and priorities for the sustainable use, development, management and protection of Scotland's marine and coastal resources. These priorities and policies will be underpinned by a set of national marine objectives which will be founded on the five guiding principles of sustainable development:

- Living within environmental limits
- Ensuring a strong, healthy and just society
- Achieving a sustainable economy
- Promoting good governance
- Using science responsibly

The set of national marine objectives will include socio-economic objectives for specific sectors; energy, food and tourism. These will be framed to secure the exploitation of renewable energy resources, in line with targets, the sustainable harvest of the sea and sustainable exploitation of wider marine natural resources. National marine objectives will also reflect how the Scottish Government will comply with the Marine Strategy Framework Directive (MSFD) obligations and other European and international commitments e.g. OSPAR. The national marine objectives will also include Marine Ecosystem Objectives (MEOs) which will set out what the management of Scotland's seas and coasts is aiming to achieve.

Marine Scotland will also be responsible for the identification of the Scottish Marine Regions (SMRs) for which regional marine plans will be prepared. These regions are likely to be based on a range of characteristics e.g. coherence of the marine and coastal zone; need for planning activity and/or conflict resolution; and the existence of local management structures. A board will be assigned to each SMR. It is proposed that this board will comprise representatives from the main stakeholder interests in the area. Marine Scotland will be tasked with the appointment of the board, through agreement from all stakeholders, and the designation of a lead partner, which may, in some cases, be the local authority.

Marine Scotland will delegate responsibility for the preparation and implementation of regional plans to the SMR board. This will help to encourage, through close partnership working within the board, local decision making and accountability. Marine Scotland would retain an advisory and consultative role.

The main deliverables of a regional marine plan may include:

- Local interpretation of the National Marine Plan and national priorities
- Strategic local vision for marine and coastal areas
- Consultation and stakeholder engagement
- Development of local management policies for specific sectors and activities
- Identification of potential areas of conflict and resolving conflict

- Provision of a framework for the granting of development consent
- Identification of areas of sea for potential activity/development
- Identification of areas and actions needed for conserving biodiversity
- Local decision making mechanisms for the application of marine nature conservation measures
- Construction of shared principals that could be applied by local public sector organisations in their approach to carrying out activities in the marine area
- Coordination with existing local management plans and existing regimes (which may not be marine focused) to ensure joined up delivery of a shared local vision for the marine area
- Local data and information gathering and co-ordination to inform the development of a locally-focused Marine Plan

8.3 Environmental Consequences

Ultimately, the preparation and implementation of marine plans (regional and national) is likely to have a number of environmental benefits, most of which will be derived through a more holistic, cohesive and sustainable approach to the management of marine activities.

From a nature conservation and protection perspective, it is proposed that the marine planning system will play a central role in the delivery of marine nature conservation and ecosystem management. It is also expected to play an important role in site management with site based measures and species protection measures being one of the considerations within the marine planning decision making process.

Other likely environmental benefits of marine planning can be illustrated through the marine renewables sector. It is assumed that the objectives, policies and priorities included within the national marine plans will reflect other national (e.g. Scottish Government) strategies e.g. Marine Energy Strategy through for example the setting targets for marine renewables (e.g. amounts of installed generating capacity) at both a national level and across the SMRs. This target would then be reflected within the regional plans through the identification of 'areas' of sea that could be developed for marine energy, taking into account protected sites and species, wider marine nature conservation objectives, local environmental characteristics, and other sea users.

The benefits of marine planning from an environmental perspective include:

- Matching of marine activities to the most suitable locations
- Management of competing interests between fixed site activities and other activities
- Reduced risk of marine development being pushed into less suitable areas due to competition/conflict with other marine activities
- Enabling proactive rather than reactive response from stakeholders and statutory consultees to decision making
- Local accountability of stakeholders and regulatory authorities for compliance with local and national, European and international nature conservation and environmental protection obligations
- Local accountability for delivering environmental benefits, such as through development of marine renewables

The identification of 'areas' for certain activities will also have significant benefits for developers by setting a framework for development. This will help guide developers to the most suitable locations for development and provide greater clarity in terms of competing interests and advice and guidance as to local requirements, objectives and targets.

8.4 Assessment Results

The results from the assessment of the Scottish Government's proposals for marine planning are presented in Table 8.1 below.

8.4.1 Assumptions

The results presented in Table 8.1 are based upon a number of assumptions which relate to the content and delivery of the Scottish Marine Plans:

- The marine plans will balance economic, environmental and social priorities
- There may be an element of prioritisation in certain locations where there are potential areas of conflict between competing uses e.g. navigation, commercial fishing, energy
- In addition to existing nature conservation sites (SACs, SPAs and coastal SSSIs), and to the proposed nationally identified MPAs, it is assumed that there will also be an opportunity for locally important areas to be protected from certain types of marine development/activity
- It is also assumed that waters outside designated MPAs and Natura 2000 sites are not treated as being fair game for development, and that environmental protection objectives and obligations will still have to be taken into account
- the National Marine Plan may set targets for certain types of development/activity e.g. marine renewables and these targets will be reflected within the Regional Marine Plans
- It is assumed that in some areas there may be a need to retain or safeguard established/recognised areas for certain marine activities
- It is assumed that in addition to the preparation and implementation of the regional plans, the SMR board will also be responsible for monitoring these plans
- However, it is unknown as to whether the SMR board will be responsible for collating the required data/science to support any monitoring programmes or whether this would be provided by Marine Scotland as part of their role in the coordination, management and dissemination of data and science as part of the wider Scottish Marine Bill (see Chapter 12)
- It is assumed that sufficient resources, skills and capabilities will be available within the SMR Board to prepare the Regional Marine Plans.
- It is assumed that the National and Regional Marine Plans will take account of other marine strategies e.g. offshore oil and gas licensing

8.4.2 Discussion

Overall the results from the assessment of marine planning policy area are generally positive in terms of the potential effect on the marine environment and marine activities (SEA topics).

There were two potential areas where negative effects could occur. These relate to commercial fisheries and navigation where there could be possible displacement from existing areas as a result of the need for marine planning to take into consideration other marine activities and/or nature conservation objectives and sites within a certain area. However, these effects are only expected to be short term with marine planning ultimately having longer term positive effects by reducing the risk of potential future conflicts caused by *ad hoc* and uncoordinated development and improving fish stocks through improved ecosystem management and protection of marine natural resources.

The main potential issue in terms of marine planning relates to the implementation of the plans and the roles and responsibilities of Marine Scotland and the SMR Board and how these relate to the existing land use planning system and other management plans and strategies for certain sectors.

It has been identified within both the Marine Planning policy area and other marine policy areas that in terms of marine planning it is proposed that there will be two tiers of management:

- Marine Scotland will be responsible for the creation of the National Marine Plan and its integration into the existing national planning framework and other national strategies
- The SMR Board, which will comprise main stakeholder interests in the area, will be responsible for the development and delivery of Regional Marine Plans.

In addition the creation of the national marine plans Marine Scotland will also be responsible for delivering marine conservation and ecosystem management through the marine planning system and ensuring that site and species based conservation measures are taken into account in the decision making process.

However, there is a lack of clarity in terms of how these responsibilities for delivering marine conservation and ecosystem management will be delivered at a regional level if Marine Scotland only has a national level role in Marine Planning. It is assumed that, to ensure the marine planning system can deliver on its objectives to improve local accountability and consistency of advice and decision making at the regional level, that some of Marine Scotland's marine conservation and ecosystem management responsibilities would have to be devolved to the SMR Boards.

Taking this into account, there would need to be clear processes and procedures in place in the establishment of an SMR board to ensure that it contained the necessary skills and experience successfully deliver marine conservation and ecosystem management.

Similarly there is a suggestion that in certain areas it may be appropriate for the SMR Board to be led by the relevant local authority. Where this is the case there will be a need to put the necessary measures in place to ensure that the appropriate skills and experience are available to enable the successful delivery of the regional marine plans. Further clarity is required on the likely source of these key resources.

As part of their management responsibilities, the SMR Boards will be responsible for ensuring that the regional marine plans take full account of existing plans strategies and management processes e.g. Integrated Coastal Zone Management (ICZM) and Inshore Fisheries Groups (IFGs) Management Plans. It is expected that this will be achieved through the integration of Local Coastal Partnerships and IFGs onto the SMR Board.

However, there is a need for further clarity over the relationship between the marine plans and the existing land use plans and how the actual consenting of development in the coastal zone will be managed. This is of particular importance for developments that require infrastructure in both the marine and terrestrial environment e.g. marine renewable. In theory the marine plans, through the integration of ICZM processes, should be able to plan for the marine and coastal elements of a development. However, there needs to be greater certainty and clarity over how any provisions for coastal infrastructure within the marine plans will be integrated within existing land use plans. Further clarity is also required in terms of the actual consenting of development in the coastal zone (see Chapter 9).

This lack of certainty and clarity in terms of coastal zone management not only affects marine developments but could also effect specific receptors e.g. landscape and seascape, control and management of which is currently the responsibility of the local authorities, as are developments that affect coastal process e.g. coastal defences.

Table 8.1: Creating Stability: Marine Planning and Integrated Coastal Zone Management (ICZM) Assessment Results

Creating Stability: Marine Planning and ICZM – Assessment Results				
SEA Topics/Receptor	Key Issues for Consideration	Important Factors	Assessment	Comments
Biodiversity, Flora and Fauna	Protected sites and species Ecosystems and biological diversity	<ul style="list-style-type: none"> ▪ SPAs, SACs, SSSIs and MPAs ▪ Annex II Species ▪ Biodiversity Action Plan species and habitats ▪ Marine mammals, birds, fish and benthic ecology 	Positive	<ul style="list-style-type: none"> ▪ Marine planning will be the mechanism for the delivery of marine conservation and an ecosystem based approach to management ▪ Site and species based protections and nature conservation objectives will be a consideration in the overall decision making process ▪ Marine planning will enable a more 'holistic' approach to marine conservation and protection ▪ Role of Marine Scotland and the SMR Boards in marine planning will improve consistency of advice and decision making ▪ Improved guidance for developers in terms of nature conservation through the inclusion of marine conservation objectives and site/species based protection measures in Regional Marine Plans
Soil	Substrate	<ul style="list-style-type: none"> ▪ Sediment, geology and geomorphology 	Positive	<ul style="list-style-type: none"> ▪ Integration of principals of ICZM into national marine planning should enable a more holistic view of coastal developments and the effects of those on coastal processes ▪ Indirect protection of geologically important features through site based marine conservation where protected features are dependent on underlying geology ▪ Role of Marine Scotland and the SMR Boards in marine planning will improve consistency of advice and decision making
Water	Water quality Ecological/environmental status of water	<ul style="list-style-type: none"> ▪ Bathing waters and shellfish waters ▪ Munitions dumps and disposal sites ▪ Marine discharges 	Positive	<ul style="list-style-type: none"> ▪ Integration of River Basin Management Plans (RBMP) processes (land based) into marine planning should enable a more holistic and joined up approach to the management of marine activities and their effects on water quality (in particular in coastal zone and inshore areas)
Air	Air quality	<ul style="list-style-type: none"> ▪ Transport emissions ▪ Oil and gas emissions ▪ Atmospheric transport of nutrients and pollutants 	Negligible	<ul style="list-style-type: none"> ▪ By implementing a more holistic approach to managing marine development and sea use, marine spatial planning may result in a local reduction in air quality in some areas, and an improvement in others
Climatic Factors	Reducing climate change Adapting to climate change	<ul style="list-style-type: none"> ▪ Reducing CO₂ emissions from coastal and marine activities ▪ Adapting to climate change (sea temperature change, increased storm frequency, storm surges, sea level rise) ▪ Carbon capture and storage 	Positive (Indirect)	<ul style="list-style-type: none"> ▪ Marine planning should assist in promoting the growth of the marine renewable industry ▪ Integration of ICZM into the marine planning process will enable a more holistic and integrated approach to planning coastal defences and protection ▪ Marine planning could provide a mechanism for the identification of appropriate sites for carbon storage within the 12nm limit

Creating Stability: Marine Planning and ICZM – Assessment Results				
SEA Topics/Receptor	Key Issues for Consideration	Important Factors	Assessment	Comments
Cultural Heritage	Marine and coastal archaeological and historic environment	<ul style="list-style-type: none"> Wrecks, submerged historic landscapes, submerged archaeological remains World Heritage Sites Coastal archaeological remains and historic environment 	Positive	<ul style="list-style-type: none"> Marine planning should enable a more holistic approach to the protection and management of the marine and coastal historic environment Role of Marine Scotland and SMR Board should improve consistency of advice and decision making
Landscape	Landscape Seascape	<ul style="list-style-type: none"> World Heritage Sites, National Scenic Areas, National Parks, Areas of Great Landscape Value Visual amenity 	Positive	<ul style="list-style-type: none"> Marine planning should promote a more holistic approach to the consideration and management of the effects of marine developments/activities on landscape and seascapes, particularly in terms the cumulative effects of fixed site based developments (renewables and aquaculture) Role of Marine Scotland and SMR Board should improve consistency of advice and decision making
Material Assets	Marine and coastal material assets	<ul style="list-style-type: none"> Cables, ports, harbours, coastal infrastructure, telecommunications, oil and gas, electricity, transport networks 	Positive	<ul style="list-style-type: none"> Marine planning should promote a sustainable approach to development Marine planning should facilitate balanced consideration of all types of activity, facilitating the siting of the right technology in the right area The marine planning process should improve the consistency of advice and decision making at a national and regional level Marine plans should provide greater clarity and guidance on the most appropriate locations for development and key considerations in terms of other sea users and marine nature conservation objectives
Population	Marine activities/industries	<ul style="list-style-type: none"> Dredging 	Positive	<ul style="list-style-type: none"> Improved consistency of advice and decision making Greater clarity on the suitability of activities
		<ul style="list-style-type: none"> Commercial fishing 	Negative (short term)	<ul style="list-style-type: none"> In the short term marine planning may have a negative effect on commercial fisheries through restrictions to areas or changing boundaries of certain fishing grounds However, in the long term marine planning will have a positive effect on commercial fisheries through reduced risk of conflict with other activities and improved fish stocks as a result of ecosystem management and implementation of wider marine conservation objectives
		<ul style="list-style-type: none"> Shipping and navigation 	Negative (short term)	<ul style="list-style-type: none"> In the short term, marine planning could have a negative effect on shipping and navigation by restricting activities in some areas Overall in the longer term the process of marine planning will improve the management and use of the sea which could reduce the negative effect that <i>ad hoc</i> and uncoordinated development may have on shipping and navigation

Creating Stability: Marine Planning and ICZM – Assessment Results				
SEA Topics/Receptor	Key Issues for Consideration	Important Factors	Assessment	Comments
Population	Marine activities/industries	<ul style="list-style-type: none"> Recreation and tourism 	Positive (Direct and Indirect)	<ul style="list-style-type: none"> Marine planning and ICZM will be the mechanism for balancing the commercial aspects of tourism e.g. development of supporting coastal infrastructure and facilities with nature conservation and protection of other valuable natural assets Key recreational areas e.g. areas for recreational sailing and watersports will also be taken account in the wider planning of marine areas
		<ul style="list-style-type: none"> Ports and harbours 	Positive	<ul style="list-style-type: none"> Marine plans will increase opportunities for safeguarding or protecting key areas for port and harbour expansions (coastal and marine e.g. access routes)
		<ul style="list-style-type: none"> Oil and gas 	Neutral	<ul style="list-style-type: none"> Integration of ICZM principals into the marine planning process should enable a wider more holistic and integrated approach to the planning of coastal and inshore oil and gas infrastructure Planning could lead to restrictions on the siting of coastal infrastructure or pipeline routes in some areas due to a need to consider a range of marine activities
		<ul style="list-style-type: none"> Renewables 	Positive	<ul style="list-style-type: none"> Role of Marine Scotland and the SMR Boards in marine planning will improve consistency of advice and decision making, in particular with regard to nature conservation obligations Marine planning will provide greater clarity and guidance to developers on the most suitable locations for fixed site developments Marine planning will assist in addressing competing interests and balancing development needs within certain areas The marine planning process will enable a more holistic and integrated approach to be taken to renewables and aquaculture developments across Scotland In terms of renewables, ICZM should improve the integration of requirements for coastal infrastructure with the marine aspects of the development
		<ul style="list-style-type: none"> Aquaculture 	Positive	
Human Health	Physical wellbeing	<ul style="list-style-type: none"> Water quality (bathing beaches and bathing waters) Food quality (shellfish and fish) Navigational safety Waste and munitions dumps Nuclear emissions/discharge 	Positive	<ul style="list-style-type: none"> Improved planning and management of the marine environment should ensure that marine developments and activities do not cause environmental harm or have effects on human health

9 Reducing the Burden: Licensing and Enforcement

9.1 Objective

To reduce the burden on developers and regulatory bodies by streamlining and modernising the marine licensing and consenting system to deliver quicker and clearer decisions. This will be achieved by delivering a more efficient licensing framework which is more tailored to the needs of prospective developers.

9.2 Description

The aim of licensing is to control and regulate development and use of the sea to prevent or minimise adverse effects on key features of the marine environment. These features include:

- Water quality i.e. keeping water chemistry, physics and biology within acceptable limits
- Physical features (including historic assets) ensuring they remain substantially undamaged
- Marine life, providing a high level of protection for some species for example seals, and management of other species, for example through fishing quotas
- Visual amenity/seascape, ensuring Scotland's iconic landscape is maintained
- Sea lanes, keeping sea channels navigable; and
- Multiple uses of areas, use of conditions, including temporal restrictions, can enable multiple use rather than single use

Under current marine licensing arrangements, separate licences are required for a range of different activities and developments. These licenses are currently granted by a number of organisations including FRS, SEPA and Scottish Ministers, and are often subject to varying levels of consultation and determined over different timescales. Consequently these licensing agreements are often costly and time consuming for developers and in some cases can hinder development. They are also hard to manage and monitor, making it difficult to deliver and enforce appropriate mitigation.

Proposals in Scottish Marine Bill aim to improve this situation through streamlining the existing licensing process. Two different options for streamlining have been identified:

- Impact led approach
- Activity led approach

9.2.1 *Impact Led Approach*

This would involve the consolidation of all licences for certain types of impact into one environmental/ecological impact licence where appropriate. This approach would pull together FEPA (Food and Environmental Protection Act 1985), CPA (Coastal Protection Act 1949) and CAR (Controlled Activities Regulations 2005) consents for discharges and aggregate dredging and wildlife licences. Development consents for fish farms would remain with local authorities and for marine renewables with Scottish Ministers.

However, in bringing licenses together in this way, it would be necessary to ensure consistency of regulation where consent is also required for land based activities. The EIA process would also need to be integrated into this approach. Ultimately this approach would reduce the number of licences required for an individual development to two, an environmental/ecological impact licence and a development consent.

9.2.2 *Activity Led Approach*

This approach would involve the integration of all licences that a certain activity has to apply for into one licence, creating a single activity licence.

An example of the current complexities surrounding the existing licensing process is provided below with respect to the deployment of marine renewable within territorial waters. For any marine energy installation greater than 1MW a development consent/licence must be obtained from the Scottish Government under Section 36 of the Electricity Act 1989. Licences must also be obtained, for all marine developments, in respect of their impact/effect on the sea bed, under section 5 of Food and Environmental Protection Act (FEPA) and section 34 of the Coastal Protection Act (CPA) to ensure that marine works will not be detrimental to navigation.

In Scotland, both FEPA and CPA licences are currently determined by, and obtained from the Scottish Government, and can be applied for alongside the application to the Energy Consents Unit for consent under the Electricity Act.

Consent for onshore works must be obtained under the Town and Country Planning Act 1990 either from the Scottish Government, via deemed planning permission under the Electricity Act 1989, or from the relevant local planning authority (LPA).

The environmental effects of all proposals for consent under Section 36 of the Electricity Act must be assessed under the Electricity Works (Environmental Impact Assessment) Regulations 2000, and the required and agreed level of information presented in the form of an Environmental Statement (ES). LPAs can also request an ES for non-section 36 proposals. When considering Section 36 consent applications, Scottish Ministers should also consider the effects of a marine development on European Sites of Nature Conservation Importance (Natura 2000 Sites) in territorial waters under the Habitats Directive and Conservation (Natural Habitats, &c.) Regulations 1994.

The benefits of the activity led approach would be to reduce the number of licences required to the number of activities which would probably be a minimum of three (aquaculture, renewables and others). This would probably have a positive effect in terms of timescales relating to licence awards but could reduce local accountability for certain developments e.g. fish farms if local authorities are removed from the consenting process.

9.2.3 *Delivery of Licences*

As part of their marine management role, it is proposed that Marine Scotland (see Chapter 12) should have general responsibility for any new marine licensing system. This may be on a 'full' responsibility basis which would help integrate licensing procedures but raises issues of consistency with other regulatory regimes and the coordination and availability of expertise and resource between Marine Scotland and existing regulators.

Alternatively, Marine Scotland could act as an access point to the licensing framework whilst the existing organisations maintain their individual regulatory roles.

9.2.4 *Consultation*

The current licensing regime is subject to both formal (statutory) and informal consultation. The specific consultation requirements vary from licence to licence and often from development to development. To try and reduce the inconsistencies associated with the current licensing process, the Scottish Government is proposing to create a duty to produce of a list of consultees for the new licensing system. Additionally, Scottish Ministers are considering ways to improve local involvement in licensing decisions and new mechanisms for increasing local accountability for decision making in local areas.

9.3 Environmental Consequences

Other than reducing the regulatory burden experienced by developers and regulatory authorities due to the requirement to obtain a number of different licences for the same project and in some cases similar impacts, from different organisations, the streamlining of the licensing process is likely to have a number of implications on the future development and protection of the marine environment. These are summarised below:

- The streamlining of licences would create a more integrated and coordinated approach to licensing. This would enable a more holistic assessment of the potential impacts of developments/activities
- The adoption of a more holistic approach to the assessment of the impacts of marine developments/activities would enable other possible impacts that were not previously identified by more focused licensing producers to be identified and assessed accordingly
- The conditions and mitigation measures attached to licences would also become more streamlined. This would improve the overall ability to monitor and enforce those conditions
- Reductions in the number of licences required would also enable resources within licensing organisations/statutory bodies to be more focused on the development, implementation and enforcement of appropriate mitigation rather than the licensing procedures
- The delivery of licences by one organisation, Marine Scotland, would improve the consistency of advice and would reduce duplication of impact assessments
- Possible reduced integration and consistency with other regulatory regimes e.g. land based activities due to transfer of licensing responsibilities to Marine Scotland could lead to the overlapping of impact assessments/omission of impact assessments where developments/activities have both marine and land based components
- The provision of one point of contact for licences would enable developers to track licence applications more easily and to have a greater level of consultation with key decision makers
- The delivery of fewer licences would enable surveys/data collation and impact assessments to focus on the key potential environmental effects rather than a full suite of possible effects
- More integrated and coordinated approach to licensing would enable decision makers e.g. Marine Scotland to have a better strategic view of potential cumulative impacts of different developments/activities
- New mechanisms for local involvement in licensing decisions and increased local accountability would help to ensure that the developments/activities are suited to the correct location and will bring maximum benefits to local areas whilst minimising adverse effects on the environment
- A lack of appropriate skills/resources within Marine Scotland could have negative effects on the environment due to a lack of appropriate experience/knowledge to accurately evaluate licence applications and evaluate possible impacts on the environment

9.4 Assessment Results

The assessment concludes that the streamlining of licensing would in general have a positive effect on the environment, mainly as a result of improvements in the consistency of advice and decision making, adoption of a more holistic and integrated approach to assessing impacts and improved monitoring and enforcement. Reducing the burden of the current licensing regime on developers and regulatory bodies would also have environmental benefits, in particular through promoting renewables developments.

However, the assessment did identify one potential negative effect. This relates to dredging and is a result of proposals to extend the current licensing regime to cover all new types of dredging including capital and maintenance dredging. These practices are not currently subject to any licensing control, although capital dredging is subject to EIA. Consequently this would increase the licensing obligations on dredging operators. However, with appropriate guidance and advice, plus integration into a wider licensing framework the overall impacts should be relatively minor.

As with the proposals for marine planning there are areas within the licensing and enforcement policy area where further clarity is required regarding the actual mechanisms for implementation of a streamlined licensing framework. In theory, fewer licences and clearer delivery of those licences through one organisation or a fronting organisation would help improve integration and coordination of marine based licensing with licensing for land based activities. However, there is a lack a clarity regarding licensing across the marine/land interface.

The licensing and enforcement policy area has identified two possible options for the delivery of a streamlined licensing framework. The first involves Marine Scotland being wholly responsible for the regulation of marine consents. This approach would provide a one stop shop for developers in terms of the marine environment but would exclude land based operations.

The second option would be for Marine Scotland to act as a 'front door or gateway' to the main licensing framework. In this role Marine Scotland would be as the main contact point or liaison for all license applications, whilst the assessment of licenses and the regulation impacts on the environment would remain with the current regulatory body e.g. SEPA. In this case SEPA would be able to continue to regulate impacts in the water environment under CAR as at present and enable the integration of a marine licensing framework with existing frameworks developed under the Water Framework Directive (WFD).

In terms of water quality this approach would appear to be very positive and would bring consistency between marine and land based activities. However, in terms of other impacts on the environment it is not clear where the boundaries would lie between marine and land based activities and licenses.

One example where further clarity is required in terms of the marine/land interface includes the regulation of impacts of marine developments on landscapes and seascapes. Currently these are regulated by local authorities with advice from SNH. It is assumed that where Marine Scotland would be wholly responsible for the regulation of marine consents, the Local Authority would retain full responsibility for regulating impacts of marine developments on landscape and seascapes. However, in terms of the second option it is not clear where Marine Scotland's role as 'front door or gateway' would extend to in terms of a wider licensing framework. This could lead to confusion where developers have to go through Marine Scotland to receive consents from local authorities, particularly where there are no defined limits on the landward extent of an application.

The consultation document is not explicit as to whether regulatory boundaries between the marine and terrestrial environment would be established through the marine planning process and its integration with the existing ICZM. Further clarity on this matter is necessary to fully determine the likely success of a streamlined licensing framework, in particular as it affects the regulation of a number of environmental impacts and range of marine activities not least marine renewables, the delivery of which depends on the ability to develop appropriate coastal infrastructure.

Table 9.1: Reducing the Burden: Licensing and Enforcement Assessment Results

Reducing the Burden: Licensing and Enforcement – Assessment Results				
SEA Topics/Receptor	Key Issues for Consideration	Important Factors	Assessment	Comments
Biodiversity, Flora and Fauna	Protected sites and species Ecosystems and biological diversity	<ul style="list-style-type: none"> ▪ SPAs, SACs, SSSIs and MPAs ▪ Annex II Species ▪ Biodiversity Action Plan species and habitats ▪ Marine mammals, birds, fish and benthic ecology 	Positive (Indirect)	<ul style="list-style-type: none"> ▪ More holistic and integrated assessment of the effects of development on the protected sites and species and nature conservation objectives ▪ Greater emphasis on the management of ecosystems rather than isolated components of that ecosystem ▪ Reduced duplication in assessments/licensing procedures ▪ Improved opportunity to focus survey/research of specific issues rather than range of general issues ▪ Improved opportunities for identification and enforcement of appropriate and practical mitigation ▪ Improved monitoring and enforcement therefore reducing adverse environmental effects ▪ Consistency in advice and decision making ▪ Ability for greater consideration of cumulative effects
Soil	Substrate	<ul style="list-style-type: none"> ▪ Sediment, geology and geomorphology 	Positive	<ul style="list-style-type: none"> ▪ Wider consideration of cumulative effects (e.g. coastal processes) ▪ Consistency of advice and decision making
Water	Water quality Ecological/environmental status of water	<ul style="list-style-type: none"> ▪ Bathing waters and shellfish waters ▪ Munitions dumps and disposal sites ▪ Marine discharges 	Positive (Indirect)	<ul style="list-style-type: none"> ▪ Improved links with WFD and RBMPs ▪ Joined up approach to assessing the effects of development on water quality leading to greater levels of protection
Air	Air quality	<ul style="list-style-type: none"> ▪ Transport emissions ▪ Oil and gas emissions ▪ Atmospheric transport of nutrients and pollutants 	No Change from Baseline	<ul style="list-style-type: none"> ▪ No comments
Climatic Factors	Reducing climate change Adapting to climate change	<ul style="list-style-type: none"> ▪ Reducing CO₂ emissions from coastal and marine activities ▪ Adapting to climate change (sea temperature change, increased storm frequency, storm surges, sea level rise) ▪ Carbon capture 	Positive (Indirect)	<ul style="list-style-type: none"> ▪ Reducing burden on renewable energy developers therefore improving contribution toward reducing CO₂ emissions ▪ More holistic and joined up approach to regulating/managing coastal defence developments. This will help to ensure that they are provided where needed without having significant adverse effects on the local environment or coastal processes

Reducing the Burden: Licensing and Enforcement – Assessment Results				
SEA Topics/Receptor	Key Issues for Consideration	Important Factors	Assessment	Comments
Cultural Heritage	Marine and coastal archaeological and historic environment	<ul style="list-style-type: none"> Wrecks, submerged historic landscapes, submerged archaeological remains World Heritage Sites Terrestrial archaeological remains and historic environment 	Positive (Indirect)	<ul style="list-style-type: none"> Improved protection of the historic marine environment through integration of proposed mechanisms for improving legislation on the Marine Historic Environment (as set out in the Scottish Historic Environmental Policy (SHEP) consultation March 2008) within the wider licensing framework
Landscape	Landscape Seascape	<ul style="list-style-type: none"> World Heritage Sites, National Scenic Areas, National Parks, Areas of Great Landscape Value Visual amenity 	Positive (Indirect)	<ul style="list-style-type: none"> More holistic and integrated approach to the protection of important landscapes and seascapes Increased opportunities for development and implementation of appropriate and practical mitigation Improved monitoring and enforcement therefore reducing adverse environmental effects Consistency in advice and decision making Ability for greater consideration of cumulative effects
Material Assets	Marine and coastal material assets	<ul style="list-style-type: none"> Cables, ports, harbours, coastal infrastructure, telecommunications, oil and gas, electricity, transport networks 	Positive	<ul style="list-style-type: none"> Streamlined licensing process Reduced burden of licence requirement duplications, delays in decision-making and poor advice Focused areas for further research/survey if necessary Improved consistency in advice and decision making Establishment of a 'one stop shop' for liaison/consultation etc Reductions in duplication across licence applications Clarity and guidance on licensing requirements and costs
Population	Marine activities/industries	<ul style="list-style-type: none"> Dredging 	Negative	<ul style="list-style-type: none"> As part of the reform of the licensing system it is proposed to extend licensing to cover all new forms of dredging. At present aggregate dredging is licensed although capital dredging is subject to EIA and Ministerial scrutiny. This is like to have a negative effect on current dredging activities.
		<ul style="list-style-type: none"> Commercial fishing 	No Change from Baseline	<ul style="list-style-type: none"> The existing system of fishing vessel licences is reasonably well integrated and focused. Scottish Ministers do not intend to include consideration of it in any new licensing system. (Sustainable Seas for All. Page 44, Para 74)
		<ul style="list-style-type: none"> Shipping and navigation 	Reserved Matter = No Effect	<ul style="list-style-type: none"> No comment

Reducing the Burden: Licensing and Enforcement – Assessment Results				
SEA Topics/Receptor	Key Issues for Consideration	Important Factors	Assessment	Comments
		<ul style="list-style-type: none"> Recreation and tourism 	Neutral	<ul style="list-style-type: none"> Improved regulation of the marine environment will lead to greater protection of natural resources and the natural environment, both of which are important in terms of recreation and tourism Changes in the licensing regime may result in increased regulation of the marine recreation and tourism industry. As this is currently not subject to any major form of regulation it is likely that this could have a negative effect on recreation and tourism
		<ul style="list-style-type: none"> Ports and harbours 	Positive	<ul style="list-style-type: none"> Reduced burden of licence requirement duplications, delays in decision-making and poor advice Improved consistency in advice and decision making Establishment of a 'one stop shop' for liaison/consultation etc Reductions in duplication across licence applications Clarity and guidance on licensing requirements and costs
		<ul style="list-style-type: none"> Oil and gas 	Reserved Matter = No Effect	<ul style="list-style-type: none"> No comment
		<ul style="list-style-type: none"> Renewables 	Positive	<ul style="list-style-type: none"> Streamlined licensing process Reduced burden of licence requirement duplications, delays in decision-making and poor advice Focused areas for further research/survey if necessary Improved consistency in advice and decision making Establishment of a 'one stop shop' for liaison/consultation etc Reductions in duplication across licence applications Clarity and guidance on licensing requirements and costs
		<ul style="list-style-type: none"> Aquaculture 	Neutral	<ul style="list-style-type: none"> Improved links with WFD and RBMPs Joined up approach to assessing the effects of development on water quality leading to greater levels of protection Integration with other regulatory regimes e.g. nuclear discharges and navigational safety
Human Health	Physical wellbeing	<ul style="list-style-type: none"> Water quality (bathing beaches and bathing waters) Food quality (shellfish and fish) Navigational safety Waste and munitions dumps Nuclear emissions/discharge 	Positive	<ul style="list-style-type: none"> Improved links with WFD and RBMPs Joined up approach to assessing the effects of development on water quality leading to greater levels of protection Integration with other regulatory regimes e.g. nuclear discharges and navigational safety

10 Securing the Future: Nature Conservation

10.1 Objectives

To promote the sustainable management of Scotland's seas to protect their rich biological diversity but also to ensure that they continue to provide, economic, social and other benefits to people and communities.

10.2 Description

One of the key objectives of the Scottish Marine Bill is to manage the marine and coastal environment in a way that actively recognises and supports the continuing operation and development of the key marine sectors that are vital to the economy of Scotland e.g. oil and gas, aquaculture and fishing industries whilst working within the established framework of international and national statutory obligations and promoting further marine protection and conservation through domestic law and national, regional and local plans, programmes and guidance documents.

In terms of marine conservation it has been identified that the best approach for the sustainable management of the Scottish seas is the three pillar approach: The three pillars are:

- The contribution of wider seas measures
- Species conservation
- Site protection

10.2.1 *Pillar I: Wider Seas Measures*

The wider seas measures are more in line with recognised land use policy and refer to any measures that benefit marine nature conservation but which are more general in scope than the other two pillars or relate to specific arrangements for individual economic sectors. This could include sector based plans, development consents and voluntary agreements².

There are a number of current measures that do not focus specifically on nature conservation but make a significant contribution to marine conservation. The wider seas measures aim to build on these current measures through the proposed new system of marine planning where the Scottish Government intends to place a duty on Marine Scotland to deliver ecosystem management and safeguard biodiversity.

This will be achieved through the development of Marine Ecosystem Objectives (MEOs) which would deliver improvements for marine biodiversity at the National Marine Plan level. These MEOs would then be reflected in policies and proposals developed at the Regional Marine Plan level by the SMR Boards.

It is proposed that MEOs would possibly be developed for the following potentially distinctive areas:

- Seabirds
- Sea type
- Cetaceans
- Geographic
- Seals
- Fisheries

² Sustainable Seas for All: A Consultation on the Scottish Marine Bill. Scottish Government July 2008.

10.2.2 *Pillar II: Species Conservation*

In terms of species conservation the Scottish Marine Bill is proposing to review and update existing nature conservation legislation to improve the general system of species management and ensure that species protection is as strong as possible. This may include a possible extension to current species protection and the development of specific legislation relating to the management of seals.

Species protection measures would become one of the considerations of the marine planning decision making process. Scottish Ministers believe key improvements to species protection would in the main be better achieved through marine planning and/or activity relating to Marine Ecosystem Objectives (MEOs) rather than creating specific new criminal offences². These new measures would have to be backed up by compliance monitoring, enforcement and education. It is proposed that Marine Scotland would take a lead role in this with advice from SNH.

In terms of the protection of seals, Scottish Ministers believe there is a need to amend/update the Conservation of Seals Act 1970 to improve and clarify the level of protection afforded to seals while balancing the need to maintain sustainable fisheries and aquaculture.

10.2.3 *Pillar III: Site Protection*

In terms of site protection the Scottish Ministers are working with SNH to complete their contribution to the Natura 2000 network and are looking at the introduction of network of new Marine Protected Areas (MPAs) sufficient to meet Scotland's international obligations under the OSPAR Convention and World Summit on Sustainable Development (WSSD). Under the Scottish Marine Bill there will be an opportunity for MPAs to offer protection to key species and habitats in areas outside those currently designated as Natura 2000 Sites, recognising species and habitats that are nationally important. It is likely that the focus for the Scottish Marine Bill in terms of the designation of MPAs is to remain as flexible as possible to ensure environmental protection whilst recognising the need to promote sustainable development and an ability to respond to potential changes in species and habitat abundance and distribution induced by climate change.

This will be achieved through the application of an 'ecosystem' approach which will be informed by evidence collected as part of the proposals for increased science and data. To ensure that all policy areas within the Scottish Marine Bill are fully integrated and therefore can be delivered effectively and consistently the Scottish Government is also proposing to adopt more of a land use planning approach to nature conservation when considering new developments.

Where necessary there may also be a need to extend MPAs to include existing land and coast based designations e.g. Sites of Special Scientific Interest (SSSIs), National Nature Reserves (NNRs) and Regional Parks.

10.2.4 *Management of Sites*

It is intended that the MPAs will be managed within the context of sustainable development and that most marine activities will be compatible with the nature conservation objectives of a given site. It is possible that some activities would have a significant or adverse effect on the features for which a site has been selected and in this case restrictions on those activities within the site boundaries would apply. For example, an MPA could be designated to protect a breeding, spawning or nursery ground, and this may be reflected by a seasonal restriction on extractive activities. No unnecessary restrictions or exclusions will be put on activities that are not likely to damage the features for which the site has been selected.

The overall delivery and management of the MPAs will be through the marine planning system with responsibility on Marine Scotland to incorporate site considerations into the overall decision making process. However, there may be a requirement for the introduction of a separate power that would enable Scottish Ministers to designate powers urgently. This reflects the Scottish Government's international commitments under OSPAR and WSSD to the delivery of a network of MPAs by 2010.

10.3 Environmental Consequences

Ultimately the main consequences of the proposals for Nature Conservation will be improved and strengthened protection of Scotland's marine natural heritage. However, it is noted that the main focus of this section is on biodiversity and the protection of habitats and species. There are no specific provisions for the protection of Scotland's valuable landscapes and seascapes although the new power could potentially be applied here.

In terms of Scotland's historic marine environment, proposals for improving its protection and management are presented in the Scottish Historic Environment Policy (SHEP) consultation 'The Marine Historic Environment' which was issued in March 2008. Policy proposals include consideration of the marine historic environment within planning processes. Although not directly considered under the marine conservation policy area it is intended that opportunities will be examined to integrate these policy proposals within the overall holistic management framework proposed by the Scottish Marine Bill.

Although the designation and management of the MPAs is to be on a flexible basis to reflect climate change and the need to promote sustainable development, there is the possibility that the designations could have some negative environment consequences. These are discussed in more detail in Table 10.1 below but in principal include:

- Possible displacement of marine activities from areas within designated MPAs where activities have a significant or adverse effect on the features for which a site was selected. In some circumstances this could create pressures elsewhere
- Possible increased pressures/competition for space in areas outside MPAs as a result of displacement of activities

10.4 Assessment Results

The assessment indicates that, of all the policy areas within the Scottish Marine Bill this is likely to generate the greatest potential conflict between marine activities/developers and industries and environment protection and conservation.

The results presented in Table 10.1 below reflect the environmental consequences discussed in section 10.3 above. Overall, the proposals for nature conservation which include extended site protection measures (MPAs), increased/extended protection of species and the development of wider marine nature conservation measures, will have a positive effect on biodiversity, flora and fauna.

However, the assessment has also identified that, in terms of other aspects of the marine natural environment, in particular geology, geomorphological features and coastal processes, landscapes and seascapes, and water quality, the provisions for improved or strengthened protection or conservation of these features may be very limited.

It is assumed that some of these features will receive some benefit from the proposals for marine conservation but only as indirect results of the nature conservation designations and not through any direct protection measures. Whilst it is acknowledged that the specific focus of this policy area is on nature conservation, there is concern that there is no real reference to protection of geological features or landscapes/seascape in any other part of the Scottish Marine Bill consultation document. Given that these are important nature resources that are of significant value to Scotland, this lack of protection appears to be a significant omission. There are also no clear mechanisms for integrating any direct protection of these features into the marine planning system (see Chapter 8).

In terms of water quality, although there are no direct protection measures included in the consultation document, water quality will receive a certain level of protection through the proposals for streamlining licensing and enforcement. This relates primarily to the options for the delivery of a streamlined licensing framework which would seek to retain SEPA in its existing regulatory role to provide consistency with land based activities and RBMP principals and ensure continuity with the delivery of Scotland's obligations under the WFD, with the possible extension of these principals into marine waters.

Similarly, this policy area does not make any direct provisions for protecting the marine historic environment. However, it is intended that proposals for amending and updating the existing legislation on the marine historic environment set out in the Scottish Ministers SHEP consultation 'The Marine Historic Environment' issued in March 2008, will be fully integrated into the marine planning process.

The assessment concludes that the effects on air quality and climate are likely to be negligible on the basis that the designation of sites (MPAs) is unlikely to lead to any significant changes in existing navigation routes and therefore are unlikely to lead to any significant increases in emissions to air or CO₂ production. The proposed flexible approach to the designation and management of the MPAs will enable sites to be reviewed in response to any changes in the marine environment induced by climate change. The proposals set out in this policy area will also provide greater clarity and consistency of advice and decision making which will assist in the development of marine renewables.

The assessment has identified that there could be a number of potential negative effects in terms of material assets and population (marine activities/developments) due to a potential reduction in the areas available for these activities.

However, it is clearly documented within the Marine Conservation policy area that the MPAs will not be treated as exclusion zones and that most existing activities will be compatible with the protection of the features for which the site has been designated. Any restrictions to activities will be determined on a case by case basis depending on whether they will have an adverse or significant effect on the features for which a site has been designated. Ultimately the aim of the designations will be to improve the levels of protection afforded to marine habitats and species whilst promoting sustainable use of the seas.

The sustainable use of marine natural resources is expected to have a long term positive effect on commercial fisheries. In particular it is likely that the designation of MPAs could assist in the sustainable management of fish stocks through creating areas which, through either permanent or season restrictions in activities/use, would support the replenishment of fish populations.

Table 10.1: Securing the Future: Marine Conservation Assessment Results

Marine Conservation – Assessment Results				
SEA Topics/Receptor	Key Issues for Consideration	Important Factors	Assessment	Comments
Biodiversity, Flora and Fauna	Protected sites and species Ecosystems and biological diversity	<ul style="list-style-type: none"> ▪ SPAs, SACs, SSSIs and MPAs ▪ Annex II Species ▪ Biodiversity Action Plan species and habitats ▪ Marine mammals, birds, fish and benthic ecology 	Positive	<ul style="list-style-type: none"> ▪ More effective protection of nationally important species and habitats currently not covered by European and international designations ▪ Movement towards a coherent network of representative MPAs in order to protect, manage and promote the recovery of biodiversity and ecological processes ▪ Strengthening existing protection measures ▪ Integration of marine nature conservation objectives and measures into wider planning processes ▪ Improved consistency of advice and decision making ▪ Increased protection for seals
Soil	Substrate	<ul style="list-style-type: none"> ▪ Sediment, geology and geomorphology 	Positive (Indirect)	<ul style="list-style-type: none"> ▪ No direct provisions for increased protection of substrate/geological/geomorphological features ▪ Possible increased protection of substrates/geological features where they support important habitats and species
Water	Water quality Ecological/environmental status of water	<ul style="list-style-type: none"> ▪ Bathing waters and shellfish waters ▪ Munitions dumps and disposal sites ▪ Marine discharges 	Neutral	<ul style="list-style-type: none"> ▪ Possible increased risk of pollution outside designated/protected areas (MPAs) due to displacement of activities and possible increased pressure from marine activities in localised areas ▪ Likely to be offset by increased protection of water quality as an indirect result of increased protection of marine habitats and species and stronger nature conservation objectives and measures
Air	Air quality	<ul style="list-style-type: none"> ▪ Transport emissions ▪ Oil and gas emissions ▪ Atmospheric transport of nutrients and pollutants 	Negligible	<ul style="list-style-type: none"> ▪ Possible diversion or alteration to navigation routes in response to MPAs could lead to an increase in air emissions ▪ However, this expected to be negligible as it is unlikely that main navigation routes will be affected as MPA designations are intended to promote sustainable use of the seas and not create exclusion zones

Marine Conservation – Assessment Results				
SEA Topics/Receptor	Key Issues for Consideration	Important Factors	Assessment	Comments
Climatic Factors	Reducing climate change Adapting to climate change	<ul style="list-style-type: none"> Reducing CO₂ emissions from coastal and marine activities Adapting to climate change (sea temperature change, increased storm frequency, storm surges, sea level rise) Carbon capture 	Negligible	<ul style="list-style-type: none"> Possible diversion or alteration to navigation routes in response to MPAs could lead to an increase in emissions of CO₂ However, this is expected to be negligible as it is unlikely main navigation routes will be affected as MPA designations are intended to promote sustainable use of the seas and not create exclusion zones Increased clarity of designations and nature conservation measures and integration with marine planning system should help reduce the burden on renewables developers associated with lack of guidance and inconsistent advice and decision making Proposed flexible approach to MPA designations will reflect/ enable authorities to respond to possible changes in species abundance and distribution caused by climate change Designation of MPAs could lead to an increase in the resilience of marine biodiversity and ecosystems to the effects of climate change Some MPAs could be used as scientific reference areas, which is important in furthering our understanding of marine ecosystems and impacts of climate change
Cultural Heritage	Marine and coastal archaeological and historic environment	<ul style="list-style-type: none"> Wrecks, submerged historic landscapes, submerged archaeological remains World Heritage Sites Terrestrial archaeological and historic environment 	Positive (Indirect)	<ul style="list-style-type: none"> Responsibility for safeguarding Scotland's most important marine historic assets would rest with Historic Scotland, although there may be scope for collaboration with Marine Scotland on matters of mutual interest. However, it is envisaged that Marine Scotland would take account of the wider historic environment through its planning/licensing functions (Sustainable Seas for All page 84)
Landscape	Landscape Seascape	<ul style="list-style-type: none"> World Heritage Sites, National Scenic Areas, National Parks, Areas of Great Landscape Value Visual amenity 	Negligible	<ul style="list-style-type: none"> No direct provisions for increased protection of landscapes/seascapes Possible increased protection of landscapes and seascapes where existing land based protected areas are linked to MPAs although this is likely to be limited as these do not all relate to landscape/seascapes
Material Assets	Marine and coastal material assets	<ul style="list-style-type: none"> Cables, ports, harbours, coastal infrastructure, telecommunications, oil and gas, electricity, transport networks 	Negative	<ul style="list-style-type: none"> There is potential for certain types of marine development to be excluded from certain MPAs This effect is likely to be greater inshore and coastal areas where in some locations there is already competition for space amongst users However, the basis for site designations (MPAs) is to promote sustainable use of the seas and not create exclusion zones All potential developments would be assessed on a case by case basis Restrictions are only likely to occur where development would have an adverse effect on the features for which the site has been designated e.g. cable installation in an area protected for biogenic reef structures

Marine Conservation – Assessment Results				
SEA Topics/Receptor	Key Issues for Consideration	Important Factors	Assessment	Comments
Population	Marine activities/industries	▪ Dredging	Negative	<ul style="list-style-type: none"> ▪ There is potential for certain types of marine development to be excluded from certain MPAs ▪ This effect is likely to be greater inshore and coastal areas where in some locations there is already competition for space amongst users ▪ However, the basis for site designations (MPAs) is to promote sustainable use of the seas and not create exclusion zones ▪ All activities/developments would be assessed on a case by case basis ▪ Restrictions are only likely to occur where development would have an adverse effect on the features for which the site has been designated e.g. dredging and trawling activities in an areas protected for benthic habitats or species ▪ Likely longer term positive effects on fishing due to opportunity for increased fish stock in protected areas (MPAs) ▪ Likely positive effects on recreation and tourism, in particular marine wildlife watching industry, due to increased protection of nature conservation (species and habitats)
		▪ Commercial fishing	Negative (short term) / Positive (long term)	
		▪ Shipping and navigation	Negligible	
		▪ Recreation and tourism	Positive	
		▪ Ports and harbours	Negative	
		▪ Oil and gas	Negative	
		▪ Renewables	Negative	
		▪ Aquaculture	Negative	
Human Health	Physical wellbeing	<ul style="list-style-type: none"> ▪ Water quality ▪ Food quality (shellfish and fish) ▪ Navigational safety ▪ Waste and munitions dumps ▪ Nuclear emissions/discharge 	No Change from Baseline	<ul style="list-style-type: none"> ▪ No comment

11 Understanding our Seas: Science and Data

11.1 Objectives

To create the appropriate frameworks and linkages to deliver better understanding of Scotland's seas and to foster the development of scientific capacity and expand scientific knowledge.

11.2 Description

It has been identified that there is a need to deliver a better understanding of the seas to enable them to be managed in a sustainable way. Our understanding of Scotland's seas has improved significantly over the last few years. However, there are still significant areas where increased knowledge and understanding is necessary to assist and inform good decision making.

In order to improve our knowledge and understanding of the marine environment, the Scottish Government is proposing to use the Scottish Marine Bill, combined with the establishment of a Marine Management Organisation (MMO), Marine Scotland, to create the appropriate frameworks and linkages to deliver better understanding of the seas. This will be achieved by using legislation to create the right conditions and framework to foster the development of scientific capacity and expand scientific understanding of the seas.

11.2.1 *Research Gaps*

Progress has already been made towards establishing the current extent of our knowledge of the marine environment through the 'Scotland's Seas: Towards Understanding their State' report which was published in April 2008 by the FRS (Fisheries Research Services), SEPA (Scottish Environment Protection Agency) and SNH (Scottish Natural Heritage).

This report establishes a current 'baseline' from which progress towards achieving the Scottish Government's vision for 'clean, healthy, safe, productive and biologically diverse' can be measured. It also introduces mechanisms to allow the environment to be 'managed to meet the long term needs of nature and people' and identifies that there is a need for greater stakeholder involvement in determining research as a key gap in the current research processes.

It has been suggested that in order to focus research efforts and establish greater stakeholder input there is need to establish marine science strategy. This marine science strategy could provide a mechanism for directing scientific effort into areas of importance and focusing research efforts as well as offering a channel for all stakeholders to make an input into the scale and direction of marine science in Scotland. The strategy could also help to improve science and industry involvement with a view to providing more coherent data capture and storage.

It has been identified that responsibility for the marine science strategy could lie with Marine Scotland or other bodies. There is also an opportunity for the strategy to link into the Scottish Government's overarching existing Science Strategy which covers a wide variety of scientific activities to support policy development across Scotland.

In terms of focusing research efforts, the Sustainable Seas Task Force (SSTF) have identified two key priorities. The first is a desk-based exercise to collate all existing information and data on the marine environment and the second is to map the full extent of the seabed around Scotland including the deeper waters. This could be achieved through a national seabed survey.

There is also a recognised need to improve data collected on economic activity associated with marine industries to enable a more comprehensive socio-economic picture of a particular activity or geographical area to be established.

11.2.2 *Monitoring*

In addition to research gaps, it has been identified that there is a need to improve the range, depth and consistency of information collected for the purposes of monitoring and to identify appropriate performance indicators. Monitoring is of particular importance in terms of providing sufficient and consistent information to assess GES in accordance with the MSFD obligations. It is also necessary for providing information on how different marine activities or developments effect the environment and how it is likely to be affected by climate change.

To ensure that data and information is consistent and of a robust standard it is identified that monitoring should be the responsibility of one body e.g. Marine Scotland, rather than a number of bodies as is the current situation.

11.2.3 *Data and Information*

In terms of physical data and information there is currently a lack of consistency in terms of the capture and storage of data, in particular the format, mapping of data, use of metadata and the interoperability of data between systems. Work has commenced on addressing this issue at a UK level through the establishment of the Marine Environmental Data and Information Network (MEDIN). MEDIN has established a programme for the delivery of a coordinated framework for managing marine data and information by 2013. The Scottish Government makes financial contributions to this work on behalf of Scottish public sector organisations.

However, there is still a need for Scotland to have its own system of data control, management and organisation. This could be achieved through the creation of a marine GIS system which would be developed and managed by Marine Scotland.

11.3 **Environmental Consequences**

In some areas of the marine environment there is a significant lack of baseline data where as in other areas there are relatively large quantities of baseline data. Within this some data overlaps, while others are simply not comparable due to inconsistencies in data format, capture techniques, accuracy, scale and level of detail. This is generally a result of what is currently a piecemeal approach to data collection and collation. The main reason for this piecemeal approach is that most data has been collected either as part of the consenting for various activities and developments or as part of wider monitoring as required under various international and European obligations e.g. on water chemistry, hazardous substances, monitoring of designated sites or species counts etc.

The data and information is also collected by a number of different bodies and organisations e.g. FRS, SEPA, RSPB, SNH, fishermen, oil and gas industry and developers (aquaculture and renewable). Consequently the information that is available is stored in a number of locations with varying levels of licensing or access restrictions attached to it. This means it is difficult to make it accessible for use as part of a wider overall integrated assessment of the state of the marine environment.

Consequently these current complications with marine data and information have led to this being considered to be one of the main limiting factors in the development of the marine environment. This is mainly due to inconsistencies in the provision of advice and the decision making process resulting from regulatory bodies having access to insufficient data and being unable to draw accurate conclusions/make decisions based on the data that is available.

Due to uncertainty surrounding the data that is available, developers are frequently required to provide additional information to support development/consent applications. Most information has to be obtained through detailed surveys and research, the majority of which are costly and time consuming due to the relative inaccessibility of the marine environment.

The proposals within the Science and Data section of the Scottish Marine Bill acknowledges these current limitations and aims to address them through a number of techniques. These include the proposed marine science strategy, improved monitoring and development of indicators and the coordinated collation and storage of data through a system of marine GIS.

The marine science strategy focuses on improving stakeholder inputs to the identification of key research gaps and development of specific studies for filling those gaps. This would enable a more proactive approach to be taken to data collection by focusing on key priorities rather than data being collected on an *ad hoc* basis in reaction to licence applications where there is a risk of duplication or the collection of unnecessary/inappropriate information. This coordinated and focused approach to data collection/research would benefit both developers and regulators by improving the consistency, relevance and robustness of data, thus improving the effectiveness and efficiency of the decision making process.

Improved monitoring will have a number of environmental consequences. Firstly it is essential to enable greater understanding of the state of the marine environment. Accurate conclusions on the state of the environment can only be determined by monitoring. Surveys only provide 'snap shop' views of the state of the environment at one point in time. However, to understand if that current state e.g. species population abundance or distribution is good or bad you need to be able to compare it with earlier datasets. The accuracy of the conclusions drawn reflects the level of consistency between the comparable datasets. If comparable datasets vary in terms of the scale, detail and type of data collected then the accuracy of the conclusions will be limited.

Monitoring is also essential in meeting the requirements of international and European obligations. For example, in terms of the MSFD, the Scottish Government is required to take necessary measures to achieve or maintain good environmental status in the marine environment by 2020. For this to be achieved the Scottish Government firstly needs to understand the current state of the marine environment. It then needs to identify what needs to be improved and how these improvements will be achieved based on information from existing monitoring data and then establish how progress towards achieving the necessary improvements will be measured through further monitoring and the development of appropriate performance indicators.

In addition to enabling the Scottish Government to achieve its legal obligations, monitoring is also essential for reducing the burden on developers in relation to licensing by improving the efficiency and effectiveness of the decision making process. For example, the wave and tidal (marine renewables) industry is relative new. Consequently there are a number of areas where the potential effects of wave or tidal devices on the marine environment are unknown or little understood. Consequently this can place burdens on developers where regulatory authorities are unable to make decisions on applications due to a lack of information. By monitoring how these devices actually effect the environment, these knowledge gaps can be filled or reduced, providing regulatory authorities with greater certainty during the decision making process.

One of the aims of the Scottish Marine Bill is to promote sustainable economic development. Proposals for improving research and monitoring to gain a greater understanding of the socio-economic effects of certain activities in certain geographical areas will have benefits in terms of monitoring whether the Scottish Marine Bill is achieving this aim. Monitoring economic activity will also have benefits from an environmental perspective by enabling the effects of the Scottish Marine Bill and the policy areas it contains e.g. marine planning on various marine activities and user groups to also be monitored.

11.4 Assessment Results

The results from the assessment of this policy area have not been presented in a table as it was concluded that overall the objective for science and data would have positive effects on the SEA topics.

Based on the environmental consequences discussed above any increases in data collection, monitoring and improved data collation and storage would have a positive effect on the environment, in particular by improving the consistency of advice and decision making and assisting the Scottish Government in delivering its obligations under MSFD. There are also expected to be indirect positive effects in terms of promoting the development of marine renewables by reducing the burden on developers associated with extensive data collation and surveying. This would enable the Scottish Government to meet its renewable energy targets and deliver its strategy for marine energy.

However, there is a risk that, should the proposals for science and data not be implemented effectively, there could be negative effect on the environment due to poor advice and decision making resulting from a lack of appropriate or unsuitable data.

11.4.1 Omissions

Within the nature conservation policy area, there is strong emphasis that the designation of MPAs will be according to a set of science-based ecological criteria. However, the proposals set out in this science and data section do not identify either the need to increase data collation to assist in the development of specific the science-based ecological criteria. They also do not identify a need to prioritise the collation of this data which could assist with the designation of MPAs needed to meet the 2010 target as required under the OSPAR Convention and World Summit on Sustainable Development (WSSD).

12 Managing our Seas: Marine Scotland

12.1 Objective

To establish a new marine management organisation (Marine Scotland) to champion Scotland's seas and their use and provide better integrated and streamlined delivery in the marine area.

12.2 Description

It is recognised in the consultation document that there needs to be a more integrated and coordinated approach to the management of the marine environment. At present there are a number of Government bodies and organisations with responsibility for certain aspects of the marine environment and/or for the management of certain marine activities. Consequently there is no leading authority to take overall responsibility for the management and promotion of the marine environment. This leads to confusion amongst sea users, marine developers and regulatory authorities.

To address this problem the Scottish Marine Bill consultation document proposes for the establishment of a Marine Management Organisation (MMO) which would ultimately act as the marine champion and would have integrated responsibility for the stewardship of Scotland's seas. The MMO would be referred to as 'Marine Scotland' and its main functions would potentially include:

- Collection and co-ordination of marine data, and a marine science strategy;
- Lead responsibility for marine planning, integrated marine consents (streamlining the many licensing systems now applicable), marine management, compliance monitoring and nature conservation; and
- A co-ordination role for aquaculture, marine renewable consents and management of marine and coastal areas, working closely with local partnerships and wider stakeholders.

Although decisions on the organisation and structure of Marine Scotland are still to be made, it has been suggested that it could comprise either a Directorate of the Scottish Government or a separate body such as an Agency.

In addition to the main functions listed above, Marine Scotland would also be responsible for delivering increased economic growth for the marine area whilst ensuring sustainable use of the waters around Scotland.

12.3 Environmental Consequences

The proposed establishment of Marine Scotland will have a range of implications in terms of the future management of marine activities and sustainable use of Scottish seas.

The Scottish Government proposes two approaches to the structure and organisation of Marine Scotland, a 'virtual integration' approach and a 'vertical integration' approach. Both approaches aim to co-ordinate, integrate and streamline marine management and regulatory activities, systems and processes. With the virtual integration approach this would be achieved through the adoption of a partnership working across existing organisations and arrangements. This approach is considered to be the less disruptive of the two but may result in an additional tier of regulation.

The vertical integration approach would involve the integration of all responsibilities for marine management within one organisation. This approach would be more costly and have greater disruption but would enable a more holistic approach to marine management.

Essentially whilst there are potentially two options for the structuring of Marine Scotland, both focus on coordinating and integrating responsibilities for the management of marine planning, a number of marine activities (aquaculture, fisheries and nature conservation), marine consents and science and data through one organisation.

The seas around Scotland are currently managed by a number of different organisations, each with different levels of responsibility. For example, in terms of marine conservation SNH shares its responsibility for the provision of scientific advice, implementation of policies and strategies, consenting under nature conservation legislation, science, monitoring (compliance and non-compliance) and enforcement management with a number of other organisations including FRS, the Scottish Government and SEPA. In comparison certain functions and activities within the aquaculture and fisheries industry are dealt with by a single organisation. For example the oversight and management of sea fisheries and aquaculture currently undertaken largely by the Marine Directorate of the Scottish Government, where as monitoring, compliance and local management functions for sea fisheries are undertaken by SFPA, with FRS providing scientific research and advice.

The main consequences of this multi-tiered, multi-organisational approach to the management of marine activities include:

- Inconsistency in the provision of advice due to duplication of responsibilities in some areas and limited or no responsibility in other areas
- Inconsistency in the decision making process due to lack of available and appropriate data resulting from often piecemeal approach to data collation and monitoring
- Inconsistency in enforcement due to duplication of responsibilities in some areas and limited or no responsibility in other areas
- Inconsistency in knowledge and experience across organisations affecting decision making and provision of appropriate advice
- Long and complicated consenting process due to involvement of a number of organisations with varying responsibilities and consenting requirements (See Chapter 9 for more detail)
- Lack of a lead body to promote economic growth and to provide a joined-up approach to marine and coastal development
- Increased risk of competing interests due current focused management of specific marine activities

It is intended that the integration, streamlining and coordination of management responsibilities would ultimately improve the effectiveness and efficiency of marine management activities and would improve the consistency of advice and decision making. As the leading body for marine policy and management, Marine Scotland would also have greater flexibility in coordinating data collection, monitoring, surveillance and enforcement and would promote and deliver a more holistic approach to marine management.

Marine Scotland, in its marine management role, will also have responsibility for the successful implementation and management of the main policy areas identified within the Scottish Marine Bill consultation document. These responsibilities include the coordination, organisation and availability of science and data (see Chapter 11), the implementation of streamlined consenting and licensing procedures (see Chapter 9), and the establishment, monitoring and enforcement of a new marine conservation regime. Marine Scotland will also be directly linked to marine planning, principally in the delivery of the national level plans and overseeing the preparation and implementation of local or regional level marine plans.

As a lead body with responsibility for management across all policy areas, Marine Scotland will be required to deliver a fully integrated and cohesive Scottish Marine Bill. However, for this to be successful it will be necessary to ensure that the appropriate mechanisms are in place to enable effective and efficient transfer of skills and capabilities and organisational restructuring. In terms of the virtual integration approach it will be necessary to ensure that individuals are aligned with their role within Marine Scotland and the different organisations develop a coherent approach to working together. With the vertical integration approach, it will be necessary to streamline skills and capabilities. The maintenance of links with terrestrial management roles will also need to be examined.

12.4 Assessment Results

The results from the assessment of this policy area have not been presented in a table as it was concluded that, overall, the establishment of Marine Scotland as a lead body to champion the sustainable management and use of the marine environment would have a positive effect on the SEA topics.

It would ultimately bring greater clarity and consistency to the decision making process, provide a more holistic approach to the management and use of the marine environment and would enable greater integration between regulatory bodies and stakeholders.

Marine Scotland has a key role in the delivery of all of the other marine policy areas. It will be responsible for the delivery of marine conservation measures through the marine planning system, the development of the National Marine Plan and associated marine objectives and overseeing the preparation of regional marine plans. It will also have a role in the streamlining of licensing and enforcement either as having full responsibility for the regulation of marine consents or as a 'front door or gateway' to the licensing framework. This latter option would provide developers with one point of contact through which all licence applications would be dealt with therefore reducing the burden associated with the current multi-body and multi-tier licensing system.

However, the assessment of the proposals for the establishment of Marine Scotland, and the other marine policy areas as identified a number of areas where further clarity is required:

- It is not clear how responsibilities for the delivery of marine conservation measures will be transferred from Marine Scotland to the SMR Board and what mechanisms will be put in place to ensure consistency in the delivery of the marine conservation measures at a regional level
- It is not clear how responsibilities for the regulation of coastal zone developments and the protection of coastal features (e.g. landscapes and seascape, coastal process and geological features) will be integrated into the marine planning process
- It is not clear how Marine Scotland and the SMR boards will be resourced and what mechanisms will be put into place to ensure that both Marine Scotland and the SMR boards have the appropriate skills and experience and resources to develop marine plans, regulate development and generally manage the marine environment
- It is not clear what mechanisms will be put in place to ensure that existing regulatory bodies are not left with a shortfall in resources as a result of the establishment of Marine Scotland
- Where Marine Scotland will act as a 'front door or gateway' to enable existing regulatory bodies to retain their existing responsibilities it is not clear how full integration of a more streamlined licensing framework will be achieved
- It is also not clear where Marine Scotland's role as front door or gateway will extend to in terms of the marine/land interface

Further discussion of these points is included in Section 3: Cumulative Effects.

Section 3: Cumulative Effects

13 Introduction to Cumulative Effects

13.1 Introduction

The following section brings together the results from the assessment of the individual policy areas to identify the likely cumulative and in-combination effects of the Scottish Marine Bill. The results from this section will then be used to determine overall how the Scottish Marine Bill, taking into account appropriate mitigation (Section 4), is likely to affect the marine environment of Scotland.

In the assessment of the cumulative and in-combination effects the following areas have been considered:

- Assessment of cumulative/synergistic effects across SEA Topics
- Assessment of in combination effects between Scottish Marine Bill and other instruments/legislation/PPSs
- Assessment of whether the Scottish Marine Bill tackles known environmental problems
- Assessment of whether the Marine Bill and Marine Policy Areas achieve Good Environmental Status (GES)

14 Cumulative Effects

14.1 Interactions between the Scottish Marine Bill Policy Areas

In assessing the cumulative effects of the Scottish Marine Bill on the SEA topics it is necessary to first understand how the main policy areas that comprise the Scottish Marine Bill interact with each other. Figure 14.1 below illustrates the main interactions between the different policy areas in terms of the main deliverables.

Figure 14.1: Policy Area Interactions

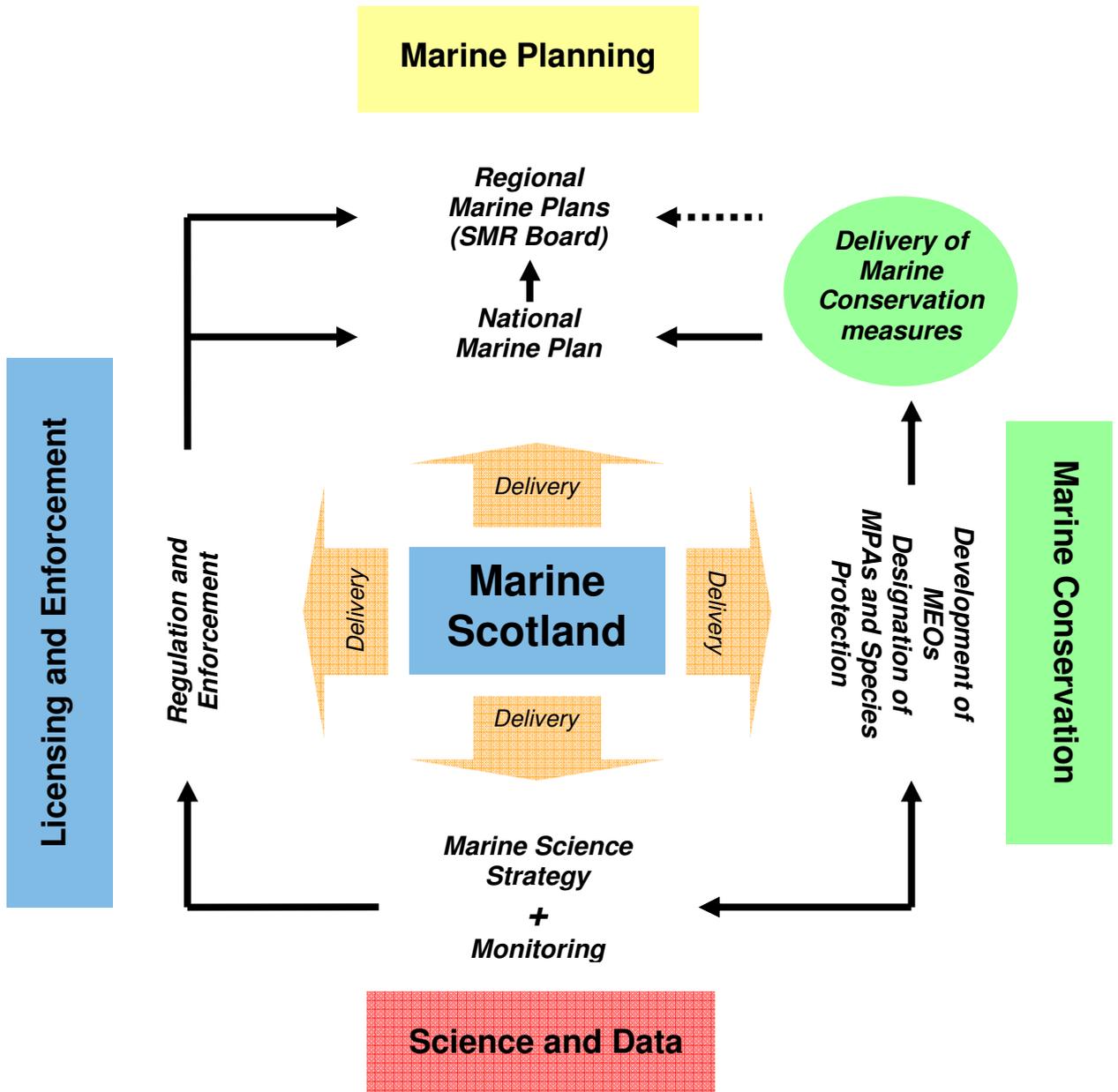


Figure 14.1, above, illustrates the central role of Marine Scotland in the overall delivery of the Scottish Marine Bill and its roles in the delivery of the individual policy areas. The flow diagram also illustrates where there are linkages between the other main policy areas. These linkages demonstrate that the effectiveness of the Scottish Marine Bill in promoting the sustainable use of Scotland's seas and improving protection of the nature environment will be dependent upon both the successful and integrated delivery of each of the policy areas.

In terms of the proposals for marine planning, these are not particularly dependent upon any of the other policies areas *per se* but have been identified as being fundamental to the delivery of specific objectives and measures for site and species based marine nature conservation. This will mainly be achieved through the development of a set of MEOs (Marine Ecosystem Objectives) which will be integrated to the National Marine Plan as part of the overall National Marine Objectives. Additionally the marine planning process will also be responsible for the delivery of specific site and species based conservation measures through the appropriate allocation of marine areas for certain marine activities/developments.

Marine Scotland has been identified as having a lead role in the delivery of the MEOs and the site and species specific protection measures. The integration of this role into the planning system is clear at the National Marine Plan level for which Marine Scotland is also responsible but it is not as clear at the Regional Marine Plans level, preparation and implementation of which will be the responsibility of the SMR Boards.

It is identified under the proposals for *Securing the Future: Marine Conservation* that MPA designations will be based upon science-based ecological evidence. Consequently the delivery of these proposals will be dependent on the effective implementation of measures for improving our understanding of the marine environment through science and data. In particular it may be necessary to prioritise some aspects of the research or increased data collation in areas that have been identified as potentially being designated as an MPA to assist with meeting the 2010 target of a network of MPAs as required under the OSPAR obligations.

Proposals for increasing our understanding of the marine environment under Science and Data will also play a key role in terms of streamlining licensing and enforcement by creating a framework within which the data and information that is required to inform the decision making process can be collated and stored to improve its accessibility. The centralisation of data and information, and the improved capture, organisation, analysis and interoperability of that data will be necessary to assist Marine Scotland in developing a more coordinated and integrated licensing framework. It will also enable regulatory authorities to adopt a more holistic approach to the regulation and management of the marine environment.

One area where further clarity is required is the relationship between a streamlined licensing framework and a system of marine planning. Whilst it is clear that Marine Scotland will have a role in the developing both frameworks and responsibility for their delivery at a national level, it is not clear what mechanisms would be put in place to enable the integrated delivery of both frameworks at a regional or local level.

The proposals for licensing suggest that Marine Scotland's role would be as a front door or gateway to a licensing framework within which the roles of existing regulatory bodies would be retained e.g. SEPA. The main reason for this would be to maintain integration with land based licensing procedures e.g. Controlled Activities Regulations (CAR) 2005 developed in response to the WFD obligations. It is also expected that FRS would be retained in some capacity within Marine Scotland to provide advice and assist with the regulation of marine activities. However, it is not clear how other development consents that are responsibility of the local authorities will be dealt with through either process. For example how will these activities be integrated into a marine plan if they continue to be regulated under the existing land based consenting system? Also what role, if any, would Marine Scotland have as a front door or gateway to the land based consenting processes?

This is an important issue both in terms of the success of the Scottish Marine Bill and its ability to promote the growth of marine industries e.g. marine renewables developments which require coastal infrastructure and protection of coastal environment in particular landscapes, seascapes and coastal processes.

14.2 Assessment of Cumulative Effects

Overall the proposals for the Scottish Marine Bill are likely to have a positive effect on all SEA topics except air quality where any effects will be negligible. Table 14.1 provides a summary of the main findings from the assessment of cumulative effects for each of the SEA topics. These results are illustrated in relation to the individual policy areas in Table 14.2.

Table 14.1: Summary of Results from Cumulative Assessment (Including Mitigation)

SEA Topics	Summary of Results from Cumulative Assessment (Including Mitigation)
<p>Biodiversity, Flora and Fauna</p>	<ul style="list-style-type: none"> ▪ Overall the Scottish Marine Bill is likely to have positive effects on this SEA topic for the following reasons: <ul style="list-style-type: none"> ➢ Increased protection of nationally important habitats and species currently not covered by European and International legislation ➢ Movement towards a coherent network of representative marine protected areas in order to protect and promote recovery of biodiversity and ecological processes ➢ strengthened existing protection measures ➢ More holistic approach to the protection and management of the marine natural environment ➢ Increased understanding of the marine natural environment will assist with its overall management and the regulation of marine activities and development ➢ Greater consistency of advice and decision making based underpinned by increased knowledge and more coordinated and holistic approaches to management ➢ Improved monitoring and enforcement to prevent adverse impacts on the marine natural environment ➢ Increased communication between regulatory bodies, stakeholders and developers ➢ Improved provisions for data and knowledge sharing ▪ The designation of MPAs could lead to a displacement of activities and developments from within designated areas. This could lead to increased pressure on natural resources/environment outside MPAs. However, it is expected that the full extent of this displacement will be minimised due to the flexible approach being proposed for the designation of MPAs where by only certain activities and developments that have an adverse effect on the features for which a site is selected will be restricted. ▪ Additionally one of the key roles of the marine planning process will be to manage the distribution/siting of activities and future restricted developments that have been displaced by MPAs or are likely to be excluded from MPAs due to their potential to have adverse effects on selected features in a way that minimises their effect on natural resources and the environment. This will help to reduce the effects that any displacement of activities/future developments from within MPA may have on other non designated areas. This spatial management of marine activities and developments will be of particular importance in inshore areas where pressure for space/suitable sites for development is already high.
<p>Soil/Substrate</p>	<ul style="list-style-type: none"> ▪ The cumulative assessment of the effects of the Scottish Marine Bill concluded that in terms of marine conservation although there are no specific provisions for the protection of geological features it is likely that these will be subject to certain levels of protection where geological features support habitats/species for which a site has been selected ▪ It is also expected that through the marine planning process and licensing framework there will be greater ability for a more coordinated approach to the impacts of marine developments/activities over a wider geographical area and over a range of receptors. This should improve the protection of the environment as whole including geology, geomorphology and substrate. ▪ Additionally the integration of the principals of ICZM into marine planning should facilitate a more holistic and coordinated approach to the management of coastal developments. This would have an overall positive effect on coastal processes by enabling wider consideration of the cumulative effects of marine developments or activities e.g. coastal defences and flood prevention schemes on coastal processes

SEA Topics	Summary of Results from Cumulative Assessment (Including Mitigation)
Water	<ul style="list-style-type: none"> ▪ The Scottish Marine Bill consultation paper identifies a need for coordination and integration in the delivery of a streamlined licensing framework with existing land based regulatory systems. ▪ In particular, the licensing policy areas identifies the potential benefits of retaining SEPA in their current role (on possibly extending this into inshore areas) to ensure consistency with their current land-based CAR and WFD responsibilities and possibly enable the extension of this into the marine environment under the MSFD obligations. ▪ Alternatively Marine Scotland may take full responsibility for regulation of the marine environment. To prevent any adverse effects, clear mechanisms for coordinating land based and marine regulatory systems would be required. This would also have to be supported through appropriate transfer of skills and experience from relevant bodies e.g. SEPA. ▪ General increased protection of the water environment through improved management of marine activities and marine nature conservation
Air	<ul style="list-style-type: none"> ▪ It is unlikely that the Scottish Marine Bill will have any major effects on air quality. ▪ By implementing a more holistic approach to managing marine development and sea use, marine planning may result in a local reduction in air quality in some areas and an improvement in others ▪ In terms of other impacts on air quality from other marine developments/activities these would continue to be regulated as appropriate to ensure any impacts are minimal.
Climatic Factors	<ul style="list-style-type: none"> ▪ In terms of climatic factors the Scottish Marine Bill is likely to have a positive effect on the promotion and growth of the marine renewables industry ▪ This would be achieved through: <ul style="list-style-type: none"> ➢ Increased consistency of advice and decision making at the planning and licensing stage ➢ Improved guidance in terms of appropriate site locations ➢ Management of conflicts with other sea users ➢ More holistic and coordinated approach to the development of the marine renewables industry across Scotland ➢ Integration of coastal infrastructure developments through ICZM ➢ Reduced burden associated with delays in decision making, inconsistencies in consultation and unnecessary survey/research studies ▪ Marine planning will also enable a more holistic and coordinated approach to the development of coastal defences and flood prevention schemes to ensure that they provide maximum benefit e.g. through correct siting etc with minimal effects on the natural environment ▪ Increasing our understanding of the marine environment will enable greater understanding of climate change, its effects on the environment and how we can respond/adapt to these changes/effects ▪ The designation of MPAs may assist in increasing the resilience of marine ecosystems to the effects of climate change ▪ This is reflected in the proposed flexible approach to the designation and management of MPAs
Cultural Heritage	<ul style="list-style-type: none"> ▪ Although not addressed directly, the processes of marine planning and streamlined licensing are likely to have positive effects on the historic marine environment through a more holistic and coordinated approach to the management of the marine environment and the regulation of impacts of marine developments/activities ▪ Additionally the policies and proposals set out within the SHEP consultation (March 2008) will be integrated into the Scottish Marine Bill and individual policy areas where appropriate to reinforce the holistic approach to marine management ▪ The greatest benefits in terms of the historic marine environment will be delivered through an increased understanding of the marine environment. This will assist in greater protection of the marine historic environment and in the sustainable management of marine developments

SEA Topics	Summary of Results from Cumulative Assessment (Including Mitigation)
Landscape / Seascape	<ul style="list-style-type: none"> ▪ As with the marine historic environment a more coordinated and holistic approach to the management of the marine environment and the regulation of impacts should have a positive effect on landscapes and seascapes. ▪ In particular there will be a greater opportunity to consider the potential cumulative effects of fixed site activities e.g. fish farms and renewables on landscapes and seascapes at a local, regional and national level ▪ Mechanisms for the regulation of impacts on landscapes and seascapes within a marine licensing framework require further clarity in terms of the coordination of roles and responsibilities between Marine Scotland, SNH and the Local Authorities
Material Assets	<ul style="list-style-type: none"> ▪ The increased protection and management of the marine environment could have a negative effect on material assets due to possible increased restriction on the areas that would be available for development. However, given the pragmatic approach being proposed where by only certain activities will be restricted from protected sites by virtue of their impact on the features for which the site was selected, it is not expected that this impact will be significant. ▪ This is likely to be of greater concern in the inshore and coastal areas where in some locations there is already competition between different marine users for space. ▪ However, it is likely that these potential negative effects resulting from nature conservation would be offset by the following positive effects: <ul style="list-style-type: none"> ➢ Improved conflict resolution therefore reducing the effects of other <i>ad hoc</i> and uncoordinated developments on current and future activities ➢ Overall sustainable management of the seas natural resources ➢ Siting of the right technology/development in the right area ➢ The proposed sustainable management of MPAs means that activities will not be excluded from protected site unless they have a significant or negative effect on the features for which the site was selected. It is expected that most existing activities will be compatible with the MPA designations
Population	<ul style="list-style-type: none"> ▪ As with material assets it is likely that the various marine activities could possibly experience negative effects as a result of exclusion from certain areas but that these effects will be minimised and are likely to become positive in the longer term due to overall more sustainable management of resources and improved management of competing interests in inshore and coastal areas. ▪ In terms of commercial fisheries it is possible that in the longer term greater protection of the marine nature environment could support the sustainable management of fish stocks ▪ Marine planning and streamlined licensing will also assist in promoting the growth of the renewables industry through informed and coordinated advice, consistency and guidance ▪ It is likely that the recreation and tourism industries will benefit through the implementation of the Scottish Marine Bill in both the short and long term, particularly activities relating to wildlife watching activities. ▪ One activity that may experience longer term negative effects is dredging as a result increased regulation of those activities.
Human Health	<ul style="list-style-type: none"> ▪ Overall the Scottish Marine Bill is likely to have positive effects on human health through: <ul style="list-style-type: none"> ➢ Improved water quality ➢ More consistent and efficient mechanism for monitoring ➢ Holistic and sustainable approach to the management of marine activities to reduce effects on local populations and the nature environment

Table 14.1: Assessment of Cumulative Effects (Taking Account of Mitigation Measures identified in Chapter 17)

SEA Topics/Receptor	Key Issues for Consideration	Important Factors	Assessment Results (Based on Results from Chapters 8 to 12 and Mitigation Measures in Chapter 17)				
			Marine Planning and ICZM	Streamlining Consents	Marine Conservation	Science and Data	Cumulative Effects
Biodiversity, Flora and Fauna	Protected sites and species Ecosystems and biological diversity	<ul style="list-style-type: none"> ▪ SPAs, SACs, SSSIs and MPAs ▪ Annex II Species ▪ Biodiversity Action Plan species and habitats ▪ Marine mammals, birds, fish and benthic ecology 	Positive	Positive (Indirect)	Positive	Positive	Positive
Soil	Substrate	<ul style="list-style-type: none"> ▪ Sediment, geology and geomorphology 	Positive	Positive	Positive	Positive	Positive
Water	Water quality Ecological/ environmental status of water	<ul style="list-style-type: none"> ▪ Bathing waters and shellfish waters ▪ Munitions dumps and disposal sites ▪ Marine discharges 	Positive	Positive (Indirect)	Neutral	Positive	Positive
Air	Air quality	<ul style="list-style-type: none"> ▪ Transport emissions ▪ Oil and gas emissions ▪ Atmospheric transport of nutrients and pollutants 	Negligible	No Change from Baseline	Negligible	Positive	Negligible
Climatic Factors	Reducing climate change Adapting to climate change	<ul style="list-style-type: none"> ▪ Reducing CO₂ emissions from coastal and marine activities ▪ Adapting to climate change (sea temperature change, increased storm frequency, storm surges, sea level rise) ▪ Carbon capture 	Positive (Indirect)	Positive (Indirect)	Negligible	Positive	Positive
Cultural Heritage	Marine and coastal archaeological and historic environment	<ul style="list-style-type: none"> ▪ Wrecks, submerged historic landscapes, submerged archaeological remains ▪ World Heritage Sites ▪ Terrestrial archaeological and historic environment 	Positive	Positive (Indirect)	Positive (Indirect)	Positive	Positive

SEA Topics/Receptor	Key Issues for Consideration	Important Factors	Assessment Results (Based on Results from Chapters 8 to 12 and Mitigation Measures in Chapter 17)				
			Marine Planning and ICZM	Streamlining Consents	Marine Conservation	Science and Data	Cumulative Effects
Landscape	Landscape Seascape	<ul style="list-style-type: none"> World Heritage Sites, National Scenic Areas, National Parks, Areas of Great Landscape Value Visual amenity 	Positive	Positive	Negligible	No change from baseline	Positive
Material Assets	Marine and coastal material assets	<ul style="list-style-type: none"> Cables, ports, harbours, coastal infrastructure, telecommunications, oil and gas, electricity, transport networks 	Positive	Positive	Negative	Positive	Positive
Population	Marine activities/industries	<ul style="list-style-type: none"> Dredging 	Positive	Negative	Negative	Positive	Positive
		<ul style="list-style-type: none"> Commercial fishing 	Negative (short term)	Positive (long term)	No Change from Baseline	Negative (short term) / Positive (long term)	
		<ul style="list-style-type: none"> Shipping and navigation 	Negative (short term)	Positive (long term)	Reserved Matter = No Effect	Negligible	
		<ul style="list-style-type: none"> Recreation and tourism 	Positive (Direct and Indirect)	Neutral	Positive	Positive	
		<ul style="list-style-type: none"> Ports and harbours 	Positive	Positive	Negative	Positive	
		<ul style="list-style-type: none"> Oil and gas 	Neutral	Reserved Matter = No Effect	Negative	Positive	
		<ul style="list-style-type: none"> Renewables 	Positive	Positive	Negative	Positive	
		<ul style="list-style-type: none"> Aquaculture 	Positive	Neutral	Negative	Positive	
Human Health	Physical wellbeing	<ul style="list-style-type: none"> Water quality Food quality (shellfish and fish) Navigational safety Waste and munitions dumps Nuclear emissions/discharge 	Positive	Positive	No Change from Baseline	Positive	Positive

15 Tackling Environmental Problems

15.1 Introduction

The previous sections of this Environmental Report focus primarily on the assessment of how the proposals for the Scottish Marine Bill would affect the environment. However, to ensure the assessment is robust and rigorous it is also necessary to examine the overall effectiveness of the Scottish Marine Bill in tackling existing environmental problems.

The environmental problems discussed in this part of the assessment have been identified from a review of the available baseline information and from discussions with key stakeholders and regulatory authorities as part of the scoping workshop. The main findings from this part of the assessment are valuable in developing measures to overcome existing environmental problems by identifying opportunities for enhancing the overall benefits of the Scottish Marine Bill.

15.2 Environmental Problems

The following is a list of the main (headline) environmental problems or issues that have been identified as being relevant to the Scottish Marine Environment:

- Obligations to deliver a network of MPAs under European and International legislation
- Need for increased protection of nationally important habitats and species not covered under European legislation (national nature conservation objectives)
- Obligation to protect sensitive species and habitats offshore (12-200nm) under European legislation
- Insufficient data available to designate MPAs
- Lack of data relating to the distribution and abundance of habitats and species and a need to expand scientific understanding of the sea
- Lack of data relating to the impact of marine renewables on marine mammals
- Pressures on fish populations from commercial fisheries
- Unknown effects of climate change on species and habitat distribution and abundance
- Coastal erosion (12% of Scotland's coast is currently suffering erosion) and steepening of intertidal profiles especially on coasts protected by hard engineering is likely to increase with climate change
- Need to improve water quality to achieve MSFD targets of Good Environmental Status by 2020
- Increased requirement for dredging as part of day to day maintenance and future expansion of ports and harbours, and increased marine developments
- Some marine areas experience problems with beach litter. 90% contains plastics and 80% comes from land-based sources
- Unknown effects of climate change on coastal populations/infrastructure due to increasing storm frequency/intensity and possible sea level rise in some areas
- Need to identify alternative, renewable sources of energy
- Need to identify carbon storage solutions
- Unknown presence or distribution of archaeological features
- No specific protection for marine assets such as submerged landscapes
- Need to protect important landscapes and seascapes from inappropriate development
- Insufficient grid capacity to support development of marine renewables
- Need to increase telecommunications links (including broadband) to the Northern and Western Isles
- Declining population in some coastal areas
- Depleted fish stocks

- Effects of climate change on aquaculture due to increasing sea temperatures
- Increasing pressure on nearshore and coastal areas
- Complicated/inefficient system for licensing marine development
- Predicted decline in oil and gas production from Scottish waters

15.3 Results from the Assessment of Environmental Problems

Table 15.1 provides a summary from the key findings of the assessment of the proposals for the Scottish Marine Bill in terms of whether it tackles environmental problems.

The assessment of the environmental problems is based on the following key:

Tackled in the Scottish Marine Bill?	Key
Yes	✓
No	X
Not clear	?
Not applicable	N/A

Table 15.2: Assessment of Environmental Problems

Environmental Problems			
SEA Topics /Receptor	Problem	Tackled in Scottish Marine Bill?	Comments
Biodiversity, Flora and Fauna	Obligations to deliver a network of MPAs under European and International legislation.	✓	<p>The proposals for Marine Conservation in the Scottish Marine Bill focus on increasing the protection of individual species (in line with national nature conservation objectives) and the designation of a network of MPAs by 2010 (in response to the OSPAR Convention). These MPAs are in addition to the network of Natura 2000 sites, which the UK Government is currently responsible for extending beyond the 12nm limit in line with the EC Birds and Habitats Directive and the introduction of the Offshore Marine Conservation (Natural Habitats &c) Regulations 2007.</p> <p>Both the MPAs and Natura 2000 sites focus on the protection of important habitats and species. With regard to seabirds it is also proposed to extend the designations to cover foraging areas as well as breeding areas. However, there may be a need to look at the protection of food source areas e.g. fish spawning grounds, in addition to actual foraging areas. There is also the potential to expand SPAs for seabirds into the marine environment to take account of the wider habitat needs of the qualifying species, as current sites do not extend beyond the low water mark.</p>
	Need for increased protection of nationally important habitats and species not covered under European legislation (national nature conservation objectives)	✓	<p>It is proposed within the Scottish Marine Bill that any future designation will need to be based on scientific evidence and will need to be delivered within a flexible framework to account for changes in species abundance and distribution due to climate change. Use of best available data at the time of designation will prevent further delays in establishing a network and protecting marine biodiversity.</p> <p>The Scottish Marine Bill recognises that current understanding of climate change and its impacts on the marine environment are limited and that appropriate monitoring is required to improve our understanding. However, details as to how this will be achieved are limited.</p>
	Obligation to protect sensitive species and habitats offshore (12-200nm) under European legislation.	N/A	<p>Although the extended boundary 12-200nm is not currently part of the Scottish Marine Bill, proposals within the Marine Conservation policy area takes account of existing European obligations as set out in EC Habitats and Birds Directives and the Offshore Marine Conservation (Natural Habitats, &c.) Regulations 2007.</p>
	Insufficient data available to designate MPAs	✓	<p>Proposals within the Science and Data policy area focus on establishment of appropriate frameworks and linkages to deliver a co-ordinated approach to the collation and dissemination of data and science. This science and data, in addition to improving the consistency of advice and decision making could also be used for the designation of MPAs. Due to the current lack of data it will be essential to prioritise Science and Data activities to ensure that scientific evidence is available to inform the selection of MPAs. The current target date for designation of MPAs is 2010. It has been identified that more information is need on Scotland's deeper offshore waters, which will also assist with the delivery of offshore Natura sites.</p>

Environmental Problems			
SEA Topics /Receptor	Problem	Tackled in Scottish Marine Bill?	Comments
Biodiversity, Flora and Fauna	Lack of data relating to the distribution and abundance of habitats and species – need to expand scientific understanding of the sea.	✓	Covered in Science and Data policy area.
	Lack of data relating to the impact of marine renewables on marine mammals	✓	It is proposed as part of the Science and Data policy area to establish a Marine Science Strategy to direct scientific effort into areas of importance and focusing research efforts. This could assist in identifying and addressing specific gaps in understanding of the impacts of marine renewables developments on marine mammals and other sea life. It is also identified within the Science and Data policy area that monitoring will play an important part, integrating the assessment of various impacts of development into a single aggregate of assessment of human activities on the marine environment.
	Pressures on fish populations from commercial fisheries	✓ (inshore)	Pressure on fish populations is greater in the inshore area, compared to offshore. Unlike the UK Marine Bill, the Scottish Marine Bill does not have specific section dedicated to fisheries. The main reason for this is that the Scottish Marine Bill is seeking to adopt an integrated approach to the overall sustainable management of the marine environment, of which commercial fisheries is part, rather than an isolated component. Consequently the Scottish Marine Bill does not explicitly focus on the sustainable management of commercial fisheries. However, it does recognise the need to improve consistency and efficiency in compliance, monitoring and enforcement in terms of commercial fisheries and to closely integrate the Inshore Fisheries Groups (IFGs) and requirements of the Scottish Framework for Inshore Fisheries (2007) into the marine planning process through inclusion of the IFGs on SMB Boards. Furthermore, IFGs will be responsible for developing Management Plans for the fisheries within their areas, which could look at new ways of addressing stock management and enhancement.
		X (offshore)	The Scottish Marine Bill does not include offshore fisheries as fisheries management and quotas are set by the EU and therefore cannot be controlled by domestic legislation

Environmental Problems			
SEA Topics /Receptor	Problem	Tackled in Scottish Marine Bill?	Comments
Biodiversity, Flora and Fauna	Unknown effects of climate change on species and habitat distribution and abundance	?	<p>There is already evidence of declines in some seabird and fish populations (Overall abundance of breeding seabirds in Scotland in 2004 has declined 20% relative to 1986 levels. This is thought to be related to reduced availability of food resources, possibly as a result of climate change). Declining sandeel populations are thought to be due to change in plankton regime resulting from sea temperature rises). However it also is thought that commercial fishing activities may be a factor. Future potential impacts on species and habitats may relate to further changes in ocean chemistry, temperatures and currents.</p> <p>Whilst climate change is not tackled directly in the Scottish Marine Bill, there is the opportunity under Science and Data to obtain a better understanding of populations and abundance, and over time it should be possible to see trends in this data, allowing for better resource use.</p> <p>Furthermore, the creation of Marine Protected Areas to protect sensitive species and habitats should increase the resilience of these species to withstand changes which may occur as a result of climate change.</p>
Soil/Substrate	Coastal erosion (12% of Scotland's coast is currently suffering erosion) and steepening of intertidal profiles especially on coasts protected by hard engineering is likely to increase with climate change	✓ and X	<p>Coastal erosion is currently dealt with under the land use planning system and is also considered as part of the Integrated Coastal Zone Management (ICZM) process. It is proposed within the Marine Planning policy area that the SMR board will have responsibility for ICZM, which is currently administered by Local Coastal Partnerships which operate on a voluntary basis. In principal, transferring responsibility for ICZM to the SMR board should enable a more holistic approach to the consideration of coastal processes over a wider area e.g. SMRs. This would assist in mitigating coastal developments accordingly to prevent adverse effects on areas at risk from erosion or steepening intertidal profiles. As part of Marine Planning and ICZM there will be an opportunity to look at longer term approaches for adapting to climate change in terms of coastal defences etc over wider geographical areas. However, it is not clear whether the SMR Board or the local authority will ultimately be responsible for the consenting of coastal developments (which could affect coastal erosion) and therefore whether the Scottish Marine Bill would directly tackle this problem.</p>

Environmental Problems			
SEA Topics /Receptor	Problem	Tackled in Scottish Marine Bill?	Comments
Water	Need to improve water quality to achieve MSFD targets for Good Environmental Status by 2020	✓	<p>Under the MSFD there is a need to achieve good environmental status (GES) by 2020, of which water quality is a key component. The MSFD is ultimately an extension of the WFD into the marine environment. Under the WFD there is a requirement for freshwater, transitional waters and coastal waters to achieve Good Ecological Status by 2015. The requirements of the WFD are transposed into domestic legislation through the Water Environment and Water Services Act 2003 and the Water Environment (Controlled Activities) (Scotland) Regulations 2005 (CAR) and extend out to 6nm in Scotland. SEPA is responsible for regulating impacts on the water environment under CAR.</p> <p>In terms of the coastal and marine environment SEPA is responsible for CAR consents for discharges from marine installations in coastal (up to 3nm) and transitional waters. However, SEPA do not require authorisation for discharges from vessels in coastal /transitional waters as these are controlled by the Maritime and Coastguard Agency under the Merchant Shipping Act 1995. Engineering works in coastal and transitional waters are regulated under FEPA by FRS.</p> <p>The proposals to streamline the consenting process aims to establish a coordinated and integrated approach to licensing and marine management to reduce burdens to developers and minimise the impacts of human activities on different aspects of the marine environment including water quality.</p> <p>Although the Scottish Marine Bill does not explicitly address how the MSFD will be delivered, there will need to be close links with the delivery of the WFD obligations. It is therefore recognised in the Scottish Marine Bill that, in streamlining the licensing framework, there may be a need to retain SEPA's role in regulation of impacts in the water environment under CAR rather than transferring all responsibility to Marine Scotland as this would introduce consistency and links to the delivery of the WFD.</p>
	Increased requirement for dredging as part of day-to-day maintenance and future expansion of ports and harbours, and increased marine developments	✓	As part of the proposals for streamlining licensing, the Scottish Marine Bill intends to extend licensing to cover all new forms of dredging e.g. water cutting, plough dredging or agitation dredging. This aims to reduce the potential environment effects of dredging activities including capital and maintenance dredging. Although capital dredging is not currently licensed, it is subject to an EIA and ministerial scrutiny. The disposal of dredged material is currently regulated under Part II of FEPA 1985 which is managed by FRS.
	Some marine areas experience problems with beach litter. 90% contains plastics and 80% comes from land-based sources	X	This issue is not covered within the Scottish Marine Bill as it is dealt with through other marine legislation and European and international obligations e.g. OSPAR
Air Quality	No headline issues identified	N/A	N/A

Environmental Problems			
SEA Topics /Receptor	Problem	Tackled in Scottish Marine Bill?	Comments
Climatic Factors	Unknown effects of climate change on increasing storm intensity/frequency and possible sea level rise on coastal areas	✓ and X	It is beyond the scope of the Scottish Marine Bill to deal explicitly with climate change. However, it does recognise the need for monitoring to improve the understanding of climate change and how it will impact the seas around Scotland. As part of Marine Planning and ICZM there will be an opportunity to look at longer term approaches for adapting to climate change in terms of coastal defences etc over wider geographical areas. This will help to maximise the benefits of these protection measures whilst minimising environmental impacts.
	Need to identify alternative, renewable sources of energy	✓ and X	Marine renewables are one of the major potential growth areas within Scotland. Not only would an expansion of this sector make a significant contribution towards the Scottish Government's target for 50% of Scotland's energy to be from renewable sources by 2020 it would also have significant economic benefits across Scotland. There are a number of proposals within the Scottish Marine Bill which focus on reduce the burden to the future development of renewables including streamlining the licensing framework and introducing marine planning as a mechanism for providing developers with guidance on the most suitable areas for the development of renewables and for managing competing interests/conflict resolution. It is hoped that Marine Spatial Planning will enable the right technology to be sited in the right place, giving developers more certainty on where to develop. However, it is not clear how marine planning will address inshore and coastal issues, particularly where there is an overlap with the existing land use planning consenting process. This is a critical element in terms of developing marine renewables as the suitability of sites will depend heavily on whether the necessary supporting inshore and onshore infrastructure can be provided in correct locations.
	Need to identify carbon storage solutions	? (inshore)	The UK Energy Bill will create a new licence to regulate carbon storage below the seabed. This will replace that part of FEPA which would have regulated this activity. Scottish Ministers will have full responsibility for this new licensing regime within territorial waters i.e. within 12nm. Therefore carbon storage will have to be considered as part of the revised licensing framework and marine planning structure although this is not explicit in the Scottish Marine Bill consultation document.
		X (offshore)	Between 12nm and 200nm this activity will be reserved, and therefore not covered by the Scottish Marine Bill
Cultural Heritage	Unknown presence or distribution of archaeological features	✓	Covered in Science and Data policy area
	No specific protection for marine assets such as submerged landscapes	✓	Covered in Science and Data policy area

Environmental Problems			
SEA Topics /Receptor	Problem	Tackled in Scottish Marine Bill?	Comments
Landscape	Need to protect important landscape and seascapes from development	X	<p>There is no specific reference to the protection or conservation of important landscapes/seascapes within the Scottish Marine Bill consultation document.</p> <p>However, it is suggested under the Marine Conservation policy area, that in the identification of MPAs there would be a need to consider links to existing land based designation e.g. Sites of Special Scientific Interest (SSSIs), National Nature Reserves (NNRs) and Regional Parks.</p> <p>As with coastal processes and other coastal and inshore activities it is not clear whether the impacts of new developments/marine activities on landscapes/seascapes would be managed under the proposed marine planning system or would continue to be dealt with through the land use planning system in consultation with Scottish Natural Heritage (SNH).</p> <p>It should be recognised that with the Scottish Marine Bill there is a significant opportunity for marine planning to be used to manage the potential cumulative impacts of increased marine development/activities on important landscapes and seascapes.</p>
Material Assets	Insufficient grid capacity to support development of marine renewables	X	<p>The Scottish Marine Bill focuses specifically on the marine environment.</p> <p>However, there is a need for greater consideration of coastal infrastructure developments and how these will be managed through marine planning and Marine Scotland to enable the necessary onshore infrastructure to support marine developments and how these relate to/inform or are influenced by wider strategic issues such grid capacity.</p>
	Need to increase telecommunication links (including broadband) to Northern and Western Isles	X	This is a reserved matter and therefore is not dealt with directly within the Scottish Marine Bill.
Population	Declining population in some coastal areas	✓	One of the main functions of Marine Scotland will be to deliver increased economic growth for the marine area. A strategic oversight of potential development will be essential for generating further growth. It is intended that streamlining the licensing process will reduce burden on developers and make development happen and generate higher growth in remote areas. This should assist in stemming population decline from these areas.
	Depleted fish stocks	✓ (inshore)	Marine planning proposals recognise the importance of working closely with the Inshore Fisheries Groups to promote the sustainable management of fisheries within the wider context of overall sustainable marine management. It is expected that this will be achieved through inclusion of IFGs representative on the SMR Boards and consideration of the fisheries management frameworks developed by the IFGs under the Scottish Framework for Inshore Fisheries (2007) into the marine planning process.
		X (Offshore)	The Scottish Marine Bill does not include offshore fisheries as fisheries management and quotas are set by the EU and therefore cannot be controlled by domestic legislation

Environmental Problems			
SEA Topics /Receptor	Problem	Tackled in Scottish Marine Bill?	Comments
Population	Effects of climate change on aquaculture due to increasing sea temperatures	?	It is beyond the scope of the Scottish Marine Bill to directly tackle climate change. It is recognised under proposals for monitoring in the Science and Data policy area that there is a need to use monitoring to improve the understanding of climate change and its impact on the environment. It is assumed that this would also include marine activities, although this is not explicitly stated within the consultation document.
	Increasing pressure on nearshore and coastal areas	✓	In the nearshore and coastal environment, there is already a high level of competition between different uses of the environment. Going forward, the pressure for competing interests in the nearshore and coastal environment is set to increase. The marine planning and Integrated Coastal Zone Management objectives of the Scottish Marine Bill will address this through the establishment of Scottish Marine Regions, and boards comprising representatives from the main stakeholder interests in the area. It is the intention that this will allow the nearshore and coastal environment to be used more efficiently, enabling a more strategic approach to licensing development and other activities in this area.
	Complicated / inefficient system for licensing marine development.	✓	The current system for licensing marine developments, often involving a number of licences and consenting authorities for a single development is not considered to be efficient both from the point of view of the regulator and the developer. In particular, the lack of a clear legislative or regulatory/licensing framework for renewable developments has been identified as a potentially limiting factor in terms of the future development of marine renewables. The Scottish Marine Bill intends to address this issue through the streamlining of licences. This will ultimately reduce burdens on developers by providing clarity on what is required for a consent application and the likely timescales involved. Increased science and data will also assist the licensing process by improving the consistency of the advice and decision making and reducing the burden of carrying out extensive baseline surveys. However, further clarity is required within the Scottish Marine Bill as to how coastal and inshore infrastructure licences will be regulated (e.g. SMR board or Local Authority).
	Predicted decline in oil and gas production from Scottish Waters	X	Oil and gas is a reserved matter and therefore is not dealt with directly within the Scottish Marine Bill
Human Health	No headline problems	N/A	N/A

16 Achieving Good Environmental Status (GES)

16.1 The Marine Strategy Framework Directive (MSFD)

Significant progress has been made recently towards improved protection of the marine natural environment through the introduction of the European Marine Strategy Framework Directive (MSFD). This Directive, which was adopted on 17th June 2008, requires member states to 'take the necessary measures to achieve or maintain good environmental status (GES) of the marine environment by 2020 at the latest'.

In order to achieve the targets for GES set out in the MSFD all member states are required to develop a strategy for their marine waters. This strategy must address a number of key actions within specific timescales. These actions include:

- Initial assessment of current environmental status of waters and environmental impact of human activities by 2012
- Determine what constitutes 'good environmental status' (GES)
- Develop environmental targets and indicators by 2012
- Implementation of a monitoring programme by 2014
- Programme of measures (management actions) developed by 2015 and implemented by 2016

16.2 Achieving Good Environmental Status (GES) and the Scottish Marine Bill

This part of the SEA examines whether, as a plan to improve the protection and management of the marine environment, the proposals within the Scottish Marine Bill consultation document will assist the Scottish Government in meeting the requirement of the MSFD in achieving GES.

The Scottish Marine Bill itself is not the vehicle for transposing the requirements of the MSFD into domestic (Scottish) legislation. However, the assessment does conclude that the Marine Bill would establish a framework within which actions for achieving GES could be integrated.

Table 16.1 below provides an overview of the five main policy areas identified in the Scottish Marine Bill consultation document and their potential to assist the Scottish Government with the development and delivery of a strategy for achieving GES of their marine waters.

Table 16.1: Achieving GES and the Scottish Marine Bill

Marine Policy Area	Assist in Achieving GES?	Comment
Creating Stability: Marine Planning and Integrated Coastal Zone Management	✓	<ul style="list-style-type: none"> ▪ The proposals for marine planning include the preparation of a National Marine Plan and regional marine plans. ▪ The policies and proposals within the National Marine Plan will be underpinned by a set of National Marine Objectives. ▪ It is intended that these National Marine Objectives will reflect international and European obligations e.g. MSFD ▪ Additionally, the National Marine Objective will include Marine Ecosystem Objectives (MEOs). Whilst these have not been directly linked to the MSDF, they are seen as the mechanism by which Marine Scotland will deliver improvements to biodiversity and ecosystem management at the National Marine Plan level and through to the Regional Marine Plan Level. ▪ The National Marine Objectives will also be developed to reflect and link with the UK Marine Objectives that will be prepared in the context of the MSFD

Marine Policy Area	Assist in Achieving GES?	Comment
		<ul style="list-style-type: none"> ▪ It has also been identified in the consultation document that there is potential for the National Marine Bill to be used to as the basis of the strategy that is required to fulfil the MSFD obligations. The plan would also include the programme of measures (POMs) required to achieve GES.
Reducing the Burden: Licensing and Enforcement	✓	<ul style="list-style-type: none"> ▪ There is no specific reference to the MSFD under the proposals for streamlining the licensing process ▪ However, it is recognised that the MSFD basically extends the requirements of the Water Framework Directive WFD (2000) into seas beyond the current seaward limit (1 nm) ▪ Taking this into account, the Scottish Government has identified a potential need within the new licensing system for existing regulatory bodies to retain their regulatory roles with Marine Scotland acting as a gateway or main point of contact. ▪ This would allow SEPA in particular to continue to regulate impacts in the water environment under CAR as at present and enable the integration of a marine licensing framework with existing frameworks developed under the WFD e.g. the principals of River Basin Management Plans (RBMPs). ▪ This would have a positive effect in enabling SEPA to transfer its skills and experience gained from delivering the requirements of the WFD to assisting the Scottish Government in achieving the requirements of the MSFD in the marine environment.
Securing the Future: Nature Conservation	✓	<ul style="list-style-type: none"> ▪ There are two proposed mechanisms within the proposals for marine nature conservation that could assist the Scottish Government with the delivery of the MSFD: <ul style="list-style-type: none"> ➢ Development of Marine Ecosystem Objectives (MEOs) ➢ Site based protections ▪ Although the MEOs have not been directly linked to the MSFD, they are seen as the mechanism by which the Scottish Government could place a duty on Marine Scotland to deliver improvements to biodiversity and ecosystem management. ▪ This would be achieved by integrating MEOs into the National Marine Objectives at the National Marine Plan level and through to policies and proposals developed at the Regional Marine Plan Level. ▪ It has been identified in the Scottish Marine Bill that the MEOs would potentially be substantially informed by the River Basin Management Plan objectives at both local and national levels. ▪ This would help to provide continuity and integration between the WFD process in the freshwater environment with the MSFD in the marine environment ▪ The Marine Protected Areas (MPAs) proposed as part of the measures for site based protection have been identified within the consultation document has making an important contribution towards achieving GES. ▪ The MSFD states that the measures needed to achieve GES should include spatial measures contributing to a coherent and representative network of marine protected areas including MPAs, SACs and SPAs fulfilling international and European obligations.
Understanding our Seas: Science and Data	✓	<ul style="list-style-type: none"> ▪ It has been recognised that in order for the Scottish Government to meet the requirements of the MSFD and achieve GES it needs to establish the current environmental status of waters and the impacts of human activity. It also needs to determine what GES is and identify indicators and targets for monitoring purposes. ▪ SEPA, FRS and SNH has already started working towards identifying the current environmental status. The initial findings from this work are presented in the '<i>Scotland's Seas: Towards Understanding their State</i>' report which was published in April 2008. ▪ This report, which looks at Scotland's seas in the context of the Scottish Government's vision of '<i>clean, healthy, safe, productive and biologically diverse</i>', identifies a number of areas where additional information is required to enable an assessment of GES to be made and provide an overall integrated assessment of the state of the ecosystem.

Marine Policy Area	Assist in Achieving GES?	Comment
		<ul style="list-style-type: none"> ▪ This shortage of data has been recognised within the proposals for monitoring as part of the science and data policy area in the context that there will need to be increased focus and effort in terms of monitoring, in particular in acquiring the necessary data to support the MSFD strategy. ▪ Information collected from monitoring frameworks delivered under the Scottish Marine Bill and from the existing UK Marine Monitoring Assessment Strategy (UKMMAS) will be fed into the second State of Scotland's Seas Report 2010 and Charting Progress 2 both of which will form the basis of the UK's initial assessment of environmental status required under the MSFD by 2012.
Managing Our Seas: Marine Scotland	✓	<ul style="list-style-type: none"> ▪ It has been identified in the Scottish Marine Bill consultation document that Marine Scotland would be the Competent Authority for the implementation of the MSFD in Scotland. ▪ Arrangements and resources to begin to put these responsibilities into place is an early priority of the Scottish Marine Bill ▪ This will help to promote integration of the MSFD into the Scottish Marine Bill and the delivery of a marine planning process, a streamlined licensing framework and measures for increased protection of the marine environment.

Section 4: Mitigation and Monitoring

17 Mitigation Strategy

17.1 Introduction

There is a statutory requirement under the Scotland SEA Act 2005 for the responsible authority to demonstrate how measures to prevent, reduce or offset any adverse effects identified from the assessment have been incorporated into the plan. The recognised approach to mitigating adverse effects often relates to changes being made to the overall plan or to the policies or actions included within the plan. These measures tend to include³:

- Changes to the wording of the plan, policy or proposal
- Removal of a policy or proposal
- Addition of new policies or proposals
- Devising new alternatives, possibly a combination of the best aspects of existing alternatives
- Identifying issues to be considered as part of the design and implementation of specific developments/activities associated with the plan
- Identifying issues to be considered in the Environmental Impact Assessment (EIA) of specific developments/activities

For the above approach to mitigation to be effective there must be sufficient detail contained within the plan that is being assessed to enable the policies, proposals or actions to be clearly identified and amended accordingly. In terms of the Scottish Marine Bill, the aim of the consultation document upon which this SEA is based, is to set out the proposed structure and content of the Scottish Marine Bill and options for its delivery. It does not contain any detailed policies or actions upon which specific mitigation measures could be based as this information will only be provided as part of the translation of the Scottish Marine Bill into an Act of Parliament. This highlights the importance of monitoring the implementation of plan as set out in Chapter 19 below.

17.2 Approach to Mitigation

The main purpose of the mitigation and enhancement measures in Table 17.1 is to ensure that the positive effects of proposals for the Scottish Marine Bill discussed in the previous chapters are realised and that the negative effects are avoided.

In terms of this SEA the main focus for mitigation is to identify measures to prevent, reduce or offset the potential negative effects identified as part of the assessment of the individual policy areas and the overall Scottish Marine Bill (cumulative assessment). This will be achieved by identifying measures that could be integrated into the overall design of a policy area/or the wider Scottish Marine Bill to ensure that the main functions of that policy area and the delivery of those functions do not have an adverse effect on the environment.

Given that the Scottish Marine Bill is a proposal for an Act at of Parliament, for the mitigation measures to be effective it may be necessary for them to be integrated into the final Act or accompanying guidance to ensure that the final content of that Act, and mechanisms for its implementation, do not have any adverse effects of the marine environment. As part of integrating the mitigation measures into the Act and the implementation of that Act could be achieved in two ways:

- Direct inclusion of specific text within the Act
- Inclusion of specific text or additional information within any relating secondary legislation, plans, regulations, guidance etc which result from the implementation of the Act

³ A Practical Guide to the Strategic Environmental Assessment Directive (ODPM September 2005)

In order to ensure that mitigation measures are implemented (and remain relevant) it will be necessary to monitor the implementation of the plan at all key stages. The approach to mitigation is therefore directly linked to the approach to monitoring set out in Chapter 18 below.

17.3 Mitigation Measures

17.3.1 *Mitigation Measures*

The SEA results have identified that overall, the Scottish Marine Bill and individual policy areas are likely to have a positive effect on the marine environment. However, there are some areas where the Scottish Marine Bill or the main functions/actions of a marine policy area could have negative effects on the marine environment. These effects include:

- Direct effects of a marine policy area or overall Scottish Marine Bill on a specific SEA topic
- Possible unknown effects. These relate to the element of risk or uncertainty associated with changes/introduction of new legislation/regulatory or management frameworks which could have unintended consequences e.g. cumulative effects not anticipated at the time licenses are issued. For example the Scottish Marine Bill may unintentionally lead to an overlap of jurisdictions which could lead to uncertainty in the regulation of the marine environment. This may also result in the regulation of impacts on some areas of the marine or coastal environment being overlooked.

17.3.2 *Enhancement*

The SEA also identifies measures where there is potential to enhance the Scottish Marine Bill. These relate to:

- A need for greater clarity relating to the implementation/delivery of certain marine policy areas and their functions/actions
- Further consideration of how the Scottish Marine Bill could tackle existing environment problems

17.4 Mitigation Strategy

Table 17.1 below sets out the possible options for mitigating and enhancing the Scottish Marine Bill based on the results from the SEA. These options reflect a number of the administrative and institutional mechanism that would be required to ensure that the Marine Bill is successful in realising the positive effects identified as part of this SEA and avoiding any adverse effects. However, it must be noted that there are a number of possible options that could be considered. Consequently some of these suggested measures may not be pursued.

Table 17.1: Mitigation Strategy

Bill Policy Area	Potential Effects/Issues	Direct Mitigation (information to be included within the Act)	Secondary Mitigation (secondary legislation and guidance/circulars etc)
<p>Creating Stability: Marine Planning and Integrated Coastal Zone Management</p>	<p>Short term negative effects on commercial fisheries and shipping and navigation associated with possible alterations to routes or recognised fishing grounds</p>	<ul style="list-style-type: none"> ▪ Proposals for safeguarding areas e.g. fishing grounds or routes as part of the marine planning process and how this would be achieved ▪ Proposals for consultation with key stakeholders /industries and NGOs etc as part of the marine planning process (e.g. who, when and how) ▪ Measures that will be implemented to ensure a balanced approach to managing needs of all activities through marine planning e.g. what activities to be covered and main functions of those activities 	<ul style="list-style-type: none"> ▪ Detail on method/criteria that could be used for safeguarding routes/fishing grounds if this is to be include in the marine planning process ▪ Details on mechanisms for consultation ▪ Guidance on approach and methodologies for producing marine plans ▪ Guidance on what plans will contain and how specific issues will be addressed e.g. balancing needs of different activities
	<p>Mechanisms for establishing the marine planning process and implementing marine plans</p>	<ul style="list-style-type: none"> ▪ Members of Marine Scotland and the SMR Boards ▪ Required qualifications and skills of members of these organisations ▪ How disruption to existing organisations would be minimised ▪ which strategies would be integrated into Marine Plans and how this would be achieved ▪ Whether other 'locally' important sites for marine conservation would be identified as part of the marine planning process ▪ Monitoring the implementation of marine plans e.g. level, responsibilities, timescales etc 	<ul style="list-style-type: none"> ▪ Skills and experience likely to be required as part of the marine planning process ▪ Mechanisms for enabling the relocation of key skills and experience within different organisations ▪ Integrating wider strategies into the marine planning process ▪ Approach to the identification and designation of locally important sites including selection criteria, protection measures and consultation requirements ▪ Approach to monitoring e.g. types and sources of data, links to marine science strategy, frequency of data collection
<p>Reducing the Burden: licensing and enforcement</p>	<p>Negative effects on dredging activities due to increases in regulation of this activity</p>	<ul style="list-style-type: none"> ▪ Clear detail within the Bill/Act as to which dredging activities will require a licence and what type of licence will be required ▪ Clarity should also be provided on the actual requirements of the individual licences 	<ul style="list-style-type: none"> ▪ Guidance on the licensing framework for dredging including consultation requirements, necessary information to be provided to regulatory body, possible conditions and monitoring requirements and how fits with wider marine licensing framework
	<p>Mechanisms for developing and implementing the new marine licensing framework</p>	<ul style="list-style-type: none"> ▪ Assigned responsibilities for the development of the new licensing framework ▪ Proposals for consulting with key stakeholders on which approach to be taken to marine licensing (activity led or impact led) ▪ Organisational structure for delivery of the licensing framework ▪ Mechanisms for delivery of the licensing framework e.g. consultation requirement, links to marine plans and land based licensing framework 	<ul style="list-style-type: none"> ▪ Guidance for developers and regulatory authorities on the new licensing framework including: <ul style="list-style-type: none"> ➢ Requirements for consultation ➢ Level and type of information required for specific licence applications ➢ Appeal arrangements ➢ Links to land based regulatory frameworks ➢ Relationship to marine planning system ➢ Conditions and monitoring requirements

Bill Policy Area	Potential Effects/Issues	Direct Mitigation (information to be included within the Act)	Secondary Mitigation (secondary legislation and guidance/circulars etc)
<p>Reducing the Burden: licensing and enforcement</p>	<p>Mechanisms for developing and implementing the new marine licensing framework</p>	<ul style="list-style-type: none"> ▪ Regulation of coastal infrastructure relating to marine developments/activities (e.g. marine or land based or both) ▪ Mechanisms to ensure a coordinated and integrated approach to decision making across the land/sea interface ▪ How the Scottish Marine Bill and the resulting Act will link to further legislation produced in response to Scotland's obligations under MSFD and existing legislation under the Water Framework Directive (WFD) 	<ul style="list-style-type: none"> ▪ Licensing procedures/requirements for marine developments with land and sea elements ▪ Mechanisms for ensuring a consistent and coordinated approach to decision making across the land/sea interface ▪ Mechanisms for integrating land and marine licensing frameworks into marine planning system ▪ Management of interface between MSDF and WFD
<p>Securing the Future: Marine Conservation</p>	<p>Negative effects on material assets and marine activities/developments due to possible exclusion from MPAs</p>	<ul style="list-style-type: none"> ▪ Selection of MPAs ▪ Regulatory and licensing controls ▪ Changes in legislation on the protection of seals ▪ Integration of regulatory/licensing requirements into the new marine licensing framework ▪ Proposals for consultation on designation of MPAs 	<ul style="list-style-type: none"> ▪ Site selection criteria and acceptable activities/developments ▪ Licensing and consenting procedures for activities/developments affecting MPAs/protected species including consultation requirements, methods for assessing impacts, information requirements, conditions and monitoring
	<p>Establishment and delivery of increased conservation measures</p>	<ul style="list-style-type: none"> ▪ Procedures for creation of new marine conservation legislation ▪ Body that will be responsible for development and delivery of a new marine conservation framework ▪ Links to existing conservation legislation frameworks /licensing procedures ▪ Information required to inform the selection of MPAs and extended species protection ▪ Provisions for monitoring MPAs ▪ Roles and responsibilities for delivering marine conservation measures through marine planning system and development and integration of Marine Ecosystem Objectives (MEOs) ▪ Coordination of roles and responsibilities between Marine Scotland and SMR Boards ▪ Required qualifications, skills and experience of regulators ▪ Mechanisms for ensuring consistency between decision making and delivery of conservation measures ▪ Mechanisms for ensuring consistency between marine and land based plans and delivery of conservation measures ▪ Level of information to be included in marine plans on marine conservation measures ▪ Provisions for locally important nature conservation sites to be designated through marine planning process ▪ Provisions for protection of landscapes/seascapes 	<ul style="list-style-type: none"> ▪ Selection criteria for the designation of MPAs and extension of species protection ▪ Mechanisms for regulating activities and developments on MPAs and protected species ▪ Mechanisms for delivery of coordinated marine protection measures and consenting procedures ▪ Type, source and scale of data required to inform the designation of MPAs and extension of species protection ▪ Provisions for monitoring MPAs e.g. datasets, information, format, frequency of data collection ▪ Development of MEOs ▪ Consultation requirements for development of MEOs ▪ Mechanisms on the delivery of MEOs within the marine planning system ▪ Skills and experience required to deliver marine conservation through the marine planning process ▪ Approach and method for integrating marine conservation measures into marine plans ▪ Detail to be contained in marine plans on nature conservation measures ▪ Mechanisms for ensuring consistency between marine and land based plans and associated marine conservation measures ▪ Integrating landscape and seascape protection into marine plans

Bill Policy Area	Potential Effects/Issues	Direct Mitigation (information to be included within the Act)	Secondary Mitigation (secondary legislation and guidance/circulars etc)
<p>Understanding our Seas: Science and Data</p>	<p>Collation of science based ecological evidence for informing the designation of MPAs and extension of species protections</p>	<ul style="list-style-type: none"> ▪ Information required to inform the selection/designation of MPAs and the extension of species protection ▪ Sources of data ▪ Mechanisms for data collation and dissemination ▪ Roles and responsibilities for data collation and dissemination ▪ How data will be used to inform the designation of MPAs e.g. in the development of site selection criteria ▪ Data provisions for monitoring MPAs and protected species 	<ul style="list-style-type: none"> ▪ Processes and frameworks for data collection including data types, formats, evaluation techniques, frequency of survey/collection, timescales, storage procedures ▪ Collation and dissemination for the purpose of developing site selection criteria and monitoring
	<p>Integration of science and data into the marine planning system</p>	<ul style="list-style-type: none"> ▪ Data required to assist in the development and delivery of marine plans ▪ Responsibilities for the collation of appropriate information e.g. Marine Scotland ▪ Mechanisms for transferring data/making data available to SMR Boards ▪ Responsibilities of SMR Boards for integrating appropriate data into marine plans 	<ul style="list-style-type: none"> ▪ Data requirements to inform the development of national and regional marine plans e.g. types, formats, scale etc ▪ Use of data in the development of marine plans ▪ Main responsibilities in terms of data collection and integration in marine plans (Marine Scotland and SMR Boards)
	<p>Establishment of links with existing land based data sets and wider UK data framework</p>	<ul style="list-style-type: none"> ▪ Mechanisms for establishment and implementation of a Marine Science Strategy ▪ Mechanisms for linking the Marine Science Strategy to the Scottish Government's overarching Science Strategy 	<ul style="list-style-type: none"> ▪ Proposed content, format and structure of a marine science strategy ▪ Mechanisms for integrating the marine science strategy into the overarching science strategy
<p>Managing our Seas: Marine Scotland</p>	<p>Marine Scotland's roles and responsibilities in marine planning, nature conservation and licensing</p>	<ul style="list-style-type: none"> ▪ See Securing the Future: Marine Conservation above <p>Also detail on:</p> <ul style="list-style-type: none"> ▪ Organisational structure developed to support Marine Scotland as gateway to licensing framework ▪ Mechanisms for ensuring full integration between Marine Scotland and existing regulatory bodies ▪ Mechanisms for ensuring that members of Marine Scotland have sufficient skills and experience act as main point of contact/liaison on licence applications 	<ul style="list-style-type: none"> ▪ Organisational structure for Marine Scotland and processes for integrating and coordinating with existing regulatory structures
	<p>Management of staff resources: ensuring appropriate skills, experience and qualification and limiting disruption to existing regulatory bodies</p>	<ul style="list-style-type: none"> ▪ Appropriate skills and experience required in Marine Scotland ▪ Organisational structures relating to Marine Scotland and SMR Boards ▪ Additional sources of appropriate skills and experience to ensure there are no shortfalls in existing regulatory bodies 	<ul style="list-style-type: none"> ▪ Skills and experience required as part of the new Marine Scotland ▪ Sources of these skills and experience ▪ Regulatory organisational structure ▪ Mechanisms for minimising impacts on existing regulatory bodies

18 Monitoring Framework

18.1 Introduction

The purpose of this chapter is to set out 'the measures that are to be taken to monitor the significant environmental effects of the implementation of the plan or programme', as required by 18(3)(f) of the SEA Act. The plan which is the subject of this SEA is the Scottish Government's proposal for an Act of Parliament which will create a new legislative and management framework for the delivery of sustainable economic growth in the marine environment (as set out in Section 1.4 above).

Monitoring must be seen in the context of the plan which is being proposed and logically, monitoring must be linked to the various stages in the implementation of the plan. Detailed information on the implementation of the plan is currently not available and at this stage an outline framework for monitoring is proposed for consultation purposes. More detailed monitoring frameworks would be devised during the drafting of the Bill and prior to the implementation of the Act as described below.

18.2 Purpose of Monitoring

Monitoring is an ongoing process which is undertaken throughout the lifetime of the plan. The information gathered through monitoring will assist the Scottish Government in identifying and mitigating the environmental effects of implementing the adopted plan (ultimately the Act). If adverse effects are identified, these can be addressed by altering the way in which the plan is implemented.

The uncertainties associated with the high level, strategic assessment make monitoring all the more important. Monitoring allows for periodic checks to confirm the accuracy of the assumptions on which the original assessment was based and to ensure that the proposed mitigation measures remain relevant and are being effectively implemented. Monitoring is therefore closely linked to the proposed mitigation measures set out in the previous chapter.

18.3 Monitoring Phases and Activities

Two main phases are proposed for monitoring, each of which need to be considered separately.

Phase 1 is the process of defining, agreeing and setting up the legislative and management framework. This includes the drafting of the Bill, the Act of parliament and the creation of Marine Scotland and the delivery of other legislative and management mechanisms. Monitoring lasts until all aspects of the Marine Bill/Act have been delivered. Phase 2 is the implementation stage.

Phase 1 is concerned with the wording of documents, organisational arrangements etc. Phase 2 is concerned with monitoring the changing environmental conditions that can be attributed to the Act.

For Phase 1 the key activities necessary to develop the detailed monitoring framework would be as follows:

- Establish a programme for monitoring based on the main stages of the implementation of the plan. The main elements that would need to be monitored include, but are not limited to:
 - The drafting of the text of the Bill
 - The parliamentary stages whereby the Bill becomes an Act

- The implementation of the Act including:
 - Setting up Marine Scotland
 - Setting up Scottish Marine Region Boards
 - Preparing and implementing National and Regional Marine Spatial Plans (which will themselves be subject to separate SEAs)
 - Delivering new legislation for marine conservation
 - The delivery of the new licensing framework
- Undertake monitoring at each of the main phases including the following tasks:
 - Confirm that the proposed environmental measures set out in the draft plan and mitigation measures set out in Chapter 17 of the Environmental Report are (where they remain relevant) incorporated into the Bill, Act or other delivery mechanisms.
 - Where amendments are made to the proposals for the delivery of the marine legislative and management framework, undertake an environmental assessment of the amendments. This can be done by reviewing the original assessment as more information becomes available in order to confirm the results of the assessment.
 - Identify the need for other specific mitigation measures to prevent, reduce or offset adverse impacts or to create more positive outcomes (e.g. changes to the wording of the Act).
- Reporting: a brief monitoring report would be prepared at each key stage of the plan's implementation.
- Consultation: the monitoring report would be made available to the Sustainable Seas Task Force which includes Consultation Authorities (SNH, SEPA and Historic Scotland) in order that they can comment on the findings and make further recommendations.
- Monitoring would be undertaken by (or on behalf of) the Scottish Government, or an agency of the Government.
- Programme and end point – monitoring of Phase 1 would continue to the point where all aspects of the marine legislative and management framework have been delivered and are in operation.

For Phase 2 it would be necessary to review environmental conditions and identifying where changes to environmental conditions can be attributed to the implementation of the Act. Given the lack of information at this time it is proposed that a detailed monitoring framework is devised following adoption of the plan (the Act) and set out in the post adoption SEA Statement. It will be necessary to:

- Develop a programme for monitoring for all aspects of the plan.
- Agree a method for monitoring, possibly using indicators. This should take into account the UK Marine Monitoring and Assessment Strategy. Indicators and contributory objectives are being developed by various UKMMAS groups. They will provide a means of informing the Scottish Government on the effects of the new legislation and management framework.
- Monitoring will also be required where other SEAs are to be undertaken i.e. for the national and regional marine spatial plans.

19 Next Steps

19.1 Consultation

The Scottish Government and their consultants will be undertaking wide ranging consultation to gain the views of all stakeholders on the results of the SEA. Consultation events will provide forums for all interested parties and individuals to express their views on how the development of planning guidance for marine energy development should be progressed. Consultation will focus on the following topics:

Focus of the Consultation:

- The results of the Environmental Report
- How best to avoid, reduce or offset environmental effects
- Issues associated with the preparation and delivery of the Scottish Marine Bill and how these affect the environment
- The monitoring of the Scottish Marine Bill

**The consultation period for the SEA is 8 weeks.
Comments are to be provided by 9th January 2009.**

19.2 Future Milestones

Table 9.1 lists future milestones for the next stages of the SEA, with corresponding dates.

Table 9.1: Future Milestones

Expected Date	Milestone
October 2008	Publication of the Environmental Report. Consultation commences
January 2009	Consultation ends
April 2009	Publication of the Draft Scottish Marine Bill
April 2010	Adoption of the final Scottish Marine Bill Publication of Post-Adoption SEA Statement, which will: <ul style="list-style-type: none"> ▪ Highlight how the SEA and consultation responses have influenced the development of the Scottish Marine Bill ▪ State the framework for monitoring the environmental effects of the Scottish Marine Bill to (a) identify any unforeseen adverse effects at an early stage; and (b) undertake appropriate remedial action

19.3 Further Information

Further information on the SEA can be found at:

www.scotland.gov.gsi.uk

www.marinebill@scotland.gsi.gov.uk

All comments on the Environmental Report and NTS should be sent to:

Jacqueline Macdonald **E-mail: Jacquelyn.McDonald@scotland.gsi.gov.uk**
Marine Strategy
Area 1A (S)
Victoria Quay
Edinburgh
EH6 6QQ

Appendix A1: Scoping Workshop Attendees

David	Wotherspoon	Metoc
Clare	Jones	Metoc
Anton	Edwards	Metoc
Sarah	Edwards	Faber Maunsell
Ewan	Walker	Faber Maunsell
Chris	Bierley	Scottish Government
Tom	Blasdale	JNCC
Mike	Cowling	The Crown Estate
Derek	McGlashan	UK Major Ports Group
Sid	Patten	Scottish Salmon Producers' Association
Bill	Ritchie	Aberdeen Institute for Coastal Science and Management
Philip	Robertson	Historic Scotland
Lorna	King	Scottish Government
Andrew	Brown	Scottish Government
Calum	Duncan	Marine Conservation Scotland
Tom	Mallows	Marine Science Scotland
Colin	Moffat	Fisheries Research Services
David	Philip	The Crown Estate
Marlene	Walker	Scottish Government
Robin	Weatherston	Scottish Government
Colin	Wishart	CoSLA
Lloyd	Austin	SE LINK, RSPB
Veronica	Burbridge	RTPI Scotland
Louise	Cunningham	Scottish Government
Sandy	Downie	Scottish Environment Protection Agency
Steven	Driver	Northern Lighthouse Board
Rhona	Fairgrieve	Scottish Coastal Forum
David	Palmer	Scottish Government
Bryan	Wallis	Scottish Government
Kate	Thompson	SSMEI Clyde Pilot

Appendix A2: Consultee Responses

Our Ref: SEA00341/SCO
/ND
SG Ref: SEA00322

David Palmer
Scottish Government
Victoria Quay
Edinburgh. EH6 6QQ

By email: sea.gateway@scotland.gsi.gov.uk

25 August 2008

Dear Mr Palmer

**Environmental Assessment (Scotland) Act 2005
Scottish Marine Bill SEA – Scoping Consultation**

I refer to your Scoping consultation submitted under the above Act in respect of the Scottish Marine Bill consultation. This was received by SEPA via the Scottish Government SEA Gateway on 22 July 2008. As required under Section 15(2) of the Act, SEPA has considered the document submitted and comments as follows in respect of the scope and level of detail to be included in the Environmental Report (ER).

The comments in this response augment those which SEPA made at the scoping workshop held in June. I would like to pass on my thanks to you for organising this workshop and affording SEPA an early opportunity to comment.

The Scottish SEA Toolkit (available for download at: www.scotland.gov.uk/Publications/2006/09/13104943/0) provides guidance to Responsible Authorities about the type of information that is expected to be provided at each SEA stage. SEPA has used the toolkit to inform this scoping response which is attached as Annex 1.

On completion, the Environmental Report and the consultation documentation to which it relates should be submitted to the Scottish Government SEA Gateway (sea.gateway@scotland.gsi.gov.uk) which will forward it to the Consultation Authorities.

If you wish to discuss any of the content of this response, please do not hesitate to contact me on 01786 452431 or via SEPA's SEA Gateway at sea.gateway@sepa.org.uk.

Yours sincerely,



Neil Deasley
Principal Policy Officer

Encs

Chairman
David Sigsworth

Chief Executive
Dr Campbell Gemmell

SEPA Corporate Office
Erskine Court, Castle Business Park, Stirling
FK9 4TR
tel 01786 457700 fax 01786 446885
www.sepa.org.uk

Annex : Comments on the Scoping Report

A. General Comments

SEPA welcomes the commitment made by the Scottish Government to undertaking SEA of the Marine Bill as it is developed. It is hoped that this will help identify ways in which the provisions of the Bill can be environmentally robust.

Generally, the scoping report is very good and provides a clear and concise view about the intended scope and level of detail of the assessment. SEPA is generally content with the proposed scope and level of detail and with the proposed method for assessment and accordingly, relatively few comments are made. However, two general points of concern are raised (below) in addition to more detailed comments set out in (B) below:

Firstly, the scoping report has been prepared and published after the actual consultation on which the assessment is to be made has been published. As a result, it is clear that the plan preparation and assessment processes have not been integrated, which is unfortunate. From SEPA's experience, SEA is most effective when used as a tool for iterative plan development and assessment. It is not entirely clear how the Environmental Report, when completed, will be taken into account, but we note the intention to publish this during the current consultation on the Scottish Marine Bill and the further intention to review any comments received on the Environmental Report prior to "*adoption of the final bill*".

Secondly, SEPA is concerned that there is the potential for the assessment to become unnecessarily long and overly detailed. On very high level plans and programmes such as the Scottish Marine Bill, it is SEPA's experience that a strategic level assessment which identifies key environmental effects and ways to mitigate them is often sufficient. We would therefore encourage you to keep the assessment at a high level wherever possible.

B. Detailed Comments

Detailed comments on the scoping report are set out below. For convenience these follow the structure of the scoping report

1. Introduction

Para 1.4.2.1 – SEPA is content with the proposed period of six weeks for consultation on the Environmental Report. It would be appreciated if, in addition to an electronic copy via the SEA gateway, a hard copy of the relevant documents could be sent to the SEPA SEA gateway at Erskine Court, The Castle Business Park, Stirling. FK9 4TR.

Para 1.5 – SEPA is content with the proposed scope of the assessment (geographically and in terms of not covering socio-economic issues). It would be useful for the RIA and SEA to be made available together to allow wider effects to be considered.

Paras 1.7 and 1.8 – SEPA welcomes and supports the main objectives and key deliverables as set out in these paragraphs. It is felt that this will afford a robust and effective means of being able to identify the significant environmental effects of the Scottish Marine Bill. In particular, the intention to consider enhancement opportunities as part of mitigation is welcomed.

2. Overview of Scottish Marine Bill

SEPA has no comments on this section

3. SEA Topics

Para 3.1 – SEPA assumes that all the SEA topics have been scoped into the SEA and will therefore be included in the assessment.

Table 3.1 – This table is very helpful in setting out the likely areas to be covered in the assessment. Generally this is very thorough, although we would suggest the following should also be considered:

- Water – In its publication “*significant water management issues in the Scotland river basin district*”, SEPA identifies that some 2052 km² of coastal waters are under pressure from diffuse pollution¹ – primarily from agricultural run off and from pollution arising from sea and coastal water transport. You should therefore consider diffuse pollution as an “*important factor*” in this table.

4. Approach and Method

Para 4.2.2.1 – These baseline data will provide extremely comprehensive information and should be referred to as required rather than repeated in any detail. You may also find that the significant water management issues reports for the Scotland and Solway Tweed River Basin Districts² provide useful information in respect of the quality of, and pressures on, coastal waters.

Para 4.2.2.2 – SEPA notes your intention not to use SEA objectives for the assessment. SEPA is content with this approach as objectives are not always the most effective means of being able to identify environmental effects, particularly in high level plans. If we understand your method correctly, it is intended to use the questions in figure 4.1 instead of objectives and to consider these in the context of the SEA topics. The important output from the assessment will be to be able to identify the key high level effects and addressing them through mitigation and enhancement.

Table 4.3 identifies that the Environmental Report will examine how adverse or cumulative effects could be managed through mitigation and also how regulatory frameworks could be developed to improve implementation of mitigation measures. SEPA welcomes this commitment to both mitigation and enhancement. SEPA considers that mitigation measures are a crucial part of SEA in that they offer an opportunity to not only address potential adverse effects of a plan, but also to make a plan even more positive than it already may be. It would be extremely helpful in the Environmental Report to set out all mitigation measures in a way that clearly identified: (1) the measures required in response to each adverse effect identified, (2) when they would be required and (3) who will be required to implement them. In this way, there is a clear framework for delivery of mitigation actions.

Figure 4.1 – This is helpful in understanding the focus of the SEA relative to the five key policy areas in the consultation. We understand from this that the assessment would be focused around

¹ For details see http://www.sepa.org.uk/consultation/closed/2008/swmi_scotland/7.html

² Scotland SWMI - http://www.sepa.org.uk/consultation/closed/2008/swmi_scotland/contents.html

Solway Tweed SWMI - http://www.sepa.org.uk/consultation/closed/2008/swmi_solway_tweed/index.html

the five questions posed in the boxes marked (SEA focus). This is supported as this will keep the assessment at a strategic level commensurate of that of the consultation itself. It is presumed that each of these questions will be assessed with due consideration to each of the SEA topics.

Figure 4.2 is helpful and clear about the proposed assessment method.

It is not clear how alternatives that have been considered in the preparation of the Marine Bill will be assessed, although it is recognised that some of this may come through assessment via the five questions posed and is mentioned as a deliverable in paragraph 1.8. It is not clear however whether alternatives to the plan as a whole or within the SEA focus areas will be considered and how. A concise summary of the alternatives considered and their assessment should be set out in the Environmental Report.

5. Baseline Data and Indicators

As you identify in the scoping report, there is considerable information available in *Scotland's Seas: Towards Understanding Their State* and in the very comprehensive baseline prepared as part of the Scottish Marine Renewables SEA project. These are very significant pieces of work that are directly contributory to the Marine Bill and SEPA would expect that a simple summary of the key points directly relevant to the Marine Bill be provided and that more detailed information is signposted to these (and other) reports as necessary.

We note that indicators will be identified in the Environmental Report. Again we would urge you to keep these simple, high level and limited as far as possible to those that the Marine Bill will have the most influence over.

6 Key Issues

This section provides a useful summary and SEPA has nothing to add. It is not clear whether/to what extent additional information to this will be provided in the Environmental Report, but as noted above a concise summary with appropriate signposting would be acceptable to SEPA.

Appendices

SEPA has no comments on this section.

David Palmer
The Scottish Government
Victoria Quay
Edinburgh
EH6 6QQ

Longmore House
Salisbury Place
Edinburgh
EH9 1SH

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Direct Fax: 0131 668 8899
Switchboard: 0131 668 8600

HSSEA.gateway@scotland.gsi.gov.uk

Our ref: AMN/23/322 AM
Your ref:

26 August 2008

Dear Mr Palmer

**Environmental Assessment (Scotland) Act 2005
Scottish Government, Scottish Marine Bill: Sustainable Seas for All: Scoping
Report**

Thank you for consulting Historic Scotland on the scoping report for the environmental assessment of the above Bill received by the Scottish Government's SEA Gateway on 22 July 2008.

I have reviewed the scoping report on behalf of Historic Scotland in its role as a Consultation Authority under the above Act (section 15). This letter contains the views of Historic Scotland on the scope and level of detail of the information to be included in the Environmental Report (part 1), and the duration of the proposed consultation period (part 2). I have also provided detailed comments to the scoping report in the annex to this letter.

1. Scope of assessment and level of detail

- 1.1 The scoping report provides a clear outline of the proposed approach to the environmental assessment of the Bill and subject to the specific comments set out below and in an appendix (1) I am content with the scope and level of detail proposed for the SEA.
 - 1.2 As you will be aware, Historic Scotland recently consulted on the Marine SHEP which sets out proposals for Scottish Ministers policy for the Marine Historic Environment and proposals for new legislation in this area to protect nationally important marine historic sites. I enclose a copy of the SEA pre-screening report prepared by Historic Scotland for the Marine SHEP (appendix 2) which you may find useful in your assessment.
 - 1.3 I note that the historic environment is scoped in to the environmental assessment. Simply for information, SHEP 1 (Section 2)¹ provides a useful
-

definition of the historic environment. It defines that the historic environment encompasses built heritage features (ancient monuments, archaeological sites and landscapes, historic buildings, townscapes, parks, gardens and designed landscapes, as well as marine heritage) and the context or setting in which they sit, and the patterns of past use, in landscapes and within the soil, and also in our towns, villages and streets. It also recognises that the historic environment has less tangible aspects including the historical, artistic, literary, linguistic and scenic associations of places and landscapes.

I expect the environmental assessment to take cognisance of these features, both in the collection of baseline data and in considering the likely impact of the plan on the historic environment.

2. Consultation period for the Environmental Report

2.1 Section 1.4.2.1 of the scoping report notes that the formal consultation on the Environmental Report will take place over six weeks and I am content with this. Please note that, for administrative purposes, Historic Scotland consider that the consultation period commences on receipt of the relevant documents by the SEA Secretariat.

2.2 At the Environmental Report stage, I would prefer to receive paper copies of the report which should be sent via the Scottish Government Gateway in line with the procedures set out in the SEA Tool Kit (available at www.scotland.gov.uk/Publications/2006/09/13104943/45).

None of the comments contained in this letter should be construed as constituting a legal interpretation of the requirements of the SEA Act. They are intended rather as helpful advice, as part of Historic Scotland's commitment to capacity-building in SEA. Please do not hesitate to contact me on 0131 668 8924 should you wish to discuss this response.

Yours sincerely

Alasdair M^cKenzie
Senior Strategic Environmental Assessment Officer

¹ Historic Scotland are developing a new series of policy documents (Scottish Historic Environment Policy (SHEP)) that both sets out Scottish Ministers' vision and strategic policies for the wider historic environment, and provides greater policy direction for Historic Scotland. SHEP 1 was published in 2007 and is the overarching policy statement for the historic environment (<http://www.historic-scotland.gov.uk/shep1-6.pdf>).

Appendix 1: Detailed comments on the Scoping Report

For ease of reference the comments in this appendix follow the same order as the scoping report.

Introduction

1. I welcome the information provided in section 1 which clearly sets out the purpose of the Scottish Marine Bill and other related information.

Links to other Plans and Programmes

2. I note that a review of relevant plans and programmes for the Scottish Marine Bill will be provided in the Environmental Report. You may wish to consider the following as part of this review:
 - The Ancient Monuments and Archaeological Areas Act 1979
 - The Protection of Wrecks Act 1973
 - *Scottish Historic Environment Policy 1*. Scotland's Historic Environment
 - Scottish Historic Environment Policy 2. Scheduling: protecting Scotland's nationally important monuments
 - *Scottish Historic Environment Policy 4*. Scheduled Monument Consent
 - *Scottish Historic Environment Policy 5*. Properties in the Care of Scottish Ministers (all of the above are available at <http://www.historic-scotland.gov.uk/index/heritage/policy/sheps.htm>).
 - NPPG 5 Archaeology and Planning
 - NPPG 18 Planning and the Historic Environment

In summary, the key environmental protection objective of the legislation and policy framework is 'to protect and, where appropriate, enhance the historic environment'.

3. As you will be aware, Historic Scotland recently consulted on the Marine SHEP which sets out proposals for Scottish Ministers policy for the Marine Historic Environment and proposals for new legislation in this area to protect nationally important marine historic sites. I enclose a copy of the SEA pre-screening report prepared by Historic Scotland for the Marine SHEP (appendix 2) which you may find useful in your assessment.
4. For your information, the analysis report for the recent Marine SHEP consultation is available on Historic Scotland's website (<http://www.historic-scotland.gov.uk/index/about/consultations/closed-consultations.htm>).

SEA Topics

5. I am content with the SEA topics and important factors listed for the historic environment in table 3.1. It should be noted the Gardens and Designed Landscapes may be a relevant factor for both landscape and the historic environment.

Approach and Method

6. I note that the assessment will be focused on the SEA topics listed in section 3.1 as opposed to specific SEA objectives. I am content with this approach given the high strategic level and focus of the objectives of the Bill. When documenting the environmental assessment, it would be helpful to set out any assumptions that are made during the assessment e.g. relating to the implementation of the Bill. I would also welcome the inclusion of a commentary box in any assessment matrices, to provide a short explanation of the conclusions of the assessments.
7. I welcome figure 4.1 which demonstrates the relationship between the Bill and the SEA process. It would be helpful if the box 'improved protection of the marine natural environment' is amended to read 'improved protection of the marine environment'. The reason for this is that the subsections correctly go on to include the built environment which is part of the marine environment, but not part of the marine *natural* environment.

Key Issues – Marine Activities

8. I note that historic heritage has been identified as a marine activity. While the historic environment is a key issue for the SEA of the Bill to consider, the historic heritage is not in itself a marine activity. You may wish to consider noting the historic environment related activities in the leisure and recreation section. (e.g. approximately 3,500 divers visit the scheduled wrecks of the German High Seas Fleet in Scapa Flow every year and 310,000 visits took place to Historic Scotland coastal and maritime Properties in Care in 2006/7).

Key Issues - Current Marine Activities and Environmental Effects

9. I note the marine activities identified in table 5.4 and would make the following comments:
 - *subsection on commercial fishing* – I suggest that the scoping report should identify the need to consider the impacts to key archaeological sites from certain commercial fisheries (notably scallop dredging, and demersal trawling) and how the Marine Bill will affect this;
 - *subsection on recreational use of the sea* - I suggest that the scoping report should identify the need to consider the impacts of recreational diving to certain historic shipwrecks and how the Marine Bill will affect this;
 - *subsection on renewable energy* – I suggest that the scoping report should be considering archaeological effects of development (see the Marine Renewables SEA) and how the Marine Bill will affect this;
 - *subsection on telecommunications/electricity cables* – I suggest that the scoping report should be considering archaeological effects of development and how the Marine Bill will affect this.

Marine Activity Interactions

10. I note the marine activities and their various interactions listed in table 5.5. It should be noted that in certain circumstances there may be conflict between historic environment site protection objectives on the seabed, and, say,

recreational use, commercial fisheries or development. The reverse is also true, namely conflict between development/dredging and certain commercial fisheries and historic assets.

11. As you will be aware, the Environmental Report should describe the measures proposed to mitigate the significant environmental effects of the Bill. Mitigation may involve making changes to the plan (e.g. modification to an objective to avoid damage to the historic environment) and/or developing more detailed mitigation proposals to be implemented as the Bill is delivered. It would be helpful in the Environmental Report to describe any changes made to the Bill as a result of the environmental assessment, and to clearly set out any recommendations or expectations for lower level plans. It would also be helpful to identify in the report who will be responsible for ensuring that the mitigation measures are taken forward as the Bill is implemented.
12. When monitoring the effects of the Bill, indicators chosen for the historic environment should reflect both the actions to be taken within the Bill and the potential impacts identified in the course of the SEA. Indicators may also need to be developed to capture effects on other aspects of the historic environment e.g. gardens and designed landscapes or locally important sites, if the Bill is likely to affect these features. I would be happy to discuss this further should you find it helpful.

Appendix B

13. I am content with the relevant European conventions and domestic legislative provisions relating to the historic environment.

Appendix 2: Marine SHEP – Historic Scotland Pre-screening report

SEA PRE-SCREENING REPORT (COVER NOTE)

PART 1

To: SEA.gateway@scotland.gsi.gov.uk
or
SEA Gateway
The Scottish Government
Area 1 H (Bridge)
Victoria Quay
Edinburgh EH6 6QQ

PART 2

An SEA Pre-Screening Report is attached for the plan, programme or strategy (PPS) entitled:

1. Proposals for Marine Historic Environment Legislation
2. Scottish Historic Environment Policy: Marine Historic Environment

The Responsible Authority is:

Historic Scotland

Contact name	Amanda Chisholm
Job Title	SEA Team Leader
Contact address	Room E4 Longmore House Salisbury Place Edinburgh EH9 1SH
Contact tel no	0131 668 8747
Contact email	amanda.chisholm@scotland.gsi.gov.uk

Signature
(electronic
signature
is acceptable)

Date
22 February 2008

SEA PRE-SCREENING REPORT - KEY FACTS

Responsible Authority

Historic Scotland

Title of PPS

1. Proposals for Marine Historic Environment Legislation
2. Scottish Historic Environment Policy (SHEP): Marine

Purpose of PPS

Protection of components of the marine historic environment is currently effected through the Protection of Wrecks Act 1973, the Ancient Monuments and Archaeological Areas Act 1979 and the Planning (Listed Buildings and Conservation Areas) (Scotland) Act 1997. (Examples include the wrecks of 3 battleships of the German High Seas Fleet in Scapa Flow, Orkney, which are Scheduled Monuments.) There has been long-held and widespread disquiet with the limited scope and effectiveness of this existing legislative framework in the marine environment.

Accordingly, Scottish Ministers propose to put a legislative and policy framework into place to provide the necessary protection. At this stage it is envisaged that this will take the form of legislation, with a supporting policy (SHEP). A single consultation document will invite views on both the form and content of the proposed legislation and policy.

The Department of Culture Media and Sport (DCMS) and the devolved administrations carried out a consultation exercise in 2004-5 on protection of the marine historic environment, which resulted in proposals for new legislation in England, Wales and Northern Ireland. The Scottish Ministers propose to seek broadly parallel legislation, to be embedded within proposals for a Scottish

What prompted the PPS

(e.g. a legislative, regulatory or administrative provision)

A review of Historic Scotland in 2004 recommended that an 'Executive-endorsed policy statement for the historic environment in Scotland should be developed in consultation with stakeholders'. This has resulted in the development of the Scottish Historic Environment Policy (SHEP) series, of which this policy forms a part. More information on SHEPs is available at <http://www.historic-scotland.gov.uk/index/policyandguidance/sheps.htm>.

Subject

(e.g. transport)

historic environment

Period covered by PPS

indefinite

Frequency of updates

as required

Area covered by PPS
(e.g. geographical area – it is good practice to attach a map)

Scotland's marine zone, i.e. waters extending from mean high water to the limit of territorial waters (12 nautical miles). This encompasses tidal rivers, estuaries, and firths, as well as inshore waters close to land and waters far offshore.

The focus of the policy is on foreshore and underwater heritage sites *inter alia* marine and coastal archaeology, wrecks of ships and aircraft, lighthouses, harbours, and inter-tidal zone assets such as crannogs.

**Summary of nature/
content of PPS**

A consultation document will set out Scottish Ministers' proposals for legislation for the protection of the marine historic environment, as well as proposed policies. This includes statutory protection for nationally important marine historic assets; proposed principles and criteria for the identification of nationally important sites; and the proposed role and responsibilities of Historic Scotland and other stakeholders.

Depending on the results of the consultation, the legislation may contain *inter alia* the following elements:

- a broadening of the range of marine historic assets that can be designated e.g. to include vessels and aircraft;
- powers to enable designation to be made on the basis of 'national importance';
- identification of a range of operations that might affect the marine historic environment and over which the legislation would exercise control if applied to a designated marine historic asset of national importance, including archaeological investigation; and
- powers to protect and manage designated assets.

Depending on the results of the consultation, the policy may contain the following elements:

- a policy statement identifying the need for the protection of nationally important marine historic environment assets;
- information on the value of these assets to Scotland;
- a commitment to a protection regime underpinned by legislation;
- principles and criteria for the identification and designation of nationally important marine historic sites;
- a policy statement setting out details for protection and management of designated marine historic environment assets, including a presumption for preservation *in situ*; and
- the wider roles and responsibilities of Historic Scotland and other stakeholders.

**Are there any proposed
PPS objectives?**

YES

NO

Copy of objectives attached

YES

NO

Date

22 February 2008

Our determination regarding the likely significance of effects on the environment of Proposals for Marine Historic Environment Legislation and Scottish Historic Environment Policy: Marine Historic Environment is set out in Table 1.

TABLE 1 – LIKELY SIGNIFICANCE OF EFFECTS ON THE ENVIRONMENT

TITLE OF PPS	
1. Proposals for Marine Historic Environment Legislation 2. Scottish Historic Environment Policy: Marine Historic Environment	
RESPONSIBLE AUTHORITY	
Historic Scotland	

Criteria for determining the likely significance of effects on the environment ²		Summary
1(a) the degree to which the PPS sets a framework for projects and other activities, either with regard to the location, nature, size and operating conditions or by allocating resources	Likely to have no or minimal environmental effects	<p>The proposed legislation will identify a range of operations that might affect the marine historic environment, over which it would exercise control if applied to a designated marine historic asset of national importance, including archaeological investigation.</p> <p>This list of activities could include: dredging within a protected area; specified types of commercial fishing; removal of artefacts; and development (e.g. marine renewables, marine fish farms, pipelines and cables).</p>
1(b) the degree to which the PPS influences other PPS including those in a hierarchy	n/a	The proposed legislation and policy will sit alongside other PPS and are unlikely to give rise to PPS lower in the hierarchy.

² (1(d) etc. refer to paras in Schedule 2 of the Environmental Assessment (Scotland) Act 2005)

Criteria for determining the likely significance of effects on the environment ²		Summary
1(c) the relevance of the PPS for the integration of environmental considerations in particular with a view to promoting sustainable development	Likely to have no or minimal environmental effects	The purpose of the legislation and policy is to provide protection to an element of the historic environment.
1(d) environmental problems relevant to the PPS	n/a	The key environmental problems are those which the proposed legislation and policy are designed to address, e.g. uncontrolled activities affecting the marine historic environment (including looting).
1(e) the relevance of the PPS for the implementation of Community legislation on the environment	Likely to have no or minimal effects	The legislation and policy might confer some additional protection on biodiversity and water quality interests.
2 (a) the probability, duration, frequency and reversibility of the effects	Likely to have no or minimal environmental effects	The purpose of the legislation and policy is to provide protection to an element of the historic environment. Archaeological investigation could affect biodiversity, flora or fauna interests of marine sites; however, this is recognised and will be explicitly addressed in both the legislation and policy (see Table 2). This would also capture water quality interests relating to ecological quality. In certain circumstances, access to these sites may also be restricted. It will not affect the other environmental parameters identified in Paragraph 6 of Schedule 3 to the Act ³ .
2 (b) the cumulative nature of the effects	Likely to have no or minimal environmental effects	as for 2(a)

³ i.e. human health and population; soil; air quality and climatic factors; material assets; and landscape.

Criteria for determining the likely significance of effects on the environment ²		Summary
2 (c) transboundary nature of the effects (i.e. environmental effects on other EU Member States)	n/a	The legislation and policy will only apply to Scotland's marine zone.
2 (d) the risks to human health or the environment (for example, due to accidents)	n/a	This legislation and policy will not give rise to such risks, given that its focus is protection of an element of the historic environment.
2 (e) the magnitude and spatial extent of the effects (geographical area and size of the population likely to be affected)	Likely to have no or minimal environmental effects	The legislation and policy will protect nationally important marine historic environment assets in the marine zone around Scotland.
2 (f) the value and vulnerability of the area likely to be affected due to- (i) special natural characteristics or cultural heritage; (ii) exceeded environmental quality standards or limit values; or (iii) intensive land-use.	Likely to have no or minimal environmental effects	as for 2(a) The purpose of the legislation and policy is to protect an element of the historic environment – see summary in Table 2.
2 (g) the effects on areas or landscapes which have a recognised national, Community or international protection status	Likely to have no or minimal environmental effects	The protection afforded by this legislation and policy will not have effects on these areas.

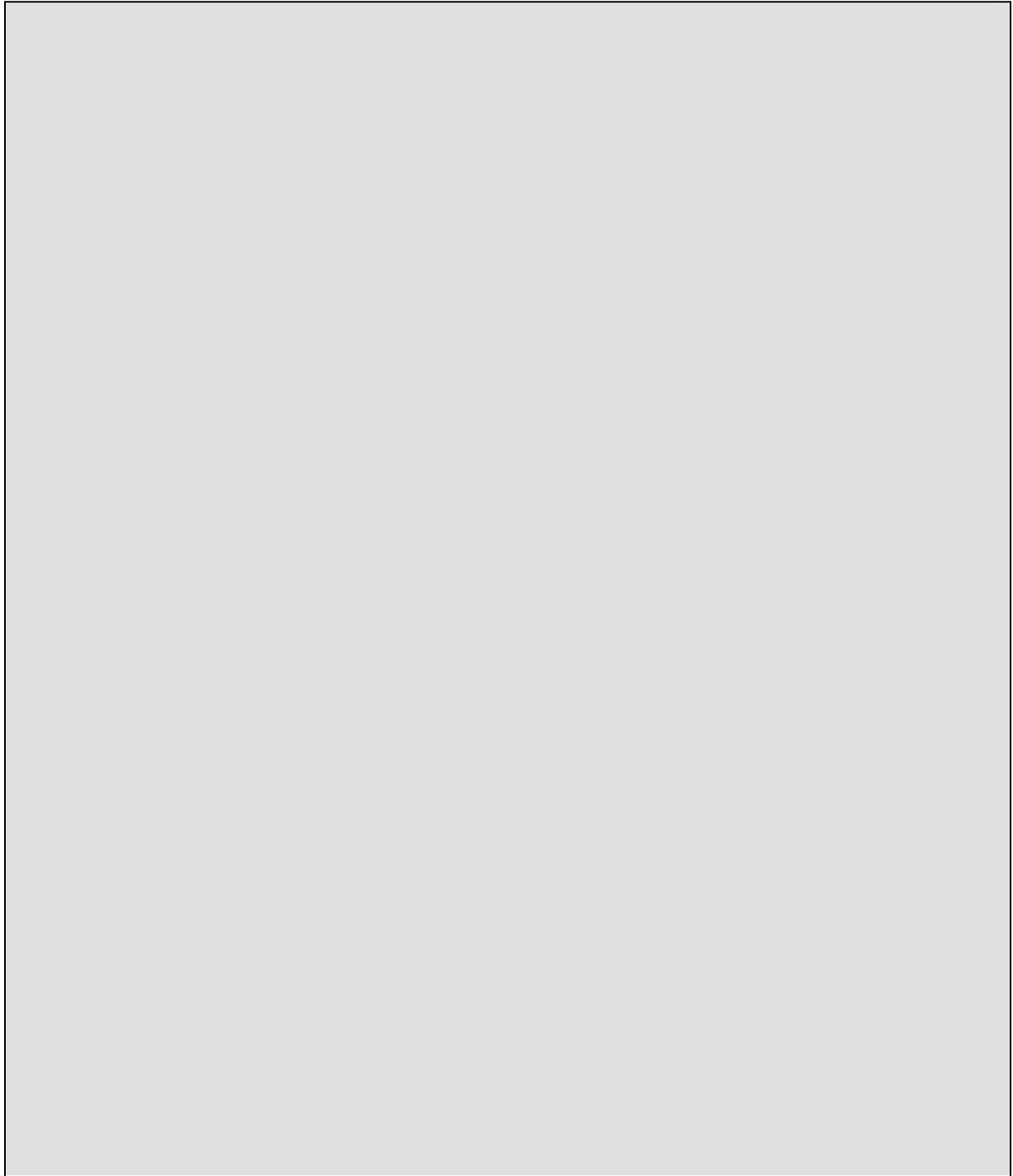
A summary of our considerations of the significant environmental effects of Proposals for Marine Historic Environment Legislation and Scottish Historic Environment Policy: Marine Historic Environment is given below.

TABLE 2 – SUMMARY OF ENVIRONMENTAL EFFECTS

The purpose of the legislation and policy will be to allow for the identification of nationally important marine historic environment assets and to provide protection for these assets. The consultation document invites views on the form and content of that legislation and its supporting SHEP.

The proposed legislation and SHEP in concert will therefore effect control over activities which may affect nationally important marine historic assets. They are therefore likely to have an effect on the historic environment: that is their purpose. The review of the legislation and policy against the criteria in Table 1 has identified that archaeological investigation could affect biodiversity, flora or fauna interests of marine sites; however, this is recognised and will be explicitly addressed in both the legislation and policy (e.g. the principles underpinning the legislation will include a requirement that “activities directed at underwater cultural heritage will avoid the unnecessary disturbance of the wider marine environment”; archaeological investigations will also require an environmental policy). This would also capture water quality interests relating to ecological quality. In certain circumstances, access to designated assets may also be restricted, if only for an interim period. The intention of the legislation and policy is otherwise to improve access. Otherwise, the protection proposals will not affect the other environmental parameters identified in Paragraph 6 of Schedule 3 to the Act (i.e. human health and population; soil; air quality and climatic factors; material assets; and landscape).. It is also worth noting that any activities permitted on these sites would be subject to the existing legislation and policy framework which protects other environmental interests.

Accordingly, it is the view of Historic Scotland that this legislation and policy will result in no or minimal effects on the wider environment. In addition, it is our view that SEA would not add further to the value of this policy in the same way that it added to the value of SHEP1 (on the historic environment).





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David Palmer
Marine Management Division
Scottish Government
Victoria Quay
Edinburgh
EH6 6QQ

Dear David

Environmental Assessment (Scotland) Act 2005: 00322 Scoping – The Scottish Government – Sustainable Seas for All

I refer to your scoping report, received in the Scottish Government SEA Gateway on the 22 July 2008. In accordance with Section 15(2) of the Environmental Assessment (Scotland) Act 2005, I have reviewed the report on behalf of Scottish Natural Heritage in its role as a Consultation Authority under the above Act. Our comments on the scope and level of detail to be included in the Environmental Report and on the duration of the proposed consultation period are set out below. Detailed comments are provided in the annex to this letter.

Scope of assessment and level of detail

We support the approach proposed for preparing the Environmental Report and agree that, due to the nature of the consultation, it is appropriate to apply the assessment process at a high strategic level and focus on the overarching objectives of the main policy areas and their environmental implications. It is unfortunate that an SNH representative was not able to attend the scoping workshop on 19 June but, based on the recorded outcomes here we are broadly in agreement with the consensus reached at the event.

Subject to the specific comments set out in the annex to this letter, SNH is content with the scope and level of detail proposed for the environmental report.

Consultation period for the environmental report

We consider that the proposed period of six weeks for consultation on the Environmental Report is a little short, but recognise that the timescales are intended to fit with the wider 'Sustainable Seas for All' consultation. On this basis, we accept the proposed period.

I hope that these points are of assistance to you. Please note that this response is in the context of the Environmental Assessment (Scotland) Act 2005 and our role as a Consultation Authority. We understand that we will be separately consulted on our views regarding the Environmental Report, and we are currently preparing a response to the 'Sustainable Seas for All' consultation.

Should you wish to discuss any of the above comments please contact Cathy Tilbrook (01738 458620).

Yours sincerely

Dominic Counsell
Policy and Advice Manager
Coastal and Marine Ecosystems and Use

Annex

Detailed comments

Para 1.3 We fully support the proposal that the SEA should consider how the Scottish Marine Bill can assist in achieving the targets of Good Environmental Status (GES) by 2020 set out in the Marine Strategy Framework Directive.

Para 1.7 We support the proposed objectives of the SEA

Para 1.8 We agree with this list of deliverables but would like to specifically highlight the need to consider the role of marine objectives and how competing priorities may be weighed-up in planning and decision making. Depending on the relative weight given to different aspects of sustainable development, there could be quite varying outcomes for the marine environment. Linked to this is an assessment of the possible duties that could be placed on public bodies in relation to environment, such as an offshore biodiversity duty or applying Marine Ecosystem Objectives in carrying out their functions.

Para 2.3.1 This paragraph states that “*the land use planning system’ is highly successful and is an integral component of the sustainable management of the use of the terrestrial environment.*”

We would stress a caveat here. Whilst a marine planning system should certainly build upon experience from the terrestrial Town & Country Planning system, the nature of the marine environment is very different, and therefore requires a different planning approach. It is important that we recognise deficiencies in the terrestrial system and create a marine planning system capable of integrating all forms of use of the sea, rather than focusing more narrowly on the planning and control of development, as has been the case on land.

There are important issues to be considered in the SEA regarding the detailed nature of a marine planning system. These relate to the status of plans and the planning process (i.e. the degree to which bodies must act in accordance with the plan’s provisions); the role of objectives in underpinning plan preparation; and the extent to which priorities and objectives are coherent at different levels or tiers of planning. All of these variables will have implications for the way in which marine planning will affect the marine environment.

Para 2.3.2 The SEA should specifically consider any risks to the marine environment presented by proposed streamlining of licensing procedures.

Para 2.3.3 Further to the point made in 2.3.1 above, we are surprised by the statement ‘*the wider seas measures are more in line with recognised T&CP land use policy*’. In fact many of the issues listed like water quality, geology and coastal processes are not considered to be well covered through traditional Town & Country Planning and have required separate processes to ensure they are addressed. We would see the wider measures mentioned here include measures such as revised sectoral controls to achieve ecosystem objectives. We are not sure what is meant by

the statement '*adopt more of a land use planning approach to nature conservation when considering new developments*'. If this refers to the potential to better integrate marine nature conservation and MPAs into the marine planning system, then we would certainly support this approach, providing that the planning system is designed to provide adequate protection for important features.

Para 2.3.4 The SEA should consider options for the structure, function and remit of Marine Scotland as the statutory purpose and duties set out for the organisation will influence the importance given to environmental issues relative to other priorities. In addition, the nature of the body in terms of its environmental functions and expertise and role in advising government may also affect environmental outcomes.

Table 3.1 We would suggest that some categories are omitted from this table. These include:

- Protected species- add Biodiversity Action Plan species (and habitats) and Habitats Directive Annex 2 species;
- Water quality – mention Water Framework Directive targets?
- Landscape – should read 'Gardens & Designed Landscapes'; add landscape/seascape character and capacity.

Para 6.4 We suggest that coastal defences should be added to the list and defence should be added as a further reserved matter with potential environmental impacts which should be considered in the SEA.

Appendix B: Baseline Data and Trends



FABER MAUNSELL | AECOM



Scottish Marine Bill SEA

Scottish Marine Bill SEA: Environmental Report – Appendix C: Environmental Baseline and Trends

Scottish Government
October 2008

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This section provides an overview of baseline information relevant to nature conservation and biodiversity in Scottish waters, and a high level overview of the environmental baseline. The Section covers protected sites and species, marine mammals, birds, benthic ecology and fish.

1.2 Protected Sites

1.2.1 *Current baseline*

The coasts and seas around Scotland contain areas designated under a range national and international legislation in order to protect the biodiversity of Scottish seas and intertidal areas.

The coastal and marine sites relevant to biodiversity and nature conservation include:

International Sites:

- Natura 2000 Sites (Special Areas of Conservation (SAC) and Special Protection Areas (SPA))
- Ramsar sites – wetlands of international importance designated under the Ramsar convention
- World Heritage Sites
- National Sites:
 - Marine National Parks (MNR)
 - National Nature Reserves (NNR)
 - Sites of Special Scientific Interest (SSSI)

The level of protection afforded to Scottish coastal and marine waters reflects the abundance sensitive and important species and habitats in Scotland. For example the Island of St Kilda (Outer Isles) is designated for its “outstanding natural features and wildlife”, and is described as being an outstanding example of the ecological colonisation of a remote island and of the genetic divergence caused by the isolation of small populations (UNEP-WCMC, 2007).

1.2.2 *Future trends*

1.2.2.1 Protecting biodiversity out to 12nm

Scotland is already committed under international targets to designate marine protected areas. The Convention on Biological Diversity (CBD) has agreed to meet the goal of the World Summit on Sustainable Development (WSSD) to establish representative networks of protected areas in the maritime environment by 2012, something which the UK committed to at the WSSD in 2002. Commitments have also been made to establishing ‘an ecologically coherent network of well-managed marine protected areas’ as required under the OSPAR Convention, and this must be achieved by 2010 (Murry et al 2007)

Furthermore, the UK is committed to identifying and designating relevant areas for marine protection within UK seas in order to achieve a ‘network of well-managed sites by 2010’ (DEFRA 2002). Therefore, it is anticipated that the percentage of Scottish waters designated to protect marine biodiversity will increase in the future.

Provisions set out in both the Scottish and UK Marine Bills will be essential in achieving these targets, allowing for the designation of additional protected sites (Marine Conservation Zones under the UK Marine Bill; MPAs under the Scottish Marine Bill).

1.2.2.2 Protecting biodiversity offshore

Protection of biodiversity to date has been within the 12nm limit. However, the introduction of the Offshore Marine Conservation (natural Habitats, &c.) Regulations 2007, puts a responsibility on the Government to give protection beyond the 12nm limit through implementation of the EC Birds and Habitats Directives from 12-200nm. Therefore, the percentage of offshore protection is also anticipated to increase. Indeed, in 2007, seven sites were consulted upon to create new SACs in offshore waters, five of which are in Scottish offshore waters.

1.2.2.3

Future designations

The Scottish Marine Bill consultation document (2008) puts forward that the current system of species protection is largely fit for purpose. However, it is planned that a science-based review will be needed in order to identify whether new species need to be added to existing list of protected species, which could see further areas fitting the criteria of designation. In addition, a new system to complement the existing Natura network would be developed. This would be distinct from the powers of designating Natura sites, and could be used to recognise locations of habitats or species which are important, rare, threatened, representative or which contribute to a wider network (Baxter et al 2008). This will be used to designate sites that are important for Scotland, outwith of international requirements. This could result in some areas being 'double badged', protected at an international level through Natura 2000 and at a National level through processes developed in the Scottish Marine Bill. Either way, the percentage of Scottish waters receiving marine protection is set to increase in the future.

1.3

Benthic Ecology

Benthic ecology includes to the flora and fauna that inhabit the seabed and intertidal area. Benthic habitats and species are protected under Annexes I and II of the Habitats Directive. Protection is achieved through the designation of SACs. Benthic habitats and species are also protected under the UK Countryside and Wildlife Act 1981 'as amended' and are subject to specific UKBAP Priority Habitat Action Plans (HABs). The following protected benthic habitat types are likely to be found in Scottish waters. There are 30 SACs in Scotland with a marine / intertidal component designated for their benthic or intertidal ecology.

Table 1.1: Protected Benthic Habitats

SAC feature	UK Biodiversity Action Plan priority habitat types likely to be found within the relevant SAC feature
Sublittoral Habitats	
Sandbanks which are slightly covered by seawater at all times	Maerl beds Sublittoral sands and gravels
Large shallow inlets and bays	Maerl beds Tidal rapids Mud habitats in deep water Mudflats Sheltered muddy gravel
Estuaries	Maerl beds Tidal rapids Mudflats
Lagoons	Tidal rapids Mudflats
Reefs	Modiolus modiolus beds Sabellaria alveolata reefs Sabellaria spinulosa reefs Lophelia pertusa reefs Serpula vermicularis reefs Tidal rapids

SAC feature	UK Biodiversity Action Plan priority habitat types likely to be found within the relevant SAC feature
Intertidal and Coastal Habitats	
Coastal lagoons (Priority habitat).	Saline lagoons Tidal rapids Mudflats
Mudflats and sandflats not covered by seawater at low tide	Mudflats Seagrass beds

1.3.1

Future Trends

Whilst the generic types of benthic communities present in Scottish waters is understood, the majority of the area has not been mapped and biologically surveyed using up-to-date acoustic methods supplemented by video ground-truthing, and therefore there is a lack of detailed data to characterise the benthic ecology.

Sources of contamination or seabed disturbing activities such as trawling, dredging, and development can all impact on benthic communities. However, there is no information to suggest what the general trends currently are within Scottish benthic communities. As discussed above, it is proposed that a network of offshore Marine Protected Areas is established to protect sensitive/important habitats. A key requirement for this is an improvement in the science and data to characterise the existing benthic environment, and future trends. The Scottish Marine Bill has the opportunity to input into the knowledge base: improving the range, depth and consistency of data collected.

1.4

Fish and Shellfish

1.4.1

Current Baseline

There are a number of different types of fish and shellfish that occur throughout the study area. Of these, the native oyster, common skate, cod and haddock are all listed on the IUCN (The World Conservation Union) Red List of Threatened Species and also as UK Biodiversity Action Plan (UKBAP) species. The basking shark is also a UKBAP species. There is only 1 SAC in the study area designated for the protection of marine fish – the Solway Firth designated for Sea Lamprey. Spawning areas for the commercial species: herring, cod, haddock, whiting, blue whiting, saithe, plaice, lemon sole, Norway pout, sandeels, sprat and nephrops, and nursery areas for mackerel, herring, cod, haddock, whiting, blue whiting, saithe, lemon sole, Norway pout, sandeel, sprat and nephrops, are located in various parts of the study area.

1.4.2

Future Trends

For non-commercial species, the understanding of population sizes and trends is relatively unknown. There are significant fluctuations over the course of the year in the total biomass of fish found in Scottish waters. Pelagic species are mainly responsible for this fluctuation as demersal species tend to be less transient.

Data for commercially exploited fish stocks are more readily available as it is one of the most comprehensively monitored and managed components of the marine environment, due to the economic importance of the commercial fishing industry. Commercial fishing can impact on populations of Scottish fish species, not only through what is targeted but also through bycatch – non target species which are caught along with the target species and discarded. Scotland has taken a lead in tackling bycatch and discards through encouraging use of technology such

as square-meshed escape panels and behaviour which reduces unwanted catches (for example, real-time closures to avoid juvenile cod) (Baxter et al 2008). Future trends of commercial fish populations are linked to commercial fisheries determined by catch quotas, dealt with under section 6.2.2.

1.5 Marine Mammals

1.5.1 *Current Baseline*

The SEA study area contains nationally and internationally important populations of marine mammals including seals, whales, dolphins, porpoises and otters. All of these are protected under EC Directive 92/43/EEC on the Conservation of natural habitats and of wild flora and fauna (the Habitats Directive) and the Wildlife and Countryside Act 1981. The study area also contains a number of Special Areas of Conservation (SACs), designated for the conservation of species protected under Annex II of the Habitats Directive.

The Scottish population of seals accounts for approximately 90% of seals within the UK (Baxter et al 2008). In fact, the seas around Scotland are among the richest in Europe for marine mammals. Scotland holds about 70% of Europe's population of grey seals (*Halichoerus grypus*) and about 28% of the EC population of common (harbour) seals (*Phoca vitulina*), emphasising the important role that these mammals have in Scottish waters (SEA doc; Baxter et al 2008). In addition, over twenty species of whales, dolphins and porpoises (known collectively as 'cetaceans') can be seen around the Scottish coastline. These include common dolphins, minke whales and killer whales. Scotland is also home to the most northerly pod of bottlenose dolphins (*Tursiops truncatus*) which are found within the Moray Firth - designated a marine Special Area of Conservation (SAC) in March 2005.

Scottish waters, as of 2007 data from JNCC, contains 36 SACs with a marine component. Of these 14 SACs are designated for grey and common seals (mainly Shetland and Orkney), 1 for Bottlenose Dolphin (Moray Firth) and 7 SACs designated for otters. Seals, otters, harbour porpoise and bottlenose dolphins are also present as a non-qualifying feature within numerous further SACs. Processes are underway to identify and designate offshore SACs.

1.5.2 *Future Trends*

Past trends have indicated that grey seals have shown a steady increase in population size since records began in the early 1960s but there are strong indicators now that the population is beginning to level off (Baxter et al 2008). Whilst there is less information available regarding common seals, declines of 40% have been observed in Orkney and Shetland since 2001. Declines on this scale could be indicative of changes in environmental conditions. To date, population indicators suggest that this decline is not present on the west coast and the Hebrides. Baxter et al 2008 found that the abundance of minke whale and harbour porpoise did not change significantly between 1994 and 2005. However, distributions of both species changed over this period, and evidence also showed that bottlenose dolphin population, associated with the Moray Firth SAC, may have declined slightly between 1990 and 2005. For most species of cetacean, trends in abundance remain unknown in Scottish coastal waters (Baxter et al 2008).

With so little known about current populations of cetaceans, and a lack of detailed information regarding past trends, it is very difficult to predict future trends. The Scottish Marine Bill has the opportunity to input into the knowledge base: improving the range, depth and consistency of data collected. This data could be used to improve protection of these species through designation of important feeding or breeding areas.

Factors which could impact either positively or negatively on the future population of cetaceans include:

Negative Impact

- Increase in seismic activity;
- Increase in oil and gas activity and exploration;
- Displacement / reduction in food source – either as a result of increased fishing efforts, or climatic changes forcing populations towards the furthest extent of their range for survival;
- Mortality from entanglement in fishing nets or boat strike;
- Discharges to sea;
- Accidents at sea.

Positive Impact

- Better protection;
- Government and international policy.

1.6**Birds**

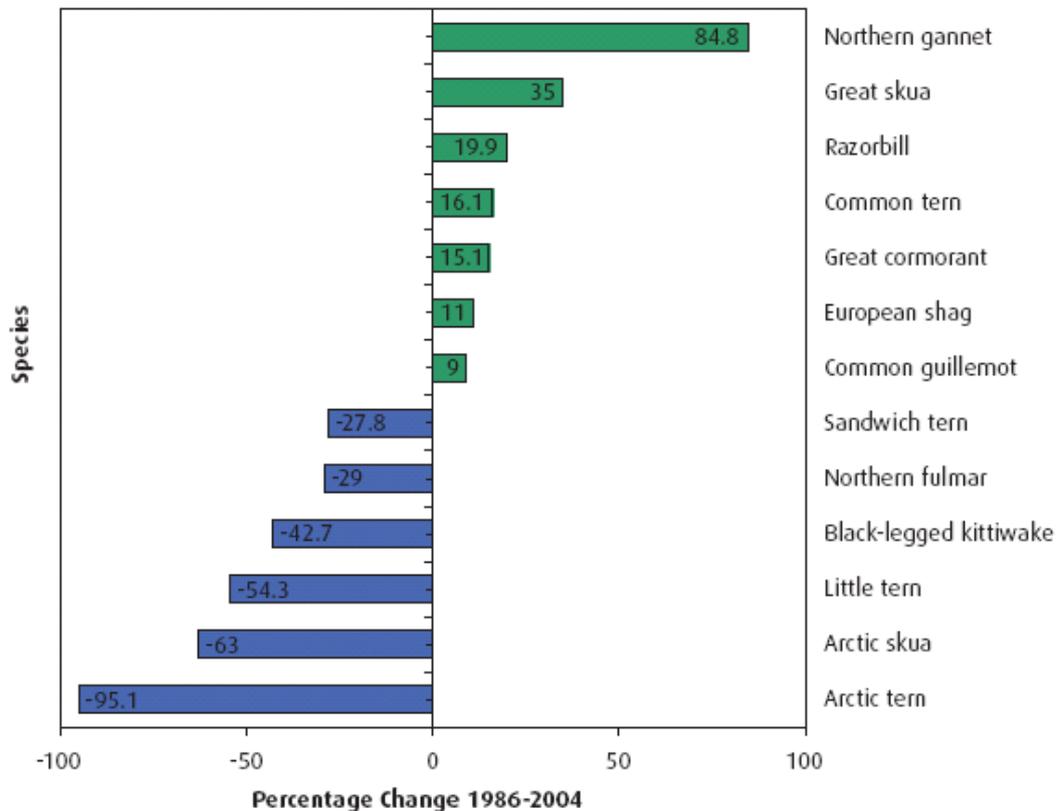
The study area contains nationally and internationally important seabird populations of a large number of species of seabird. These are protected under the EC Birds Directive, through the establishment of Special Protection Areas (SPAs), for the conservation of breeding, migrating and wintering birds. As of 2007 data from JNCC, there are 18 SPAs in with a marine component in Scotland, of which 10 are designated for the protection of breeding seabirds. A review of the need for further SPAs, and the extension of existing SPAs into the marine environment is underway. St Kilda (Outer Isles) is a World Heritage Site for breeding bird colonies, containing the largest seabird colony in the British Isles and one of the largest concentrations in the North Atlantic.

1.6.1*Future Trends*

Trends in seabird populations were examined in Scotland's Seas: Towards Understanding their State looking at abundance and productivity based on data for 13 and 16 species respectively. The period between 1992–1994 showed a 30% decline in seabird abundance compared with the start of the monitoring period (the monitoring period ran 1986–1994). With regards to seabird productivity, a marked decline was seen from 2002–2004 and remained low in 2005–2006.

Figure 1.1 below, shows the percentage change in abundance of selected seabird species between 1986 and 2004, and indicates that six out of the 13 species declined, whilst 7 species increased in abundance. However, overall abundance of breeding seabirds in Scotland in 2004 had still declined 20% relative to 1986 levels.

Figure 1.1: The percentage change in abundance of selected seabird species between 1986 and 2004



(Source: Baxter et al 2008)

The overall decline is accounted for by declines among relatively abundant species such as Arctic tern and Arctic skua. The decrease in abundance of these and other species outside of the scope of the monitoring, such as puffins, is thought to be strongly connected to reduced sandeel availability.

JNCC (2005) reports that puffins, and many other species in north-west Scotland suffered from a shortage of sandeels in 2005 and as a result, produced far fewer chicks than normal. It is likely that this was a knock-on effect from 2004 where a scarcity of sandeels led to widespread starvation of chicks and the worst breeding season on record for many species in the Northern Isles and eastern Britain. Birdlife International (2005) reported that a 'regime shift' of rising sea temperatures have changed the plankton mix to the detriment of sandeels. The commercial industrial fishery for sandeels has also impacted upon the population and in response to this the sandeel fishery off eastern Scotland was closed from 2000 – 2003 (Wanless et al 2008; FRS 2008).

Other factors to impact on productivity include food availability, weather conditions and predation. Poor food availability (such as reduced availability of sandeels) can lead to chick starvation, as adults are forced to spend longer foraging and less time attending to the chicks, leaving them susceptible to predation and chilling. Similarly, poor weather conditions can restrict foraging by adults and lead to chilling or washing away of nests during storms. Predation of eggs or chicks, can have significant impacts on productivity of a colony, sometimes leading to complete breeding failures (Baxter et al 2008).

It is unknown what the future holds for seabird populations, as populations are so reliant on external factors. For example, climate change could see a displacement in fish stocks (their main food source), an increase in extreme weather events and changes in sea levels and temperatures, all of which could directly or indirectly impact on seabird populations. At the same time, it is hoped that marine protected areas brought through the Scottish and UK Marine Bills will be developed to protect areas that are likely to be important for breeding seabirds at the UK

population level. A domestic MPA mechanism for protection will be essential in recognising species currently omitted from Natura 2000 sites and could be used to protect known breeding colonies, and adjacent areas used for feeding and preening. As more data becomes available, it will be possible to identify and protect offshore sites used for feeding purposes (Tanner et al 2008).

2 Soil

2.1 Introduction

This section provides an overview of baseline information relevant to the seabed – specifically seabed geology and geomorphology in Scottish waters, and a high level overview of the environmental baseline.

2.2 Bathymetry

2.2.1 *Current Baseline*

The bathymetry of the SEA study area is typically characterised by deep waters which rapidly shelf steeply away from the coastline. However, on a smaller scale the bathymetry is far more complex.

This complexity is mainly due to the deepening of sea lochs and major channels caused by ice scour, which has created locally enclosed deeps with shallower seaward terminations ('sills').

2.2.2 *Future Trends*

There is no evidence to suggest likely future changes to bathymetry in Scottish waters.

2.3 Geomorphology

2.3.1 *Current Baseline*

Scotland's present day coastal geomorphology reflects the interaction between sea-level change, land uplift as a result of isostatic readjustment, resistance of coastline rocks and unconsolidated sediments to erosion and the sediment supply to the coast since the end of the last glaciation (Smith, 1997 in SEA 5). Whilst sea levels around the world are rising today, for the last 6,000 years much of the Scottish coastline has continued to slowly rise out of the sea after the release of the weight of the ice sheet. Uplift has been greatest where the ice was thickest, around the Western Highlands, and least in areas closer to the margins of the ancient ice sheet, such as the Western Isles, Orkney and Shetland. Where sea-level rise has outpaced uplift of the land, as in Orkney, Shetland and the Western Isles, submerging of the landscape continues (SNH, 2006).

Raised beaches created by changes in sea level represent significant features in understanding the geology of the last 1.8Ma and the coastal processes of the time.

Much of the offshore morphology of the seabed in northwest Scotland owes its present day form to the actions of past glaciations. The bathymetry around the coast of Scotland has been greatly influenced by geological processes and in particular the actions of the last ice age. About 20,000 years ago an ice sheet up to 1.5 km thick blanketed Scotland. Sea levels were around 140 m lower than they are today and the edge of the Atlantic Ocean lay many kilometres west of the Hebrides. When the ice melted between 15,000 and 10,000 years ago Scotland's coastline began to take on its present form. Glaciers retreated and left behind a barren landscape, carved out by the scouring actions of massive ice sheets and glacial

meltwater. The melting ice resulted in isostatic readjustment and sea levels rose dramatically with seas flooding the ice-scoured landscape. Groups of islands such as Orkney and Shetland were created and the lower lying river channels and glacial valleys were submerged to form many of the firths found in Scotland today.

The present seabed morphology is a consequence of the landscape left behind from the retreat of the glaciers – since there is a limited supply of new material; the bedforms found on the seabed surface are primarily due to the reworking.

2.3.2 *Future Trends*

Baxter et al 2008 reports of the strong interaction between the energy within coastal seas, in the form of waves, tides and currents, and the processes of erosion and sedimentation. Climate change could see an increase in frequency of storm events and the intensity of storm events which in turn could impact associated wave heights and the energy within coastal seas. Erosion and sedimentation of sandbank structures could increase in the future as a result of this.

Types of activity which may have a physical impact on seabed features include towed fishing gear, capital and maintenance dredging, and installation of marine renewable turbines. In highly dynamic environments with mobile sediments, the effects are not lasting, but in low energy environments such as Loch Creran, this may not be the case. Baxter et al 2008 report of some inshore and sea loch areas which are closed to mobile gears to avoid disturbance to deep mud sediments.

2.4 **Seabed Sediments**

2.4.1 *Current Baseline*

Knowledge of the seabed sediments around Scotland is primarily based on surveys undertaken by the British Geological Survey (BGS) in the 1970s and 1980s. In general, the sediments around Scotland are sandy or gravelly and originate from deposits during the Quaternary glaciation. Strong currents and wave action may also have prevented deposition of recent muddy sediment or have winnowed it to leave a coarse-grained lag deposit. Muddy sediments occur principally nearshore, for example in estuaries where the sediment is supplied from the main rivers such as the Forth and Clyde. Further offshore, muddy sediments occur in depressions on the sea floor, where currents may be relatively weak, such as the Witch Ground and Fladen basins and in The Minch. They also occur beyond the shelf break (200m water depth) to the west of Scotland, in the Faroe-Shetland Channel and the Rockall Trough. The concentration of calcareous material varies greatly in seabed sediments reflecting the amount of shelf material in different areas; locally, they can be very high (over 75%) in areas such as the sea bed around Orkney and Shetland.

2.4.2 *Future Trends*

Whilst certain types of seabed development such as capital and maintenance dredging, installation of marine renewables turbines etc may result in localised changes to seabed sediments, there is no evidence to suggest any general long term trends in marine seabed sediments.

3 Water

3.1 Introduction

Water legislation relevant to Scottish waters is discussed in this section, alongside a high level overview of baseline conditions. The Section covers water quality, munitions dumps, disposal of waste at sea and bathing waters.

3.2 Water Quality

3.2.1 *Current Baseline*

Under their national water quality classification scheme, SEPA (2006) classified 98% of estuarine waters and 99% of coastal waters as excellent or good (grade A or B), in 2005. Therefore, the marine and inshore water quality in Scotland is generally good, and has been improving over the last decade (OSPAR 2004, SEPA, 2006). The quality of Scottish waters largely reflects the oceanographic regime, but is also influenced by settlement patterns. For example, diffuse run-off from urban and agricultural areas can be significant sources of pollution (i.e. oils and nutrients). The majority of the estuaries also continue to be impacted by sewage discharges, whilst the quality of Forth and Clyde estuaries is especially affected by historically polluted sediments.

Over the last decade, coastal water quality has improved dramatically as a result of the application of full treatment to sewage discharges, improved treatment of industrial effluents, and work to reduce diffuse pollution. Marine fish farming has expanded in extent and economic value, but has been managed and controlled to minimise its impact. The dramatic improvements to coastal water quality are illustrated by the quality of designated bathing waters.

3.2.2 *Future Trends*

As indicated above, over the last 30 years domestic inputs of contaminants to the seas and estuaries have shown marked reductions. It has been possible to track this trend as extensive monitoring of the environmental quality of coastal margins and estuaries has been carried out for many years by SEPA. As of 2006, SEPA has implemented a more thorough classification scheme using methods set out in the Water Framework Directive (2000/60/EC). And in coming years with the introduction of the Marine Strategy Framework Directive (MSFD) it will be possible to extend past the 3 nautical mile limit (of the WFD in Scotland), covering more offshore seas out to the national territorial limit. This will give a comprehensive picture of the water quality around Scotland.

In the future, water quality will largely be governed by targets set by European and national legislation, a few examples of which are given below:

- The EC Bathing Water Directive (76/160/EEC) sets out two quality standards: 'mandatory' and the stricter 'guideline' standard. Member States should comply with the mandatory standard, and aim to comply with the guideline standard. See later for further information on Bathing Waters.
- Under the Water Framework Directive (2000/60/EC), Member States must aim to reach good chemical and ecological status in inland and coastal waters by 2015. In Scotland the WFD operates out to 3nm.

- The OSPAR Convention (1992) has the aim of continually reducing discharges with the ultimate target of achieving the concentrations near background values for naturally occurring substances, with no discernable eutrophication attributable to human derived inputs.
- The MSFD introduces the concept of achieving good environmental status (GES), with indicators to measure progress. Those relating to water quality include:
 - Human-induced eutrophication is minimised, especially adverse effects thereof, such as losses in biodiversity, ecosystem degradation, harmful algae blooms and oxygen deficiency in bottom waters.
 - Concentrations of contaminants are at levels not giving rise to pollution effects.
 - Properties and quantities of marine litter do not cause harm to the coastal and marine environment.

Provided that the relevant legislation is successfully implemented and enforced it is therefore likely that the water quality of coastal and marine waters will continue to improve in the future.

It is worth noting that weather influences water quality, so in the future climate change is also likely to impact trends of water quality, with increased storminess and rainfall influencing freshwater run-off from land and marine circulation patterns (Baxter et al 2008).

3.3 Munitions Dumps

3.3.1 *Current Baseline*

Munitions may be present on the seabed as a result of intentional disposal (official and unofficial); live firing ranges and naval exercise areas; wrecks of military vessels and some merchant ships; minefields; and migration from the original site.

Munitions may also be present at a number of wreck sites across the SEA study. However any munitions at wreck sites are unlikely to have been armed and are therefore unlikely to explode. Additionally, mines were laid in the waters around Orkney during the first and second world wars. Such known mined areas were cleared but it is possible that a very small number of undetonated mines still exist on the sea bed in this part of the study area.

Beaufort's Dyke in the North Channel, (between the West Coast of Scotland and Northern Ireland) was the official dump site for munitions at the end of World War II. 1,000,000 tons of all types of munitions including 14,500 tons of phosgene artillery shells were dumped here and disposals continued periodically until the early 1970s. Disturbance has already caused phosphorous munitions to float to the surface, drift ashore and ignite. South east of Beaufort's Dyke is an unofficial dump site in the North Channel where munitions which should have been dumped in Beaufort's Dyke were instead dumped in shallower waters adjacent to it.

3.3.2 *Future Trends*

In September 1992, the UK signed the convention for the protection of the marine environment of the North East Atlantic (the OSPAR Convention). This Convention prohibits the disposal of all munitions at sea. The MOD ceased all sea dumping of conventional ammunition and explosive stocks in line with the requirements of the OSPAR Convention, and continues to honour its obligations in this regard. It is therefore envisaged that there will be no future increase in marine disposal of munitions. However, the remaining munitions from disposal that has been carried out in the past continue to degrade and to an extent, migrate from their initial disposal sites.

The current state of corrosion of casings of munitions dumped on the seabed varies from 'very little' to 'completely degraded away'. There is no definitive evidence in the literature which considers that the continuing corrosion of munitions dumped on the sea-bed will give rise to any step-change in the conclusions which have been currently reached, assuming that the munitions are left undisturbed (IC Consultants, 2005).

3.4 Disposal of Waste at Sea

3.4.1 *Current Baseline*

There are a number of designated disposal sites located in Scottish waters, where waste can be disposed at sea. The majority are used for disposal of silt, sand, gravel and rock originating from dredging operations. However, a few sites exist that have previously been licensed for the disposal of sewage sludge and disposal of fish waste. Military waste is also widespread throughout the area as discussed in the previous section.

Evidence suggests that the Garroch Head Sludge dumping site remains a significant source of contaminants, particularly persistent organo-chlorine compounds, to the overlying waters and biota (Webster et al 2005). The site is non-dispersive (Jones et al 1993) and thus contaminants are likely to remain available for release to the environment following disturbance.

Two historic fish waste dump sites exist in the region of the Orkneys, Stomness B and C. Dumping of sea fish waste (viscera, skeletal material, skins and fish heads) was permitted under the OSPAR convention up until 2004 as such material was considered non-hazardous. The most recent report of activity at these sites (CEFAS 2003), records that 66 tons of wet waste and 53 tonnes of fish waste were disposed of annually at the two sites in the preceding 5 years. This material is highly biodegradable and is likely to have been rapidly re-assimilated into the marine ecosystem.

3.4.2 *Future Trends*

A number of statutory changes governing the types of waste that can be disposed of at sea have occurred over recent years. Since 1994, the dumping of most types of industrial waste has been prohibited and the disposal of sewage sludge was phased out at the end of 1998 under the Urban Waste Water Treatment Directive (91/271/EEC). Dredged material from port and navigation channel excavation and coastal engineering works now constitutes the majority of material that remains eligible for disposal at sea (Scottish Executive 2007).

Future trends are likely to be linked to legislative procedures and also activities generating material which needs discharging. For example, as port developments are to continue and expand, so is dredging in order to maintain port access and this material will need to be disposed of somewhere.

3.5 Bathing Waters

3.5.1 *Current Baseline*

As of 2008, there are 80 official bathing waters in Scotland, and 77 of these are in coastal locations (The Scottish Government 2008). In 2007, 54 of the 61 identified bathing waters in Scotland (at that time) met the EU mandatory standards. Of these, 29 waters (48%) also met the guideline standard (SEPA 2007).

A key indicator of bathing water quality is the number of faecal coliforms. These bacteria are present in human sewage and in traces of animal faeces washed from farmland during periods of wet weather. If swallowed in sufficient quantities by people swimming or bathing in affected waters, faecal coliforms can cause serious stomach upsets. Analysis in 2007 showed there has been steady decline in the average counts of faecal coliforms at all 60 designated bathing waters in Scotland (SEPA 2006).

3.5.2

Future Trends

Current trends have shown an improvement in bathing water quality: in 2007 all designated bathing waters passed the current EU Bathing Water Directive 'mandatory' standard. Member States should comply with the mandatory standard, and aim to comply with the stricter 'guideline' standard under the Bathing Waters Directive.

SEPA, 2007, state that improvements reflect the substantial environmental efforts delivered by Scottish Water's investments in new sewage treatment schemes and the success of their continuing work and the work by others to minimise diffuse pollution from agricultural sources.

It is worth noting that weather conditions have an impact on annual classifications. For example, wetter weather in 2002 led to higher river flows into the major estuaries, more dilution of pollutants, greater mixing, improved oxygen levels and higher classifications. In the future, climate change could increase the occurrence of situations like this. For this reason, a three-year average for water quality is often used, to give a clearer picture of overall water quality (Baxter et al 2008).

4 Cultural Heritage

4.1 Introduction

This section provides an overview of baseline information relevant to cultural heritage, more specifically marine and coastal archaeology, in Scottish waters.

4.2 Marine and Coastal Archaeology

4.2.1 *Current Baseline*

4.2.1.1 Submerged

Submarine archaeological heritage is of considerable cultural importance both internationally and nationally, as indicated by the legislation it is afforded.

UNCLOS 1982 was ratified by the UK in 1997. 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.

In addition to the legislation detailed above, under UK legislation various Acts exist which can be applied to protect submerged remains, whether these are fixed sites or wrecks, in territorial waters. For example, the Joint Nautical Archaeology Policy Committee (JNAPC) Code of Practice for Seabed Developers (JNAPC 2007) is a UK-wide code developed in conjunction with key industries. The JNAPC Code is voluntary but provides a framework that seabed developers can use in conducting their activities in an archaeologically sensitive manner. There is also a guidance note on protocols to deal with the marine historic environment developed specifically for the offshore renewable energy sector.

Within the territorial waters around Scotland, there are currently 15 underwater historic wrecks which have a statutory designation by laws administered by Historic Scotland. This is a small fraction of the many thousands of seabed sites known to exist (Historic Scotland 2008). These include eight designated wreck sites (3 off the west coast of Scotland; 2 in the Moray Firth, 1 off the north coast of Scotland and 2 off the east coast of Shetland) and seven scheduled wrecks. The scheduled wrecks occur in a cluster at Scapa Flow and are the remaining wrecks of the German High Seas Fleet, designated under the Archaeological Areas Act 1979.

4.2.1.2 Coastal

There are a vast number of sites and remains located within the coastal area of Scotland. Historic Scotland's Coastal Zone Assessment programme has surveyed about 30% of the coast and foreshore which suggests that there may be as many as 38,000 historic buildings and monuments located around the coast. These include scheduled ancient monuments (SAMs), archaeological remains, listed buildings, conservation areas and other related designations.

In addition to Historic Scotland's Coastal Zone Assessment, coastal archaeological remains have been documented by the National Monuments Register of Scotland (NMRS). The register holds data on 80,000 sites and approximately 200,000 items throughout Scotland.

Scheduled Ancient Monuments are protected by the Ancient Monuments & Archaeological Areas Act 1979 which provides for the scheduling of 'monuments'. The Act, which is administered by Historic Scotland, primarily deals with terrestrial locations but there is provision to designate submarine sites.

Certain buildings of historic interest or architectural importance are designated as Listed Buildings together with Conservation areas under the Planning (Listed Buildings and Conservation Areas) (Scotland) Act 1997. Historic Scotland, on behalf of the Scottish Ministers,

Often overlapping with Listed Buildings, the Inventory of Gardens and Designed Landscapes identifies significant gardens/landscapes which are protected under the GDP Order, part of the Town and Country Planning Act (1992). Gardens and designed landscapes included in the Inventory are considered to be of national importance.

4.2.2

Future Trends

Unless additional sites of archaeological importance are discovered or designated in the marine and coastal environment, either due to better availability of science to find them, or knowledge and understanding of their importance, this component of the baseline conditions is not likely to change significantly.

5 Landscape/Seascape

5.1 Introduction

Seascape can be described as a discreet area containing a seaward component, a coastline component and a landward component. It can be defined as 'the coastal landscape and adjoining areas of open water, including views from land to sea, from sea to land and along the coastline. Seascape character is made up of physical characteristics of hinterland, coast and sea as well as a range of perceptual responses to the seascape.

5.1.1 *Current Baseline*

No classification system exists to define the seascape around the Scottish coast however Scottish Natural Heritage has published a series of Landscape Character Assessment Reviews (Nos. 37, 71, 78, 90, 91, 92, 93, 94, 97, 100, 101, 102, 103, 111, 112, 113, 119, 122. Scottish Natural Heritage, Perth) which classify character areas for regions around Scotland.

The SNH publication 'An assessment of the sensitivity and capacity of the Scottish seascape in relation to windfarms' does collate the data from the individual reports and highlights coastal character types found within the regions of Scotland, however it does not produce broad criteria to classify seascape.

In addition to seascape character area classifications, there are several national, regional and local landscape designations, these include:

- World Heritage Sites (WHS);
- National Scenic Areas (NSA);
- National Parks;
- Gardens and Designed Landscapes (GDL);
- Areas of Great Landscape Value (AGLV) or similar including Regional Scenic Areas and Areas of Panoramic Quality; and
- SNH search areas for Wild land.

5.1.2 *Future Trends*

Major coastal developments and the development of offshore structures may change certain areas characteristics however the true nature of the land is unlikely to change classifications. Additional national, regional or local landscapes may be designated.

6 Material Assets

6.1 Introduction

This Section provides an overview of baseline information relevant to material assets in Scottish waters. Cables, ports and harbours, and oil and gas are all covered in this Section.

6.2 Cables

6.2.1 *Current Baseline*

International submarine telecommunications and major electricity interconnector cables, and a number of smaller submarine telecommunications and power cables linking island communities to the systems of the Scottish mainland, are located in the SEA study area.

The cable systems are confined to the northern and south-western parts of the study area – running out towards the Atlantic between Fair Isle and Shetland, out from Thurso in the north of Scotland towards Iceland, between Northern Ireland and south west Scotland, and up through the North Channel linking north west England with Canada. There are also more than 30 local and regional cable systems linking and running between islands and the mainland. There are only a few cables to the East of Scotland, one which runs out from Peterhead and several which pass through Scottish waters close to the UK-Norway Median line.

6.2.2 *Future Trends*

Taking into account the Scottish Government's objectives for the Scottish Government's target of meeting 50% of Scotland's whole electricity demand from renewables by 2020, there is likely to be a significant increase in the number of power cables in Scottish waters connecting wave, tidal and wind arrays with the national electricity grid.

The current interconnection between Scotland and England only has a firm capacity of 2.2GW, which currently represents a significant constraint to the development of renewable energy in Scotland (HIE 2007). In order for the electricity grid to accommodate the future input from marine energy turbines grid upgrades will therefore be required. Connecting cables between the Northern and Western Isles and the Scottish mainland will therefore need to be considered. A marine interconnector offshore of the East Coast (between Shetland and South East England), or the west coast (between the western Isles or mainland Scotland and North-East England) may also be considered (Transmission and Distribution World, 2008; Network for Alternative Technology and Technology Assessment., 2002). Improvements in connections between the islands and the mainland are also likely to be constructed over the next few decades.

With regard to telecommunications cables, in summer 2008 a fibre optic cable link between the northern isles (Orkney and Shetland) is being installed (HIE 2008). There is currently no subsea telecoms link between the Scottish mainland and the Western Isles (Rural Broadband Telecoms and Skills Research, 2001). In order to accommodate likely future increases in broadband use it is possible that a cable link to the Western Isles will be constructed in the near future.

6.3 Ports and Harbours

6.3.1 *Current Baseline*

There are over 100 ports in Scotland which range from large port facilities (in particular, related to the oil trade in Orkney and Shetland and around the Clyde area) to many, more smaller, ports which are essential for ferry traffic and local trade and supplies. These include:

- Large oil and gas terminals, e.g. Hound Point (Firth of Forth), Sullom Voe (Shetland);
- Large fishing ports, e.g. Peterhead, Fraserburgh;
- Smaller fishing ports, e.g. Buckie;
- Oil supply ports, e.g. Aberdeen;
- Multi-purpose ports, e.g. Clyde;
- Large container ports, e.g. Grangemouth;
- Major ferry ports, e.g. Cairnryan, Rosyth;
- “Marine Works” serving as pier heads for ferry services to Scotland’s islands and for working boats associated with fish farm installations; and
- Marine facilities, e.g. Fairlie, Port Edgar.

Eleven Scottish ports have been classified by the Department for Transport under EC Maritime Statistics Directive as major ports, on account that they handled at least 1 million tonnes of cargo in 2001. These include: Forth, Sullom Voe, Clyde, Orkney, Aberdeen and Dundee. The main types of cargo handled by the Scottish major ports in 2006 were crude oil, oil products, coal, ‘other dry bulk’ and liquefied gas (Baxter et al 2008).

The entrances to ports and harbours are also extremely important for shipping and navigation.

6.3.2 *Future Trends*

Port development is likely to see an increase in the future, driven by increased cargo, or bigger vessels. For example, a report by Scottish Government (2003) gives projections to 2015 which shows strong growth in the containerport market. Alongside this will be an increase in the size of vessels used: the capacity of the largest container vessel in service has virtually doubled from around 4,500 teu to 8,400 teu over the last fifteen years or so. Recently 9,600 teu vessels have been ordered and the ordering of even larger vessels of up to 12,000 teu (i.e. Suez-max) is anticipated. The knock-on effect of this will be port developments in order to cope with the larger vessels: increasing the depth of water in entrance channels and alongside berths far above what is currently offered, plus channel widening to account for wider ship beam and to allow for larger turning circles. This implies that much greater investment is necessary in port infrastructure. Modifications will also be necessary on shore for bigger cranes with longer outreach, lift height and loading capacity (Scottish Government 2003).

Hunterston and Scapa Flow Ports are currently among several planned schemes in the UK and the rest of Europe to establish new container transshipment capacity (Scottish Government 2004). Peterhead Port Authority is also currently planning to upgrade its facilities to meet the demands of the modern pelagic fleet, as well as lay the foundations for potential future decommissioning work for oil and gas rigs (Dredging News online, 2008).

6.4 Oil and Gas

6.4.1 *Current Baseline*

Scottish waters consist of a large sector of the North Atlantic and the North Sea, which contain the largest oil resources in the European Union. As such, Scotland is the EU's largest petroleum producer, with the discovery of North Sea oil transforming the Scottish economy. In particular the oil and gas industry in the offshore area to the East of Shetland is extensive and

well established. It is estimated that the industry provides 145,000 in Scotland, representing 43% of the total UK oil and gas employment (Scottish Enterprise 2008). The Beatrice field in the outer Moray Firth (east coast of Scotland) is the nearest production platform to shore, located on the territorial limit (Baxter et al 2008).

The port of Aberdeen remains the centre of the North Sea Oil Industry, with the port and harbour serving many oil fields offshore. There is an important international oil trade in Orkney and Shetland that generates considerable movements of tanker and supply vessels. Sullom Voe in Shetland is the site of a major oil terminal where oil is piped in and transferred to tankers. Similarly the Flotta Oil Terminal in Orkney is linked by a 230km long pipeline to the Piper and Occidental oil fields in the North Sea. To avoid the risk of pollution, designated areas have been created around Orkney, Shetland and Fair Isle which must be avoided by vessels over 5000 gross registered tonnes carrying oil or other hazardous cargos. The Northern Isles experiences trade and transshipment from handy size vessels into very large crude oil carriers.

Oil production in Scottish Waters is expected to increase which will result in an increase in the number of tankers passing through the waters around Orkney and Shetland. The Hebrides deep water route to the west of the Outer Hebrides will also see an increase in tanker traffic.

Pipelines in the study area are typically confined to areas of high oil and gas productivity. Orkney and Shetland where the Flotta and Sullom Voe oil and gas terminals are found have a high number of pipelines. There are also a small number of pipelines in the North Channel and Solway Firth, including two interconnector gas pipelines between Northern Ireland and Scotland. Predominantly the main networks of pipelines occur outside of the territorial limit. Beatrice to Shandwick Bay (on the north eastern coast of Scotland) is the only pipeline to be entirely within the territorial limit.

As there are no oil and gas developments off the west coast of Scotland, there are also no pipelines in this part of the study area.

6.4.2

Future Trends

The general view is that UK oil production has peaked and is currently declining. UKCS oil production is predicted to continue declining slowly but steadily from 111.7 million tonnes (223,400 bpd) in 2002 to 20.6 million tonnes (41,200 bpd) by 2035 (DTI, 2003). The UK oil and gas industry estimates that future oil production will come from a combination of increased recovery of reserves in currently producing fields ("brownfields"), development of known discoveries which are mostly small in size and marginal in economic terms and continued new exploration (UKOOA 2006). Therefore, whilst oil and gas companies will continue to survey for and develop new reserves in Scottish waters, the level of production is set to decline for the foreseeable future.

7 Population

7.1 Introduction

This section provides an overview of baseline information relevant to commercial fishing, aquaculture/mariculture, and shipping and navigation in Scottish territorial and offshore waters. It also provides a high level overview of the environmental baseline. The Section covers protected sites and species, marine mammals, birds, benthic ecology and fish.

7.2 Commercial Fisheries

7.2.1 *Current Baseline*

Commercial fishing is an important industry in Scotland, both in coastal areas and further offshore towards the 12 nautical mile limit. Key species of commercial importance in Scottish waters include mackerel, herring, haddock, cod, whiting, saithe, monkfish, Nephrops, lobster and scallops.

By weight, mackerel is the most abundant species landed by the Scottish fleet, with fishing grounds for large fishing vessels concentrated offshore of the Western Isles and North West Scotland, near the continental slope. The west-coast and North Sea herring fisheries are also very valuable to the Scottish fleet, with fishing grounds for large fishing vessels concentrated north of Sule Skerry and north of east Shetland. The key haddock fishing ground is located in the North Sea, but it is also important throughout the west coast of Scotland with grounds located in South Minch and west of the Western Isles.

7.2.2 *Future trends*

Current trends show that the total quantity of fish landed by Scottish vessels has fallen by 14% since 2002, mainly due to reductions in landings of demersal and pelagic fish. Shellfish landings were seen to have increased by 14% over the same period. In 2006, the total combined value (£368.5 million) of landings showed a 3% increase in value, despite a decrease in live weight landed. Baxter et al 2008 report that for the first time, shellfish was the most valuable sector to the Scottish fleet, with shellfish landings representing 38% of total value despite its relatively small contribution in weight. However, the value of demersal stocks has shown a noticeable decline since 1990, based on 2006 prices.

Future trends for commercial fishing are difficult to predict with certainty as they will be affected by stock status, fishery and habitat management measures, fleet size and efficiency and markets. Trends are also likely to be different for the different sectors (e.g. demersal, shellfish and pelagic). In the short term it seems unlikely that total landings will increase as measures are in place to put a ceiling on the amount of allowed catch. 'Total Allowable Catches' (TACs) are set in December each year by the EU Council of Fisheries Ministers for over 130 fish stocks based on a number of factors, including the latest scientific advice on conditions of the stocks (MFA 2007). Medium and longer term plans for most stocks are for reduction in fishing mortality rates to increase long term yield, and marketing and processing to add value to products (Scottish Executive 2007)

7.3 Aquaculture/Mariculture

7.3.1 *Current Baseline*

Aquaculture in the form of fish and shell fish farms are important industries in coastal areas of Scotland and have grown over the last 20 years from a relatively small crofter-based industry to a substantial food provider in a world market. In 2006, Scottish production of marine finfish represented >99% of UK culture of marine finfish and shellfish, equating to 150,000 tonnes (Baxter et al 2008). Scottish salmon in particular is perceived internationally as a quality product and its farming is now a significant industry. There are two general types of aquaculture practiced in Scotland involving the culture of:

- Finfish in cages, or land-based tanks with pumped seawater
- Shellfish either on trestles on the seabed, attached to vertical 'dropper' ropes suspended from horizontal longlines or rafts, or grown directly on the seabed without equipment.

Almost all of the fish farms in the region are involved in the production of Atlantic salmon, but 1 in 7 sites farm other marine species. Based on figures from the Scottish Fish Farms Annual Production Survey, 2005, there are 278 marine salmon farms in production (86% of the total number of sites), 35 sites producing halibut or cod (11% of the total), 5 marine sites producing rainbow trout (1.5% of the total number of sites), and 5 sites producing sea trout (also 1.5% of the total).

Virtually all marine finfish production takes place in the inshore waters of the west coast and islands, where the most favourable operational conditions for marine aquaculture are to be found. Shellfish farming shows a similar distribution, though there are relatively few shellfish farms in Shetland and Orkney.

Shellfish species cultivated in Scotland include: common mussels (*Mytilus edulis*), Pacific oyster (*Crassostrea gigas*), Native oyster (*Ostrea edulis*), scallop (King) (*Pecten maximus*) and Queen scallop (*Chlamys opercularis*).

7.3.2 *Future Trends*

Aquaculture is a vitally important industry for Scotland and many communities are sustained by the employment provided, particularly from salmon farming (Baxter et al 2008). In the future, greater emphasis will be placed upon feed composition and efficiency, and due to a finite supply of available inshore sites, if the industry is to expand then operators will be looking at offshore developments (which will be dependant on improved economics, safety and technological development) (Scottish Coastal Forum 2002).

For shellfish, expansion of production is predicted, through a combination of more intensive use of current sites, as well as development of new inshore sites. Expansion of the sector will also include the cultivation of new species, with sea urchins, clams and abalone as the leading candidates along with possible lobster ranching (Scottish Coastal Forum 2002).

A decline in UK and EU wide landings of some favoured demersal white fish species over recent years could see an increase in aquaculture production of these demersal species if UK consumers wish to continue having access to them at reasonable prices (Scottish Coastal Forum 2002).

A review of the Strategic Framework for Scottish Aquaculture (expected to be in place December 2008) should help ensure that the vision of 'a sustainable, diverse, competitive and economically viable aquaculture industry... delivering high quality, healthy food to consumers at home and abroad' is met (Scottish Government 2008).

Although this paints a picture in which aquaculture is seen to increase in coming years, it could be impacted by external factors. For example, in the future, aquaculture could be affected by climate change, although it is thought that it is unlikely to have a significant effect on Scottish mariculture over the next decade. However, the next 50 years could result in noticeable effects.

MCCIP (2008) report that rising water temperatures could increase growth rates for some species (e.g. Atlantic salmon, mussels) but could cause thermal stress for cold-water species (e.g. cod) and intertidal species. Furthermore, farmed species might become more susceptible to a wider variety of diseases as temperatures increase. Increased temperatures and more abundant plankton could also enhance early spawning success and spat fall of cultured shellfish species, to the benefit of the shellfish industry.

7.4 Shipping and Navigation

7.4.1 *Current Baseline*

The waters around Scotland are used extensively by a range of vessels including tankers; fishing, passenger and dry cargo vessels; and 'other' vessels. Some areas recognised as sea lanes for international navigation include the Pentland Firth, North Channel, Fair Isle, Hebrides deep water route, and the Minches. These areas present key areas of high vessel densities, with Pentland Firth, Minches and North Channel also identified as spatially constrained areas.

The Pentland Firth is an extremely busy area for shipping – very high densities occur, particularly in the centre of the channel and between Stromness on Orkney and Thurso on the mainland. There is an important international oil trade in Orkney that generates considerable movements of tanker and supply vessels which use the Pentland Firth. However, very strong tidal streams in the Pentland Firth can represent a hazard to shipping and charts specify that laden tankers from the Orkney area should not use the Pentland Firth in restricted visibility or adverse weather.

7.4.2 *Future Trends*

Tanker trade is expected to increase to and from Russian ports in the coming years. This trade already exists and transshipment from handy size vessels into very large crude oil carriers takes place in the Northern Isles. It is expected that this trade, and also that of oil transiting Scottish waters, will expand. As a result, the waters around Orkney and Shetland will experience an increase in the numbers of tankers. The Hebrides deep water route to the west of the Outer Hebrides can also be expected to see an increase in tanker traffic.

In recent years there has also been a move towards use of larger mainline container vessels, and this is set to continue. Whilst it is unsure how this will affect the waters under consideration, there will be an increase in the number of feeder container vessels which would be likely to increase the number of such vessel movements (SEA Renewables doc). Section 5.3.2 indicates a growth of 3.5% (to 2030) for containerised traffic (MDS Transmodal 2006), so in the future it is likely that the waters around Scotland will be more extensively used for shipping, which could present navigational issues.

8 Other

8.1 Introduction

In addition to the sections above which have provided detailed descriptions of topics under the SEA, this section includes information regarding additional considerations which need to be taken into account for a full picture of baseline conditions. As such, this section looks at coastal processes and sea level rise, providing a high level overview for Scottish waters.

8.2 Coastal Processes

8.2.1 *Current Baseline*

Wind waves arrive in this region from a broad band of directions centred to the west of the study area. Off the west coast of Scotland, these waves are usually fully developed, having travelled over long fetches under some of the windiest waters in the northern hemisphere. Much of the area offshore of the west coast is characterized by an annual mean wave significant height of around 3 m, associated with an annual mean wave power of about 30 kW.m⁻¹. This value doubles in the oceanic waters to the west of the Western Isles, and halves towards the land in the east. By comparison, the wave resource is weak (annual mean significant height around 1 to 2 metres) in sheltered zones such as the North Channel, the Inner Isles, the North coast and the waters between Orkney and mainland Scotland, and the east coast of Scotland.

The Scottish continental shelf is dominated by strong semidiurnal tides of ranges generally reaching 5 m (but up to 7 m in the Solway Firth; down to 2 m off Kintyre). Flows tend to run parallel to the shore but further offshore they may assume some rotatory nature, where there may also be long-lived eddies associated with residual and wind-driven circulations. On the continental shelf, peak spring currents are typically about 1 m.s⁻¹. West of Islay, to the north of the Scottish mainland, and in the Minch are relatively small regions where peak spring currents attain about 2 m.s⁻¹ or more.

The tidal wave propagates clockwise around Scotland, producing semidiurnal differences in water level between different places that drive strong flows and that may be exploited for power generation. These flow effects are most marked in channels such as the Pentland Firth, the Minch between Skye and Harris, the North Channel, various straits between islands, and the entrances to some sea-lochs. In these places currents may reach maximum spring speeds of up to about 4 m.s⁻¹. There is also relatively minor flow intensification around various headlands such as the latitudinal extremities of the Western Isles, Cape Wrath, Rattray Head and others.

Tidal power has significant and prominent regional maxima in the fastest flowing regions, of 5 kW.m⁻² or more to the south-west of Islay in the northern part of the North Channel proper, between Skye and Harris, around Cape Wrath, in the Pentland Firth and in north Orkney. Of these, the Pentland Firth and the North Channel offer the greatest geographic spread of potential tidal energy.

8.2.2 *Future Trends*

The 2007-2008 Annual Report Card from MCCIP (Marine Climate Change Impacts Partnership), reported that 12% of Scotland's coast is currently suffering from erosion. Intertidal profiles have also been steepening, especially on coasts protected by hard engineering structures (which represent 7% of Scotland's coastline). Both coastal erosion and steepening of

intertidal profiles are expected to increase in the future, largely due to the effects of climate change, more specifically because of changes to wave conditions and through sea-level rise. It is, therefore, very difficult to predict future changes to coastal processes in Scotland, especially as coastal response is very much determined by site-specific factors and connectivity between coastal sub-environments (cliff, beach, dune, estuary). For this reason MCCIP suggest that any predictions of coastal response due to climate change will have low confidence, unless detailed studies and long-term coastal change data are available. Future changes to geomorphology, could also be affected by human activities such as land reclamation, the construction of coastal defences, jetties and marinas, as they all impact upon how the coastal system can naturally respond to changes.

In addition, changes to coastal processes are likely to be related to climatic changes. A greater incidence of severe winds and large mean wave heights in western and northern waters are already being observed, and models predict that the number of intense storms and associated increased wave heights will continue in the future (MCCIP, 2008).

Whilst other activities such as development or dredging in the marine environment could impact on coastal processes this is not expected to be significant and any potential impacts would be minimised through environmental assessments required through the consenting and licensing regimes, to ensure that the right technology or development is sited so as to have minimal impact on the marine environment as a whole.

Construction of sea defences could also impact on coastal processes as they affect the natural ability of the environment to cope with external pressures, and often lead to worse conditions further along the coast. For this reason, managed realignment (or managed retreat) could become a more commonly used tool for coastal management in the future, as it reduces the costs of coastal defence whilst offering numerous environmental benefits, allowing a natural response to changing conditions (ThamesWeb 2008).

8.3 Sea Level Rise

8.3.1 *Current Baseline and Future Trends*

Sea level rise, as a result of Global Climate Change, is thought to be due to both the thermal expansion of water and the melting of land glaciers. Global sea levels have risen by between 10 and 20 cm during the 20th century, and like sea temperature, appear to have accelerated since the late 1990s (Rahmstorf et al 2007). Long-term measurements at Aberdeen show a trend over the last 100 years of around 0.7 mm/year (Marine Climate Change Impact Partnership 2008). All other Scottish mainland tide gauges have also recorded a sea-level rise over the same period. In contrast, a tide gauge in Lerwick has recorded a fall in sea level since 1957 (Marine Climate Change Impacts Partnership 2008). Increases in sea-level are offset, in some areas, by the rise in the Scottish land mass which has continued since the melting of the overlying ice sheets at the end of the last ice age. Estimates of current sea-level change for Scotland, adjusted to take account of uplift movements range between 0 mm/yr and > 1 mm/year (Baxter et al 2008).

Understanding past trends can give an indication to future trends and so far, Scotland has seen smaller rates of sea level rise compared to the south of England. MCCIP (2008) reported that tide gauge measurements suggest that during the 20th Century, global average sea level rose by between 1 and 2mm/year. Recent measurements from satellite altimeters (which have better spatial coverage than tide gauges but span a shorter time period) indicate that the rate of rise between 1993 and 2003 was ~3mm/year. MCCIP report that it is unclear whether this is due to natural climate variability or is part of a long-term acceleration in the rate of rise. Recent information from UKCIP, forecasts that the range of relative sea-level rise by 2080 (relative to 1961-1990 mean) is 0-60cm in Scotland (compared to 20-80cm in south-west England), with the largest contribution thought to come from thermal expansion.

More research and monitoring is needed to obtain a better understanding of what is happening and in predicting, with confidence, the likely consequences that climate change will have on the seas around Scotland.

8.4 Air Quality and CO₂ Emissions

8.4.1 *Current Baseline*

No data exists at present for past or current Scottish levels of emissions from activities associated with the marine environment.

The major contributors to marine and coastal CO₂ emissions are likely to be the navigation and oil and gas industries however no specific data exists for Scottish waters. The UK parliament's Environmental Audit Committee have stated that "According to recent reports, annual global CO₂ emissions from shipping are 1.2 gigatonnes, 4.5% of the total global output of CO₂, three times higher than previously thought and twice the amount attributed to aviation. Shipping is also a source of fine particulates, Nitrogen Oxides (NO_x) and Sulphur Oxides (SO_x). However, shipping reduces the need for land based transport for certain types of freight.

8.4.2 *Future Trends*

No specific data has been identified for trends in Scottish waters. Globally and within the EU shipping is expected to increase and as a result emissions of CO₂, fine particulates, NO_x, SO_x from ships will increase.

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Appendix C: Summary of Scotland's Seas Report and Key Issues

Introduction

The main focus of this SEA is to assess how changes to the current management and protection of Scotland's seas introduced through the Marine Bill would affect existing and future marine activities and sea user groups and how they interact with the marine environment.

As discussed in Chapter 5 this Scoping Report does not include a detailed discussion of all of relevant baseline data as it was considered to be more appropriate to focus on the approach to the SEA rather than to reproduce large quantities of baseline data which has only recently (April 2008) been issued in the comprehensive Scotland's Sea report. However, to enable us to carry out the assessment there does need to be a general understanding as to the current status of the marine environment and to identify key issues for consideration with regard to the potential effects of the Scottish Marine Bill. The following review of key issues is therefore based upon a review of the baseline information referred to in Chapter 5 and comprises four key factors:

- Current state of the environment (e.g. water quality, biodiversity etc at the present time)
- Targets for and indicators of the future state of the environment e.g. good ecological status
- Current marine activities and how they affect the environment now and in the future
- Current legislative and consenting (reserved and devolved matters)

The following provides a brief summary of the key issues relating to each of the above factors.

Current State of the Environment

The Scottish Government, based on advice from AGMACS has developed a vision for the State of Scotland's seas. The vision is for Scotland's seas to be 'clean, healthy, safe, productive and biologically diverse' and to be 'managed to meet the long term needs of nature and people'. As identified in the previous chapter, this vision forms the basis of the recently published report into the state of Scotland's seas 'Scotland's Seas: Towards Understanding their State'.

This report establishes a current 'baseline' from which progress towards achieving the Scottish Government's vision can be measured. The report, issued in April 2008, was produced by the FRS (Fisheries Research Services), SEPA (Scottish Environment Protection Agency) and SNH (Scottish Natural Heritage). The report is described as an interim report which will be followed by a more comprehensive review, the State of Scotland's Sea which will be published in 2010.

The text below provides an overview of the current state of the environment based on information presented within the 'Scotland's Seas: Towards Understanding their State' report. However, it must be recognised that this is only a 'snap shot' of the current state of the marine environment and that it is subject to continual change, both natural and man made, positive and negative. The current state of the marine environment may therefore not be its 'preferred' state, and in some cases intervention e.g. coastal and marine policy and legislation (Scottish Marine Bill) may be required to enable the Scottish Government to realise its vision for Scotland's seas.

Physical Characteristics

Scotland has a unique and diverse coastline. The west coast is characterised by narrow deep sea lochs and a series of surrounding islands with steep cliffs and small bays shaped by strong winds and harsh seas. The east coast is generally more sheltered with shallow bay, estuaries and long sandy beaches.

The seas around Scotland vary in depth from the shallower waters of the continental shelf where water depths generally do not exceed 250m, to the deeper (approximately 2000m) offshore waters associated with the deep ocean channels that form the north western edge of the continental shelf.

The climate in Scotland is strongly influenced by two forces, atmospheric pressures and ocean currents. At present air flows in a predominantly north east direction across the UK between an area of high pressure which sits Azores off the west coast of Africa, to an area of low pressure situated in the north above Iceland. The movement air is generally accompanied by stream of smaller, secondary depressions (low pressure) which tend to travel north along the west coast of the UK leading to the characteristically mild and wet climate of these areas.

Scotland's climate is also influenced by the north Atlantic current, often referred to as the Gulf Stream bringing milder conditions to the shores of Scotland. A second current known as the Slope Current flows in a poleward direction along the edge of the continental slope. This current is a source of nutrients, heat and plankton to the waters which around Scotland.

The sea temperatures around Scotland are affected by both local climatic factors and currents, on average winter temperatures are higher on the west coast of than the east due to presence of the north Atlantic current and summer temperatures visa versa as the east coast tends to have shallower waters which heat up quicker than those on the west. The salinity of the ocean varies depending on the amount of freshwater runoff from land and rivers in coastal areas and the balance between evaporation and precipitation in the open ocean.

The tidal range around the coast of Scotland is generally between 4 and 5m. However, some areas can experience a mean spring tidal range between 7 and 8m. Some tidal surges occur due to storms. However, these are mainly limited to the east coast.

The most exposed part of the Scottish coastline is the north and the west around the Hebrides, Orkney and Shetland. The east coast tends to be more sheltered however these areas can also experience larger waves especially in the autumn and winter.

The turbidity of the water in the Scottish seas is highest around coastal areas due to runoff from the land bringing with it nutrients and sediment and where waves and currents are strong enough to re-suspend the bottom sediments.

The seabed around the coast of Scotland is varied ranging from mud to rock. Currently information is limited and a better knowledge of seabed sediments particularly for offshore areas is required in order to effectively map ecosystems and plan for future developments. However, through the development of new techniques more detailed information is becoming increasingly available.

As well as improving the knowledge base there is also a need to link physical, chemical and biological processes through the development of models in order to build a complete picture of Scottish marine environment.

Clean and Safe Seas

This section of the Scotland's Seas report focuses on water quality, primarily in relation to the chemical, eutrophic, bacteriological and litter status. The key consideration in terms of water quality is the effect that contaminants and pollutants have on marine life and the indirect effects on human health through bioaccumulation in shellfish and fin fish. Most marine pollutants and contaminants are derived from terrestrial activities and include:

- Industrial discharges: metals, toxic substances, chemicals, persistent organic compounds e.g. PCB's
- Effluent: organic waste, bacteria
- Agricultural runoff: fertiliser and plant nutrients (nitrogen and phosphorous), organic waste, bacteria, silt
- Radioactive wastes
- Heat from industrial processes and power stations

Marine derived pollutants and contaminants include:

- Discharge from aquaculture: organic wastes, bacteria
- Siltation: dredging, disposal of dredge soil, cables and pipelines
- Oil and other hazardous substances from oil terminals, spills and leaks from ships
- Marine noise from marine activities e.g. piling

There has been a significant increase in the amount of work that has been carried to maintain and improve the cleanliness of the seas. This is mainly as a result of the introduction of many pieces of legislation and conventions including for example the Shellfish Waters Directive and Bathing Water Directive. Most recently the Marine Strategic Framework Directive (MSFD) adds to this by introducing the concept of achieving good environmental status (GES)⁴.

The main improvements in water quality as identified in the Scotland Seas report relates to the reduced levels of contaminants in estuarine sediments because regulation has led to declines in the discharge of metals and organic pollutants from rivers⁴.

However, there are still some historically polluted areas that remain, and there are also current concerns over the number of synthetic substances that are entering the food chain and marine litter which continues to be a problem on a number of Scotland's beaches⁴.

Evidence also suggests that although the levels of nitrogen entering the sea from agriculture have not declined the effects of these appear to be limited to local effects in some of the smaller east coast river estuaries⁴. The causes of toxic algal blooms, which affect shellfisheries and other marine wildlife, are still being investigated but there is little evidence that they are caused by pollution. Improvements sewage treatment and the location of discharges have greatly reduced the bacterial contamination of beaches in the past 10 years although again runoff from diffuse agriculture and urban sources needs more management⁴. Radioactive discharges, marine noise, and discharges of warm water also have some localised effects⁴.

Healthy and Biologically Diverse Seas

In terms of healthy and biologically diverse seas, the concept of good ecological status (GES) is underpinned by marine ecosystem health. Ecosystems are communities of plants and animals that interact with each other and their environment. Healthy ecosystems have strong resilience making them able to withstand disturbance e.g. storms, pollution, harvesting without losing structure or the ability to function⁴. Healthy ecosystems are also able to adapt to evolutionary change e.g. readily filling the space/niche of declining or extinct species with new species⁴.

There are a number of threats to the health of an ecosystem. These include:

- Build up of waste materials and the proliferation of simpler forms that thrive on it
- Loss of keystone species due to predation, climate change, food scarcity or disease leading to an unbalance in relationships
- Bioinvaders
- Loss of biological diversity

There are a number of measures of ecosystem health. These are detailed in section 6.3 below and relate in principal to⁴:

- Biological diversity (natura sites (SACs and SPAs) and other protected habitats)
- Plankton (warm and cold water species)
- Phytoplankton and zooplankton
- Habitats and benthos
- Non-native species
- Fish
- Commercially exploited fish
- Marine mammals
- Seabirds

⁴ Scotland's Sea: Towards Understanding their State, April 2008, FRS, SEPA and SNH

A detailed description of the key components of marine ecosystems listed above is provided in the Scotland's Seas report. More detail will be provided in the SEA Environmental Report.

Scotland has some of the finest and biologically diverse marine habitats in Europe. There are about 6,500 species of plant and animal, increasing to 40,000 if microbial flora are included. To date 34 Special Areas of Conservation (SACs) have been designated in Scotland's seas covering seven different habitat types (56 features) and three species. A recent assessment showed that 97% of features surveyed within these sites were in a favourable condition⁴.

Further protection has been provided to those sites found not to be in a favourable condition but it may take many decades, even centuries for these to recover fully⁴. There are also significant limitations in our knowledge on the habitats and species within Scottish seas due to the relative inaccessibility of the marine environment for surveying. There is concern that within increasing pressure on marine resources and space that some of the most fragile communities may be damaged or lost before they are even discovered⁴.

Productive Seas

Scotland's seas support a wide range of activities most of which have an economic value and contribute towards employment within Scotland. The value of these marine activities to the Scottish economy is around £2.2 billion (Gross Value Added) which is 2.6% of the total Scottish GVA and supports 50,000 employees. However, some of these activities do have impacts on the marine environment. Consequently the Scottish Government recognises the importance of ensuring that the use of Scotland's seas, whilst maximising productivity, is also sustainable.

A summary of the main marine activities is presented in Table Appendix C.1 below:

Table Appendix C.1: Marine Activities

Activities	Summary
Marine fisheries	<p>Fishing is a traditional activity employing approximately 5000 people Main commercial fish include:</p> <ul style="list-style-type: none"> ▪ Cod ▪ Haddock ▪ Monkfish ▪ Herring ▪ Mackerel ▪ Nephrops ▪ Scallops <p>Main threats to commercial fishing include:</p> <ul style="list-style-type: none"> ▪ Climate change (changes in plankton communities, introduction of different fish species, reduced favourability of conditions for traditional species e.g. fish) ▪ Anthropogenic effects (permanent structures, dumping at sea, oil and chemical spillages and fisheries themselves)
Coastal salmon fishing	<p>Due to restrictions on techniques applied to coastal salmon fishing following the introduction of the Salmon and Freshwater Fisheries (Consolidation) Scotland Act 2003, and its seasonal nature, coastal salmon fishing effort is only 10% of that in 1952. Only the most productive fisheries remain in operation.</p>
Aquaculture (fin fish and shellfish)	<p>Scottish production of marine fin fish and shellfish represented >99% of UK culture. Production is dominated by Atlantic Salmon for which Scotland is the largest producer in the EU and third in the world. This is followed by rainbow trout Main shellfish include Pacific oyster, native oyster, common mussel, scallop and queen scallop. Aquaculture is a vital industry to Scotland and supports many communities particularly salmon farming Shellfish are at risk of contamination from toxic phytoplankton</p>

Activities	Summary
Oil and gas	<p>Oil and gas provides approximately 145,000 jobs (43% UK total for oil and gas)</p> <p>In 2006 the UK continental shelf provided 70 million tonnes of oil and 84 cubic meters of natural gas</p> <p>Main platforms are beyond territorial waters except Beatrice in the outer Moray Firth</p> <p>Industry supported by significant infrastructure across Scotland including export facilities at Sullom Voe (Shetland), Flotta (Scapa Flow Orkney), St Fergus, and Cruden Bay, key bases at Aberdeen, Peterhead and Lerwick and onshore oil, gas and chemical refineries at Grangemouth, Kinneil, St Fergus and Mossmorran.</p>
Ports and harbours	<p>There are more than 100 ports in Scotland</p> <p>11 are classed by the Department for Transport under the EC Maritime Statistics Directive as major ports (generally because they handled more than 1 million tonnes (MT) of cargo in 2001).</p> <p>Total cargo handled from Scottish ports in 2006 was 101.5 MT</p> <p>Main cargo includes: crude oil, oil products, coal, other dry bulk and liquefied gas.</p> <p>Passenger transport is also important for travel both internally (8.1 million passengers in 2006) and externally (2 million to Ireland and 112,000 to Belgium)</p>
Leisure and recreation	<p>Scottish leisure industry contributes £98.9 million (revenue) and £35.3 million (AV) to Scotland's economy and generates employment for 1,800 people.</p> <p>Key recreational and tourist activities include:</p> <ul style="list-style-type: none"> ▪ Sailing ▪ Recreational diving ▪ Walking (coastal scenery)
Historic heritage	<p>Very important submerged landscapes</p> <p>Also very important ship and aircraft wrecks</p> <p>Both important historically records of previous activities and historic natural heritage. These are now a valued recreation and education resource.</p> <p>Some remains are at risk from other activities e.g. construction projects, cable laying, salvage, dredging and fishing as well as natural forces e.g. increased storminess and changes in water temperature and salinity</p>
Renewable energy	<p>Scotland's seas have been identified as having significant potential for renewable energy including offshore wind, wave and tidal power.</p> <p>Harnessing this power will assist the Scottish Government in achieving its target for 50% of all Scotland's electricity to come from renewable sources by 2020</p>
Aggregate extraction	<p>Aggregate extraction is the extraction of sand and gravel from the seabed for concrete or land reclamation projects.</p> <p>There are two licensed abstraction areas in Scotland, one in the Firth of Forth and one in the Firth of Tay. Activity from these extraction areas is low.</p>

Targets for and Indicators of Future Environmental Quality

Scotland's waters are subject to a number of global, European and domestic (Scotland and UK) obligations and legislation that focus on current and future environmental quality. Based on the 'Scotland's Seas: Towards Understanding their State' report the key obligations and legislation are summarised in Table Appendix C.2 below.

Table Appendix C.2: Key Obligations and Legislation relating to Future Environmental Quality

Obligation/Legislation	Summary
World Summit on Sustainable Development (WSSD)	<ul style="list-style-type: none"> ▪ Sets challenging targets and goals for Governments ▪ For oceans these are to promote integrated sustainable management of oceans at all levels in order to help maintain the productivity and biodiversity of marine and coastal areas and help to secure a significant reduction in biodiversity decline by 2010. ▪ This will be achieved through the introduction of policies, measures and tools such as the ecosystem approach, marine protected areas and the incorporation of coastal interests in watershed management.
1992 OSPAR Convention for the Protection of the Marine Environment	<ul style="list-style-type: none"> ▪ Rationalisation of the 1972 Oslo (Convention for the Prevention of Marine Pollution by Dumping from Ships and Aircraft) and the 1974 Paris (Convention for the prevention of Marine Pollution from Land Based Sources) ▪ Requires the application by Contracting Parties of the precautionary principal, the polluter pays principal, best available techniques and best environmental practice ▪ Requirements to determine pollution loads to the Marine Environment are embodied in the Water Framework Directive (WFD) ▪ The WFD has been implemented in Scotland through the Water Environment and Water Services Act 2003 and subsequent Controlled Activities Regulations 2005 ▪ Key element is its Joint Assessment and Monitoring Programme (JAMP) which coordinates three national environmental monitoring programmes for the atmosphere and riverine inputs and discharges ▪ To meet its objective of protecting the North-East Atlantic, the OSPAR convention has adopted several long term strategies relating to: <ul style="list-style-type: none"> ▪ Hazardous substances ▪ Radioactive substances ▪ Eutrophication ▪ Protection of Ecosystems and biological diversity ▪ Environmental goals and management mechanisms for offshore activities ▪ In 2000 OSPAR published its first comprehensive Quality Status Report (QSR) on the quality of the marine environment of the North-East Atlantic. Supported by five reports that will be updated in 2010
European Integrated Maritime Policy 2007	<ul style="list-style-type: none"> ▪ Aims to deliver a sustainable development approach for Europe's oceans and seas ▪ Includes: <ul style="list-style-type: none"> ▪ A comprehensive maritime transport strategy and new ports policy ▪ A European Strategy for Marine Research ▪ A European Marine Observation and Data Network ▪ A Strategy to mitigate the effects of climate change on coastal regions ▪ The MSFD provides the environmental pillar of the sustainable development approach
European Marine Strategy Framework Directive (MSFD)	<ul style="list-style-type: none"> ▪ Issued on the 17th June 2008, the MSFD sets out the most recent marine legal obligation ▪ The MSFD basically extends the requirements of the WFD into seas beyond the current WFD limit (1nm) ▪ The MSFD requires Member States to 'take the necessary measures to achieve or maintain good environmental status in the marine environment by the year 2020 at the latest' ▪ There are a number of steps required for this to be achieved these include: <ul style="list-style-type: none"> ▪ Initial assessment of current environmental status of waters and environmental impact of human activities by 2012 ▪ Determine what constitutes 'good environmental status' (GES) ▪ Develop environmental targets and indicators by 2012 ▪ Implementation of a monitoring programme by 2014 ▪ Programme of measures (management actions) developed by 2015 and implemented by 2016 ▪ OSPAR regional seas convention is promoted as the mechanism by which member states cooperate to achieve good environmental status ▪ The MSFD details a number of qualitative descriptors that will be used for determining GES

The MSFD sets out a number of qualitative descriptors that will be used for determining good environmental status (GES). Table Appendix C.3 presents key GES descriptors that have been identified in the context of the Scottish Governments vision for the seas for a marine environment which is '*clean, healthy, safe, productive and biologically diverse.....managed to meet the long term needs of the nature and people*'⁴.

Table Appendix C.3: MSFD Qualitative GES Descriptors

GES Descriptor	Description
Clean and Safe Seas	
GES Descriptor 5	Human-induced eutrophication is minimised, especially adverse effects thereof, such as losses in biodiversity, ecosystem degradation, harmful algae blooms and oxygen deficiency in bottom waters
GES Descriptor 8	Concentrations of contaminants are at levels not giving rise to pollution effects
GES Descriptor 9	Contaminants in fish and other seafood for human consumption do not exceed levels established by Community legislation or other relevant standards
GES Descriptor 10	Properties and quantities of marine litter do not cause harm to the coastal and marine environment
GES Descriptor 11	Introduction of energy , including underwater noise, is at levels that do not adversely affect the marine environment
healthy and Biologically Diverse Seas	
GES Descriptor 1	Biological Diversity is maintained. The quality and occurrence of habitats and the distribution and abundance of species are in line with prevailing physiographic, geographic and climatic conditions
GES Descriptor 2	Non-indigenous species introduced by human activities are at levels that do not adversely alter the ecosystems
GES Descriptor 3	Populations of all commercially exploited fish and shellfish are within safe biological limits, exhibiting a population age and size distribution that is indicative of a healthy stock
GES Descriptor 4	All elements of the marine food webs , to the extent that they are known, occur at normal abundance and diversity and levels capable of ensuring the long-term abundance of the species and the retention of their full reproductive capacity
Productive Seas	
GES Descriptor 3	Populations of all commercially exploited fish and shellfish are within safe biological limits, exhibiting a population age and size distribution that is indicative of a healthy stock
GES Descriptor 6	Sea-floor integrity is at a level that ensures that the structure and functions of the ecosystems are safeguarded and benthic ecosystems, in particular, are not adversely affected
GES Descriptor 7	Permanent alteration of hydrographical conditions does not adversely affect marine ecosystems

Source: Scotland's Seas: Towards Understanding their State 2008

In addition to the GES descriptors listed above Annex 2 of the Scotland's Seas report also provides details of the various marine monitoring programmes and data collection surveys that are undertaken by FRS, SEPA and SNH. There is potential that these monitoring programmes and data collection surveys can also be used to assist with the development of indicators and targets for the SEA monitoring programme.

Current Marine Activities and Environmental Effects

This following section identifies the main current marine activities and provides a brief overview of the effects that they are currently having on the environment or may have on the environment in the future due to growth and/or increased pressure for sites/resources due to competition from other marine activities. The current and future main marine activities have been identified as:

- Commercial fishing
- Aquaculture
- Nature based tourism
- Increased recreational use of the seas
- Expanded shipping activities including projected growth of the freight market
- Renewable energy
- Marine conservation - growing understanding of the marine environment and the importance of biodiversity
- Ports and harbours
- *Oil and gas*
- *Telecommunications/electricity cables*

The topics in italics are important marine activities but are reserved issues and are therefore controlled by the UK Government. However, these activities do interact with the other marine activities listed above and therefore need to be considered as part of the SEA.

The effects that these activities currently have on the environment or the potential future effects they may have are summarised in Table Appendix C.4 below.

Table Appendix C.4: Environmental Impacts of Key Marine Activities

Marine Activity	Current and Future Effects
Commercial fishing	<ul style="list-style-type: none"> ■ Unwanted bycatch - juvenile fish, cetaceans, non-commercial species, invertebrates ■ Depletion of commercial stocks ■ Modification of seabed from towing gear ■ Loss/damage of benthic habitat e.g. maerl beds/deep water corals from dredging and trawling ■ Discard of fishing gear at sea ■ Effects of commercial fishing on food webs: <ul style="list-style-type: none"> ➢ Effect of depleted fish stocks on marine mammals and seabirds ➢ Interactions between species
Aquaculture	<ul style="list-style-type: none"> ■ Water and seabed pollution from particulate organic wastes, dissolved nutrients, medicines and antifoulants ■ Loss of benthic habitats ■ Effects on landscape and seascape quality ■ Nutrient enrichment of water (in particular sea lochs) ■ Possible Harmful Algal Blooms (HABs) ■ Risk of infection to wild salmon and sea trout from sea lice ■ Genetic variability of wild populations due to inbreeding with escapees ■ Use of acoustic deterrents to prevent net damage from predators (seals) may also lead to wider exclusion of whales and dolphins
Nature based tourism	<ul style="list-style-type: none"> ■ Raising environmental/biodiversity awareness ■ Monitoring and data capture ■ Infrastructure investment ■ Disturbance of species populations during breeding/moulting/foraging ■ Marine noise

Marine Activity	Current and Future Effects
Recreational use of the sea	<ul style="list-style-type: none"> ▪ Collision risk/navigational safety ▪ Antifouling ▪ Marine noise ▪ Litter ▪ Seabed disturbance and damage
Expanded shipping activities	<ul style="list-style-type: none"> ▪ Air pollution from SO₂ and NO_x ▪ CO₂ emissions ▪ Collision risk/grounding (oil/fuel/hazardous cargo) spillage ▪ Collision risk (marine mammals) ▪ Antifouling ▪ Discharge of ballast water and associated non-native species ▪ Noise ▪ Ship wash affecting intertidal and shallow water habitats ▪ Waste disposal ▪ Dredging (ports and harbours)
Renewable energy	<ul style="list-style-type: none"> ▪ Contributing towards targets/commitments for climate change and reducing CO₂ emissions ▪ Renewable energy supply ▪ Collision risk (marine mammals/sea birds) ▪ Loss of/effects on benthic habitats e.g. smothering ▪ Effects of coastal processes ▪ Exclusion from fishing grounds ▪ Increased navigational risk/collision risk ▪ Seascape/landscape effects ▪ Marine noise effecting marine mammals/fish ▪ Refugia for fish in exclusion zones
Marine conservation	<ul style="list-style-type: none"> ▪ Protection of valuable habitats and species ▪ Increased awareness of the importance of biodiversity ▪ Management and enhancement of important marine habitats/areas ▪ Greater understanding of effects of other activities on protected sites/species and biodiversity e.g. greater awareness of the importance of ecosystems/food webs in supporting fish stocks therefore promoting more sustainable fishing techniques ▪ Mainly terrestrial and coastal protection ▪ Possible restrictions/hold up to development where there is insufficient data/evidence to inform decision making and licensing ▪ Climate change leading to changes in population distributions making designations/protections harder to establish and maintain
Ports and Harbours	<ul style="list-style-type: none"> ▪ Construction of port facilities – seabed, substrate, geomorphological, hydromorphological effects ▪ Damage/disturbance of benthic habitats/other habitats and species ▪ Marine noise – effects on marine species ▪ Landscape and visual ▪ Archaeological effects ▪ Discharge of substances during construction/from ships (accidental) ▪ Disposal of dredged material (risk of presence of contaminants e.g. metals and other chemicals/hazardous substances)
Oil and gas	<ul style="list-style-type: none"> ▪ Seabed and substrate disturbance from construction of offshore facilities and installation of cable and pipelines ▪ Damage/loss of benthic habitats from construction of offshore facilities and installation of cable and pipelines ▪ Marine noise from seismic surveys and drilling ▪ Disposal of water based muds from drill cuttings near to platforms ▪ Discharge of contaminants and pollutants during operation e.g. operational chemicals ▪ Risk of oil spills/discharge ▪ Impacts from construction and operation of onshore facilities e.g. landscape and visual, ecological, archaeology, air quality, noise, etc ▪ Exclusion zone around platforms may assist in creation of substrate for corals and refugia for fish species
Telecommunications/ electricity cables	<ul style="list-style-type: none"> ▪ Seabed/substrate disturbance ▪ Disturbance/damage to benthic habitats ▪ Electro and Magnetic Fields (EMF) and effects on fish/other species ▪ Exclusion from fishing grounds/limits to trawling and dredging activities ▪ Marine noise during installation ▪ Onshore effects from construction of substations etc

Interactions

A number of the marine activities listed above currently or through future growth may interact with other marine activities. It is important to identify where these interactions are likely to occur as they will need to be considered as part of the assessment of the Scottish Marine Bill policy areas, in particular with regard to marine planning. Further detail on the likely effects of these interactions on the environment are presented in the Environmental Report.

The main interactions are listed below in Table Appendix C.5.

Table Appendix C.5: Marine Activity Interactions

Marine Activity	Interactions (Other Marine Activities)
Commercial fishing	<ul style="list-style-type: none"> ▪ Renewables – competition for space ▪ Marine conservation – conflict between nature conservation objectives and fishing requirements ▪ Telecommunications/electricity cables – exclusion from fishing grounds ▪ Oil and gas – exclusion from fishing grounds ▪ Natural changes – climate affecting fish species/plankton
Aquaculture	<ul style="list-style-type: none"> ▪ Recreation and tourism – competition for space with water sports and sailing ▪ Renewables – competition for space (offshore)
Nature based tourism	<ul style="list-style-type: none"> ▪ Natural changes – climate change affecting species distribution
Recreational use of the sea	<ul style="list-style-type: none"> ▪ Renewables and aquaculture – competition for space/effects on amenity value
Expanded shipping activities	<ul style="list-style-type: none"> ▪ Renewables and aquaculture – navigation obstacles
Renewable energy	<ul style="list-style-type: none"> ▪ Commercial fishing ▪ Aquaculture ▪ Shipping and navigation ▪ Recreational uses of the sea ▪ Marine conservation
Marine conservation	<ul style="list-style-type: none"> ▪ Commercial fishing – displacement of fishing activities ▪ Renewables – conflict between nature conservation objectives and renewables requirements
Ports and Harbours	<ul style="list-style-type: none"> ▪ No key interactions
Oil and gas	<ul style="list-style-type: none"> ▪ Commercial fishing exclusion from fishing grounds (pipelines)
Telecommunications/electricity cables	<ul style="list-style-type: none"> ▪ Commercial fishing – exclusion for fishing grounds

Legislation

At present activities within the Scottish seas are regulated by more than 80 pieces of legislation and three different parliaments. The key obligations and legislation for the marine environment are summarised in Appendix D.

Appendix D: Relevant Plans Programmes, Policies and Environmental Objectives

Plans, Programmes Strategies and Environmental Objectives Relevant to the Proposed Scottish Marine Bill

Regulatory Instrument	Summary and Key Environmental Protection Objectives	Considerations Relevant to the Marine Bill
1. International		
<p>International environmental law includes a large number of agreements, covering terrestrial, marine and atmospheric pollution, and the protection of wildlife and biodiversity. Key developments which set the framework, are (i) the 1972 United Nations Convention on the Human Environment 1972 (UNCHE), resulting in the Stockholm Declaration and the creation of the environmental agency known as UNEP; (ii) the 1987 Brundtland Report, which established the concept of environmental sustainability; and (iii) the 1992 Rio conference (also known as the Earth Summit), which led to the adoption of several important legally binding environmental treaties including the 1992 UN Framework Convention on Climate Change and the 1992 Convention on Biological Diversity. In addition to these the parties adopted a non-binding Declaration on Environment and Development (referred to as the Rio Declaration) and, Agenda 21, providing a guide to the implementation of treaties agreed at the Summit and a guide to the principles of sustainable development. A further meeting in 2002, known as the World Summit on Sustainable Development (WSSD) provided a renewed emphasis on the synergies between combatting poverty and the environment.</p> <p>The Marine Bill's consultation document <i>Sustainable Seas for All</i> (July 2008) sets out the Scottish Parliament's support for the Scottish Government in its proposal for the Bill and refers specifically to introducing legislation "sufficient to meet Scotland's international obligations under the Oslo Paris Convention and World Summit on sustainable Development". These two regulatory measures and other key items of international law relevant to the proposed Bill are summarised below. With the level of detail currently available it is possible only to indicate where international commitments will need to be taken into account, generically. At this stage, environmental issues can be identified, but not regulatory measures.</p> <p>Scotland's responsibilities for complying with international conventions, treaties, protocols and other agreements principally come through UK and EC signature and ratification and then national (ie devolved or reserved implementation through national legislation, policies and commitments). These are</p> <p>Key considerations are set out below.</p>		
1.1 General Marine/Coastal Protection Measures		
<p>Convention for the Protection of the Marine Environment of the North-East Atlantic (the OSPAR Convention 1992)</p> <p>and</p> <p>OSPAR Decisions and Recommendations</p>	<p>OSPAR is the current instrument guiding international cooperation on the protection of the marine environment of the North-East Atlantic. It combined and up-dated the 1972 Oslo Convention on dumping waste at sea and the 1974 Paris Convention on land-based sources of marine pollution.</p> <p>The Convention requires that Contracting Parties shall 'take all possible steps to prevent and eliminate pollution and shall take the necessary measures to protect the maritime area against the adverse effects of human activities so as to safeguard health and to conserve marine ecosystems, and, when practicable, restore marine areas which have been adversely affected'.</p>	<p>The need to meet Scotland's obligations under OSPAR is specifically referred to in the Motion agreed by the Scottish Parliament on the 20th March 2008, relating to the Marine Bill and is acknowledged in the Scottish Government's consultation document (July 2008).</p> <p>All OSPAR commitments will need to be taken into account including those written into UK and Scottish legislation, including: prevention and elimination of pollution; protection and conservation of ecosystems and biodiversity; carbon capture and storage (CCS); use of organic-phase drilling fluids (OPF) and discharge of OPF-contaminated cuttings; use and discharge of offshore chemicals; management of produced water; Marine Protected Areas (MPAs); operators' Environmental Management Systems (EMSs); decommissioning and disposal of disused offshore installations;</p>

Regulatory Instrument	Summary and Key Environmental Protection Objectives	Considerations Relevant to the Marine Bill
	<p>The OSPAR Convention achieves this goal through an Action Plan and by implementing 6 strategies on: protection and conservation of marine biodiversity and ecosystems; eutrophication; hazardous substances; offshore oil and gas industry; radioactive substances; and monitoring and assessment.</p> <p>There are currently five annexes to the Convention in force, covering: prevention and elimination of pollution from land-based sources, dumping or incineration and off-shore sources; assessment of the quality of the marine environment; and, protection and conservation of the ecosystem and biological diversity of the maritime area.</p> <p>Several Decisions and Recommendations have been issued under the OSPAR Convention, and implemented via UK national legislation.</p>	<p>offshore cuttings piles; and, monitoring and assessment.</p>
<p>World Summit on Sustainable Development (WSSD) (Johannesburg Summit 2002)</p>	<p>The World Summit on Sustainable Development (WSSD) reaffirmed full implementation of Agenda 21 and Commitments to principles of the 1992 Earth Summit in Rio, including improving people's lives and conserving natural resources.</p> <p>One of the targets is to "integrate the principles of sustainable development into country policies and programmes and reverse the loss of environmental resources".</p>	<p>The need to meet Scotland's obligations under the WSSD is specifically referred to in the Motion agreed by the Scottish Parliament on the 20th March 2008, relating to the Marine Bill and is acknowledged in the Scottish Government's consultation document (July 2008).</p> <p>The UK's commitments to sustainable development are set out in its strategy <i>Securing the Future - UK Government sustainable development strategy</i> (2005). Scotland has also published its own strategy: <i>Choosing our future: Scotland's sustainable development strategy</i>.</p> <p>UK's international priorities for sustainable development primarily arising from the WSSD include fisheries, marine issues, biodiversity and chemicals.</p>
<p>IMO International Convention for the Prevention of Pollution from Ships 1973 (MARPOL)</p>	<p>Aims to prevent marine pollution from ships and in part from oil rigs and production platforms. It includes six annexes covering pollution by oil, noxious liquids carried in bulk, harmful substances in packaged form, sewage, garbage and air pollution.</p>	<p>Not specifically referred to in the Marine Bill consultation document, but commitments will need to be taken into account.</p>

Regulatory Instrument	Summary and Key Environmental Protection Objectives	Considerations Relevant to the Marine Bill
UN Convention on the Law of the Sea 1982 (UNCLOS)	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.	Not specifically referred to in the Marine Bill consultation document, but commitments will need to be taken into account.
International Convention on Oil Pollution Preparedness, Response and Co-operation, 1990 (OPRC)	Provides a framework for international co-operation in combating major incidents or threats of marine pollution.	Not specifically referred to in the Marine Bill consultation document, but commitments will need to be taken into account.
London Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter 1972 (as amended)	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.	Not specifically referred to in the Marine Bill consultation document, but commitments will need to be taken into account.
1.2 Shipping		
International Convention for the Control and Management of Ships' Ballast Water and Sediments (IMO 2003). Not yet in force.	Aims to prevent, minimise and ultimately eliminate the transfer of harmful aquatic organisms and pathogens through the control and management of ships' ballast water and sediments.	Not specifically referred to in the Marine Bill consultation document, but commitments will need to be taken into account.
Convention on the Control of Anti-Fouling Systems on Ships 2001	Sets out controls for the prohibition, and/or restriction, of the use of harmful anti-fouling systems on ships that enter a port, shipyard or offshore terminal.	Not specifically referred to in the Marine Bill consultation document, but commitments will need to be taken into account.
1.3 Air Quality		
UN Framework Convention on Climate Change 1994 (UNFCCC) and Kyoto Protocol 1997	The major feature of the Kyoto Protocol is that it sets binding targets for 37 industrialised countries and the European Community for reducing greenhouse gas emissions. Whilst the Convention encouraged reduction, the Protocol commits signatories to do so.	Not specifically referred to in the Marine Bill consultation document, but commitments will need to be taken into account.
Geneva Convention on Long-Range Transboundary Air Pollution 1979	Provides a framework for controlling and reducing environmental damage caused by transboundary air pollution. Covers pollutants including persistent organic pollutants, heavy metals, sulphur, VOCs and nitrogen oxides.	Not specifically referred to in the Marine Bill consultation document, but commitments will need to be taken into account.

Regulatory Instrument	Summary and Key Environmental Protection Objectives	Considerations Relevant to the Marine Bill
Vienna Convention for the Protection of the Ozone Layer 1985 and Montreal Protocol 1987	Provides for the phase-out of chemicals (including CFCs and halons) with a capacity for causing damage to the atmospheric ozone layer.	Not specifically referred to in the Marine Bill consultation document, but commitments will need to be taken into account.
1.4 EIA/SEA		
Convention on Environmental Impact Assessment in a Transboundary Context 1991 (Espoo EIA Convention) and Protocol on Strategic Environmental Assessment 1993	Aims to protect the environment through notification and consultation on proposals for major projects that might have adverse environmental impact across national borders. The Espoo Convention is a key step to bringing together all stakeholders to prevent environmental damage before it occurs. The Convention entered into force in 1997. The SEA Protocol will augment the Espoo Convention by ensuring that individual Parties integrate environmental assessment into their plans and programmes at the earliest stages – so helping to lay the groundwork for sustainable development. The Protocol also provides for extensive public participation in the governmental decision-making process.	Not specifically referred to in the Marine Bill consultation document, but commitments will need to be taken into account.
Aarhus Convention 1998	Grants the public rights and imposes obligations on Parties and public authorities regarding access to information and public participation, and access to justice.	The proposal for a Scottish Marine Bill is currently out for public consultation. Responses will need to be taken into account, in drafting the Bill. Once a Bill has been drafted, Parliamentary debate will ensue. It is also necessary to refer to the Access to Environmental Information Directive (90313/EC) and UK implementation.
1.5 Nature Conservation		
Ramsar Convention on wetlands of international importance especially as waterfowl habitat 1971 (as amended in 1982)	Provides a framework for national action and international co-operation for the conservation and wise use of wetlands and their resources.	Not specifically referred to in the Marine Bill consultation document, but commitments will need to be taken into account. The coasts and seas around Scotland include Ramsar sites.
Bern Convention on the Conservation of European Wildlife	Aims to conserve wild flora, fauna and their natural habitat; to promote co-operation between states; and, to give particular	Not specifically referred to in the Marine Bill consultation document, but commitments will need to be taken into account.

Regulatory Instrument	Summary and Key Environmental Protection Objectives	Considerations Relevant to the Marine Bill
and Natural Habitats 1979	emphasis to endangered and vulnerable species.	
Bonn Convention on the Conservation on the Conservation of Migratory Species of Wild Animals 1979	Aims to conserve terrestrial, marine and avian species through international co-operation	Not specifically referred to in the Marine Bill consultation document, but commitments will need to be taken into account.
UN Convention on Biological Diversity 1992 (CBD) and the Jakarta Mandate on Marine and Coastal Biological Diversity 1995 (updated in 2004)	In April 2002, Parties to the Convention committed themselves to achieve by 2010 a significant reduction in the current rate of biodiversity loss at the global, regional and national level as a contribution to poverty alleviation and to the benefit of all life on Earth. This target was subsequently endorsed by the World Summit on Sustainable Development and the United Nations General Assembly and was incorporated as a new target under the Millennium Development Goals. The Jakarta Mandate is a global consensus on the importance of marine and coastal biological diversity and is a part of the Ministerial Statement on the implementation of the CBD.	Not specifically referred to in the Marine Bill consultation document, but commitments will need to be taken into account.
Convention on International Trade in Endangered Species of Wild Fauna and Flora 1975 (CITES)	Aims to ensure that international trade in wild animals and plants does not threaten their survival.	Not specifically referred to in the Marine Bill consultation document, but commitments will need to be taken into account.
International Plan of Action for Reducing Incidental Catch of Seabirds in Longline Fisheries 1998	The objective of the IPOA-SEABIRDS is to reduce the incidental catch of seabirds in longline fisheries where this occurs.	Not specifically referred to in the Marine Bill consultation document, but commitments will need to be taken into account.
Agreement on the Conservation of Albatrosses and Petrels 2004 (ACAP)	ACAP is a multilateral agreement which seeks to conserve albatrosses and petrels by coordinating international activity to mitigate known threats to albatross and petrel populations.	Not specifically referred to in the Marine Bill consultation document, but commitments will need to be taken into account.
Agreement on the Conservation of African-Eurasian Migratory Waterbirds 1995 (AEWA)	An independent international treaty developed under the auspices of the UNEP/Convention on Migratory Species. The AEWA covers 235 species of birds ecologically dependent on wetlands for at least part of their annual cycle, including many species of divers, grebes, pelicans, cormorants, herons, storks, rails, ibises, spoonbills, flamingos, ducks, swans, geese, cranes, waders, gulls, terns and the	Not specifically referred to in the Marine Bill consultation document, but commitments will need to be taken into account.

<i>Regulatory Instrument</i>	<i>Summary and Key Environmental Protection Objectives</i>	<i>Considerations Relevant to the Marine Bill</i>
	<p>South African penguin.</p> <p>The agreement covers 119 countries from Europe, parts of Asia and Canada, the Middle East and Africa. Parties to the Agreement are called upon to engage in a wide range of conservation actions which are described in a comprehensive Action Plan. This detailed plan addresses issues including: species and habitat conservation, management of human activities, research and monitoring, education and information, and implementation.</p>	
Agreement on the Conservation of Small Cetaceans of the Baltic, North East Atlantic, Irish and North Seas 1992 (ASCOBANS)	ASCOBANS is an agreement on the protection of small cetaceans. It covers all species of toothed whales in the Agreement Area, with the exception of the sperm whale.	Not specifically referred to in the Marine Bill consultation document, but commitments will need to be taken into account.
1.5 Fisheries		
Convention for the Regulation of Whaling 1946	Aims to establish a system of international regulation for whale fisheries to ensure proper and effective conservation and development of whale stocks, thus making possible the orderly development of the whaling industry.	Not specifically referred to in the Marine Bill consultation document, but commitments will need to be taken into account.
FAO Code of Conduct for Responsible Fisheries 1995	The principal objective of the Code is to establish principles, in accordance with the relevant rules of international law, for responsible fishing and fisheries activities, taking into account all their relevant biological, technological, economic, social, environmental and commercial aspects.	Not specifically referred to in the Marine Bill consultation document, but commitments will need to be taken into account.
UN Agreement on Straddling Fish Stocks and Highly Migratory Fish Stocks 2001	Sets out principles for the conservation and management of specified fish stocks and establishes that such management must be based on the precautionary approach and the best available scientific information. The Agreement elaborates on the fundamental principle, established in UNCLOS, that States should co-operate to ensure conservation and promote the objective of the optimum utilisation of fisheries resources both within and beyond the exclusive economic zone.	Not specifically referred to in the Marine Bill consultation document, but commitments will need to be taken into account.
International Plan of Action for the Conservation and Management of	The objective of the IPOA-SHARKS is to ensure the conservation and management of sharks and their long-term	Not specifically referred to in the Marine Bill consultation document, but commitments will need to be taken into account.

<i>Regulatory Instrument</i>	<i>Summary and Key Environmental Protection Objectives</i>	<i>Considerations Relevant to the Marine Bill</i>
Sharks 1999	sustainable use.	
1.6 Heritage		
Convention Concerning the Protection of the World Cultural and Natural Heritage 1972	Aims to encourage the identification, protection and preservation of cultural and natural heritage.	Not specifically referred to in the Marine Bill consultation document, but commitments will need to be taken into account.
2 European		
<p>European Community legislation applies to all Member States of the European Union; the UK is one such State. Scotland, through both its devolved powers and those that are reserved, must comply with EC law. The Bill, and resultant legislation must ensure that all commitments for compliance with EC legislation, already made, are retained. It is not yet clear how the Bill will approach existing legislation. It may incorporate provisions that exist in other items of legislation and thereby replace other statutory provisions, or structure itself so that it does not conflict ie new, additional provisions to those already committed to or obligated by, European legislation can be introduced, but none can be rescinded by the Bill. Key EC Directives and policies are set out below. The Marine Bill's consultation document <i>Sustainable Seas for All (July 2008)</i> specifically identifies the European Marine Strategy Framework Directive 2007 (MSFD) as a key policy to be incorporated. Other Directives already transposed into UK/Scottish legislation are also referred to.</p>		
2.1 General Marine/Coastal Protection Measures		
European Marine Strategy Framework Directive 2007 (MSFD) (not yet in force)	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 "take necessary measures to achieve or maintain good environmental status in the marine environment by the year 2020 at the latest". One of the requirements is to establish what constitutes "good environmental status" (GES).	The Scottish Government has identified key GES descriptors in the context of its vision for the seas and a marine environment which is "clean, healthy, safe, productive, and biologically diverse.... managed to meet the long term needs of the nature and people". This is a core strategy to be addressed in the Scottish Marine Bill.
European Integrated Maritime Policy 2007	Aims to deliver a sustainable development approach for Europe's oceans and seas. Its scope includes: a comprehensive marine transport strategy and new ports policy; a European Strategy for Marine Research; a European Marine Observation and Data Network; and, a Strategy to mitigate the effects of climate change on coastal regions.	This is a core policy to be addressed in the Scottish Marine Bill.
Water Framework Directive (2000/60/EC)	The Water Framework Directive became law in Scotland at the end of 2003 through the Water Environment and Water Services (Scotland) Act 2003.	The proposed Marine Bill acknowledges that the proposed marine planning system must integrate with existing statutory planning regimes in and around the marine environment, including River Basin

Regulatory Instrument	Summary and Key Environmental Protection Objectives	Considerations Relevant to the Marine Bill
	<p>The Directive establishes a new legal framework for the protection, improvement and sustainable use of surface waters, transitional waters, coastal waters and groundwater across Europe in order to:</p> <ul style="list-style-type: none"> • Prevent deterioration and enhance status of aquatic ecosystems, including groundwater; • Promote sustainable water use; • Reduce pollution; and • Contribute to the mitigation of floods and droughts. 	<p>Management Planning (RBMP) initiatives under the Water Framework Directive (WFD), Inshore Fisheries Group plans and local authorities' existing planning responsibilities.</p>
Bathing Waters Directive (2006/7/EC)	<p>Will replace the 1976 Directive (76/160/EEC). Aims to protect the public and the environment from faecal pollution in waters used for bathing.</p>	<p>Implemented through UK and Scottish legislation. The Marine Bill is unlikely to involve any amendments, but must be taken into account.</p>
Urban Waste Water Treatment Directive (91/271/EEC)	<p>The Council Directive 91/271/EEC concerning urban waste-water treatment was adopted on 21 May 1991. Its objective is to protect the environment from the adverse effects of urban waste water discharges and discharges from certain industrial sectors and concerns the collection, treatment and discharge of:</p> <ul style="list-style-type: none"> • Domestic waste water • Mixture of waste water • Waste water from certain industrial sectors 	<p>Implemented through UK and Scottish legislation. The Marine Bill is unlikely to involve any amendments, but must be taken into account.</p>
2.2 EIA/SEA		
Assessment of the effects of certain public and private projects on the environment (85/337/EEC) (EIA Directive)	<p>Sets out requirements for carrying out an environmental impact assessment of certain proposed developments.</p>	<p>Implemented through UK and Scottish legislation. The Marine Bill is unlikely to involve any amendments.</p>
Assessment of the effects of certain plans and programmes on the environment (2001/42/EC)	<p>Sets out requirements for carrying out an environmental assessment of certain plans and programmes</p>	<p>Implemented through UK and Scottish legislation. The Marine Bill is unlikely to involve any amendments. The Scottish government is complying with the requirements through development of the Bill.</p>

Regulatory Instrument	Summary and Key Environmental Protection Objectives	Considerations Relevant to the Marine Bill
(SEA Directive)		
Access to Environmental Information Directive (90/313/EC)	Provides for public access to information on the environment, with certain exceptions, including commercial confidentiality.	Consultation with the public and availability of environmental information, following UK legislative provisions and ensuring compliance with EC law, and that with the Aarhus Convention, must be ensured as the Scottish Marine Bill progresses.
2.3 Nature Conservation		
Habitats Directive (92/43/EEC)	Includes action to designate protected areas for habitats and species of European importance and wider protection of particular species.	Implemented through UK and Scottish legislation. The coasts and seas around Scotland include many areas designated as sites important for biodiversity and nature conservation, including Special Areas of Conservation (SACs) and Special Protection Areas (SPAs).
Wild Birds Directive (79/409/EEC)	Includes broadly equivalent provisions for wild birds to those in the Habitats Directive	Implemented through UK and Scottish legislation. The coasts and seas around Scotland include many areas designated as sites important for biodiversity and nature conservation, including Special Protection Areas (SPAs).
Animal Health Directive (2006/88/EC) (came into force on 1 August 2008)	The aim of the Directive is to raise standards of aquaculture health throughout the EU and contain the risk of serious disease, finding the right balance between freedom for enterprise and regulation to control pathogens. 'Aquatic animals' here means fish, molluscs and crustaceans. It does not extend to any other animals.	As a new item of legislation, this has not yet been implemented in the UK, and will need to be taken into account in the Marine Bill.
3 National		
<p>There are two levels of national legislation relevant to Scotland and its proposed Marine Bill. Devolution and the creation of a Scottish Parliament and Scottish Government has provided powers for Scotland to legislate and regulate certain issues that were previously the responsibility of the UK as a whole.</p> <p>In developing the Scottish Marine Bill particular account will need to be taken of the UK Marine Bill, which is further ahead in its development (published in April 2008).</p> <p>As an item of Scottish legislation the Bill will be able to repeal, revoke or amend other items of Scottish legislation, providing that this does not compromise international or European agreements and obligations. The Government's consultation document does not currently indicated to the extent to which this is likely to take place, although it is not uncommon for new Acts of Parliament to consolidate and 'tidy-up' legislation that has either become redundant or would be duplicated in the new regime.</p>		

Regulatory Instrument	Summary and Key Environmental Protection Objectives	Considerations Relevant to the Marine Bill
All items of national legislation referred to in Marine Bill's consultation document <i>Sustainable Seas for All</i> (July 2008) are set out below.		
3.1 General Marine/Coastal Protection Measures		
UK Marine Bill 2008	<p>A draft UK Marine Bill was issued in April 2008.</p> <p>The key issues covered were: the creation of a Marine Management Organisation (MMO); planning in the marine area; licensing activities in the marine area; marine nature conservation; managing marine fisheries; reform of inland and migratory fisheries; modernisation and streamlining of enforcement powers; administrative penalties scheme for domestic fisheries offences; and access to coastal land.</p>	<p>The content of this Bill will have to be taken into account in terms of how the proposed Scottish Marine Bill will interact with the UK Marine Bill and likely environmental implications associated with this interaction.</p> <p>Additionally, consideration will need to be given to any further devolved responsibilities that may be obtained by the Scottish Government to extend their geographical limit and the implications of this in a European context.</p> <p>A copy of draft high level objectives for all administrations across the UK is included in the Scottish Marine Bill consultation document.</p>
Coast Protection Act 1949	Part I of the Act provides for flood defences and coastal erosion protection. Part II provides for safety of navigation.	Identified in the Marine Bill consultation document as directly relevant to Scottish territorial waters.
Food & Environment Protection Act 1985	Part I relates to food safety (relevant to polluted waters) and Part II to protection of the marine environment.	Identified in the Marine Bill consultation document as directly relevant to Scottish territorial waters.
Water Environment and Water Services (Scotland) Act 2003 and Water Environment (Controlled Activities) Regulations 2005 (CAR)	<p>The 2003 Act gave Scottish Ministers powers to introduce regulatory controls over activities in order to protect and improve Scotland's water environment, including wetlands, rivers, lochs, transitional waters (estuaries and saline lagoons), coastal waters and groundwater.</p> <p>Activities such as abstraction, impoundment and engineering activities, as well as pollution control are regulated under CAR.</p>	Identified in the Marine Bill consultation document as directly relevant to Scottish territorial waters.
Harbours Act 1964 and Orders	Provides powers to make Orders, the general purpose of which is to amend local harbour legislation and to introduce new harbour legislation.	Identified in the Marine Bill consultation document as directly relevant to Scottish territorial waters.
3.2 Shipping		

Regulatory Instrument	Summary and Key Environmental Protection Objectives	Considerations Relevant to the Marine Bill
Fishing vessel licences	<p>A fishing vessel licence authorises registered fishing vessels to fish in specified sea areas for sea fish.</p> <p>The licence enables UK Fisheries Administrations to control fishing so that the UK does not exceed the quotas set under the EU Common Fisheries Policy. The licence allows Fisheries Administrations to set specific conditions and requirements, such as arrangements for the landings of stocks.</p>	Identified in the Marine Bill consultation document as directly relevant to Scottish territorial waters.
3.3 Waste Management		
Consultation Paper on Potential Legislative Measures to Implement Zero Waste (July 2008)	This consultation seeks views on proposed primary legislation to help implement Zero Waste. None of the proposed measures would take effect until secondary legislation (regulations) is made. There will be full consultation on any such regulations before they are enacted.	Of minor relevance to the Scottish Marine Bill, as it is primarily land based, and relates to landfill. Nevertheless, any environmental consultation is worth tracking for possible conflicts or overlaps.
Implementing the Water Environment and Water Services (Scotland) Act 2003: Development of Environmental Standards and Conditions Limits – Phase II. A Consultation	<p>This document relates to the requirements of the Water Framework Directive (WFD), in terms of ensuring that water use is sustainable the health of aquatic plant and animal communities in Scotland's water environment are protected and improved. As part of this process, environmental standards necessary to secure healthy aquatic ecosystems, are being defined</p> <p>Two related policy statements were issued in 2007. The first of these, "Principles for setting objectives for the River Basin Management Plan", set out our approach to setting environmental objectives for the water environment through the river basin management planning process. The second, "Development of environmental standards and conditions", described the application of environmental standards in helping achieve those objectives.</p>	Development of the Marine Bill will need to take this into account in terms of the Fisheries Research Services ("FRS"), activities in relation to adopting relevant standards and condition limits under the Food and Environment Protection Act 1985 in respect of coastal and transitional waters.
3.4 Climate Change		
Climate Change Agreements (SI 2006/59, SI 2001/622, SI 2006/60, SI 2006/1931)	The climate change levy is a tax on the use of energy in industry, commerce and the public sector, with offsetting cuts in employers' National Insurance Contributions - NICs - and additional support for energy efficiency schemes and	The Bill is unlikely to take have any direct effect on Climate Change legislation. But permitting, and other controls on emissions to atmosphere are relevant to the quality of the marine environment.

Regulatory Instrument	Summary and Key Environmental Protection Objectives	Considerations Relevant to the Marine Bill
	<p>renewable sources of energy. The levy forms a key part of the Government's overall Climate Change Programme.</p> <p>The levy is intended to play a major role in helping the UK to meet its targets for reducing greenhouse gas emissions.</p>	
3.5 Fisheries		
Strategic Framework for Scottish Aquaculture 2003 (SFSA)	<p>The SFSA is based on four guiding principles; economic; environmental; social and stewardship. It is the main policy instrument to deliver a diverse, competitive but sustainable aquaculture industry in Scotland and provides a set of parameters within which industry can balance socio-economic benefits against environmental impact.</p> <p>The SFSA is being renewed in 2008. A three month pre-consultation period has now finished. A full public consultation will be launched in August 2008, with a renewed framework expected to be in place by December 2008.</p>	Consents for aquaculture, health and containment are identified as key issues in the Marine Bill consultation document.
Conservation of Seals Act 1970	Provides for the protection and conservation of seals in and in adjacent territorial seas. The Habitats Directive and the 1994 Regulations introduced additional measures for the protection of seals.	Identified in the Marine Bill consultation document as directly relevant to Scottish territorial waters.
Salmon and Freshwater Fisheries (Consolidation) (Scotland) Act 2003	This Act allows for the Salmon Conservation Regulations to be made where it is considered necessary to do so for the conservation of salmon eg relating to fishing in the sea, estuaries or rivers.	Identified in the Marine Bill consultation document as a key item of legislation relevant to the protection of specific species
3.6 Nature Conservation		
Scottish Biodiversity Strategy 2004	Sets out a 25 year framework for action to conserve and enhance biodiversity for the health, enjoyment and well-being of all the people of Scotland.	Identified in the Marine Bill consultation document as a key strategy relating to marine nature conservation.
UK Biodiversity Action Plan 1994 (UKBAP)	This is the UK Government's response to the Convention on Biological Diversity 1992 (CBD). It describes the UK's biological resources, commits a detailed plan for the protection of these resources. Major reviews of the Priority Species and	Along with the Scottish Biodiversity Strategy, the UKBAP is Identified in the Marine Bill consultation document as a key strategy relating to marine nature conservation.

Regulatory Instrument	Summary and Key Environmental Protection Objectives	Considerations Relevant to the Marine Bill
	Habitats are underway, and the Targets for these priorities are complete.	
Wildlife and Countryside Act 1981 (as amended) and the Nature Conservation (Scotland) Act 2004	Places duties on public bodies in relation to the conservation of biodiversity and increases protection for Sites of Special Scientific Interest (SSSI). Apply out to 12nm around Scotland and include protection measures for marine species. The Scottish Act includes a Biodiversity Duty on public bodies which is supported by the Scottish Biodiversity List i.e. the list of species and habitats considered to be of principal importance for the purpose of biodiversity conservation in Scotland.	Identified in the Marine Bill consultation document as a key measure for nature conservation in the marine environment. It is unlikely that any significant changes would be introduced to this legislation. But its provisions need to be given regard to, particularly in relation to national designations, including, Marine National Parks (MNRs), National Nature Reserves (NNRs) and sites of Special Scientific Interest (SSSIs).
The Conservation (Natural Habitats &c) Regulations 1994 (as amended)	Implement EC legislation within 12nm.	Identified in the Marine Bill consultation document as a key measure for nature conservation in the marine environment.
The Offshore Marine Conservation (Natural Habitats, &c) Regulations 2007 (known as the Offshore Marine Regulations)	Extend protection to important species and habitats under the Wild Birds and Habitats Directives beyond UK territorial waters (i.e. outside 12nm). They give protection to marine species, wild birds and habitats, mainly through the creation of offences and through site protection mechanisms.	Identified in the Marine Bill consultation document as a key measure for nature conservation in the marine environment.
3.7 Heritage		
Protection of Wrecks Act 1973	The 1973 Act provides protection for designated wrecks and for the designation of dangerous sites.	Identified in the Marine Bill consultation document as directly relevant to Scottish territorial waters.
Ancient Monuments and Archaeological Areas Act 1979	Provides for the protection of archaeological heritage.	Identified in the Marine Bill consultation document as directly relevant to Scottish territorial waters.
Planning (Listed Buildings and Conservation Areas) (Scotland) Act 1997	An Act to consolidate certain enactments relating to special controls in respect of buildings and areas of special architectural or historic interest with amendments to give effect to recommendations of the Scottish Law Commission.	Identified in the Marine Bill consultation document as directly relevant to Scottish territorial waters.
3.8 Minerals		

Regulatory Instrument	Summary and Key Environmental Protection Objectives	Considerations Relevant to the Marine Bill
The Environmental Impact Assessment and Natural Habitats (Extraction of Minerals by Marine Dredging) (Scotland) Regulations 2007	Set out requirements for permitting of dredging activities.	Identified in the Marine Bill consultation document as directly relevant to Scottish territorial waters.
3.9 Power Generation		
Electricity Act 1989 and Electricity Act 1989 (Requirement of Consent for Offshore Generating Stations) (Scotland) Order 2002	The Act provides the core legislation for planning consents for the construction and operation of power generating stations. The 2002 Order modifies section 36(2) of the Electricity Act to specify that any generating station constructed in Scottish territorial waters (and wholly or mainly driven by water or wind) with a permitted capacity of 1 megawatt or above requires the consent of the Scottish Ministers. This allows for more control over developments in territorial waters and brings these generating stations within the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2000.	The Act is identified in the Marine Bill consultation document as directly relevant to Scottish territorial waters.
3.10 Telecommunications Cables		
Telecommunications Act 1984	Sets out permitting controls for laying telecommunications cables in the marine environment.	The Act is identified in the Marine Bill consultation document as directly relevant to Scottish territorial waters.

Appendix E: Glossary

Abstraction	Any supply of water taken from the natural environment
Acidification	Refers to reducing the pH of something to make it more acidic. In terms of surface waters and soils, acidification generally refers to the enhanced changes due to the deposition of sulphur and nitrogen species as a result of human activity
Algae	A general term for a group of photosynthetic organisms (microscopic or very large such as seaweeds), which may have bacteria-like cell structures or ones like all other organisms, containing chlorophyll a and a variety of other pigments, giving the organisms a range of characteristic colours
Anthropogenic	Caused by humans (normally deleterious)
Authorised disposal	Disposals (including discharges and emissions) of radioactive waste made from nuclear installations authorised under the Radioactive Substances Act 1993
Baseline	Environmental conditions preceding project (may already be affected by other users)
Bathing Waters	All (water) in which bathing is explicitly authorised, or is not prohibited and is traditionally practiced by a large number of bathers.
Bathymetry	The study of underwater depth (third dimension) of lake beds and seafloors)
Benthic	The bottom or lowest level of a large water body such as an ocean or a lake.
Biodiversity	The richness and complexity of plant and animal communities
Climate Change	A change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is additional to natural climate variability observed over comparable time periods.
Commercial Waste	Waste arising from premises that are used wholly or mainly for trade, business, sport, recreation or entertainment, excluding household and industrial waste (as defined in Environment Protection Act 1990, Section 75)
Construction and demolition (C&D) waste	Arising from construction, repair, maintenance and demolition of buildings and structures. It mostly includes brick, concrete, hardcore, subsoil and top soil, but it can also include quantities of timber, metal and plastic.
Contamination	Addition of a substance, however caused, leading to a change in baseline conditions which is potentially harmful.
Controlled Waste	Household, industrial and commercial waste or any such wastes that require a waste management licence for treatment, transfer or disposal (as defined by Environmental Protection Act 1990, Section 75)
Deposition	The process by which chemical constituents move from the atmosphere to the Earth's surface. These processes include precipitation (wet deposition such as rain or cloud fog) as well as particle and gas deposition (dry deposition).
Diffuse pollution	Pollution arising from land use activities (urban and rural) dispersed across a catchment or sub-catchment, and which does not arise as a result of the discharge of industrial, domestic sewage, deep mine or farm effluent (this is point source pollution)
Ecosystem	Living organisms (species, populations and communities of plants and animals), their physical environment (habitat) and their inter-relationship within a particular system.
Effluent	A discharge of pollutants into the environment, partially or completely treated or in its natural state. Generally used in regard to discharges into

	waters.
Endemic	Species native to, and restricted to, a particular geographical region
Environmental Quality Standards (EQS)	A regulatory value defining the maximum concentration of a potentially toxic substance which can be allowed in an environmental compartment, usually air or water, over a defined period. It can also be used to establish the allowable minimum concentration for necessary substances such as dissolved oxygen in water.
Erosion	Erosion consists in the removal of soil or rocks by water or wind. It is a natural phenomenon but can be accelerated by human activities.
Eutrophication	The enrichment by nutrients especially compounds of nitrogen and/or phosphorus, causing an increase in growth of algae and plants that produces undesirable disturbance to the natural balance of the ecosystem.
Flood plain	Any normally dry area of land that is susceptible to being inundated by water from any natural source. This area is usually low land adjacent to a river or the sea.
Greenhouse gases	A gas that contributes to the natural greenhouse effect. The Kyoto Protocol covers a basket of six greenhouse gases (GHGs) produced by human activities: carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons and sulphur hexafluoride. Annex I Parties' emissions of these gases taken together are to be measured in terms of carbon dioxide equivalents on the basis of the gases' global warming potential. An important natural GHG that is not covered by the protocol is water vapour
Groundwater	The term groundwater refers to all water which is below the surface of the ground in the saturated zone and which is in direct contact with the ground or subsoil.
Habitat	Place where an organism (e.g. human, animal, plant, micro-organism) or population of organisms live, characterised by its surroundings, both living and non-living.
Hazardous Waste	A term applied to those wastes that because of their chemical reactivity, toxic, explosive, corrosive, radioactive or other characteristics, cause danger, or are likely to cause danger, to health or the environment.
Indicator	Observed value representative of a phenomenon to study. In general, indicators quantify information by aggregating different and multiple data. The resulting information is therefore synthesised.
Isostatic Change	Change in sea-level due to change in the relative position of land e.g. because of tectonic activity or post-glacial uplift.
Leaching	Process by which water removes chemicals (e.g. from soil) through chemical reactions and downward movement
Littoral	Refers to the coast or to the banks of a river, lake or estuary
Littoral Zone	The littoral zone is defined as the area between the high water and low water marks. The littoral zone is bordered by the supra-littoral zone, also known as the "spay zone"
Macroinvertebrate	Any non-vertebrate organism that is large enough to be seen without the aid of a microscope and lives in or on the bottom of a waterbody.
Marine Renewables	Devices that exploit the nature energy produced by waves and the tidal stream.
Morphology	Physical attributes that describe the shape, form and texture of river or loch environments, e.g. bars, sediments, riffles.
Municipal waste	Household waste and any other waste under the control of local authorities on their agents acting on their behalf.
Organic	Containing carbon compounds
OSPAR	The Convention for the Protection of the Marine Environment of the North East Atlantic to which the UK is a party, agreed a strategy to 'prevent pollution of the maritime area by continually reducing discharges, emissions and losses of hazardous chemicals with the ultimate aim of achieving concentrations in the marine environment near background values for naturally occurring chemicals and close to zero for man-made

	synthetic chemicals.'
pH	A scale that denotes how acidic (<pH 7) or basic (>pH 7) a substance is based on the measurement of hydrogen ions in solution. The smaller the number on the pH scale, the more acidic the substance is.
Phytoplankton	A community of largely microscopic algae, adapted to suspension in waters, and maintained in suspension by wind-generated water currents.
Plankton	A term used to describe a community of plants and animals adapted to suspension in open water, and maintained in suspension by wind-generated currents.
Point source pollution	Pollution caused by a discharge from a fixed installation such as the end of a pipe, stack or drain.
Pollution	Introduced by man, directly and indirectly, of substance or energy into maritime environment including estuaries, which results or is likely to result in such deleterious effects as harm to living resources and marine life, including fishing and other legitimate uses of the sea, impairment of quality for use of sea water and reduction of amenities (UNCLOS)
Pollutants	Substances which, when present in the environment under certain conditions, may become injurious to human, animal, plant or microbial life, or to property, or which may interfere with the use and enjoyment of life or property.
Radioactive	Possessing the property of radiation
Radioactivity	The property of radionuclide's of spontaneously emitting ionising radiation.
Recreational water	Waters used for activities where there is a high risk of swallowing water (e.g. canoeing diving, sailing, surfing)
Recycling	Using waste materials in manufacturing other products of an identical or similar nature
Regulated processes	A process subject to regulation
Reuse	Use of material again without any structural changes in materials
River Basin Management Plan	Mechanism for achieving the objective of the WFD at individual river basin level.
Run-off	Portion of rainfall, melted snow or irrigation water that flows across the ground's surface and is eventually returned to streams. Run-off can pick up pollutants from air or land and carry them to receiving waters
Semi-natural habitat	A habitat that has been altered by human actions, but which remains significant native elements
Shellfish water	Coastal and brackish waters designated by the member states as needing protection or improvement in order to support shellfish (Bivalve and Gastropod Molluscs) life and growth and thus to contribute to the high quality if shellfish products directly edible by man.
Sustainable development	The ability to meet our needs and enjoy a better quality of life without jeopardising the quality of life of future generations.
Terrestrial	A community living on the land, as opposed to in water (aquatic)
Toxic	Harmfulness to living organisms. Toxicity s the capacity of a chemical to cause toxic effects to organisms or their progeny such as: reduction in survival, growth and reproduction; carcinogenicity; mutagenicity; tetragenicity; and endocrine disruption.
Water body	Any mass of water having definite hydrological, physical, chemical and biological characteristics and which can be employed for one or several purposes.

Appendix F: Abbreviations

ACAP	Agreement on the Conservation of Albatrosses and Petrels
ACOPS	Advisory Committee on Protection of the Sea
AEWA	Agreement on Conservation of African-Eurasian Migratory Waterbirds
AGMACS	Advisory Group on Marine and Coastal Strategy
AMO	Atlantic Multi-decadal Oscillation
AONB	Area of Outstanding Natural Beauty
ASP	Amnesic Shellfish Poisoning
ASCOBANS	Agreement on Conservation of Small Cetaceans of Baltic and North Seas
BAP	Biodiversity Action Plan
BERR	Department of Business, Enterprise and Regulatory Reform (previously DTI)
BGS	British Geological Survey
BMF	British Marine Federation
BODC	British Oceanographic Data Centre
CAR	Controlled Activities (Scotland) Regulations 2005
CBD	Convention on Biological Diversity
CDOM	Colour Dissolved Organic Matter
Cefas	Centre for Environment, Fisheries and Aquaculture
CEH	Centre for Ecology and Hydrology
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CPA	Coastal Protection Act 1949
COMAH	Control of major Accident Hazard Regulations 1999 as amended 2005
CSSEG	Clean Safe Seas Evidence Group
Defra	Department of Food and Rural Affairs
DTI	Department for Trade and Industry
EC	European Council
EEC	European Economic Community
EIA	Environmental Impact Assessment
EIR	Environmental Information Regulations 2004
EMEC	European Marine Energy Centre
EMF	Electro and Magnetic Fields
ER	Environmental Report
ERDC	Environment and Rural Affairs Committee (Scottish Parliament)
ESA	Environmentally Sensitive Area
EU	European Union
FAO	Food and Agriculture Organisation
FEPA	Food and Environment Protection Act 1985

FRS	Fisheries Research Services
FSAS	Food Standards Agency Scotland
GES	Good Environmental Status
GES	Good Ecological Status
GIS	Geographical Information Systems
GVA	Gross Value Added
HAB	Harmful Algal Bloom
HAP	Habitat Action Plan
ICES	International Council for the Exploration of the Sea
ICZM	Integrated Coastal Zone Management
IFG	Inshore Fisheries Group
IMO	International Maritime Organisation
IPC	Independent Planning Commission
IPCC	Intergovernmental Panel on Climate Change
IPPC	Integrated Pollution Prevention and Control
JAMP	Joint Assessment and Monitoring Programme
JNCC	Joint Nature Conservation Committee
LPA	Local Planning Authority
MAPC	Marine Assessment Policy Committee
MARCLIM	Marine Biodiversity Climate Change Project
MARG	Marine Assessment Reporting Group
MARPOL	Convention for the Prevention of Pollution from Ships
MBA	Marine Biological Association
MCA	Maritime and Coastguard Agency
MEO	Marine Ecosystem Objectives
MEDIN	Marine Environmental Data and Information Network
MMO	Marine Management Organisation
MoD	Ministry of Defence
MNCR	Marine Nature Conservation Review
NNR	National Nature Reserve
MOC	Meridional Overturning Circulation
MPA	Marine Protection Area
MSA	Merchant Shipping Act 1995
MSL	Mean Sea Level
MSFD	Marine Strategy Framework Directive
MT	Million Tonnes
NAO	North Atlantic Oscillation index
NGO	Non Governmental Organisation
NVZ	Nitrate Vulnerable Zone
OSPAR	Oslo & Paris OSPAR Commission for the Protection of the Marine Environment of the North east Atlantic

PCB	Polychlorinated biphenyls
PPS	Public Plans and Programmes
PWA	Protection of Wrecks Act 1973
QSR	Quality Status Report
RBMP	River Basin Management Plans
RCAHMS	Royal Commission on the Ancient and Historic Monuments of Scotland
RIA	Regulatory Impact Assessment
RIFE	Radioactivity in Food and the Environment
RSPB	Royal Society for the protection of Birds
RTPI	Royal Town Planning institute
SAC	Special Area of Conservation
SAMS	Scottish Association of Marine Science
SARF	Scottish Aquaculture Research Forum
SBG	Scottish Biodiversity Group
SBS	Scottish Biodiversity Strategy
SCF	Scottish Coastal Forum
SEA	Strategic Environmental Assessment
SEERAD	Scottish Executive Environment and Rural Affairs Department
SEPA	Scottish Environment Protection Agency
SGMD	Scottish Government Marine Directorate
SHEP	Scottish Historic Environmental Policy
SMR	Scottish Marine Regions
SMP	Shoreline Management Plan
SMRU	Sea Mammal Research Unit
SNH	Scottish Natural Heritage
SPA	Special protection Area
SSMEI	Scottish Sustainable Marine Environment Initiative
SSSI	Site of Special Scientific Interest
SST	Sea Surface Temperature
SSTF	Sustainable Seas Task Force
TIAS	Convention for Conservation of Salmon in North Atlantic Ocean
UK	United Kingdom
UKAEA	United Kingdom Atomic Energy Authority
UKBAP	United Kingdom Biodiversity Action Plan
UKCS	United Kingdom Continental Shelf
UKDMOS	United Kingdom Database of Marine Observing Systems
UKMMAS	United Kingdom Marine Monitoring and Assessment Strategy
UN	United Nations
UNCLOS	United Nations Convention on the Law of the Sea
UNFCCC	United Nations Framework Convention on Climate Change
UWWTD	Urban Waste Water Treatment Directive

WEWS	Water Environment Water Services Act 2003
WFD	Water Framework Directive
WHO	World Health Organisation
WSSD	World Summit on Sustainable Development