

Scotland's National Marine Plan

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Scotland's National Marine Plan

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1. Introduction

1.1 This Plan covers both Scottish inshore waters (out to 12 nautical miles) and offshore waters (12 to 200 nautical miles). It also applies to the exercise of both reserved and devolved functions.

1.2 Under devolution, the Scottish Parliament can legislate in relation to activities affecting the marine environment in Scotland's inshore waters, except for reserved matters. The UK Parliament legislates for Scotland's offshore waters, but certain matters in this area have been executively devolved. Marine planning matters in Scotland's inshore waters are governed by the Marine (Scotland) Act 2010¹, an Act of the Scottish Parliament, and in its offshore waters by the Marine and Coastal Access Act 2009², an Act of the UK Parliament.

1.3 The two Acts (referred to as the Marine Acts) established a new legislative and management framework for the marine environment allowing the competing demands on the sea to be managed in a sustainable way across all of Scotland's seas. Under the Marine (Scotland) Act 2010 Scottish Ministers must prepare and adopt a National Marine Plan covering Scottish inshore waters. In addition, the Marine and Coastal Access Act 2009 requires Scottish Ministers to seek to ensure that a marine plan is in place in the offshore region when a Marine Policy Statement³ is in effect.

1.4 The Scottish and United Kingdom Governments have agreed that a marine plan for Scotland's inshore waters and a marine plan covering Scottish offshore waters will be published in one document and will be collectively referred to as the 'National Marine Plan'. However, we recognise that the 'National Marine Plan' comprises of two Plans made under two separate pieces of legislation therefore unless otherwise stated, policies within this Plan apply to both inshore and offshore waters. The National Marine Plan will not affect reserved functions within inshore waters until a direction is made under the Marine (Scotland) Act 2010 (Consequential Provisions) Order 2010.

1.5 All of the procedural requirements which are set down in the Marine Acts, including those which are in Schedule 1 to the Marine (Scotland) Act 2010 in relation to the plan for inshore waters, and Schedule 6 to the Marine and Coastal Access Act 2009 in relation to the plan for offshore waters, have been complied with in relation to this Plan.

1 Marine (Scotland) Act 2010. <http://www.legislation.gov.uk/asp/2010/5/contents>

2 Marine and Coastal Access Act 2009. <http://www.legislation.gov.uk/ukpga/2009/23/contents>

3 UK Marine Policy Statement. <https://www.gov.uk/government/publications/uk-marine-policy-statement>

1.6 This Plan has been prepared in accordance with, and gives consideration to, the EU Directive 2014/89/EU which came into force in July 2014. The Directive introduces a framework for maritime spatial planning and aims to promote the sustainable development of marine areas and the sustainable use of marine resources. It also sets out a number of minimum requirements all of which have been addressed in this plan. In particular, Chapters 4 and 6–16 demonstrate how our planning process contributes to the sustainable development of those objectives set out at article 5(2) of the Directive as well as other objectives relevant to this plan area. In doing so, and in accordance with article 5(3) of the Directive, we have considered a wide range of sectoral uses and activities and have determined how these different objectives are reflected and weighted in the marine plan. Land-sea interactions have also been taken into account as part of the marine planning process. Involvement of stakeholders has been central to the development of this plan and full details of the procedures and processes used, including those to ensure stakeholder engagement and cross-boundary working are set out in the Statement of Public Participation⁴.

1.7 The requirement to prepare an assessment of the condition of the Scottish marine area including a summary of the significant pressures and human impacts has been met through the publication of Scotland's Marine Atlas: Information for the National Marine Plan⁵. An interactive GIS portal – National Marine Plan interactive (NMPi)⁶ – has been developed to display the spatial data which underpinned the Atlas. NMPi is referenced throughout this Plan where relevant.

Sustainability appraisal and business regulatory impact assessment

1.8 A Sustainability Appraisal (SA), which includes Strategic Environmental Assessment (SEA), and Business and Regulatory Impact Assessment (BRIA) for the Plan have been carried out. The reports⁷ were published for consultation along with the Draft National Marine Plan and these reports are available on the Scottish Government website. An updated BRIA and an addendum to the SA are now also available on-line. A draft Habitats Regulations Appraisal has been undertaken⁸ and the results of the screening have shown that an appropriate assessment of this Plan will not be required.

Cross-boundary

1.9 As required by the legislation, the Scottish Government has notified public authorities with responsibilities in waters adjacent to the Plan area.

4 NMP – Statement of Public Participation. Scottish Government.

<http://www.scotland.gov.uk/Topics/marine/seamanagement/national/nmpsp>

5 Scotland's Marine Atlas: Information for the National Marine Plan. Marine Scotland. 2011. [Scotland's Marine Atlas: Information for the National Marine Plan.](#)

6 National Marine Plan interactive. <http://www.scotland.gov.uk/Topics/marine/seamanagement/nmpihome>

7 Sustainability Appraisal Report. 2013. <http://www.scotland.gov.uk/Resource/0042/00428327.pdf> and Partial Business and Regulatory Impact Assessment. 2013.

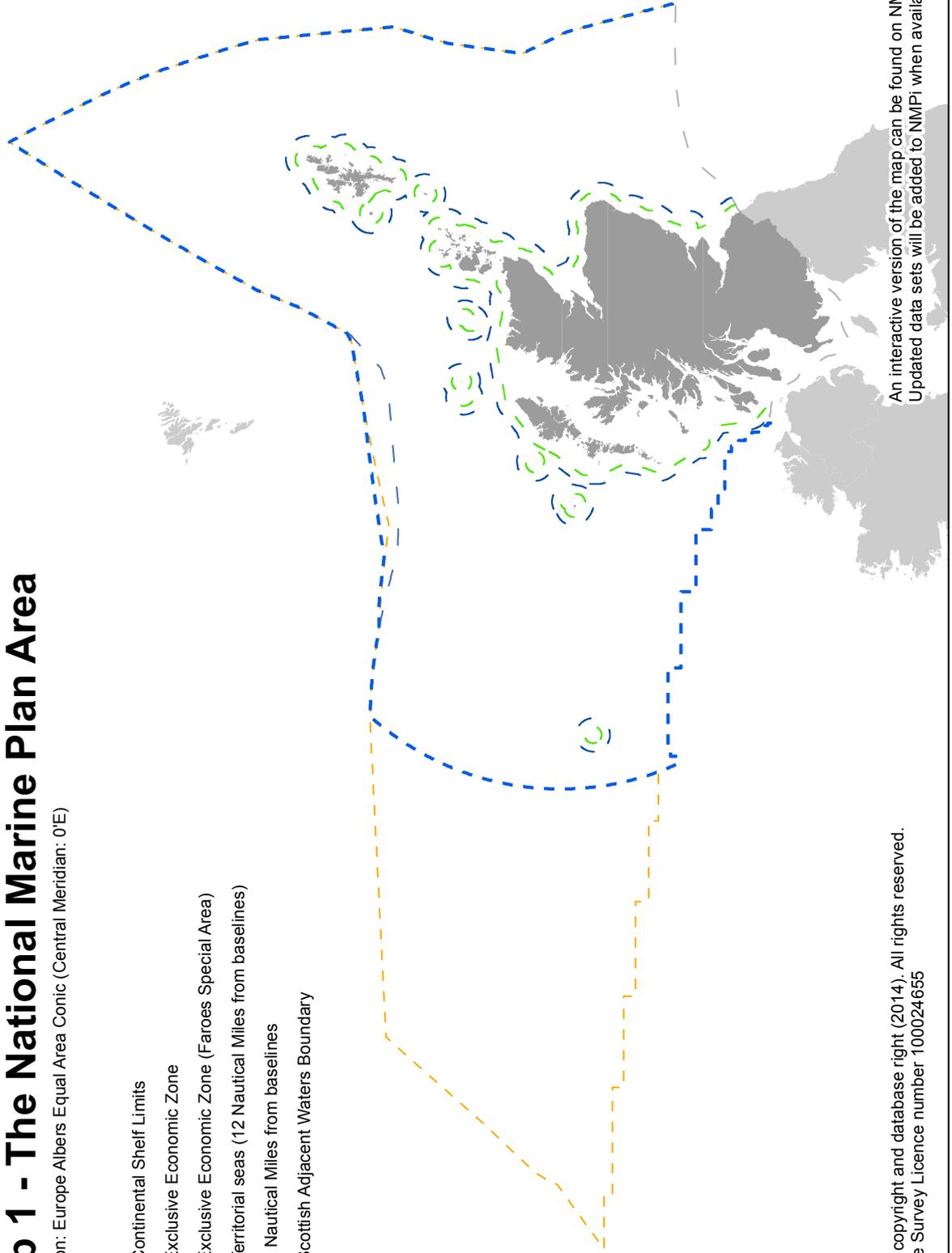
8 Draft Habitats Regulation Assessment was included in Draft Assessment of Sustainability

Map 1 - The National Marine Plan Area

Projection: Europe Albers Equal Area Conic (Central Meridian: 0°E)

Key:

- - - Continental Shelf Limits
- - - Exclusive Economic Zone
- - - Exclusive Economic Zone (Faroes Special Area)
- - - Territorial seas (12 Nautical Miles from baselines)
- - - 6 Nautical Miles from baselines
- - - Scottish Adjacent Waters Boundary



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An interactive version of the map can be found on NMPI.
Updated data sets will be added to NMPI when available.

2. Marine Planning in Context

2.1 Marine planning will interact with other planning and consenting processes within, and adjoining, the Scottish marine area.

National and regional marine planning

2.2 **The Marine Acts set out a tiered approach to developing marine planning in the UK and Scotland. The framework includes the following elements:**

2.3 **UK Marine Policy Statement (MPS):** The UK Administrations share a common vision of having clean, healthy, safe, productive and biologically diverse oceans and seas. Joint adoption of a UK wide Marine Policy Statement provides a consistent high level policy context for the development of marine plans across the UK to achieve this vision.

2.4 **Scottish National Marine Plan:** This National Marine Plan sets out strategic policies for the sustainable development of Scotland's marine resources out to 200 nautical miles. It is required to be compatible with the UK Marine Policy Statement and existing marine plans across the UK, in particular where there is interaction between England inshore and offshore marine plans and Northern Ireland Marine Plans.

2.5 This Plan will be reviewed and reported upon: the aspects covering Scottish inshore waters for devolved matters will be reported on at least every five years and the other aspects will be reported on at least every three years. These reports will review the effects and effectiveness of the policies and the progress being made towards securing the objectives. Although the timescales are different as dictated by the Marine Acts, an integrated process of review will be taken forward which leads to the Plan being updated as a single document.

2.6 **Regional Marine Plans:** Marine planning will be implemented at a local level within Scottish Marine Regions, extending out to 12 nautical miles. The boundaries of these regions are required to be set by secondary legislation – the current proposals are at Map 2 on page 9. The final boundaries will be uploaded on NMPI.

2.7 Within these regions, regional marine plans will be developed by Marine Planning Partnerships to take account of local circumstances and smaller ecosystem units. Unless relevant considerations indicate otherwise, they are required to be in accordance with the National Marine Plan and the Marine Policy Statement (MPS) to ensure they are consistent with national objectives and priorities and are subject to adoption by Scottish Ministers. Regional marine plans will not affect reserved functions unless a direction is made under the Marine (Scotland) Act 2010 (Consequential Provisions) Order 2010.

2.8 Regional plans will take some time to develop. The first Marine Planning Partnerships to be established will be Shetland and Clyde. In the interim period, the Marine Policy Statement and the National Marine Plan will apply.

2.9 This Plan sets out some guidance specifically for regional planners in Chapters 3 and 4 and at the end of each of the sector chapters. The basic legislative requirements for regional plans include:

- Assessing the condition of the region.
- Summarising the significant pressures and impact of human activity.
- Keeping under review the physical, environmental, social, cultural and economic characteristics of the region; the purposes for which it is used; its communication, energy and transport systems; and the living resources which it supports.
- Setting economic, social, marine ecosystem and climate change objectives.
- Stating the contribution of MPAs and other designated areas to the protection and enhancement of the region.
- Stating policies for sustainable development of the region.
- Developing a Statement of Public Participation and carrying out consultation.

2.10 Marine Planning Partnerships will take different forms in different regions. The core Partnership should be representative but of limited numbers in order to facilitate decision making. However, this core structure should be supported and informed by a broader framework of groups focusing on particular issues and engaging the full range of stakeholders and interests. In particular, the involvement of Local Authorities will be important (the island Local Authorities will lead the Partnerships in their areas⁹) and inshore fishing interests should be represented by Inshore Fisheries Groups whose management plans will inform and reflect the regional plan.

2.11 Approaches to regional marine planning have been piloted through various initiatives throughout Scotland. The Scottish Government will continue to support the development of regional marine planning by working closely with Marine Planning Partnerships and providing appropriate guidance.

2.12 NMPi also presents data at the regional scale.

The relationship with regulatory regimes and existing good practice

2.13 This Plan does not replace or remove existing regulatory regimes or legislative requirements. Rather it provides a consistent framework for their continued operation. The content of this Plan references where existing regimes are in place – particularly in relation to Living within Environmental Limits – and also sets out the key references which provide further context in each sector chapter.

2.14 This Plan also highlights existing areas of good practice, for example where voluntary collaborative arrangements have been put in place to resolve potential competition for space between or within particular industries. Where such arrangements have proved effective they are encouraged to continue and this Plan is not intended to negate the possibility of further collaborative arrangements coming into place in the future.

⁹ Empowering Scotland's Island Communities. Page 41. <http://www.scotland.gov.uk/Publications/2014/06/2708>

Marine planning, consents and authorisations

2.15 The Marine Acts require that public authorities must take authorisation or enforcement decisions in accordance with this Plan, unless relevant considerations indicate otherwise. They must also have regard to this Plan in taking other decisions if they impact on the marine area. This Plan therefore provides direction to a wide range of marine decisions and consents made by public bodies¹⁰, including Local Authorities and the Crown Estate, for example:

- **Marine licensing:** Certain activities in the marine area, such as most deposits in, and removals from the sea and seabed; construction works; dredging and the use of explosives require a marine licence. This Plan and future regional plans must be taken into account when licensing applications are considered. The marine licensing process will also consider specific aspects of proposed developments and use, reaching a balanced view on whether an individual project should be consented. Where broad spatial areas are identified within this Plan for certain types of activity (e.g. RENEWABLES 1, AQUACULTURE 1, 2 and 3) it should be noted that will continue to be subject to the licensing process.
- **Fishing licences:** Commercial sea fishing licences will continue to be issued by Marine Scotland in accordance with marine plan provisions.
- **Aquaculture development consents:** Applications for planning permission for finfish and shellfish farms are determined in accordance with the terrestrial development plan and now with this Plan. A Planning Circular¹¹ on the relationship between the statutory land use planning system and marine planning and licensing sets this relationship out in more detail. **<applies to inshore waters only>**
- **Ports and Harbours:** Harbour Authorities have a wide range of statutory powers or duties providing considerable autonomy over their area of jurisdiction. Where Harbour Authorities are required to apply for marine licences, their applications will be considered in accordance with the objectives and policies of this Plan. **<applies to inshore waters only>**

2.16 The Plan should be applied proportionately, taking account of the potential scale of impact of any proposal as well as the sensitivity of the environment and/or any potential social or economic effect under consideration.

¹⁰ Duties referred to in this paragraph will not affect consents and decisions relating to reserved functions until a direction is made under the Marine (Scotland) Act 2010 (Consequential Provisions) Order 2010.

¹¹ Draft Planning Circular. The Relationship between the statutory land use planning system and marine planning and licensing. <http://www.scotland.gov.uk/Topics/marine/seamanagement/national/circular>

Marine planning and terrestrial planning

2.17 Marine and terrestrial planning¹² processes are both intended to deliver the Scottish Government's Purpose of creating a more successful country, with opportunities for all to flourish through increasing sustainable economic growth as set out in the Government Economic Strategy¹³. The Scottish Government's 16 National Outcomes articulate in more detail how the Purpose is to be achieved. Planning is broad in its scope and cross cutting in nature and therefore contributes to the achievement of all National Outcomes.

2.18 Most development and use which takes place in the marine environment also has an onshore component or implication. Alignment between marine and terrestrial planning is important and should be achieved through consistency of policy guidance, plans and decisions. Scottish Planning Policy¹⁴, National Planning Framework 3¹⁵ and Local Development Plans will all be relevant when regional marine plans are being developed. Terrestrial planning authorities are required to give consideration to marine plans when developing strategic and local development plans. Local Authorities will lead the island Marine Planning Partnerships and will also be represented within Marine Planning Partnerships in other areas, which will also help to promote further alignment of marine and terrestrial planning policy.

2.19 A Planning Circular¹⁶ – The relationship between the statutory land use planning system and marine planning and licensing – which sets out greater detail has been developed. This includes guidance on:

- Liaison between terrestrial and marine planning authorities
- Timing of plans
- Plans which take into account both terrestrial and marine impact
- Consistency between policies and proposals in marine and terrestrial plans
- Integrated Coastal Zone Management
- Sharing the evidence base
- Marine licensing
- Marine conservation
- Particular sectors – renewable energy, ports and harbours, coastal defences, aquaculture

12 The term 'terrestrial planning' is used throughout this Plan to refer to all elements of the land use planning system and therefore encompasses the National Planning Framework, local development plans, land use plans, and is synonymous with terms such as 'town planning', 'town and country planning', 'land use planning' and 'urban and regional planning'.

13 The Government Economic Strategy. The Scottish Government 2011.

<http://www.scotland.gov.uk/Publications/2011/09/13091128/>

14 Scottish Planning Policy. The Scottish Government. 2014.

<http://www.scotland.gov.uk/Publications/2010/02/03132605/0>

15 National Planning Framework 3. The Scottish Government. 2014.

<http://www.scotland.gov.uk/Publications/2014/06/3539>

16 See footnote 11.

2.20 In line with the Circular, marine and terrestrial planning authorities should consult one another formally during plan preparation but also collaborate closely throughout the planning process to ensure consistency in their respective plans.

Marine planning and river basin management plans

2.21 By contributing to the management of human induced pressures on water quality, marine planning will provide one delivery mechanism for River Basin Management Plans. These take forward requirements of the EU Water Framework Directive to protect and improve the water environment and apply to coastal waters out to 3 nautical miles.

<applies to inshore waters only>

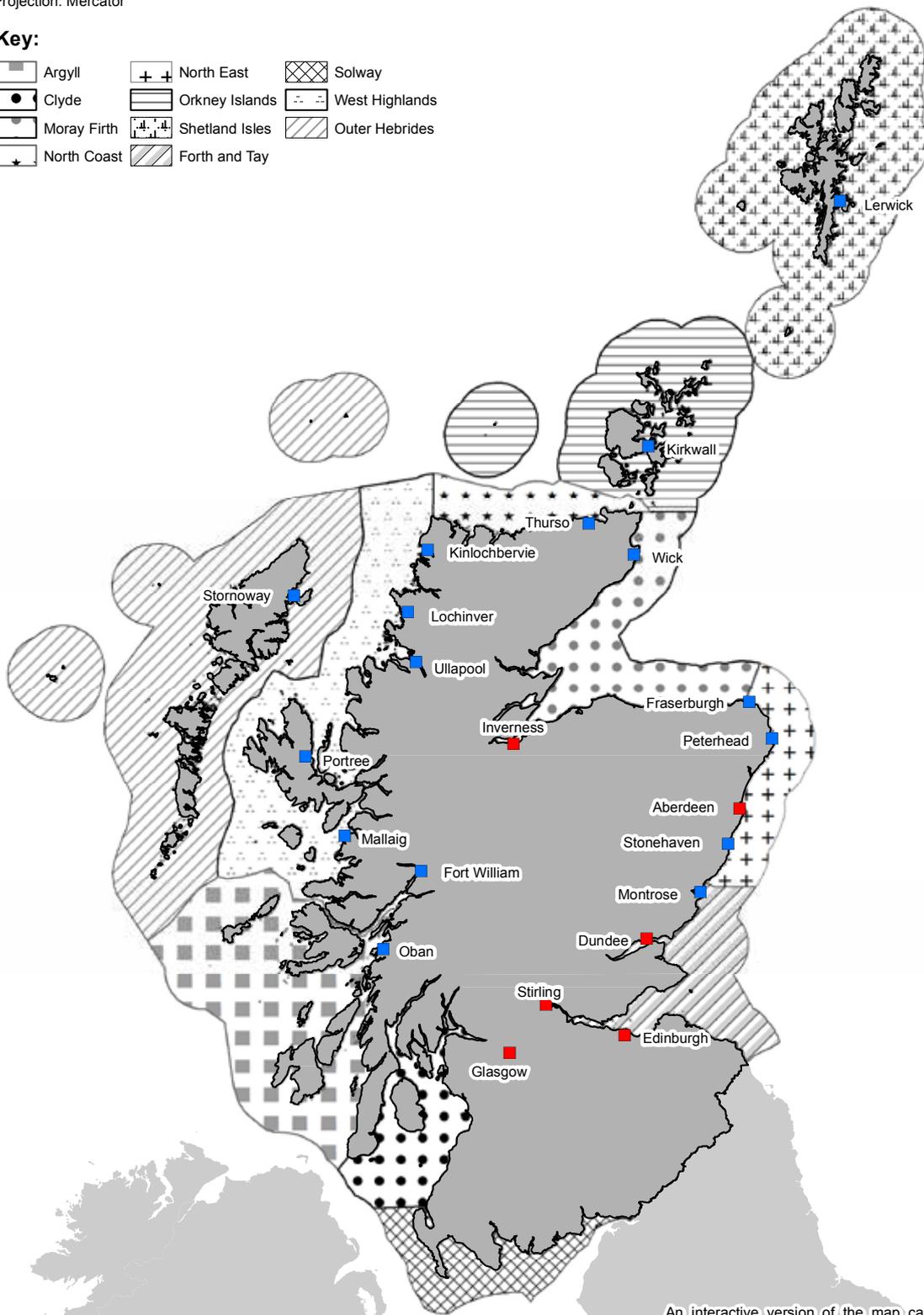
Marine planning in an international context

2.22 Marine planning sits within an international regulatory framework which governs a number of aspects of marine management. This includes EU Directives such as the Marine Strategy Framework Directive and the Water Framework Directive; the EU's Common Fisheries Policy governing commercial fishing rights and obligations; and the UN Convention on the Law of the Sea (UNCLOS). As the planning framework develops, planning authorities will work with the Marine Management Organisation, the UK Government, other UK administrations and international neighbours to encourage compatibility with other plans.

Map 2 - Draft Boundaries for Scottish Marine Regions

Projection: Mercator

Key:



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An interactive version of the map can be found on NMPi. Updated data sets will be added to NMPi when available.

3. Vision, Objectives and Approach to Policies

Our vision for the marine environment is:

Clean, healthy, safe, productive and diverse seas; managed to meet the long-term needs of nature and people.

3.1 The Marine (Scotland) Act 2010 requires that marine plans set economic, social and marine ecosystem objectives and objectives relating to the mitigation of, and adaptation to, climate change. Plans must also state policies for, and in connection with, the sustainable development of the area to which the plan applies.

Background

3.2 One of the core aims of marine planning is to manage human impact on the marine environment. Marine ecosystems provide a wide range of goods and services which are essential to our daily lives (Box A) and marine planning seeks to ensure that human impact on the marine environment is managed to ensure that marine ecosystems continue to provide these services.

3.3 Whilst this principle is broadly accepted, the current state of knowledge about many aspects of the structure and functioning of marine ecosystems limits how this principle can be translated into definitive planning policies.

3.4 Therefore this Plan promotes an ecosystem approach¹⁷, putting the marine environment at the heart of the planning process to promote ecosystem health, resilience to human induced change and the ability to support sustainable development and use. This Plan adopts the guiding principles of sustainable development, which also ensures that any individual policy, plan or activity is carried out within environmental limits.

Objectives

3.5 The vision for the marine environment is underpinned by a series of strategic objectives which are set out in this section of the Plan (Box B and Box C) and apply to both inshore and offshore waters. These strategic objectives seek to integrate both the ecosystem approach and the guiding principles of sustainable development to deliver a robust approach to managing human impact on Scotland's seas.

¹⁷ An ecosystem-based approach to the management of human activities means an approach which ensures the collective pressure of human activities is kept within the levels compatible with the achievement of good environmental status; that does not compromise the capacity of marine ecosystems to respond to human induced changes; and that enables the sustainable use of marine goods and services. UK Marine Policy Statement. 2011.

3.6 The ecosystem approach is reflected in the adoption as strategic objectives of the 11 **descriptors of Good Environmental Status** (Box B), set out in the Marine Strategy Framework Directive. These 11 Descriptors represent an attempt to identify the key aspects of ecosystem structure and function, with relevant targets and indicators being set in conjunction with neighbouring states at the broad scale of the Celtic Seas and the Greater North Sea.

3.7 The adoption of the **High Level Marine Objectives** (Box C) as strategic objectives reflects the Plan's commitment to the five guiding principles of sustainable development, with the General Policies being organised under these principles.

3.8 In addition to the strategic objectives set out in this Chapter, each sector chapter contains a number of objectives specific to that marine sector. These objectives mainly focus on the promotion of sustainable economic growth of the relevant sector and are an important context for planning and decision making. However it should be noted that, as with the content of the Plan overall, these are subject to the strategic objectives set out in this Chapter and General Policies set out in Chapter 4.

3.9 The Plan identifies where sectoral objectives and policies support strategic objectives by using the following symbols:

Economic	
Social	
Marine Ecosystem	
Climate Change	

Policies

3.10 This Plan adopts the approach of stipulating a set of General Policies (Chapter 4) which apply across all development and use of the marine environment. These General Policies are intended to represent the parameters against which the sustainability of development and other use is considered; and to ensure this is undertaken in a manner which is sensitive to the protection and enhancement of the environment, the needs of other users and the long-term health of the resource.

3.11 The policies contained in the sector chapters are therefore subject to the General Policies and have been derived by considering key issues for the sector regarding supporting economically productive activities; interactions with other users; living within environmental limits; and climate change. More detail is available in Chapter 5.

3.12 The objectives and policies contained within this Plan set out a framework intended to ensure activity is managed to move forward from the current position towards the vision for the marine environment.

Current position

3.13 An assessment of the condition of Scotland's seas is provided by Scotland's Marine Atlas: Information for the National Marine Plan. The Marine Atlas includes an economic assessment and a summary of pressures and human impacts relating to activities in Scottish waters (Box D). Where marine planning offers an appropriate tool, planning policies have been developed in response to the assessment with the aim of protecting the health and biodiversity of, and increasing the economic prosperity derived from, Scottish seas.

3.14 NMPi contains data published in the Marine Atlas in GIS format and is updated where relevant. The maps within this document are also available as layers on NMPi.

Resolving potential competition and conflict

3.15 This Plan provides guidance on resolving potential competition and conflict by:

- Emphasising the requirement for sustainable development and use – as encapsulated by the General Policies set out in Chapter 4.
- Incorporating and giving statutory weight to spatial outputs of planning policy on marine renewables development (see RENEWABLES 1).
- Giving more general spatial guidance where possible – e.g. in relation to aquaculture development and lifeline ferry routes.
- Emphasising the need for informed consultation and adaptive management.
- Detailing factors which should be taken into account in relation to each of the sectors covered in the Plan (Chapters 6–16).

The future

3.16 In the future, marine planning will be improved by greater understanding of:

- The species, habitats and functions which are particularly important to maintain to ensure ecosystem health and continued delivery of ecosystem services.
- The impacts of decision making on ecosystems and the services they provide.
- The spatial scale at which key ecosystem processes occur and how these relate to the services they provide.
- Whether there are 'tipping' points within ecosystems beyond which they cannot recover and continue to provide services.
- Further information on the effectiveness of management measures and planning policies.

3.17 In the absence of such information it is important that plans adopt an 'adaptive management'¹⁸ approach, responding to information collected from environmental and other monitoring.

Guide for Regional Planners

3.18 Regional marine plans must be in conformity with this Plan, unless relevant considerations indicate otherwise. Throughout this Plan, there are sections and policies which provide particular guidance to Marine Planning Partnerships on developing regional plans.

3.19 It should be noted that these regional sections and policies are for consideration by Marine Planning Partnerships as they develop their regional plans. The precise approach and coverage of the regional plan will be for these Partnerships to determine based on local priorities and taking account of existing partnerships, methodologies and alignment with other local plans.

3.20 In relation to this chapter, regional planners should consider the need for:

- Better understanding of the current position and the vision for their area.
- Local strategic and sectoral objectives.
- Understanding local opportunities and challenges in terms of sustainable development and use and the need to manage conflict.
- Deriving general and specific policies which align with those in this Plan and the Marine Policy Statement, but are sensitive to local circumstances.
- Further research to understand the local ecosystem and the impacts and pressures upon it.
- Consistency with local and strategic development plans and other relevant local plans.

¹⁸ See Chapter 4 GEN 21 for more detail.

Box A: Ecosystem Goods and Services

There is growing understanding and evidence of the value of the benefits (referred to as goods and services) that ecosystems¹⁹ deliver to society.

Ecosystem goods and services, with examples from marine and coastal margin environments, include:

Provisioning services – goods obtained from ecosystems. This includes food from finfish and shellfish, seaweed fertiliser, wave and tidal energy, pharmaceutical products and tourism revenue.

Supporting services – those which provide the basic infrastructure of life and upon which other ecosystems depend, e.g. primary production – capture of energy from the sun and soil and sediment formation and nutrient cycling.

Regulating services – these include pollution regulation through waste breakdown, detoxification and climate regulation.

Cultural services/non-material benefits – the non-material benefits people obtain from ecosystems. These are derived from a setting and outdoor education, recreation, health, fitness and wellbeing, as well as historical and cultural heritage.

The National Ecosystem Assessment's²⁰ key findings for Scotland identify that provisioning services have a particularly high economic value, but that exploitation has had significant impacts on biodiversity with declining capabilities of all ecosystems to support sustained use. It also found that regulating services such as climate regulation through carbon sinks and climate regulation of Scotland's land areas are of significant importance to the economy.

While our knowledge of ecosystem processes, functioning, interactions and how these provide goods and services is still elementary, it is clear that activities which impact on them may affect the future level of goods and services which can be provided and exploited.

19 An ecosystem is a set of interactions between living and non-living components in a spatial area. Its interactions determine the type of processes that take place within it. Ecosystems vary widely in spatial scale.

20 UK National Ecosystem Assessment (2014) The UK National Ecosystem Assessment: Synthesis of the Key Findings. <http://uknea.unep-wcmc.org/Resources/tabid/82/Default.aspx>

Box B: Strategic Objectives

Marine Strategy Framework Directive: Good Environmental Status Descriptors

Good environmental status descriptors²¹

- 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 1)
- Non-indigenous species introduced by human activities are at levels that do not adversely alter the ecosystems. (GES 2)
- 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 3)
- 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. (GES 4)
- Human-induced eutrophication is minimised, especially adverse effects thereof, such as losses in biodiversity, ecosystem degradation, harmful algal blooms and oxygen deficiency in bottom waters. (GES 5)
- 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 6)
- Permanent alteration of hydrographical conditions does not adversely affect marine ecosystems. (GES 7)
- Concentrations of contaminants are at levels not giving rise to pollution effects. (GES 8)
- Contaminants in fish and other seafood for human consumption do not exceed levels established by Community legislation or other relevant standards. (GES 9)
- Properties and quantities of marine litter do not cause harm to the coastal and marine environment. (GES 10)
- Introduction of energy, including underwater noise, is at levels that do not adversely affect the marine environment. (GES 11)

21 Marine Strategy Framework Directive. Annex 1. <http://www.scotland.gov.uk/Topics/marine/seamanagement/msfd>

Box C: Strategic Objectives

High-level Marine Objectives²²

Achieving a sustainable marine economy

- Infrastructure is in place to support and promote safe, profitable and efficient marine businesses. (HLMO 1)
- The marine environment and its resources are used to maximise sustainable activity, prosperity and opportunities for all, now and in the future. (HLMO 2)
- Marine businesses are taking long-term strategic decisions and managing risks effectively. They are competitive and operating efficiently. (HLMO 3)
- Marine businesses are acting in a way which respects environmental limits and is socially responsible. This is rewarded in the marketplace. (HLMO 4)

Ensuring a strong, healthy and just society

People appreciate the diversity of the marine environment, its seascapes, its natural and cultural heritage and its resources and act responsibly. (HLMO 5)

The use of the marine environment is benefiting society as a whole, contributing to resilient and cohesive communities that can adapt to coastal erosion and flood risk, as well as contributing to physical and mental wellbeing. (HLMO 6)

The coast, seas, oceans and their resources are safe to use. (HLMO 7)

The marine environment plays an important role in mitigating climate change. (HLMO 8)

There is equitable access for those who want to use and enjoy the coast, seas and their wide range of resources and assets, and recognition that for some island and peripheral communities the sea plays a significant role in their community. (HLMO 9)

Use of the marine environment will recognise, and integrate with, defence priorities, including the strengthening of international peace and stability and the defence of the United Kingdom and its interests. (HLMO 10)

Living within environmental limits

- Biodiversity is protected, conserved and, where appropriate, recovered, and loss has been halted. (HLMO 11)
- Healthy marine and coastal habitats occur across their natural range and are able to support strong, biodiverse biological communities and the functioning of healthy, resilient and adaptable marine ecosystems. (HLMO 12)
- Our oceans support viable populations of representative, rare, vulnerable and valued species. (HLMO 13)

²² UK Marine Policy Statement. Chapter 2. <https://www.gov.uk/government/publications/uk-marine-policy-statement>

Box C: Strategic Objectives

High-level Marine Objectives (continued)

Promoting good governance

- All those who have a stake in the marine environment have an input into associated decision making. (HLMO 14)
- Marine, land and water management mechanisms are responsive and work effectively together for example through integrated coastal zone management and river basin management plans. (HLMO 15)
- Marine management in the UK takes account of different management systems that are in place because of administrative, political or international boundaries. (HLMO 16)
- Marine businesses are subject to clear, timely, proportionate and, where appropriate, plan-led regulation. (HLMO 17)
- The use of the marine environment is spatially planned where appropriate and based on an ecosystems approach which takes account of climate change and recognises the protection and management needs of marine cultural heritage according to its significance. (HLMO 18)

Using sound science responsibly

- Our understanding of the marine environment continues to develop through new scientific and socio-economic research and data collection. (HLMO 19)
- Sound evidence and monitoring underpins effective marine management and policy development. (HLMO 20)
- The precautionary principle is applied consistently in accordance with the UK Government and Devolved Administrations' sustainable development policy. (HLMO 21)

Box D: Scotland's Marine Atlas: Information for the National Marine Plan

The following is a summary of the overall assessment of Scotland's Marine Atlas: information for the National Marine Plan.

Significant pressures in the marine environment

Two significant pressures are widespread: human activity contributing to climate change and fishing which impacts on the seabed and species. Various types of fishing each exert a different pressure on different components of the marine environment. For example bottom trawlers and scallop dredgers may damage the seabed while pelagic trawling gear does not normally do so.

Impacts of pressures such as marine litter and noise are not well understood. Other pressures may change in scale and location in the future, for example those associated with offshore oil and gas as new fields are discovered and others are decommissioned. New pressures are likely to include those associated with the storage of carbon dioxide and renewable energy.

Clean and safe

Our seas are mainly clean and although there are some localised areas where there is contamination or hazards to human health. For example, sediments in some harbours and estuaries remain contaminated by historical industrial discharges. Forth and Clyde estuaries are compromised by industrial effluent and treated sewage²³, although effluent treatment has improved resulting in returning populations of residential and migratory fish.

Healthy and biologically diverse

Assessment of the range of habitat types and key species groups, their distribution and characteristics in Scotland's seas indicate:

- Certain habitats have been impacted, largely from the effects of fishing over large areas of the seabed and more localised impacts from activities such as aquaculture.
- Low abundance of some demersal commercial fish species on the west coast is a major concern and is being addressed through various initiatives.
- Sharks, skates and rays are severely depleted (although sightings of basking sharks have increased), largely as result of historical unsustainable catches and their long lived, low fecundity life cycle.
- Populations of some seabirds, harbour seals and some fish species have declined, possibly because of climate change, human activities and competition from other species.
- There are no specific concerns regarding whales and dolphins, although there are high levels of uncertainty in assessing this.

²³ This is a historical legacy affecting sediments. Scottish Water, are also working with SEPA and Local Authorities to understand which further improvements are required.

Box D: Scotland's Marine Atlas: Information for the National Marine Plan (continued)

Productive

Analysis of economic and spatial information about human activities in our seas, both for the core marine sector (i.e. industries which predominantly rely on the sea to generate their output) and for a number of other sectors benefiting from the sea indicates:

- The core marine sector, less the extraction of oil and gas, contributed £4.4 billion of Gross Value Added in 2011; oil and gas extraction had a GVA of approximately £19.7 billion²⁴; and approximately 44,600 people were employed in the core marine sector in 2011.
- Fishing takes place in all sea areas, but some are more economically productive than others. Aquaculture predominates on the west coast and the islands.
- Sixteen major ports handle about 98% of all port traffic. Significant shipping activity includes transit through Scottish waters, arrival at ports and ferry activity.
- The potential of renewable energy generation from offshore wind, waves and tides has started to be realised. There is potential for 'carbon capture and storage' schemes under the seabed.
- Other activities include water abstraction for power stations, disposal of treated waste water and industrial effluent, telecommunications cables, recreation and tourism including marine sports and natural/cultural heritage tourism.

²⁴ Figures here present 2012 data in place of Atlas data. Source to be added for final publication.

4. General Policies

4.1 The Scottish Government's commitment to sustainable development is reflected in its Purpose. It is also reflected in the continuing support for the five guiding principles set out in the UK's shared framework for sustainable development:

Achieving a sustainable economy, promoting good governance and using sound science responsibly are essential to the creation and maintenance of a **strong, healthy and just society** capable of **living within environmental limits**.

4.2 Marine planning should contribute to sustainable development and use of marine resources by enabling development and use that balances costs and benefits. Development and use, provided it is undertaken in the right place and at the right time, can provide multiple benefits.

4.3 The presumption in favour of sustainable development and use is presented as an overarching general planning principle of the Plan. The General Policies are considered necessary to achieve development and use sustainably. As sustainability is an overarching principle, the environmental, social and economic policies of this Plan are intended to be complementary with one another as elements of sustainability. They are presented according to the five guiding principles and categories of High Level Marine Objectives.

4.4 **All text in this chapter should be considered as planning policy.** The policies apply to all development and use and are supplemented by the policies in the sector chapters. Unless otherwise stated, policies apply to both inshore and offshore waters.

GENERAL PLANNING PRINCIPLE

GEN 1 General planning principle: There is a presumption in favour of sustainable development and use of the marine environment when consistent with the policies and objectives of this Plan.

4.5 This principle is relevant to all marine activities, but is especially relevant for the sectors that the Scottish Government's Economic Strategy²⁵ have identified as being key growth sectors – economic activities that Scotland specialises in. These include aquaculture and fisheries as food sectors; oil and gas and renewable energy activities; and tourism. Many of these sectors are particularly important in more remote areas of Scotland. The principle is equally relevant to existing as well as emerging activity and should be applied equally to both, subject to objectives and policies of this Plan.

²⁵ See footnote 13.

4.6 Development and use of the marine area should be consistent with this Plan. This will help activity and businesses to grow while ensuring activities are undertaken in a sustainable manner that protects and enhances Scotland's natural and historic marine environment. It will also provide greater certainty as to how proposals relating to the marine environment will be considered by planning and consenting authorities.

Achieving a sustainable economy

GEN 2 Economic benefit: Sustainable development and use which provides economic benefit to Scottish communities is encouraged when consistent with the objectives and policies of the Plan.

GEN 3 Social benefit: Sustainable development and use which provides social benefits is encouraged when consistent with the objectives and policies of the Plan.

4.7 Sustainable development and use of the marine environment can provide multiple economic benefits at a community and national level, including economic growth, skills development, employment, maintaining or increasing population levels and opportunities for investment and trade.

4.8 The economic benefit of proposed development and use should be considered carefully and taken into account, appropriately and proportionately, in marine decision making.

4.9 Particular consideration should be given to opportunities that aim to provide benefit to communities, local job creation and local training either directly or through supply chain projects.

4.10 Social benefits include those directly associated with economic growth such as increased wealth, improved quality of life and community regeneration. However, benefits of an intrinsic nature such as health and well-being associated with the natural and historic environment, a choice of location and lifestyle, sport and recreation are also important. Social benefits apply not only to coastal communities but also to those who travel to and use the marine and coastal environment for employment or leisure.

4.11 The social benefit of proposed developments and increasing use should be considered carefully and taken into account, appropriately and proportionately, in marine decision making. Consideration should be given where industries and developers assist in supporting the development of onshore infrastructure, helping to achieve community cohesion and reducing social disparity. The impact of proposed development on existing activities, including those which promote health and wellbeing, should also be taken into account in decision making.

4.12 Developers will be expected to co-operate to input into practical scenarios related to the lifecycle of a project (for example construction, operation and maintenance of their development) to allow local communities to understand the socio-economic and environmental implications of a proposed development. Scenario mapping, Strategic Environmental Assessment and Sustainability Appraisal may all be helpful in doing so.

GEN 4 Co-existence: Proposals which enable coexistence with other development sectors and activities within the Scottish marine area are encouraged in planning and decision making processes, when consistent with policies and objectives of this Plan.

4.13 As development and use of the marine environment continues to increase, there is likely to be increased competition for space. One approach to managing this is to encourage development proposals which bring together activities which are compatible or synergistic in one location, to make good use of space, i.e. those which involve or allow co-existence, taking account of temporal and spatial issues.

4.14 This applies to a wide range of scenarios, including using existing infrastructure as a basis for a new activity, or taking advantage of opportunities now and in the future as technology advances, or for inshore activities to locate further offshore in tandem with other industries.

4.15 Opportunities for coexistence and synergies may be identified through existing examples, by sectors as new practices and technologies emerge or by data collection at a national or regional level. Where possible, marine planners and decision makers should encourage development or use which does not result in areas being unsuitable for future use by others (e.g. by considering alternative designs or through licensing decisions and conditions).

4.16 Where it becomes apparent that different activities are incompatible or mutually exclusive, some areas may be identified within regional marine plans for preferential use by specific sectors. Any selection of such areas should follow:

- A scoping exercise to determine where potential interactions may occur and the likely effect of interaction.
- An understanding of environmental, planning and other sectoral constraints. Where appropriate, this can be developed through Regional Locational Guidance.
- A consideration of the priorities for development and use of the area, taking account of the feasibility of taking forward expansion.
- Sustainability appraisal considering the potential range of impacts on the environment and the range of other potential users, and others who could be less directly impacted.
- Consideration of any cumulative impact.
- Scenario mapping to understand the impact on the local communities.
- Robust consultation.

4.17 Marine planning should not impede existing agreements between sectors and should seek to complement such arrangements where they exist. Where conflict over space or resource exists or arises, marine planning should encourage initiatives between sectors to resolve conflict and take account of agreements where this is applicable.

Regional Policy: regional marine plans should consider:

- Determining sectoral incompatibilities and potential for coexistence of development and activity using appropriate mechanisms such as interactions matrices.
- Identifying areas for preferential use by specific sectors, where appropriate, following consultation and using appropriate mechanisms such as sustainability appraisal and scenario mapping.
- Taking account of cross sectoral agreements with regards to shared usage of the marine area.

GEN 5 Climate change: Marine planners and decision makers must act in the way best calculated to mitigate, and adapt to, climate change.

4.18 Marine planners and decision makers should seek to facilitate a transition to a low carbon economy. Marine planners and decision makers should be satisfied that developers and users have sufficient regard to the impacts of a changing climate, and where appropriate provide effective mitigation and adaptation to its predicted effects. Offshore and coastal developments should be appropriately sited and designed, and use technologies and equipment appropriate for local conditions, now and in the future. The Scottish Climate Change Adaption Programme²⁶ should be complied with. Where appropriate, marine planning authorities should be satisfied that adequate risk management and contingency plans are in place, particularly in relation to potential changes in storminess.

4.19 Developers and users of the marine environment should seek to address climate change through:

- Mitigation – reducing emissions of carbon and other greenhouse gas. This will be of particular relevance in cases of large scale development and infrastructure projects.
- Adaptation – strengthening resilience in relation to greater climate variability. Examples include allowing natural coastal change where possible and new developments having regard to possible future climate conditions (giving particular consideration to vulnerability, scale and longevity of operation).

4.20 Reducing human pressure and safeguarding ecosystem services such as natural coastal protection and natural carbon sinks (e.g. seagrass beds, kelp and saltmarsh) should be considered. In some cases, compensatory habitat creation or enhancement may be possible and should be considered as a last resort if significant harm cannot be avoided. Appropriate proactive opportunities for enhancing natural carbon sinks and allowing natural coastal change where possible should also be considered.

²⁶ Scottish Climate Change Adaptation Programme. Scottish Government.
<http://www.scotland.gov.uk/Publications/2014/05/4669>

Regional Policy: regional marine plans should:

- Identify significant carbon sinks and seek to avoid colocation with potentially damaging activity; then
- Assess the acceptability of any proposed partial loss or damage to natural carbon sinks (including any compensatory measures) through licensing or management of marine activities, balanced with priorities presented in this Plan and respective regional marine plans.

GEN 6 Historic environment: Development and use of the marine environment should protect and, where appropriate, enhance heritage assets in a manner proportionate to their significance.

4.21 The historic environment includes all aspects of the environment resulting from the interaction between people and places through time, including all surviving physical remains of past human activity, whether visible, buried or submerged. In addition to its cultural value, the historic environment can be a powerful driver for economic growth, attracting investment and tourism and sustaining enjoyable and sustainable places in which to live and work.

4.22 Those elements – buildings, monuments, sites or landscapes – that have been identified as holding a degree of significance meriting consideration are called ‘heritage’ assets. Some heritage assets around our coast have a level of interest that has justified statutory designation²⁷ (Map 3). There are also many undesignated heritage assets which also contribute positively to the cultural and social dimension of our coasts and seas and to local economies through recreation and tourism²⁸.

4.23 Marine planning should help to ensure that future marine activities and developments can be carried out in a way that respects the marine historic environment and the setting of important coastal heritage assets. It can also help to increase the social and economic contribution of the heritage assets, for example by encouraging opportunities for public access.

²⁷ Information on statutory heritage designations is available from:

<http://www.historic-scotland.gov.uk/index/heritage.htm>

Historic Scotland will be merged with Royal Commission on the Ancient and Historic Monuments of Scotland (RCAHMS) to become Historic Environment Scotland in 2015.

²⁸ Information about undesignated marine heritage assets is available on [NMPi](#)

4.24 To achieve this, marine planners and decision makers should consider implications and opportunities for the historic environment taking into account the potential impacts of development and use on:

- Designated heritage assets – representing sites of national or international significance for which statutory requirements apply. Designated assets should be protected in situ within an appropriate setting²⁹. Substantial loss or harm to designated assets should be exceptional and should only be permitted if this is necessary to deliver social, economic or environmental benefits that outweigh the harm or loss.
- Undesignated heritage assets – those that meet designation criteria³⁰ or make a positive contribution should also be protected in-situ, wherever possible, and consideration given to the potential for new discoveries of historic or archaeological interest to arise.

4.25 Proposals for development and use that may affect the historic environment should provide information on the significance of known heritage assets and the potential for new discoveries to arise. They should demonstrate how any adverse impacts will be avoided, or if not possible minimised and mitigated. Where it is not possible to minimise or mitigate impacts, the benefits of proceeding with the proposal should be clearly set out.

4.26 Where the case for substantial change to a heritage asset is accepted, marine decision-making authorities should identify and require applicants to undertake suitable mitigating actions to record and advance understanding of the significance of the heritage asset before it is lost, in a manner proportionate to that significance. The resulting evidence should be made publicly accessible and copies of reports archived with the Royal Commission on the Ancient and Historical Monuments of Scotland³¹ and the adjacent Local Authority archaeology service.

29 Guidance on setting is available at: <http://www.historic-scotland.gov.uk/managingchange>

30 Guidance on determining national importance of marine historic assets under the Marine Scotland Act 2010 is available from <http://www.historic-scotland.gov.uk/shep-dec2011.pdf>

31 RCAHMS will be merged with Historic Scotland to become Historic Environment Scotland in 2015.

Map 3

Marine Cultural Heritage Statutory Designations

Detail Key

General Policies

Key:

— 12 Nautical Miles

Historic MPA:

- 1 Out Skerries
- 2 Kinlochbervie
- 3 Drumbeg
- 4 Mingary
- 5 Dartmouth
- 6 Duart Point
- 7 HMS Campania

Designated Vessels:

- 1 HMS Bullen
(Bow Section)
- 2 HMT Beech
- 3 HMS Duke of Albany
- 4 HMS Lynx
- 5 HMS / M K17
- 6 HMS / M K4
- 7 HMS Pathfinder
- 8 U714
- 9 HMS / M Vandal

Controlled Sites:

- 1 HMS Hampshire
- 2 HMS Royal Oak
- 3 HMS Vanguard
- 4 HMS Exmouth
- 5 HMS Natal
- 6 HMS Dasher

Listed Buildings:

- 1 Rattray Head Lighthouse
- 2 Pile Lighthouse
- 3 Bell Rock Lighthouse
- 4 Oxcars Lighthouse

Scheduled Monument:

- 1 Wrecks of German High Fleet
- 2 Beaulay Firth
- 3 Marine Crannogs
- 4 Eilean na Carraidh, Fish trap
- 5 Eirska Crannog
- 6 Timber Ponds
- 7 Clyde Crannogs

GEN 7 Landscape/seascape: Marine planners and decision makers should ensure that development and use of the marine environment take seascape, landscape and visual impacts into account.

4.27 Landscape and seascape³² are important elements of people's enjoyment of the coastal and marine environment. They are also important as the setting for coastal communities, contributing to sense of place, economic livelihoods and quality of life. Scotland's varied coastal landscapes are internationally renowned and support a valuable recreation and tourism sector.

4.28 The Scottish Government is committed to implementing the principles of the European Landscape Convention, which includes seascapes and applies an 'all landscapes approach' that addresses developed, altered and cultural landscapes as well as more natural scenic areas. This does not preclude development or change, but recommends that it is carried out appropriately for the area's landscape character and visual amenity.

4.29 Development and use that affect National Scenic Areas, National Parks and World Heritage Sites should only be permitted where:

- They will not adversely affect the integrity of the area or its special qualities for which it has been designated; or
- Any such adverse effects are clearly outweighed by social, environmental or economic benefits of national importance.

4.30 In making these judgements, planners and decision makers should have regard to the qualities of the location in question, including any designation³³. More generally, the siting and design of a development should take account of the local landscape/seascape character and quality. Potential effects on landscapes and seascapes, including cumulative effects should be considered and developers should seek to minimise adverse impacts through careful planning and design, considering the services which the natural environment is providing and maximising the potential for enhancement.

4.31 Where development has the potential to impact on wild land³⁴, locally designated areas, largely developed coast, areas subject to significant constraints or largely unspoiled areas of coast, Scottish Planning Policy³⁵ should be considered when planning for, and taking decisions, which may impact on such areas.

32 Seascape should be taken as meaning 'landscapes with views of the coast or seas, and the adjacent marine environment with cultural, historical and archaeological links with each other'. UK Marine Policy Statement. (paragraph 2.6.5.1)

33 Scottish Natural Heritage. <http://www.snh.gov.uk/protecting-scotlands-nature/protected-areas/national-designations/nsa/special-qualities/>

34 Scottish Natural Heritage. <http://www.snh.gov.uk/protecting-scotlands-nature/looking-after-landscapes/landscape-policy-and-guidance/wild-land/>

35 Scottish Planning Policy - paragraph 200 and 215. Scottish Government. 2014. <http://www.scotland.gov.uk/Publications/2010/02/03132605/0>

4.32 Existing Scottish Natural Heritage (SNH) guidance³⁶ on the principles of good siting and design and examples of emerging good practice should be followed. SNH Landscape Character Assessments and forthcoming SNH guidance on undertaking Coastal Character Assessment also provide useful tools in considering impacts on landscape.

GEN 8 Coastal process and flooding: Developments and activities in the marine environment should be resilient to coastal change and flooding, and not have unacceptable adverse impact on coastal processes or contribute to coastal flooding.

4.33 Over the coming decades, much of Scotland's coastline is expected to experience rising sea level and an increased flood risk, leading to greater rates of coastal change. Natural change may be compounded by human activities such as dredging, soil deposition, construction and coastal protection measures. While flooding and coastal change cannot be prevented entirely, it can be managed to reduce impacts on people, property, businesses and infrastructure.

4.34 Coastal infrastructure should generally be sited in areas less vulnerable to flooding and erosion, although there may be exceptions if a specific location is essential for operational reasons or it cannot be located elsewhere. Marine planners and decision makers should take account of national flood risk assessment and flood risk and hazard maps, prepared by the Scottish Environment Protection Agency (SEPA), which identify areas at risk of significant flooding (Potentially Vulnerable Areas) along with Local Flood Risk Management Plans³⁷.

4.35 The Scottish Government is working with SNH and partners to assess coastal change and map vulnerability. Marine planners and stakeholders with an interest in coastal developments should take account of these maps, when available, to ensure priorities in coastal area are managed in an integrated way.

4.36 A precautionary and risk based approach should be taken in terms of understanding emerging evidence on coastal processes and sea level rise.

4.37 Marine planners and decision makers should also be satisfied that activities and developments will be resilient to risks of coastal change, climate change and flooding over their lifetime, and will not have an unacceptable impact on coastal change. They should seek to ensure that any geomorphological changes that an activity or development bring about in coastal processes, including sediment movement and wave patterns, are minimised and mitigated, bearing in mind the potential impact on commercial interests such as fisheries and conservation of the natural environment and key coastal heritage sites. Developments which may affect areas at high risk and increase the probability of coastal change should not be permitted unless the impacts upon the area can be managed effectively.

4.38 Wherever possible flood risk management and coastal protection solutions should work with natural processes and features, encouraging managed realignment of coastal habitats such as sand dunes, salt marshes and mudflats. The protective role of geodiversity, geomorphological and natural features such as kelp beds and biogenic reefs and sandbanks should also be considered alongside opportunities for recovery and enhancement.

36 Scottish National Heritage. [Landscape and Aquaculture](#); [Visual Representation for Wind Farms](#) and [Offshore Renewables – guidance on assessing the impact on coastal landscape and seascape](#).

37 National flood risk assessment. SEPA. <http://map.sepa.org.uk/nfra/map.htm>

4.39 As well as offering flood protection, this approach will help adaptation to climate change, improve resilience of ecosystems, deliver benefits for biodiversity and support ecosystem services more generally. If and where more traditional engineered solutions are required, the appraisal process should seek to fully understand the risks of a changing climate using the most up to date robust evidence. Modelling will be required to estimate the potential impacts of the projections for a specific flood risk protection scheme. Planners and decision makers should be satisfied that coastal processes will not be adversely affected.

Regional Policy: Regional marine plans should be aligned with terrestrial development plans and reflect coastal areas likely to be suitable for development, taking into account the most recent flood risk and flood hazard maps, and forthcoming coastal erosion vulnerability mapping. Where relevant, regional marine plans should also reflect areas where managed realignment of coast may be appropriate, setting out the potential benefits such as habitat creation and new recreation opportunities. **<applies to inshore waters only>**

Living within environmental limits

GEN 9 Natural heritage: Development and use of the marine environment must:

- (a) Comply with legal requirements for protected areas and protected species.
- (b) Not result in significant impact on the national status of Priority Marine Features.
- (c) Protect and, where appropriate, enhance the health of the marine area.

4.40 Scotland's marine natural resource, biodiversity and geodiversity is a valuable asset delivering a wide range of ecosystem services (see Chapter 3 – Box A), which provide a large stock of natural capital and support a variety of recreational and economic activities. Nature conservation measures play an integral role in protecting and enhancing the marine natural environment, ensuring it is healthy, biologically diverse, resilient and productive and that ecosystems continue to provide social, economic and wider benefits for people, industry and society.

4.41 Marine planners and other decision makers should act in the way best calculated to further the achievement of sustainable development and use, including the protection and, where appropriate, enhancement of the health of the Scottish marine area³⁸. The Strategy for Marine Nature Conservation in Scotland's Seas³⁹ sets out aims and objectives to achieve this. The Strategy outlines a three pillar approach to conservation: site protection, species conservation and wider seas policies and measures.

38 Marine (Scotland) Act 2010 Section (1), Section (3). <http://www.legislation.gov.uk/asp/2010/5/contents>

39 A Strategy for Marine Nature Conservation in Scotland's Seas. Scottish Government. <http://www.scotland.gov.uk/Topics/marine/marine-environment/Conservationstrategy/marineconstrategy/>

SITE PROTECTION

4.42 A network of well managed marine protected areas is being established to meet national objectives and help deliver an ecologically coherent MPA network in the North East Atlantic, contributing to the protection and enhancement of the area to which the Plan applies⁴⁰. The network will comprise of newly designated Marine Protected Areas (Map 4) as well as Natura Sites and marine components of Sites of Special Scientific Interest (SSSI) and Ramsar sites⁴¹. The management requirements of each of these designation types must be met. These sites, together with other protected areas will make a significant contribution to the protection, enhancement, and health of the marine area. Improved health of the marine environment will also lead to increased resilience of ecosystems to climate change.

Natura 2000 Sites

4.43 Sites designated as Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) make up the Natura 2000 network of protected areas. Any plan or project likely to have a significant effect on these sites, which is not directly connected with or necessary to their conservation management, must be subject to an 'appropriate assessment' of their implications for the site in view of its conservation objectives. Such plans or proposals may only be approved if the competent authority has ascertained by means of an 'appropriate assessment' that there will be no adverse effect on the integrity of the site.

4.44 A derogation is available for authorities to approve plans or projects which could adversely affect the integrity of a Natura site if:

- there are no alternative solutions;
- there are imperative reasons of overriding public interest, including those of a social or economic nature⁴²; and
- compensatory measures are provided to ensure that the overall coherence of the Natura network is protected.

4.45 If an authority wishes to use this derogation, Scottish Ministers must be notified. For sites hosting a priority habitat or species (as defined in Article 1 of the Habitats Directive), prior consultation with the European Commission via Scottish Ministers is required unless either the proposal is necessary for public health or safety reasons or it will have beneficial consequences of primary importance to the environment.

4.46 Authorities should afford the same level of protection to proposed SACs and SPAs (i.e. sites which have been approved by Scottish Ministers for formal consultation but which have not yet been designated) as they do to sites which have been designated.

40 UK Contribution to Ecologically Coherent MPA Network in the North East Atlantic Joint Administrations Statement <http://www.scotland.gov.uk/Resource/0041/00411304.pdf>

41 NMPi – protected sites. <http://bit.ly/1tWjEe7>

42 The type of 'Imperative Reason of Overriding Public Interest (IROPI) that a competent authority can consider will depend on the nature of the site that will be affected. See paragraph 14-19 of 'Habitats Directive: guidance on the application of article 6(4)' https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/82647/habitats-directive-iropi-draft-guidance-20120807.pdf

Marine Protected Areas

4.47 Marine Protected Areas (MPAs) are those designated under the Marine Acts to protect features of importance to Scotland⁴³ and which will contribute to an ecologically coherent network of sites. MPAs are identified according to the guidelines on the selection and development of the MPA network⁴⁴.

4.48 The Marine Acts place a duty on all regulators to ensure that there is no significant risk of hindering the achievement of the conservation objectives of an MPA before giving consent to an activity. Where an on-going activity presents a significant risk of hindering the achievement of the conservation objectives of an MPA there will be a management intervention. This intervention will be practical and proportionate, utilising the most appropriate statutory mechanism to reduce the risk. Detailed guidance can be found in Marine Scotland's Nature Conservation Marine Protected Areas Draft Management Handbook⁴⁵.

Sites of Special Scientific Interest

4.49 Development that affects a Site of Special Scientific Interest should only be permitted where:

- the objectives of designation and the overall integrity of the area will not be compromised; or
- any significant adverse effects on the qualities for which the area has been designated are clearly outweighed by social, environmental or economic benefits of national importance.

Locally Designated Sites

4.50 Locally designated natural heritage areas reflect areas of at least local importance. Where it is appropriate to do so, the Scottish Planning Policy⁴⁶ approach to local designations should be considered.

Other policies for all protected areas

4.51 In addition to complying with legal obligations for protected areas, management plans and guidance on protected areas should be followed to contribute to the achievement of site objectives. All Ramsar sites are also Natura sites and/or Sites of Special Scientific Interest and are protected under the relevant statutory regimes.

43 Marine Protected Areas. <http://www.scotland.gov.uk/Topics/marine/marine-environment/mpanetwork>

44 Marine Protected Areas in Scotland's Seas: Guidelines on the selection of MPAs and development of the MPA network. <http://www.scotland.gov.uk/Topics/marine/marine-environment/mpanetwork/mpaguidelines/>

45 Nature Conservation Marine Protected Areas Draft Management Handbook. <http://www.scotland.gov.uk/Topics/marine/marine-environment/mpanetwork/handbook>

46 Scottish Planning Policy. 2014. <http://www.scotland.gov.uk/Publications/2014/06/5823>

Species protection

4.52 The presence (or potential presence) of a legally protected species is an important consideration. If there is evidence to suggest that a protected species is present or may be affected by a proposed development, steps must be taken to establish their presence. The level of protection afforded by legislation must be factored into the planning and design of the development and any impacts must be fully considered prior to the determination of the application.

4.53 Certain activities in territorial waters (e.g. those involving European Protected Species as specified in the Conservation (Natural Habitats etc.) Regulations 1994, and wild birds, protected animals and plants under the Wildlife and Countryside Act 1981) may only be undertaken under licence. Equivalent provisions for birds and European Protected Species under the offshore regulations need to be followed in the Scottish offshore zone in accordance with the Offshore Marine Conservation (Natural habitats, &c.) Regulations 2007.

4.54 For certain species⁴⁷ deliberate or reckless disturbance or harassment is prohibited and can only be carried out in accordance with the terms of a licence. Marine Scotland's Guidance on Protection of Marine European Protected Species from Injury and Disturbance⁴⁸ must be followed. The principles in this Guidance may also be of relevance to other species such as basking shark.

Other policies for protected species

4.55 Guidance on harassment at designated seal haul out sites⁴⁹ should be taken into account. Seal conservation areas should also be taken into account, as should recommended techniques for assessing acceptable levels of man-made pressures.

Wider seas measures

4.56 Marine planning can deliver significant improvements to management of our seas by contributing to improvement in the status of Priority Marine Features (PMFs) and their associated habitats, species and ecosystems.

47 Animals listed in Annex IV (a) of the Habitats Directive (Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora).

48 Scotland's Guidance on Protection of Marine European Protected Species from Injury and Disturbance. Guidance for Scottish Inshore Waters. <http://www.scotland.gov.uk/Topics/marine/marine-environment/species/19887/20813/epsguidance>

49 Designated seal haul-out sites and Guidance on Harassment at Seal Haul Out Sites. <http://www.scotland.gov.uk/Topics/marine/marine-environment/species/19887/20814/haulouts>
NMPi Seal Haulout Sites. <http://www.scotland.gov.uk/Topics/marine/seamanagement/nmpihome/nmpi>

4.57 Priority Marine Features⁵⁰ are species and habitats which have been identified as being of conservation importance to Scotland. Most are a subset of species and habitats identified on national, UK or international lists. They provide a new focus for marine conservation in Scotland. The list does not currently include wild birds species, which are protected under the EU Birds Directive. Impacts of development and use on the national status of Priority Marine Features must be considered when decisions are being made, taking account of the advice of Statutory Advisors. Where planned developments or use have potential to impact PMFs, mitigation, including alternative locations, should be considered. Actions should be taken to enhance the status of PMFs where appropriate.

4.58 Consideration should be given to opportunities to enhance biodiversity and associated ecosystem services, including recovery and/or enhancement of degraded habitats or species populations.

4.59 The descriptors and targets for the achievement of Good Environmental Status (GES) under the Marine Strategy Framework Directive are also relevant to the wider seas approach to nature conservation. Development in, and use of, the marine environment must not compromise the achievement or maintenance of GES for UK waters.

Geodiversity

4.60 Geodiversity provides many ecosystem services, such as a diversity of seabed habitats and physical features necessary for the existence of important marine life, the basis for energy development and the attenuation of erosive forces close to shore.

4.61 Marine planning should consider opportunities to protect important geodiversity features and prevent deterioration or enhance where appropriate. Where geodiversity features are qualifying or protected features of designated sites, activities must be managed accordingly under the relevant legislation. Marine planners and decision makers should consider impacts on geology, taking into account their significance. Substantial loss or harm should be exceptional and should only be permitted if this is necessary to deliver social, economic or environmental benefits that outweigh the harm or loss.

GEN 10 Invasive non-native species: Opportunities to reduce the introduction of invasive non-native species to a minimum or proactively improve the practice of existing activity should be taken when decisions are being made.

⁵⁰ Priority Marine Features.

<http://www.snh.gov.uk/protecting-scotlands-nature/priority-marine-features/priority-marine-features/>

Invasive non-natives

4.62 Invasive non-native species can cause damage to the environment, economy and health. Control is expensive and not always possible, especially in the marine environment where internationally agreed prevention measures may be needed. 'Prevention, rapid response, control' is the hierarchical approach to management of invasive non-natives currently employed. Good biosecurity practice should consider the risk of planned activities establishing new pathways for the spread of invasive non-natives and is essential. Biosecurity measures must be established in any instance where a new route for invasive non-native species is determined. SNH guidance is available for producing site and operation-based biosecurity plans for preventing the introduction of non-native species⁵¹.

4.63 The Code of Practice on Non-Native Species for Scotland⁵², species control agreements and orders (under the Wildlife and Natural Environment (Scotland) Act and international guidelines should be used where relevant to the marine environment.

GEN 11 Marine litter: Developers, users and those accessing the marine environment must take measures to address marine litter where appropriate. Reduction of litter must be taken into account by decision makers.

4.64 Marine litter poses a number of detrimental problems across the economy, environment and society. These include ingestion by and entanglement of, wildlife; wider ecosystem deterioration; public health issues; impacts on aesthetics and a wide range of economic impacts across the raft of industries reliant on our coastal and marine environment.

4.65 Opportunities to reduce and address marine litter, with reference to A Marine Litter Strategy for Scotland⁵³, should be taken into account in decision making and when marine plans are being developed. In particular the integrity and function of marine and coastal ecosystems should not be compromised by litter and there should be no significant risk to wildlife, communities and human health.

Regional Policy: Regional marine plans should consider identifying measures in place to address marine litter and demonstrating how they contribute to the Marine Litter Strategy.

51 Marine Biosecurity Planning; Guidance for Producing Site and Operation-based Plans for preventing the introduction of non-native species. Scottish Natural Heritage. 2014. <http://www.snh.gov.uk/docs/A1294630.pdf>

52 Code of Practice on Non-Native Species for Scotland . Scottish Government. 2012. <http://www.scotland.gov.uk/Publications/2012/08/7367/0>

53 A Litter Strategy for Scotland. Scottish Government. 2014. <http://www.scotland.gov.uk/Publications/2014/09/4891>

Map 4 Marine SPAs, SACs and MPAs within Scottish Waters

Detail Key

General Policies

Key:

-  12 Nautical Miles
-  SPAs contributing to the MPA network
-  Nature Conservation Marine Protected Areas (MPAs)

SACs Contributing to the MPA Network

-  Marine Special Areas of Conservation in Scottish waters
-  Candidate Marine Special Areas of Conservation in Scottish waters



GEN 12 Water quality and resource: Developments and activities should not result in a deterioration of the quality of waters to which the Water Framework Directive, Marine Strategy Framework Directive or other related directives apply.

4.66 Marine planners and decision makers should be satisfied that impacts of development and use on water have been taken into account. With regards to the Water Framework Directive (WFD), reference should be made to the 'ecological status of the water environment' which includes water quality, quantity, and changes to water level as well as biological aspects such as the impact of non-native species.

4.67 Marine planning and decision making authorities should ensure they have regard to any relevant River Basin Management Plans which implement the WFD and also take account of Shellfish Growing Waters and Bathing Water Directives. Supplementary plans and programmes of measures devised for the river basin district should also be taken into account. They should satisfy themselves where relevant that any development will not cause a deterioration in status of any water to which the WFD applies, subject to the provision of Article 4.7 of that Directive, and should be consistent with the requirements of related directives of the WFD including those on priority substances and groundwater. Decision makers should seek to mitigate impacts on the quality of shellfish waters, designated bathing waters and areas particularly important for immersion sports from any proposed development. **<applies to inshore waters only>**

4.68 The Marine Strategy Framework Directive also introduces requirements for targets on contamination and eutrophication for marine waters out to 200 nautical miles.

GEN 13 Noise: Development and use in the marine environment should avoid significant adverse effects of man-made noise and vibration, especially on species sensitive to such effects.

4.69 Noise and vibration has the potential to disturb, or be damaging to, a number of species, although the full extent of this is not known, either at an individual or population level. Consideration should be given to the effects of man-made noise and vibration⁵⁴ on marine environment and people⁵⁵, with effective mitigation measures being adopted where appropriate. Mitigating and minimising the effects of noise and vibration on wildlife should be considered, taking account of known sensitivities to particular frequencies and source levels of sound. Significant adverse effects on health should be avoided.

4.70 Protection can be advanced with the development of systems for monitoring noise and further research that quantifies the related and cumulative risks to the marine environment. Developers should monitor loud, low to mid frequency (10Hz to 10kHz) impulsive noise. This includes use of seismic airguns, other geophysical surveys (<10kHz), pile driving, explosives and certain acoustic deterrent devices. Details of proposed work should be provided to the Noise Registry⁵⁶.

54 Offshore Industry Advice. JNCC. <http://jncc.defra.gov.uk/page-4273>

55 EU directive on Environmental Noise [EU 2002/49/EC] that deals with noise impacts on people is currently under review

56 Noise Monitoring. Scottish Government. <http://www.scotland.gov.uk/Topics/marine/science/MSInteractive/Themes/noise-reduction>

GEN 14 Air quality: Development and use of the marine environment should not result in the deterioration of air quality and should not breach any statutory air quality limits.

4.71 Some development and use may result in increased emissions to air, including particulate matter and gasses. Impacts on relevant statutory air quality limits must be taken into account and mitigation measures adopted, if necessary, to allow an activity to proceed within these limits.

4.72 Marine and terrestrial planners should liaise to consider how air quality may be improved, particularly within or adjacent to Air Quality Management Areas.

Promoting good governance

GEN 15 Planning alignment A: Marine and terrestrial plans should align to support marine and land based components required by development and seek to facilitate appropriate access to the shore and sea.

4.73 Alignment of marine and terrestrial plans is required for successful planning and operation of marine industries and activities requiring both land and marine infrastructure, or infrastructure which straddles the jurisdiction of both plan areas. Examples include, but are not limited to, cables or pipelines, aquaculture, ports and harbours and offshore renewables, and coastal infrastructure. Maintaining access to the shore and sea is equally important. While access is essential for the economic success of marine industries and consequential social benefits, it is also equally important for recreational activities (many of which are associated with health, wellbeing and sport development) and tourism.

4.74 Marine planners should ensure compatibility with plans for any adjoining land planning area and marine region, and should work cross border to ensure compatibility where this is relevant (Chapter 2 Marine Planning in Context; also Planning Circular – The relationship between the statutory land use planning system and marine planning and licensing⁵⁷).

4.75 When developing proposals, developers and users should be compliant with relevant Development Plans. They should also ensure that land based components of a development or infrastructure, such as cables or pipelines which cross the marine/land interface, do not restrict access to the marine area.

Regional policy: Regional marine plans are required to be compatible with the plans for any adjoining marine region. **<applies to inshore waters only>**

GEN 16 Planning alignment B: Marine plans should align and comply where possible with other statutory plans and should consider objectives and policies of relevant non statutory plans where appropriate to do so. **<applies to inshore waters only>**

⁵⁷ See footnote 11.

4.76 Alignment of marine planning with other planning, regulation and management that affects the use of the marine area and its resources will be important to manage pressures, further environmental health and achieve sustainable development across the coastal area. When regional marine plans are being developed, they should also consider relevant non statutory plans or strategies to allow for integration of policies of local relevance to be included for consultation. Examples include, but are not restricted to, shoreline management plans and integrated coastal zone management plans. **<applies to inshore waters only>**

GEN 17 Fairness: All marine interests will be treated with fairness and in a transparent manner when decisions are being made in the marine environment.

4.77 The concept of the marine environment and its resources being managed for current and future generations and for the benefit of the nation as a whole is integral to marine planning. The marine planning system therefore operates in the long term public interest. Marine planning has a role to play balancing competing demands for marine resources and resolution of planning issues will not be able to satisfy all interests all of the time. However, it is fundamental that all interests should be able to participate on an equal basis in the planning and decision making process and that decisions should be taken in a transparent manner.

GEN 18 Engagement: Early and effective engagement should be undertaken with the general public and all interested stakeholders to facilitate planning and consenting processes.

4.78 Engagement with the public and other stakeholders should be appropriate, proportionate and meaningful. It should be undertaken as early as possible in planning and consenting processes, taking into account statutory pre-application consultation requirements where these apply, to enable a range of views to be fairly reflected. Marine users and potential users, planners and decision makers, statutory consultees, communities, representative organisations, public bodies, government and the general public should all contribute where necessary. Engagement and the views expressed should be a consideration in decision making. There should be a presumption in favour of publicising applications for marine and terrestrial components of a development together during consenting processes.

Using sound science responsibly

GEN 19 Sound evidence: Decision making in the marine environment will be based on a sound scientific and socio-economic evidence.

4.79 Marine plans and decision making will be based on a sound scientific base, drawn from a wide range of sources including the scientific community, stakeholders and users of the marine area. New social, economic and environmental and historic information will continue to improve knowledge of the marine environment and the potential impacts and benefits of its use. Gaps in evidence will be addressed through a variety of means, including but not exclusively, the Marine Scotland Science Strategy⁵⁸, evidence gathered in support of regional planning, and marine research and monitoring mechanisms and stakeholders.

4.80 Deployment and monitoring of new technologies and development on a limited basis and limited scale will improve understanding of impacts, mitigations and the potential for sustainability prior to full scale activity. It should be encouraged by planners and decision makers subject to licensing considerations and the policies and objectives of this Plan.

4.81 Key evidence bases such as National Marine Plan interactive and Marine Scotland interactive will be updated to reflect current information.

4.82 Where evidence is inconclusive and impacts of development or use on marine resources are uncertain reasonable efforts should be made to fill evidence gaps, decision makers should apply precaution within an overall risk-based approach. This means that if impacts of an activity are uncertain, preventative measures may be required if there is concern that activity may harm human health, living resources, marine ecosystems, interfere with other legitimate uses of the sea or have other social and economic impacts. Modifications to proposals which would eliminate or minimise risk must be considered. The precautions taken should be considered based on risk, by balancing environmental, social and economic costs and benefits, and should also take account of legal designations.

GEN 20 Adaptive management: Adaptive management practices should take account of new data and information in decision making, informing future decisions and future iterations of policy.

4.83 Data collected via monitoring of development will be made available. Where monitoring, research and data collection brings to light new social, economic or environmental evidence and identifies issues to be addressed in marine plans, adaptive management practices should, where appropriate, incorporate recommendations arising from on-going strategic and project level monitoring programmes in decision making, informing future decisions and iterations of policy. Evolving technologies, innovation, new techniques and sound practices should all be considered to ensure a flexible and appropriate approach is taken to marine planning and decision making.

58 Scottish Marine Science Strategy 2010-2015 <http://www.scotland.gov.uk/Publications/2011/03/02092716/0>

GEN 21 Cumulative impacts: Cumulative impacts affecting the ecosystem of the marine plan area should be addressed in decision-making and plan implementation.

4.84 Cumulative impact⁵⁹ on a resource and ecosystem service may occur because of a series of developments or activities of the same type or from the combined effects of a mix of different types of activities.

How cumulative impacts should be taken into account

4.85 Planning authorities and decision makers will consider the potential cumulative impact of activities and, using best available techniques, whether:

- The cumulative impact of activities, either by themselves over time or in conjunction with others, outweigh the benefits;
- A series of low impact activities would have a significant cumulative impact which outweigh the benefit;
- An activity may preclude the use of the same area/resource for another potentially beneficial activity.

4.86 It is expected that the development of regional marine plans and sector development plans will consider these elements through processes such as Sustainability Appraisal and Strategic Environmental Assessment. Appropriate assessment may be required. Impact Assessment of the socio-economic costs and benefits may also be needed, providing further opportunity to consider a range of possible cumulative impacts. At a project level, such consideration will be given through Environmental Impact Assessment and Habitat Regulation Appraisal.

Other considerations

4.87 Benefits and adverse effects of a proposal, which may be economic, social or environmental in nature should be provided by the proposing party and weighed using information from a variety of sources to consider different impacts. Cumulative impact assessment may be appropriate even if a project is small where it is reasonably expected to contribute to cumulative impact of existing or proposed activity. However, the level of assessment undertaken for any project should be proportionate to the expected scale and impact of the project as well as the sensitivity of the environment or social or economic effect concerned.

4.88 Mitigation may be required depending on the significance of impacts. This should be evaluated in terms of whether there are any potential impacts the sustainability of the coastal and marine environment, or social well-being.

4.89 Close working across plan boundaries should exist to allow for cumulative effects of activities in plan boundary areas to be considered.

⁵⁹ Cumulative impacts are those that result from incremental changes caused by other past, present or reasonably foreseeable actions together with the project. Guidelines for the Assessment of Indirect and Cumulative Impacts as well as Impact Interactions. European Commission. 1999. <http://ec.europa.eu/environment/archives/eia/eia-studies-and-reports/pdf/guidel.pdf>

5. A Guide to Sector Chapters

Objectives

5.1 This section outlines how marine industries and activities are expected to develop in the immediate future and in the longer term and the issues to be addressed to ensure they grow sustainably. Objectives may be achievable over the life of this Plan, or may set the direction for longer term achievement.

Key references

5.2 This sets out key reference sources which may provide useful context. It also contains information on where to access relevant spatial data on National Marine Plan interactive (NMPi).

Part 1: Background and context

5.3 This section provides a brief introduction to each sector and gives context to its importance.

Part 2: Key issues for marine planning

5.4 For each sector, key issues which can be addressed through national and regional marine planning for the relevant sector to develop sustainably are considered, where these are not already covered by the general policies set out in Chapter 4. Key issues include:

- **Supporting economically productive activities:** Marine industries and activities contribute significantly to sustainable economic growth and some are recognised as growth sectors in the Government's Economic Strategy. This section explores how marine planning can support or facilitate growth within that sector.
- **Interactions with other users:** As use of marine resources increases, interactions between users are expected to increase. Marine planning can help address conflict or promote synergy and this section discusses some of the interactions marine planning can address.
- **Living within environmental limits:** Many marine activities impact on the natural environment and ecosystem functioning. Scotland's Marine Atlas: Information for the National Marine Plan identifies many of these impacts; and this section considers these, with a focus on those which marine planning can address.
- **Climate change:** Climate change and the associated effects for the marine environment will impact on some marine activities. These impacts are discussed in the context of how marine planning can help address change or promote adaptation to its consequences.

Part 3: Marine planning policies

5.5 Marine planning policies which address the issues raised above are set out, where these are not already covered by the general policies set out in Chapter 4.

5.6 Policies for each sector should be read subject to those set out as General Policies in Chapter 4 of this Plan, and also in conjunction with all other sectoral policies.

Regional Policy: This sets out considerations for regional marine planners. The precise approach and coverage of the regional plan will be for Marine Planning Partnerships to determine based on local priorities and taking account of existing partnerships, methodologies and alignment with other local plans.

Part 4: The future

5.7 The Future section presents a forward look for a sector, allowing future planning requirements to be considered.

6. Sea Fisheries

Objectives and policies for this sector should be read subject to those set out in Chapters 3 and 4 of this Plan. It is recognised that not all of the objectives can necessarily be achieved directly through the marine planning system, but they are considered important context for planning and decision making.

Objectives

- 1   Fish stocks are harvested sustainably (both environmentally and economically) leading to exploitation of Scotland's commercial fish stocks at Maximum Sustainable Yield and with increased long-term stability.
- 2  A fishing fleet which is seen as an exemplar in global sustainable fishing practices and is confident in securing a long-term income from the available sustainable fishing opportunities across all sectors.
- 3  The sea fisheries industry can:
 - Optimise annual quota opportunities across Scotland's fish stocks
 - Optimise the sustainable harvesting of wild fish
 - Optimise the value of its product, both on first landing and through the supply chain
- 4   Communities where fishing is a viable career option and value is added throughout the supply chain maximising the contribution fisheries makes to Scotland.
- 5    Management of fisheries on a regional sea-basin eco-system basis⁶⁰ with appropriate stakeholders empowered in the decision-making process and, where appropriate, eco-system-based management of inshore fisheries at local level, on the basis of participative management with interested stakeholders and involving both marine planning partnerships and Inshore Fisheries Groups.
- 6    Fisheries managed in line with international and national environmental priorities.
- 7    An evidence-based approach to fisheries management which is underpinned by a responsible use of sound science and is supported by the whole sector.
- 8   Tackle discarding through the avoidance of unwanted catches and the implementation of the EU's obligation to land all catches of quota stocks in a way which is workable and sensitive to the impacts on fishing practices both offshore and onshore.
- 9   Management of removals rather than landings, where necessary, through fully documented fisheries.

⁶⁰ (For example through the regionalised fisheries management groups now established under the EU's Common Fisheries Policy)

Key references

[Common Fisheries Policy](#)

Scotland's Marine Atlas: Information for the National Marine Plan.

[Chapter 5: Productive / Fishing](#). Pages 146–149

National Marine Plan interactive ([NMPi](#)). [Productive/ Fishing](#) section.

Part 1: Background and Context

6.1 Fishing is a long established, and the most widespread, human activity in our waters.

6.2 The Scottish Government recognises the social, cultural and economic importance of fishing activity to many of Scotland's communities and wishes to see the long history of fishing in Scottish waters continue.

6.3 The potential environmental impacts of fishing are also recognised, with Scotland's Marine Atlas: Information for the National Marine Plan highlighting fishing pressure and associated impacts on the seabed and species, as widespread and significant.

6.4 A large number of commercial sea fish stocks are regulated by the EU's Common Fisheries Policy. The management of fishing is also affected by EU environmental legislation which places obligations on Scotland in relation to fisheries management. Within the Scottish fisheries zone the Scottish Government has the ability to put in place management measures to help maintain stock sustainability.

6.5 The establishment of Inshore Fisheries Groups⁶¹, and the emerging development of Marine Planning Partnerships, bring a more localised perspective to fisheries management, particularly for the inshore fleet. As a general principle the Scottish Government is in favour of moving decision-making closer to the people affected by those decisions. We envisage that Marine Planning Partnerships, informed by the work of Inshore Fisheries Groups and working in partnership with Local Authorities, could form a platform for moving to a more regional model of marine management.

6.6 The development of regional plans will take account of this Plan and national priorities for which Marine Scotland will remain responsible. In relation to fisheries, this interaction between regional and national decision-making will be particularly important given the highly mobile nature of parts of the fishing fleet and the need to consider access to fishing grounds for vessels from outwith the local area.

6.7 The Scottish fishing fleet can be split into four broad sectors:

- **The pelagic fleet** which mainly targets herring and mackerel is comprised of a relatively small number of large vessels. This fleet fishes seasonally through a wide range of sea areas as they follow the highly migratory patterns of pelagic species, from the central North Sea in the summer months before moving north towards Shetland and then travelling west to follow the Gulf Stream to the South of Ireland.

61 Inshore Fisheries Groups. www.ifgs.org.uk

- **The demersal or whitefish fleet** (comprising a larger number of smaller vessels) targets bottom-dwelling fish in two main types of fishery – round fish such as cod, whiting, haddock and saithe and ground fish such as monkfish and megrim. These vessels tend to operate in the more northerly grounds of the North Sea and west coast of Scotland, fishing in deeper water and following the continental shelf edges.
- **The mixed demersal and shellfish fleet** is made up of whitefish boats which move between whitefish and Nephrops (also known as langoustine) fisheries. These vessels, whilst in many cases capable of travelling further afield, tend to concentrate their main efforts in the central North Sea in an area known as the Fladen Ground with little overlap between them and the presence of larger whitefish vessels. There is also a fleet of these vessels that fish a variety of grounds on the West coast of Scotland from the North Minch south towards the Clyde and in offshore areas such as the Stanton Banks.
- **The shellfish fleet** specialises in stocks such as scallops, Nephrops and crab and lobster and tends to fish inshore (the Scottish inshore fleet is almost completely dependent on shellfish). These smaller, more numerous vessels, which are generally under 10 metres in length, fish predominately inshore waters inside 6 nautical miles, although some larger vessels and particularly scallop vessels operate to 12 nautical miles and beyond. Activity is spread along the coast line of Scotland but tends to be concentrated more on the West coast where the local geography provides better natural conditions for the safe operation of these small vessels.

6.8 There are also seasonal inter-tidal fisheries, such as cockle fisheries, and small scale hand diving fisheries in some areas.

6.9 From a Scottish fishing fleet of just over 2,020 licensed vessels in 2013, more than a quarter were over 10 metres, with approximately 1500 of the vessels fishing in the inshore area of 0-6 nautical miles predominantly using static gear. In total, the combined fleet employed 4,992 fishermen. There can be considerable switching by vessels between fishing gear types, target stocks and fishing grounds as fishers seek to optimise the fluctuating fishing opportunities available to them from year to year.

6.10 As well as the Scottish fleet, some 12 non-Scottish fleets fish in the Scottish fishing zone, which holds a particularly rich mixed fishery.

6.11 Overall, since 2000, fishing activity has been reduced significantly in order to conserve stocks. The quantity of whitefish and pelagic fish landed has decreased, while there has been a slight increase in shellfish catches. These trends are the result generally of the availability of stocks and specific measures such as the cod recovery programme and other conservation measures.

6.12 The health of key commercial stocks varies across regions and sectors, and from year to year, as does the availability of scientific data. The International Council for the Exploration of the Seas (ICES)⁶² carries out assessments for most of Scotland's major commercial sea fisheries stocks on an annual basis⁶³. Fisheries management initiatives and the response of the fishing fleet have resulted in fish mortality rates moving towards (and in certain cases reaching) sustainable levels, with a view to being able to take smaller percentages from larger stocks. However, for some stocks, particularly West of Scotland cod, there has been little sign of recovery despite significant reductions in fishing effort in key fleets.

62 The International Council for the Exploration of the Sea www.ices.dk

63 Up-to-date information on the current state of fish stocks can be found at: <http://www.ices.dk/community/advisory-process/Pages/Latest-Advice.aspx>

Map 5

Quantity of Landings into Scotland by all Vessels by District (tonnes): 2013

Detail Key

Sea Fisheries

Key:

12 Nautical Miles

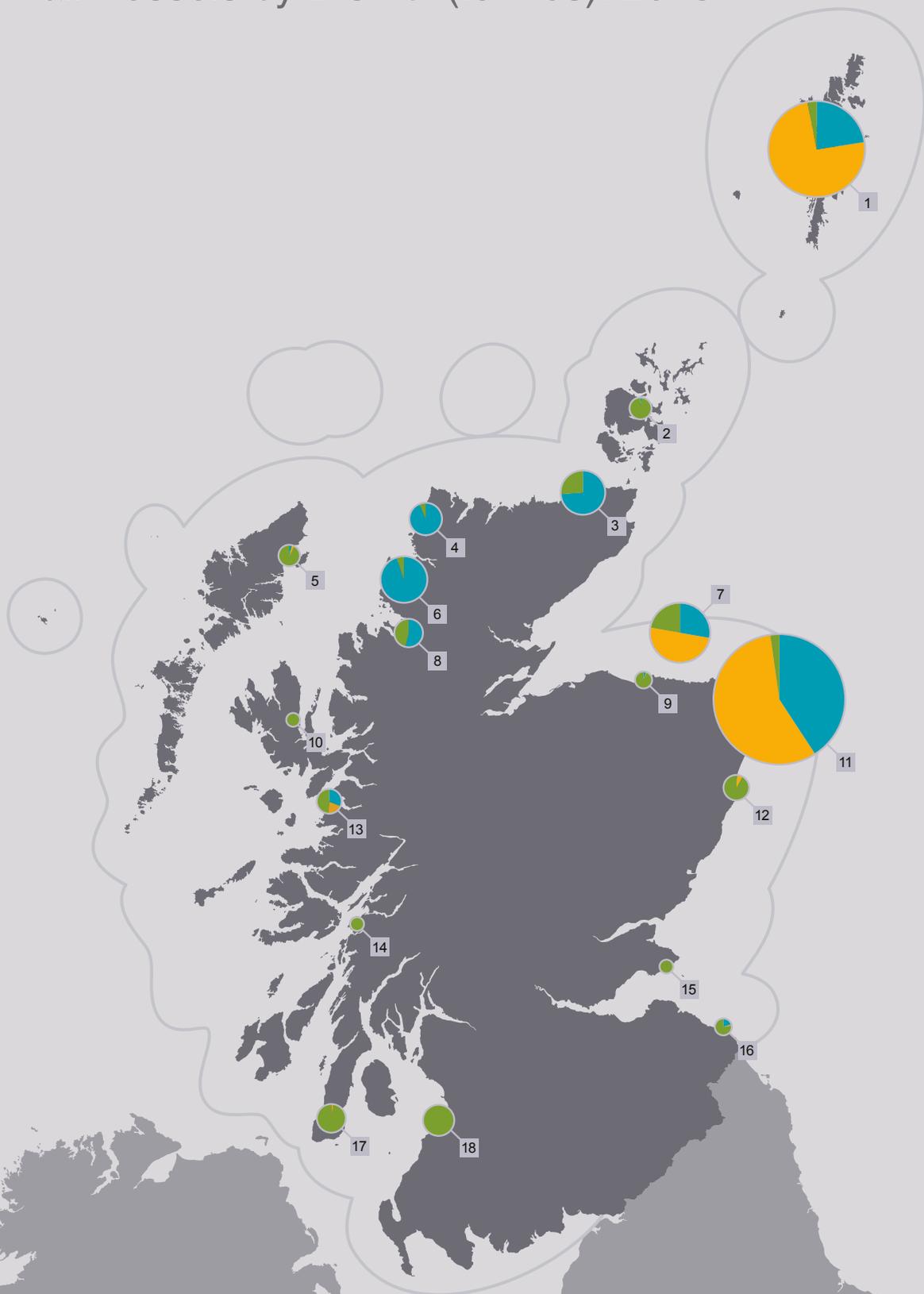
Demersal

Pelagic

Shellfish

Port:

- 1 Shetland 73,861
- 2 Orkney 3,847
- 3 Scrabster 15,103
- 4 Kinlochbervie 7,365
- 5 Stornoway 3,521
- 6 Lochinver 15,862
- 7 Fraserburgh 25,988
- 8 Ullapool 6,586
- 9 Buckie 969
- 10 Portree 2,163
- 11 Peterhead 130,405
- 12 Aberdeen 1,466
- 13 Mallaig 4,710
- 14 Oban 2,728
- 15 Anstruther 1,255
- 16 Eyemouth 2,411
- 17 Campbeltown 5,331
- 18 Ayr 9,448



INTERACTIONS WITH OTHER USERS

6.20 Given its widespread nature, fishing activity has the potential to interact significantly with a number of other sectors. Fishing activity is often seasonal and given the dynamic and mobile nature of many fisheries, it is often very difficult to accurately predict precisely where activity will take place from year to year.

6.21 There is opportunity for fishing to interact positively with other sectors – for example, as a provider of income for ports and harbours. The fishing industry also has a history of working constructively with the oil and gas sector to achieve mutual benefits, despite the potential competition for marine space. Such positive co-operation should be encouraged where possible.

6.22 There are some key emerging issues concerning the interactions between the fishing industry and other interests which should be borne in mind in any proposed marine development and factored into marine planning processes.

Interactions with new physical development and associated activity

6.23 Energy developments can displace fishing. The cabling arrays associated with energy and telecoms developments, and other physical infrastructure associated with development, have the potential for short-term displacement of fishing activity during the installation phase.

6.24 There is also potential for damage to occur to both infrastructure and fishing equipment as a result of interactions, with obvious safety implications. New developments should take into account the intensity of fishing activity in the proposed development area and any likely displacement activity the development and associated activity could precipitate, with resultant increased pressure on remaining, often adjacent, fishing grounds.

6.25 There may be potential for some infrastructure or development areas to act as nursery grounds for fish and, if appropriately protected, these may lead to an increase in fish stocks in the surrounding areas. This possibility should be considered on a case by case basis.

6.26 Where relevant, Fisheries Liaison with Offshore Wind and Wet renewables (FLOWW) Best Practice Guidance for Offshore Renewables Developments: Recommendations for Fisheries Liaison⁶⁴ should be followed.

Interactions with marine conservation initiatives

6.27 Designated areas for nature conservation or culture heritage purposes may impact on fishing activity depending on the nature of the designation, the associated management measures, and the type of fishing that takes place in the area concerned.

64 Best Practice Guidance for Offshore Renewables Developments: Recommendations for Fisheries Liaison. FLOWW. 2014. <http://www.sff.co.uk/sites/default/files/FLOWW%20Best%20Practice%20Guidance%20for%20Offshore%20Renewables%20Developments%20Jan%202014.pdf>

6.28 Conservation areas can also help to underpin sustainable fishing by protecting habitats of value to commercial species' life cycles, supporting the recovery of protected species and serving to enrich the biodiversity of an area. Designated areas may, for example, act as nursery or spawning grounds for fish which could improve the state of stocks in the surrounding areas⁶⁵.

Interactions within the industry

6.29 As various fishermen may wish to fish in the same waters, there can be competitive interaction between and within different industry sectors. Such conflicts have been known to become heated and longstanding and can be exacerbated where the same species, such as nephrops, is being targeted by both mobile and static gear operators. To help manage these interactions local voluntary codes of conduct have been designed in attempts to achieve harmonious co-existence and fair opportunities for both mobile and static gear sectors. Codes also exist in the static gear sector to try to avoid, or enable resolution of, conflict within that sector.

6.30 Given the range of these interactions and the vested interests involved it is essential that all appropriate fishermen's associations are consulted by planners and decision makers to ensure decisions are based on the most complete information. Attention should also be paid to the status and verification of all information used to inform decisions.

Interactions with marine recreation users

6.31 There may be difficult interactions between static gear fishermen and yachters, as creel gear can snag, disable and endanger pleasure craft.

6.32 There can also be competitive interactions between fishing and recreational sea angling, including concerns from anglers that mobile fishing is affecting stock levels and causing a lack of larger specimens of the species targeted by anglers.

Effects of interaction – displacement

6.33 Displacement of fishing activity can occur as a result of: interactions with other marine activities (whether commercial or conservation based); closing areas to fishing; or restricting fishing vessels' access to areas. Displacement of fishing effort has a number of features that require careful consideration.

6.34 Displaced effort may move to areas that are already fished but where the fishing pressure is then greater than otherwise would have been the case. This could be a concern if this results in a greater impact on recovery of fish stocks or increased pressure on fish stocks or damage to the environment.

6.35 Displaced effort may also impact on grounds that previously have not experienced any fishing effort. These areas can be readily identified in the offshore fisheries by vessel monitoring systems. The displaced activity may have a new and unknown environmental impact on these areas.

⁶⁵ Spillover effects from temperate marine protected areas. Murawski, S. A., Rago, P., and Fogarty, M. 2004. American Fisheries Society Symposium, 42: 167-184

6.36 There may be socio-economic effects associated with displacement, such as new grounds being less profitable for fishermen; beyond the capacity of some vessels; and/or unable to provide the mix of species on which current business models rely. Displacement may also cause crowding of fishing effort in remaining established fishing areas, or increased fuel costs arising from having to travel further and make fishing less economically sustainable.

6.37 While it is preferable not to restrict access to individual fishing grounds, displacement may have some positive environmental and socio-economic impacts. For example, closed areas may benefit nursery grounds and protect environmental features.

LIVING WITHIN ENVIRONMENTAL LIMITS

Impact of fishing

6.38 Fishing has a more geographically widespread impact on the marine environment than other activities however, the degree of impact depends on the type of fishing gear used and the nature and sensitivity of species and habitats affected.

6.39 Commercial fishing inevitably impacts on marine productivity and biodiversity. The degree of impact is related to natural eco-system dynamics (such as the fecundity of each fish stock from year to year), the amount of fishing taking place, the efficiency and selectivity of fishing gear (that is, the extent to which gear avoids catching non-target/vulnerable fish), and the approaches taken by fishers to targeting species. Commercial fisheries exert a significant pressure on target and non-target fish populations, both directly through fishery removals, and indirectly by removing predators, prey, competitors and essential habitats. This can potentially impact on other species by altering the balance of processes in the food web.

6.40 It is inevitable, even in the most selective fisheries, that some species will be caught unintentionally. Some of this unwanted catch⁶⁶ can be sold or returned back to the sea unharmed, but currently much of it is discarded, dead, into the sea, which is an inefficient and wasteful use of the resource. A key priority of the Scottish Government is to eliminate unwanted catch and this may require spatial management of fishing patterns, such as avoidance of sea areas where there is a significantly greater risk of catching unwanted fish.

6.41 Scallop dredging is recognised as having the most significant impact on localised seabed habitats within Scotland's waters. Fishing using demersal mobile gear can also adversely affect the seabed, causing damage to benthic features and habitats. There is also the potential for loss or damage to heritage assets although fishers avoid these where possible.

Spatial management measures in place⁶⁷

6.42 A number of sea areas are already closed to fishing to protect vulnerable marine ecosystems, such as cold water corals on the Rockall Bank and Darwin Mounds. In addition fisheries in some areas are limited or prevented altogether in order to protect breeding seabird populations. An example of this is the Wee Bankie closure in the Firth of Forth. Other restrictions include those operating in Loch Creran and the Firth of Lorn. In addition, local spatial measures have been applied in Shetland's inshore waters through the Regulating Order operated by the Shetland Shellfish Management Organisation (SSMO).

⁶⁶ By 2019 commercial fishing vessels must land any quota species of any size that they catch.

⁶⁷ Fishing Management Areas information can be found on NMPi

<http://www.scotland.gov.uk/Topics/marine/seamanagement/nmpihome/Productive/managedareas>

6.43 Many of these measures are managed at an EU level or through the North East Atlantic Fisheries Commission (NEAFC). National measures can be put in place by Scottish Ministers but outside the 6 mile zone other EU Member States are not obliged to observe these closures.

6.44 Real Time Closures are areas of sea that are instantly closed to fishing for short periods of time in order to avoid concentrations of juvenile and mature fish that are either below minimum landing size or would take vessels beyond their quotas⁶⁸.

Impact of environmental change on fish stocks

6.45 Fish stock abundance and distribution are affected by a number of environmental factors including salinity, temperature, algae production and sediment type. In addition, these and other factors impact on food availability for fish – in particular changes in plankton are equally sensitive to the wide range of environmental and climatic changes. Industrial developments can also create pressures on fish stocks. These include endocrine-disrupting substances which pass through sewage works such as pesticides, plastics manufacturing and extraction of sand and gravel.

6.46 A variety of benthic habitats support important demersal fisheries providing essential habitats and nursery, feeding and recruitment areas for fish species. Nephrops also rely on a specific muddy habitat to construct burrows. Additionally, a healthy benthic community may be able to support the recovery of impacted habitats in other areas of the sea and ecosystem resilience will be an important asset in the face of climate change.

CLIMATE CHANGE

6.47 Climate change has the potential to have significant impacts on fish stocks and fishing activities. Changes in sea temperature and other climate induced environmental factors have been shown to alter fish community structure through changes in distribution, migration, recruitment and growth. More frequent adverse weather conditions may also lead to offshore vessels being displaced to more sheltered inshore areas, as well as placing additional limits on inshore vessels. Furthermore, fishermen may require greater flexibility to move between fishing grounds to respond to the impact of climate change on the distribution of stocks. These changes will lead to both risks and opportunities for Scottish fishermen and it is important to manage the risks responsively and to exploit new opportunities sustainably.

6.48 Improving knowledge of the impacts of climate change on fish stocks and their ecosystems is an important objective. Key commercial fish stocks are surveyed and assessed on an annual basis which should help improve understanding of changes in ecosystems, location or migratory patterns. Improving the health of stocks and ecosystem resilience is also a priority action that will improve the ability of fisheries to respond to climate change. The move towards fishing at maximum sustainable yield (MSY) will contribute to this objective.

68 Real Time Closures: commercial impact zones. Scottish Government. This provides current information on real time closures. <http://www.scotland.gov.uk/Topics/marine/Sea-Fisheries/19213/restrictions>

6.49 The fishing sector also needs to consider its contribution to climate change and how it can reduce greenhouse gas emissions in line with government commitments. There has been little research on the carbon footprint of the Scottish fishing industry, however, there are a number of actions that can be taken to reduce emissions, including reduced fuel use through more efficient engines and ship design; reduced steaming speed to improve fuel efficiency; changes to fishing techniques; and use of alternative low carbon fuels. Many of these improvements will provide economic and environmental benefits through the reduced use of fuel, but attention should also be paid to the possibility of such improvements leading to increased fishing effort and greater overall carbon use.

6.50 At the same time fish is recognised as an important source of sustainable protein and essential nutrients, often caught with lower associated carbon emissions than the rearing of meat.

Part 3: Marine planning policies

   **FISHERIES 1:** Taking account of the EU's Common Fisheries Policy, Habitats Directive, Birds Directive and Marine Strategy Framework Directive, marine planners and decision makers should aim to ensure:

- Existing fishing opportunities and activities are safeguarded wherever possible.
- An eco-system based approach to the management of fishing which ensures the sustainability of fish stocks and avoids damage to fragile habitats.
- Protection for vulnerable stocks (in particular for juvenile and spawning stocks through continuation of sea area closures where appropriate).
- Improved protection of the seabed and historical and archaeological remains requiring protection through effective identification of high-risk areas and management measures to mitigate the impacts of fishing, where appropriate.
- That other sectors take into account the need to protect fish stocks and sustain healthy fisheries for both economic and conservation reasons.
- Delivery of Scotland's international commitments in fisheries, including the ban on discards.
- Mechanisms for managing conflicts between fishermen and/or between the fishing sector and other users of the marine environment.

    **FISHERIES 2:** The following key factors should be taken into account when deciding on uses of the marine environment and the potential impact on fishing:

- The cultural and economic importance of fishing, in particular to vulnerable coastal communities.
- The potential impact (positive and negative) of marine developments on the sustainability of fish and shellfish stocks and resultant fishing opportunities in any given area.
- The environmental impact on fishing grounds (such as nursery, spawning areas), commercially fished species, habitats and species more generally.
- The potential effect of displacement on: fish stocks; the wider environment; use of fuel; socio-economic costs to fishers and their communities and other marine users.

 **FISHERIES 3:** Where existing fishing opportunities or activity cannot be safeguarded, a Fisheries Management and Mitigation Strategy should be prepared by the proposer, involving full engagement with local fishing interests (and other interests as appropriate) in the development of the Strategy. All efforts should be made to agree the Strategy with those interests. Those interests should also undertake to engage with the proposer and provide transparent and accurate information and data to help complete the Strategy. The Strategy should be drawn up as part of the discharge of conditions of permissions granted.

The content of the Strategy should be relevant to the particular circumstances and could include:

- An assessment of the potential impact of the development or use on the affected fishery or fisheries, both in socio-economic terms and in terms of environmental sustainability.
- A recognition that the disruption to existing fishing opportunities/activity should be minimised as far as possible.
- Reasonable measures to mitigate any constraints which the proposed development or use may place on existing or proposed fishing activity.
- Reasonable measures to mitigate any potential impacts on sustainability of fish stocks (e.g. impacts on spawning grounds or areas of fish or shellfish abundance) and any socio-economic impacts.

Where it does not prove possible to agree the Strategy with all interests, the reasons for any divergence of views between the parties should be fully explained in the Strategy and dissenting views should be given a platform within the Strategy to make their case.

 **FISHERIES 4:** Ports and harbours should seek to engage with fishing and other relevant stakeholders at an early stage to discuss any changes in infrastructure that may affect them. Any port or harbour developments should take account of the needs of the dependent fishing fleets with a view to avoiding commercial harm where possible. Where a port or harbour has reached a minimum level of infrastructure required to support a viable fishing fleet, there should be a presumption in favour of maintaining this infrastructure, provided there is an on-going requirement for it to remain in place and that it continues to be fit for purpose.

 **FISHERIES 5:** Inshore Fisheries Groups (IFGs) should work with all local stakeholders with an interest to agree joint fisheries management measures. These measures should inform and reflect the objectives of regional marine plans. **<applies to inshore waters>**

Regional policy: Regional marine plans should consider:

- Whether they require to undertake further work on any data gaps in relation to fishing activity within their region.
- The potential socio-economic impacts for the local fishing industry – and parts of the industry using their area – of any proposed activity or conservation measure.
- How to include local Inshore Fisheries Groups as a key part of their planning process.
- The potential consequences and impacts for other marine regions; and for offshore regions of their approach to planning for fisheries.
- Taking account of on-going local initiatives, such as Clyde 2020, which may be relevant to their work.

Part 4: The future

6.51 Fishing will continue to be a commercial activity in Scottish waters to meet the on-going and increasing demand for safe, sustainable food from the sea. The Scottish Government aspires to support the fishing industry to optimise fish quota opportunities year on year and to increase value both in landings and the processed product through improved marketing and supply chain efficiency. Fishing will continue to play an important economic, social and cultural role, in particular for coastal communities. The exploitation of fisheries will continue to have an impact on marine ecosystems, habitats, biodiversity, production and the historic environment. It is also likely that the fishing industry will have increasing interactions with other marine users. The challenge will be to maintain fish stocks for future generations and provide an environment which enables harmonious co-existence between fishing and other users and activities.

6.52 The reform of the Common Fisheries Policy, agreed in 2013, will significantly impact on management of fisheries beyond 12 nautical miles, including a discard ban for a number of key stocks, as well as a commitment to reach Maximum Sustainable Yield by 2020 with an increasing focus on eco-system based management for the offshore marine environment. In addition there will now be a shift to taking strategic management decisions for fisheries on a more regionalised (sea-basin) basis.

6.53 Moving towards a system of monitoring total removals from the sea, reducing unwanted catches and minimising discards, will be key priorities for fisheries management over coming years. These may lead to changes in spatial fishing patterns and entail significant developments in the scientific evidence base for managing fisheries.

6.54 The size of the offshore and inshore fleets has gradually reduced over the last 10–15 years. While this trend may continue for the next few years, it may stabilise within the next five years, at least in the offshore fleet, as the majority of fish stocks are fished at MSY. Maintaining this lower rate of removal of fish should gradually lead to improvements in stock biomass and yields of some species may well rise. Reduced fish mortality rates are, however, subject to technological developments in the size and efficiency of vessels which are likely to drive business decisions in the industry and which are difficult to predict. They are also subject to much larger changes in biology over which there is no control.

6.55 With regard to the inshore sector, spatial management in future years will become part of regional marine planning, for which Inshore Fisheries Groups will provide fisheries management input. Management of inshore fisheries over the next few years will focus increasingly on eco-system approaches to sustainable fisheries underpinned by improved scientific assessments on the state of the fish and shellfish stocks. This will lead to an increased focus on interactions within fisheries (between mobile and static fishing sectors, wild fisheries and farmed fisheries) and between fisheries and other activities (such as spatial conservation initiatives, recreation and renewables). In particular, the development of Marine Protection Areas and conservation areas designated under the EU Habitats and Birds Directives will play a prominent role in inshore fisheries management in years to come.

6.56 The effects of climate change will also need to be monitored and addressed, both to minimise the risks and to take advantage of any new opportunities on a sustainable basis.

7. Aquaculture

Objectives and policies for this sector should be read subject to those set out in Chapters 3 and 4 of this Plan. It is recognised that not all of the objectives can necessarily be achieved directly through the marine planning system, but they are considered important context for planning and decision making.

Objectives

- 1    An aquaculture industry that is sustainable, diverse, competitive and economically viable whilst minimising environmental impact.
- 2   With due regard to the marine environment and carrying capacity, support for the industry's target to grow marine finfish (including farmed Atlantic salmon) production sustainably to 210,000 tonnes; and shellfish, particularly mussels, to 13,000 tonnes sustainably by 2020.
- 3  A proportionate and transparent regulatory framework within which the industry can achieve these targets.
- 4   Quality employment and sustainable economic activity in remote and rural areas, as well as more widely in Scotland.
- 5   Improve business confidence and industry investment and reduce environmental impact by identifying areas where sustainable aquaculture growth is optimal, taking account of key resource and constraints considerations.
- 6   Maximise benefits to Scotland and to local communities from the Scottish aquaculture value chain.
- 7   Support research and development, including trials and technical innovation, to improve knowledge and understanding of the requirements for sustainability of the industry, with a particular focus on the issues of sea lice, containment and interactions with other activities.

Key references

[Ministerial Group on Sustainable Aquaculture](#)

[An Assessment of the Benefits to Scotland of Aquaculture](#)

[Code of Good Practice for Finfish Aquaculture](#)

[A Fresh Start: The renewed strategic framework for Scottish Aquaculture](#)

Scotland's Marine Atlas: Information for the National Marine Plan.

[Chapter 5: Productive / Aquaculture](#). Pages 144–145

National Marine Plan interactive (NMPi). [Productive/ Aquaculture](#) section.

Part 1: Background and context

7.1 Aquaculture in Scotland is an increasingly important industry and is recognised in the Government's Economic Strategy as a sector where growth can occur. The Scottish Government also supports industry plans to grow the aquaculture sector sustainably. Scotland's Marine Atlas: Information for the National Marine Plan provides detailed information on production values and employment.

7.2 Whilst the industry in Scotland is dominated by the farming of Atlantic salmon, there is also significant rainbow trout and mussel production. Brown trout, sea trout, halibut, Arctic char, oysters and scallops, as well as small-scale seaweed sites, are also farmed.

7.3 At present, each new aquaculture site is dealt with on its merits by Local Authorities through the terrestrial planning process⁶⁹, with advice from statutory consultees and any representations from other interested parties such as wild fish interests and the general public. Decisions will also now have to give regard to this Plan and future regional marine plans. It is therefore important that marine and terrestrial planners co-operate to ensure the planning and regulatory regime is aligned and easily understood by stakeholders. More detail is available in the Planning Circular – The relationship between the statutory land use planning system and marine planning and licensing⁷⁰.

Part 2: Key issues for marine planning

SUPPORTING ECONOMICALLY PRODUCTIVE ACTIVITIES

7.4 Aquaculture contributes to sustainable economic growth in rural and coastal communities, especially in the Highlands and Islands. Many communities depend on the employment and revenue it provides and, as a growing industry, it has potential to contribute to future community cohesion by providing quality jobs in rural areas and helping to maintain community infrastructures such as schools, ferries and other services⁷¹.

69 See Scottish Planning Policy (paragraphs 249–253).

70 See footnote 11.

71 An Assessment of the Benefits to Scotland of Aquaculture. Imani and SRSL, 2014
<http://www.scotland.gov.uk/Resource/0045/00450799.pdf>

7.5 The aquaculture industry contributes over 2,800 jobs from direct production and a total of over 4,800 jobs across the Scottish supply chain, based on 2012 figures. Taking into account the multiplier effect of the added income across the economy, it is estimated to contribute around 8,000 jobs to Scotland⁷².

7.6 Farmed salmon is Scotland's most valuable food export and exports continue to grow as the demand for high quality Scottish farmed salmon continues to increase, reaching 55 countries worldwide in 2012.

7.7 Aquaculture also makes an important contribution to food security in the context of an increasing global demand for seafood and a limited or decreasing wild catch resource. In terms of protein conversion efficiency, farmed salmon compares favourably with other sources of protein.

7.8 A growing industry has the potential to bring additional benefits, including from other areas of the value chain. Benefits will be maximised when services and products are produced or provided in Scotland, for example the increased supply of domestic smolt production (additional production may require increased land-based closed containment facilities) or the development of further processing facilities.

7.9 There is significant scope for growth in Scotland's shellfish industry, particularly mussels and oysters⁷³. The shellfish industry predominantly comprises of small-scale operations, with a large number of small farms and many part-time farmers, although there are larger operations in Shetland, the Western Isles and at Loch Fyne.

7.10 Other opportunities to grow and diversify the sector include:

- Pursuing prospects and opportunities for growth of other shellfish sectors, trout and other finfish species such as halibut.
- The development of projects that seek to improve environmental management of the industry is particularly encouraged. The commercial farming of wrasse, for example, has the potential to become a significant ancillary sector given its effectiveness in biologically controlling sea-lice with a limited impact on the environment.
- Increasing seaweed production⁷⁴ for a variety of products, such as human food, a gelling and thickening agent, animal feed, and nutraceuticals (food products that provide health and medical benefits) as well as in integrated multi-trophic aquaculture systems, where the by-products from one species are recycled to become inputs for another.

LIVING WITHIN ENVIRONMENTAL LIMITS

7.11 Finfish and shellfish cultivation depends on farms being sited at locations where the water quality is good and the current flow allows the growth of healthy fish and shellfish. Aquaculture sites require rigorous long-term maintenance of good environmental standards and absence of pollution. The filter feeding nature of shellfish makes them particularly vulnerable to bacterial or chemical contamination deriving from human shore-based activities or vessel discharges.

72 See footnote 71.

73 A study of the prospects and opportunities for shellfish farming in Scotland. Scott, McLeod, Young, Brown, Immink, Bostock. 2010. <http://www.scotland.gov.uk/Resource/Doc/295194/0118352.pdf>

74 Consultation paper on policy options for seaweed cultivation in Scotland <http://www.scotland.gov.uk/Publications/2013/08/6786>

7.12 The control of sea lice is acknowledged as a substantial challenge, which is reflected in the Code of Good Practice for Finfish Aquaculture (CoGP) by a specific national treatment strategy⁷⁵.

7.13 Farm Management Areas (FMAs) are established by industry and described in the CoGP. Principally, these statutory farm management agreements or statements cover actions that promote biosecurity, disease and parasite control⁷⁶. Co-ordination of management takes place within these FMAs with companies sharing information. Scotland's aquaculture stocks are internationally recognised as having a high health status maintained by a regular inspection programme that includes the evaluation of mortality and sea lice numbers. Any evidence of interactions with wild fish is taken into consideration by the local authority considering a planning application. Improved sea lice control has been identified by the industry members of the Scottish Aquaculture Innovation Centre (SAIC)⁷⁷ as a Priority Innovation Action requiring urgent and sustained attention and on which work will start within the SAIC's first year.

7.14 Growth of the industry must also take account of the sustainability of other species, including the fish species used to produce fishmeal and the fish oils that are fed to salmon. There is a continued benefit from identifying and using new sustainable, secure and affordable feed materials to further increase flexibility and maintain the high quality of feed supply. This is a research priority for the aquaculture industry and research community and has also been identified as a Priority Innovation Action by the SAIC.

7.15 Scotland's Marine Atlas: Information for the National Marine Plan sets out the wider range of potential pressures and impacts on the marine environment from aquaculture⁷⁸.

7.16 Chapters 3 and 4 of this Plan, alongside existing regulatory controls including Environmental Impact Assessment, provide a framework within which the industry should aim to achieve their growth targets. This framework aims to minimise and mitigate environmental impacts through:

- Ensuring farms are located so that they do not negatively affect the carrying capacity of the environment.
- Taking account of existing Locational Guidelines based on nutrient enhancement and benthic impact (Map 6)⁷⁹.
- Appropriate siting and design of farms, including in relation to protected areas, protected species, wider biodiversity interests, heritage assets and landscape character/visual impacts.
- A strategic approach to disease management.
- SEPA licensing for the discharge of waste.

75 Code of good practice for Scottish Finfish Aquaculture. <http://www.thecodeofgoodpractice.co.uk/index.php>

76 Aquaculture & Fisheries (Scotland) Act 2013 Part 1 – Aquaculture
<http://www.legislation.gov.uk/asp/2013/7/contents>

77 Scottish Aquaculture Innovation Centre <http://scottishaquaculture.com/>

78 Scotland's Marine Atlas: Information for the National Marine Plan. Marine Scotland. 2011.
<http://www.scotland.gov.uk/Publications/2011/03/16182005/0>

79 Locational Guidelines for the Authorisation of Marine Fish Farms in Scottish Waters. Scottish Government. 2010. Definition of Categories 1, 2 and 3. <http://scotland.gov.uk/Resource/Doc/295194/0104246.pdf>

- Licensing of discharges from well boats by Marine Scotland⁸⁰.
- The seal licensing regime operated by Marine Scotland, in order to address issues of predation where non-lethal alternatives cannot be used⁸¹.
- Appropriate management practices including: farm/area management agreements; use of efficacious treatments; integrated sea lice management in an appropriate scale area; addressing predators and marine non-native species.
- Improved containment and reduction in reported escapes.

7.17 Marine Scotland Science is in the final year of a 3-year project to identify areas of opportunity and constraint for both finfish and shellfish sectors. This will consider constraints from competing uses of marine space as well as environmental sensitivities and capacity, and will represent a development of current Locational Guidelines.

INTERACTIONS WITH OTHER USERS

7.18 Aquaculture has the potential to interact with a number of other sectors:

- **Wild salmon and migratory fish:** The farming of salmon carries a risk of impacting on wild salmonids. There is an on-going programme of research to establish the effects of interactions with wild salmonids, primarily because of the potential impact of sea lice, but also because the potential for impact of escaped farmed fish on the genetic stock of wild salmonids is, as yet, not fully understood. There is a continuing presumption against further marine fish farm developments on the north and east coasts to help safeguard migratory fish species (Map 6).
- **Inshore fisheries:** The location of fish farms potentially restricts the access to existing fishing grounds by inshore fisheries operators however this issue is taken into account by planning authorities through consultation. There are also concerns about the potential for sea lice treatments to affect inshore shellfish stocks, which are currently addressed through licensing by restricting quantities discharged.
- **Recreation and Tourism:** It is recognised that fish farm cages and mussel lines are potential hazards to navigation and, as such, are considered in all cases to be licensable marine activities. While there can be competition for space with recreational boating and shipping, for instance in approaches to moorings and anchorages, the industry's own requirements for marine infrastructure such as harbours and slipways helps retain these facilities locally.

Although some tourism interests are concerned about the visual impact of aquaculture infrastructure on the landscape and seascape⁸², there is some evidence that tourism businesses can benefit from the presence of a fish farm because it may provide a good point of interest for wildlife tours and supply local high quality produce⁸³.

80 Wellboat Controls. <http://www.scotland.gov.uk/Publications/2011/03/16182005/0>

81 Seal Licensing. Marine Scotland.

<http://www.scotland.gov.uk/Topics/marine/Licensing/SealLicensing/applications>

82 Assessment of Evidence that Fish Farming Impacts Tourism. SARF. 2009.

83 See footnote 71.

CLIMATE CHANGE

7.19 It is recognised that climate change is likely to have an impact on the marine environment, although evidence to date is limited as to what exactly that impact might be on aquaculture. For example, increased shellfish contamination, harmful plankton events and the establishment of non-native species may be a risk but it is not yet clear that a changing ocean climate is responsible for these effects.

7.20 Given the current predictions, there is unlikely to be a significant effect over the next decade however, within the next 50 years or more, the forecast changes are likely to result in noticeable effects. Potential changes to storminess will need to be taken into account in engineering standards for fish farms, as defined by the Scottish Technical Standard. In addition, a rise in sea-level may reduce coastal habitat suitable for bivalve cultivation. Rising average water temperatures will result in faster growth rates for some species (e.g. Atlantic salmon, mussels and oysters) but prolonged periods of warmer summer temperatures may cause thermal stress, particularly for cold water species (e.g. cod and Atlantic halibut) and intertidal shellfish (oysters). Warmer waters may provide opportunities to culture new species, or species that are currently economically marginal in UK waters.

7.21 Some diseases may become less prevalent while others may increase and new diseases are likely to emerge. Any changes which impact on fish health should be addressed through industry fish health management plans, farm veterinary surveillance, biosecurity plans and official surveillance schemes, as well as co-ordinated and synchronised zone/area management approaches to support healthy stocks with an emphasis on disease prevention.

7.22 When compared to most other production systems, aquaculture has a low carbon footprint. Within the aquaculture sector, carbon footprints vary significantly being low for mussel farming but higher for other sectors such as salmon farming, due to fish feed production and transport. There are also opportunities for the use of renewable resources in providing energy for aquaculture installations.

Part 3: Planning policies

   **AQUACULTURE 1:** Marine planners and decision makers should seek to identify appropriate locations for future aquaculture development and use, including the potential use of development planning briefs as appropriate. System carrying capacity (at the scale of a water body or loch system) should be a key consideration.

   **AQUACULTURE 2:** Marine and terrestrial development plans should jointly identify areas which are potentially suitable and sensitive areas which are unlikely to be appropriate for such development, reflecting Scottish Planning Policy and any Scottish Government guidance on the issue. There is a continuing presumption against further marine finfish farm developments on the north and east coasts to safeguard migratory fish species. (Map 6)

   **AQUACULTURE 3:** In relation to nutrient enhancement and benthic impacts, as set out under Locational Guidelines for the Authorisation of Marine Fish Farms in Scottish Waters, fish farm development is likely to be acceptable in Category 3 areas, subject to other criteria being satisfied. A degree of precaution should be applied to consideration of further fish farming development in Category 2 areas and there will be a presumption against further fish farm development in Category 1 areas. (Map 6)

 **AQUACULTURE 4:** There is a presumption that further sustainable expansion of shellfish farms should be located in designated shellfish waters⁸⁴ if these have sufficient capacity to support such development.

 **AQUACULTURE 5:** Aquaculture developments should avoid and/or mitigate adverse impacts upon the seascape, landscape and visual amenity of an area, following SNH guidance⁸⁵ on the siting and design of aquaculture.

 **AQUACULTURE 6:** New aquaculture sites should not bridge Disease Management Areas⁸⁶ although boundaries may be revised by Marine Scotland to take account of any changes in fish farm location, subject to the continued management of risk.

   **AQUACULTURE 7:** Operators and regulators should continue to utilise a risk based approach to the location of fish farms and potential impacts on wild fish.

84 The Water Environment (Shellfish Water Protected Areas: Designation) (Scotland) Order 2013
<http://www.legislation.gov.uk/ssi/2013/324/contents/made>.

NMPi <http://www.scotland.gov.uk/Topics/marine/seamanagement/nmpihome/nmpi>

85 The siting and design of aquaculture in the landscape: visual and landscape considerations. Scottish Natural Heritage. <http://www.snh.org.uk/pdfs/publications/heritagemanagement/marineaquaculture.pdf>

86 Disease Management Areas. Scottish Government.

<http://www.scotland.gov.uk/Topics/marine/Fish-Shellfish/FHI/managementagreement>
NMPi <http://marinescotland.atkinsgeospatial.com/nmpi/default.aspx?availablelayer=500>

 AQUACULTURE 8: Guidance on harassment at designated seal haul out sites⁸⁷ should be taken into account and seal conservation areas should also be taken into account in site selection and operation. Seal licences will only be granted where other management options are precluded or have proven unsuccessful in deterrence.

  AQUACULTURE 9: Consenting and licensing authorities should be satisfied that appropriate emergency response plans are in place.

 AQUACULTURE 10: Fish farm operators should carry out pre-application discussion and consultation, and engage with local communities and others who may be affected, to identify and, where possible, address any concerns in advance of submitting an application.

   AQUACULTURE 11: Aquaculture equipment, including but not limited to installations, facilities, moorings, pens and nets, must be fit for purpose for the site conditions, subject to future climate change. Any statutory technical standard must be adhered to.

 AQUACULTURE 12: Applications which promote the use of sustainable biological controls for sea lice (such as farmed wrasse) will be encouraged.

  AQUACULTURE 13: Proposals that contribute to the diversification of farmed species will be supported, subject to other objectives and policies being satisfied.

   AQUACULTURE 14: The Scottish Government, aquaculture companies and Local Authorities should work together to maximise benefit to communities from aquaculture development.

Regional policy: Regional marine plans should consider the potential for sustainable growth of aquaculture in their region, taking into account the policies set out above, and working in close partnership with terrestrial planners, SEPA, Marine Scotland, SNH and other regulators.

⁸⁷ Designated seal haul-out sites and Guidance on Harassment at Seal Haul Out Sites. <http://www.scotland.gov.uk/Topics/marine/marine-environment/species/19887/20814/haulouts>. NMPi Seal Haulout Sites. <http://www.scotland.gov.uk/Topics/marine/seamanagement/nmpihome/nmpi>

Map 6 - Guidance on the location of marine fish farms

Projection: British National Grid

CATEGORY



1



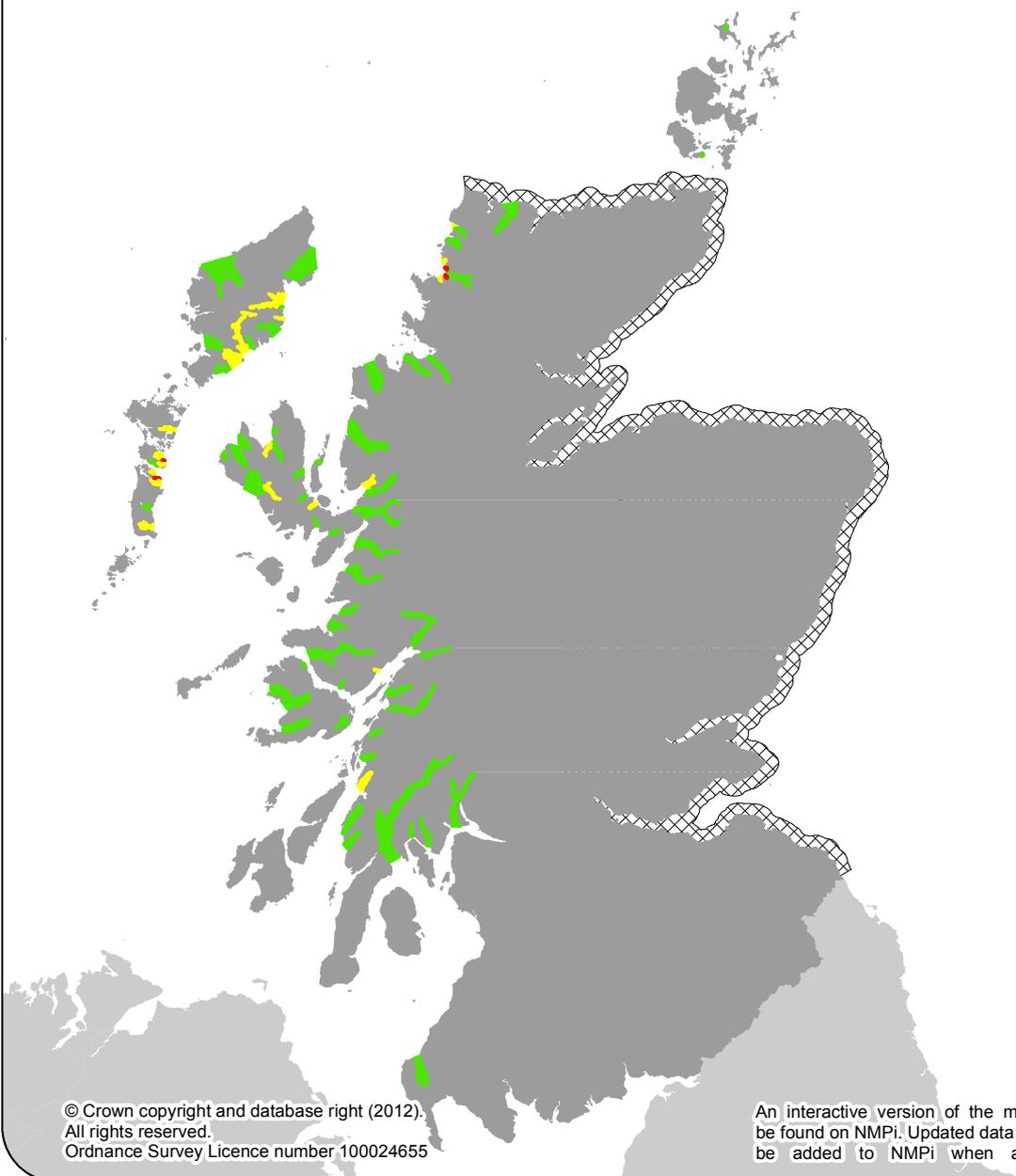
2



3



Presumption against further marine finfish farm developments on the north and east coasts



Part 4: The future

7.23 The immediate prospects for Scottish aquaculture are strong, with worldwide demand for farmed Scottish salmon continuing to grow and new markets opening up⁸⁸. Prospects for the growth of mussel, trout and halibut sectors are also positive and further diversification is encouraged.

7.24 The Scottish Government's Ministerial Group on Sustainable Aquaculture (MGSA) is focused on the 2020 growth targets and beyond. It is also tasked to ensure the long-term sustainability of aquaculture within the wider environment. Working Groups under the auspices of the MGSA are working to improve capacity, resolve interactions issues, support the regulatory framework, and identify suitable areas for shellfish water designations (new areas and expansions).

7.25 The Scottish Government supports future initiatives to research and develop new systems which improve the long-term sustainability of the aquaculture industry. For example, the Scottish Aquaculture Innovation Centre⁸⁹ will deliver outputs from research, knowledge exchange and training contributing to the efficiency and profitability of the aquaculture industry in Scotland through stimulating sustainable structural changes in linkages between academia and industry.

7.26 The combination of developments in traditional aquaculture production, seaweed cultivation and offshore renewables, may offer synergies to these sectors and the Scottish Government will continue to work with these industries to determine such possibilities.

7.27 The Scottish Government encourages planners and the industry to identify opportunities for expansion in the number of larger, further off-shore⁹⁰ sites which will represent a significant increase in the value of the Scottish industry and reduce potential environmental impacts at more sensitive inshore locations. The Scottish Government also supports the sustainable growth of the seaweed sector.

88 The State of World Fisheries and Aquaculture pages 49, 57, 58, 64 <http://www.fao.org/3/a-i3720e.pdf>

89 See footnote 77.

90 This should not necessarily be taken to mean in the offshore zone – i.e. outside 12 nautical miles. In most cases this would involve inshore activity still operating within 3 nautical miles although there may be scope for other examples

8. Wild Salmon and Diadromous Fish

Objectives and policies for this sector should be read subject to those set out in Chapters 3 and 4 of this Plan. It is recognised that not all of the objectives can necessarily be achieved directly through the marine planning system, but they are considered important context for planning and decision making.

Objectives

- 1   An appropriate management and regulatory framework is in place to sustainably manage salmon and diadromous fish and fisheries resources to provide significant economic and social benefits for the people of Scotland.
- 2    Maintain healthy salmon and diadromous fish stocks (and improve stocks where possible) in support of sustainable fisheries through sound science-based management.
- 3  Better understand interactions with other activities in marine and coastal areas and resolve key issues.

Key references

Scotland's Marine Atlas: Information for the National Marine Plan.
[Chapter 5: Productive /Salmon and Sea Trout Fishing](#). Pages 150–151

National Marine Plan interactive ([NMPi](#)). [Productive/Aquaculture and Recreational Fishing](#) section.

Part 1: Background and context

8.1 Salmon, and other species of diadromous fish such as sea trout, lampreys, eels and shad, move between fresh water and the marine environment. As a consequence, fishing for diadromous fish can take place in both the freshwater and marine environments.

8.2 Whilst appropriate management is necessary in both environments to realise the recreational and economic benefits from sustainable exploitation of stocks, this Plan focuses on interactions and potential impacts within the marine environment.

8.3 Atlantic salmon is one of Scotland's most iconic species and is a high value natural asset. It provides a quality food product in a premium market and the basis of an economically important freshwater angling sector. Salmon and many other key species of diadromous fish have been identified as Priority Marine Features and UKBAP Priority Species⁹¹. Some species are afforded protection by SAC and SSSI designation.

91 UK Biodiversity Action Plan Species. JNCC. <http://jncc.defra.gov.uk/page-5164>

Map 7

Salmon and Sea Trout Fisheries

Detail Key

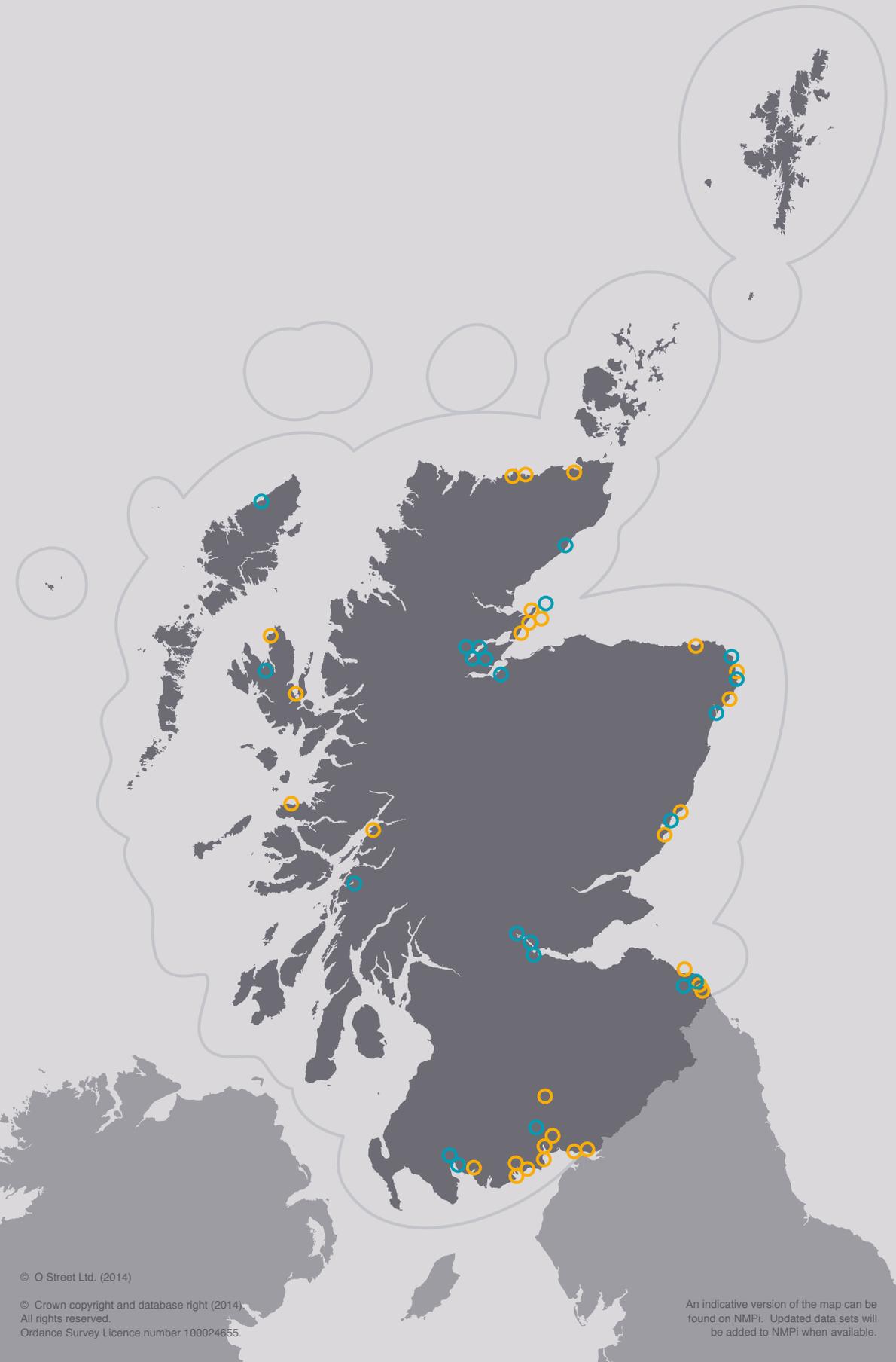
Wild Salmon & Diadromous Fish

Key:

12 Nautical Miles

Net and Coble

Fixed Engine



Part 2: Key issues for marine planning

SUPPORTING ECONOMICALLY PRODUCTIVE ACTIVITIES

8.4 Salmon and trout fisheries are recognised as an important and significant sector of the Scottish economy. The aim is to maintain and improve the environment within which the sustainable exploitation of salmon and trout can continue to provide economic, social and recreational benefits.

8.5 Coastal net fisheries are the only source of wild salmon and sea trout for the commercial market. In prime condition these salmon are a premium product, particularly in the export market; Scottish Wild Salmon was awarded Protected Geographical Indication status by the EU in 2012. While anglers in rivers cannot sell their catch, salmon and sea trout angling is estimated to contribute £87m per annum in expenditure to the Scottish economy.

INTERACTIONS WITH OTHER USERS

8.6 A number of activities and pressures in the marine environment may impact on populations of salmon and other diadromous fish species. Activities regarded as potentially having the most significant impact are:

- **Wind and wave and tidal energy:** Whilst there is uncertainty around the likelihood and severity, potential impacts include disturbance during construction, noise associated with infrastructure such as turbine bases, electro-magnetic fields of infrastructure such as sub-sea grid and cabling and mortality through strike by tidal turbines. Delayed migration or displacement of migratory routes may have effects on salmon and other diadromous species and continued efforts to better understand potential impacts should be encouraged.
- **Aquaculture:** Pressures on wild fish populations from salmonid aquaculture can include sea lice, disease and interbreeding of escaped farmed fish with local wild stocks. As referred to in Chapter 7, work is currently underway to improve spatial planning of finfish aquaculture and will consider elements of these pressures and improve the framework for assessing risk to wild salmonids, with a view to informing regional planning.

8.7 Marine Scotland is also undertaking research regarding salmonid migration routes and the impacts of electromagnetic fields on fish. This will better inform strategies for managing interactions, such as the provision of locational guidance for aquaculture and marine renewable developments relative to possible wild salmon routes.

LIVING WITHIN ENVIRONMENTAL LIMITS

8.8 **Harvesting of target species:** Provisional statistics⁹² indicate the coastal net fishery caught 16,732 salmon and grilse in 2013 and almost 7,579 were netted in the in-river net and coble fishery. 6,114 sea trout were reported caught and retained in 2012 in the net fisheries. Catch and effort for salmon and sea trout net fisheries remains at historically low levels.

⁹² Salmon and sea trout statistics are available on the Scottish Government website at: <http://www.scotland.gov.uk/Topics/marine/science/Publications/stats/SalmonSeaTroutCatches>

8.9 The proportion of the salmon rod catch accounted for by catch and release continues to increase. Provisional statistics for 2013 indicate 92% of rod caught spring salmon was released, as was 80% of the annual rod catch (total 66,387). The proportion of the sea trout rod catch accounted for by catch and release has shown a general increase since 1994, when catch and release information was first recorded. It stands at 77% of the total rod catch in 2012 (15,824). Other aspects of the activity such as impacts of gear etc. are minimal.

8.10 Predator control: Seals and piscivorous birds eat salmon, causing damage and a reduction in population stocks. Control of seals is permitted only under licence. The impact of removing a specified number of seals from a population is a consideration in the licensing process.

CLIMATE CHANGE

8.11 The effects of climate change on wild salmon and freshwater fisheries is largely unknown. However, research has shown that salmonids, and some other diadromous species such as eels, are vulnerable to changes in water temperature and river flows. Both factors are affected by a changing climate and may affect population distributions and the timing of migration and reproduction. Smaller populations are likely to be less resilient to these changes. Adaptation in this sector can be facilitated by building and supporting healthy, robust marine, coastal and terrestrial ecosystems.

Part 3: Marine planning policies

 WILD FISH 1: The impact of development and use of the marine environment on diadromous fish species should be considered in marine planning and decision making processes. Where evidence of impacts on salmon and other diadromous species is inconclusive, mitigation should be adopted where possible and information on impacts on diadromous species from monitoring of developments should be used to inform subsequent marine decision making.

Part 4: The future

8.12 Improved data on stock structure, distribution, abundance population dynamics and migratory routes would be beneficial. A better understanding of factors that may influence stocks in both freshwater and marine environments is needed if interactions between wild stocks and other marine users, particularly important growth industries such as aquaculture and renewables, are to be fully understood and managed.

8.13 The Independent Fisheries Review⁹³ was published in October 2014 and contains 53 wide-ranging recommendations for change. The Scottish Government has committed to consider the report in depth and to consult on proposals to implement a new management system.

93 Wild Fisheries Review. www.scotland.gov.uk/Topics/marine/Salmon-Trout-Coarse/fishreview

9. Oil and Gas

Objectives and policies for this sector should be read subject to those set out in Chapters 3 and 4 of this Plan. It is recognised that not all of the objectives can necessarily be achieved directly through the marine planning system, but they are considered important context for planning and decision making.

Objectives

- 1  Maximise the recovery of reserves through a focus on industry led innovation, enhancing the skills base and supply chain growth.
- 2  An industry which delivers high level risk management across all its operations and that it is especially vigilant in more testing environments.
- 3  Continued technical development of enhanced oil recovery and exploration, and the associated seismic activity carried out according to the principles of the Best Available Technique (BAT) and Best Environmental Practice approach.
- 4  Where possible, to work with emerging sectors to transfer the experience, skills and knowledge built up in the oil and gas industry allowing other sectors to benefit and reduce their environmental impact.

Key references

[Oil and Gas UK Economic Report. 2013.](#)

[UKCS Maximising Recovery Review Final Report.](#)

Scotland's Marine Atlas: Information for the National Marine Plan.

[Chapter 5: Productive /Oil, Gas, Pipelines and Gas Storage.](#) Pages 168–169

National Marine Plan interactive (NMPi). [Productive/Oil, Gas and Carbon Capture and Storage](#) section.

Part 1: Background and context

9.1 Scotland will need a mixed energy portfolio, including hydrocarbons, to provide secure and affordable heat and electricity for decades to come. As use of renewable energy sources is increased, there is also a duty to minimise carbon emissions in line with climate change targets. The approach is one of careful stewardship of finite resources.

9.2 The Scottish Government supports a low carbon economy which involves the move away from fossil fuel based energy consumption towards investment in renewable energy and increased energy efficiency. However, oil and gas are set to remain a vital source of energy while we move towards a future based upon renewable energy and it is sensible to secure reserves domestically as far as possible for as long as they may be needed.

9.3 The twin Scottish Government objectives to develop a low carbon economy and maximise resource recovery in the North Sea are complementary over the long-term. A successful oil and gas sector is a prerequisite for the diversification of the energy supply and the growth of the market for low carbon goods and services.

9.4 In terms of skills, Scotland has a unique opportunity to use the expertise gained from half a century of exploitation of oil in the waters around Scotland in the development of offshore renewable technology and Carbon Capture and Storage (CCS).

9.5 Health and safety continues to be the highest priority for the offshore oil and gas industry. Following the Deepwater Horizon incident in the Gulf of Mexico, the European Commission published the Offshore Safety Directive⁹⁴ in June 2013. The objective of this Directive is to reduce the occurrence of major accidents related to offshore oil and gas operations as far as possible and to limit their consequences. The Department of Energy and Climate Change (DECC) and Health and Safety Executive (HSE) will jointly lead the transposition of the Directive as it contains requirements relating to licensing, environmental protection, emergency response and liability, in addition to safety.

9.6 The great majority of the UK's oil production (98%) and around half of its gas production comes from fields based in the continental shelf around Scotland (Map 8 depicts current oil and gas activity in Scotland). In recent years there has been significant new activity in the area west of the Shetland Islands both in terms of exploration and new production.

9.7 PILOT⁹⁵ (a joint programme involving the UK and Scottish Government and the wider UK oil and gas industry) are working to ensure maximum economic recovery of the remaining oil and gas resources in the UK. More recently Sir Ian Wood's Maximising Recovery Report⁹⁶ has recommended the creation of a new arms-length regulator based in Aberdeen called the Oil and Gas Authority, and with responsibility for delivering the strategy of maximising recovery in the United Kingdom continental shelf which will result in an enhanced form of stewardship of the UKCS.

94 Offshore Directive - The safety of offshore oil and gas operations. Health and Safety Executive. <http://www.hse.gov.uk/offshore/directive.htm>

95 PILOT. <https://www.gov.uk/government/groups/105>

96 UKCS Maximising Recovery Review Final Report. <http://www.woodreview.co.uk/>

9.8 Scotland launched its own oil and gas industry strategy⁹⁷ in May 2012. The strategy has an over-arching objective to maximise recovery of reserves through a focus on industry led innovation, enhancing the skills base and supply chain growth. The strategy – developed and to be delivered by industry, the Scottish Government and public sector partners – reinforces the long-term future which the oil and gas industry still has within Scotland and the priorities which need to be taken forward by industry, government and others if these opportunities are to be realised.

Part 2: Key issues for marine planning

SUPPORTING ECONOMICALLY PRODUCTIVE ACTIVITIES

9.9 Energy is a recognised growth sector in the Government's Economic Strategy.

9.10 Although a reserved activity not in the direct control of the Scottish Government, the industry, including its supporting services and supply chain, plays a critical role in the Scottish economy and supporting an estimated 225,000⁹⁸ jobs in Scotland. The skill and knowledge base developed since the inception of the North Sea industry are a key strength for Scotland.

9.11 Key priorities therefore include maintaining and developing the competitiveness and long-term future of the oil and gas sector by developing the position of Aberdeen and Aberdeenshire as a world-wide hub, securing increased recovery rates in Scottish waters and supporting collaboration between the oil and gas sector and low carbon energy.

9.12 In supporting Scotland's economic recovery, the Scottish Government pledges⁹⁹ to work with the oil and gas sector to maintain its competitiveness, facilitate the transfer of skills and knowledge to other sectors and utilise Scottish based skills in world markets.

9.13 There are three main elements of ensuring maximum economic return:

- **Maximise extraction:** Although all regions of the North Sea have a productive future¹⁰⁰, the region to the West of Shetland is the latest to be developed with production only beginning in 1997. Oil and Gas UK estimate that there have been seven fields of 100 million BOE already discovered within this area of the UK Continental Shelf. It is also believed to have the most undeveloped resource¹⁰¹.
- **Re-use of infrastructure and expertise:** Sustaining existing levels of oil related employment will be a significant challenge post 2020. The oil and gas industry is a renowned world leading centre of excellence in engineering, manufacturing and applied technology. Therefore it is important to promote the transfer of skills to developing sectors such as offshore renewables and carbon capture and storage, as well as the export of Scottish based skills to the world market. The Scottish Government will work with the sector to facilitate this.

97 Oil and Gas Strategy 2012-2020. Scottish Enterprise. <http://www.scottish-enterprise.com/~media/SE/Resources/Documents/MNO/Oil-and-Gas-strategy-2012-2020.pdf>

98 Economic Report. Oil and Gas UK. 2013. <https://publ.com/N6D1Taa>

99 Supporting Economic Recovery: 10 Energy Pledges. The Scottish Government. <http://www.scotland.gov.uk/Topics/Business-Industry/Energy/Action/economic-recovery/10-Pledges>

100 Economic Report. Oil and Gas UK. 2012. Page 14, Figure 12. http://www.oilandgasuk.co.uk/2012economic_report.cfm

101 See footnote 98.

- **Decommissioning:** Reduction in activity will require considerable decommissioning effort for both terrestrial and marine infrastructure, which will generate employment and economic activity. Any plans for the decommissioning of infrastructure should consider the potential for infrastructure life to be extended to support potential combustible gas imports and to accommodate the growth of carbon capture and storage networks for use in storage and enhanced oil recovery.

INTERACTIONS WITH OTHER USERS

9.14 Oil and gas extraction can interact with other marine users with positive interactions promoted through marine planning. There are obvious benefits to existing interactions such as those with shipping, and ports and harbours. Both the industry and Scottish Government encourage closer working and diversification between the oil and gas sector and the emerging renewables and CCS sectors. There is also potential for other sea users to be negatively impacted by infrastructure requirements of the sector (which may continue to change as technologies develop).

9.15 Key interactions of relevance to marine planning include:

- **Renewables:** It is not known how spatially compatible renewable energy arrays will be with oil and gas infrastructures as renewables technology is still developing. To date they have generally not been developed in the same area.

The oil and gas sector can play a significant role in helping to reduce costs of developing offshore wind projects through the application of skills and knowhow of marine operations. Research by Scottish Enterprise¹⁰² suggests that the oil and gas supply chain has the potential to reduce the cost of offshore wind operations by around 20%. There are also potentially beneficial synergies between decommissioning activity and the emerging offshore wind sector.

- **Carbon capture and storage (CCS):** A positive interaction is expected to exist between the emerging CCS and oil and gas sector with the potential for re-use of redundant infrastructure, shared use of existing pipelines and utility corridors and transfer of relevant skills and expertise.
- **Fishing:** For safety reasons, oil and gas infrastructure that could significantly interfere with fishing operations is located within an exclusion buffer zone, meaning fishing activity can be displaced. Pipelines can cause obstruction to fishing practices. However, the two industries can work side by side, with some elements of the fishing community benefiting financially when employed by the oil and gas sector during installation as 'marker' boats¹⁰³.

LIVING WITHIN ENVIRONMENTAL LIMITS

9.16 Oil and gas production results in a range of environmental pressures the impact of which depends on the location, longevity, intensity and timing of activities. Impacts of pressures on the environment are detailed in Scotland's Marine Atlas: Information for the National Marine Plan. The main issues are summarised as follows:

¹⁰² A Guide to Offshore Wind and Oil and Gas Capability. Scottish Enterprise. 2011. <http://www.scottish-enterprise.com/~media/SE/Resources/Documents/GHI/Guide-offshore-wind-oil-gas.ashx>

¹⁰³ Oil and Gas UK. Knowledge centre – Fisheries. <http://www.oilandgasuk.co.uk/Fisheries.cfm>

- **Noise:** Generated from seismic exploration activity, drilling, production facilities or vessels, burial of pipelines with some noise sources, e.g. seismic surveys, having the potential to cause injury and disturbance to noise sensitive species such as cetaceans.
- **Chemical or oil contamination:** Causing contamination of water, sediments and fauna.
- **Habitat changes:** Construction, decommissioning and protection of infrastructure can result in the local loss of species and habitats. However, infrastructure can also provide substrate for colonisation and shelter for fish.

9.17 A shift in oil and gas activity to the west of Shetland raises new challenges for the industry due to the hostile waters and the environmental sensitivity. However, any significant offshore oil and gas exploration and development is subject to a requirement for an environmental impact assessment. Activities that could impact on the environment are subject to rigorous assessment and all significant activities are controlled through the issue of permits, consents or approval.

9.18 Offshore oil and gas activity is well-established and subject to strict environmental regulations and considerations. The Offshore Petroleum Production and Pipe-lines (Assessment of Environmental Effects) Regulations 1999 require an Environmental Impact Assessment for most new offshore oil and gas developments.

9.19 DECC regulates the decommissioning of offshore oil and gas installations and pipelines using legislation under the Petroleum Act 1998. They are responsible for:

- Issuing licences for oil and gas exploration onshore and on the UK continental shelf (area of water around the UK where mineral rights are claimed).
- Regulating field development and oil and gas pipeline activities.
- Regulating the environmental aspects of the offshore oil and gas industry, including decommissioning.

9.20 The cessation of production from offshore fields will lead to decommissioning of facilities, and decommissioning and other legacy issues are areas that need attention. This represents a large technical and economic challenge for the industry.

CLIMATE CHANGE

9.21 As is recognised elsewhere in this Chapter, the Scottish Government supports a transition to a low carbon economy which involves the move away from fossil fuel based energy consumption towards investment in renewable energy and increased energy efficiency in recognition that this is necessary to meet emissions targets.

9.22 The oil and gas industry also works with regulators and stakeholders to minimise the environmental footprint of operations. There are two environmental safeguards in place – OSPAR Decisions and Recommendations, and EU Regulations and Directives. Both are intended to provide protection for the environment and their goals and targets are enshrined in UK legislation. Secondly, all operating companies involved in the exploration and production on the UK Continental Shelf are required to have an independently verified Environmental Management System in place. The Environmental Management System will ensure that, where necessary for a particular location or operation, appropriate control measures will be applied.

9.23 Climate change is projected to lead to potential changes in storminess. These changes have the potential to lead to oil and gas operations being carried out in more hazardous environments and associated impacts on physical structures, operating windows and health and safety both on, and travelling to, platforms. However it is recognised that the offshore sector is currently operated under an established, robust and world leading health and safety regime.

Part 3: Marine planning policies

   OIL & GAS 1: The Scottish Government will work with DECC, the new Oil and Gas Authority and the industry to maximise and prolong oil and gas exploration and production whilst ensuring that the level of environmental risks associated with these activities are regulated. Activity should be carried out using the principles of Best Available Technology (BAT) and Best Environmental Practice. Consideration will be given to key environmental risks including the impacts of noise, oil and chemical contamination and habitat change.

  OIL & GAS 2: Where re-use of oil and gas infrastructure is not practicable, either as part of oil and gas activity or by other sectors such as carbon capture and storage, decommissioning must take place in line with standard practice, and as allowed by international obligations. Reuse or removal of decommissioned assets from the seabed will be fully supported where practicable and adhering to relevant regulatory process.

 OIL & GAS 3: Supporting marine and coastal infrastructure for oil and gas developments, including for storage, should utilise the minimum space needed for activity and should take into account environmental and socio-economic constraints.

 OIL & GAS 4: All oil and gas platforms will be subject to 9 nautical mile consultation zones in line with Civil Aviation Authority guidance¹⁰⁴.

  OIL & GAS 5: Consenting and licensing authorities should have regard to the potential risks, both now and under future climates, to oil and gas operations in Scottish waters, and be satisfied that installations are appropriately sited and designed to take account of current and future conditions.

  OIL & GAS 6: Consenting and licensing authorities should be satisfied that adequate risk reduction measures are in place, and that operators should have sufficient emergency response and contingency strategies in place that are compatible with the National Contingency Plan¹⁰⁵ and the Offshore Safety Directive.

¹⁰⁴ Civil Aviation Authority Policy and Guidance on Wind Turbines. CAP 764. Civil Aviation Authority 2013.

<http://www.caa.co.uk/docs/33/cap764.pdf>

¹⁰⁵ The National Contingency Plan. A Strategic Overview for Responses to marine Pollution from Shipping and Offshore Installations. UK Government. 2014

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/349610/140829-NCP-Final-Draft-PreDragon.pdf

Regional policy: Regional marine plans should consider:

- The positive and negative impacts of any oil and gas activity in their area and the implications for other development and use.
- The implications of the transition to a low carbon economy for their area including the longer-term reduction of oil and gas activity, but also incorporating opportunities to reuse existing infrastructure and promote skills transfer to support emerging industries such as renewables and CCS.

Part 4: The future

9.24 There are up to 24 billion BOE of oil and gas reserves remaining in the North Sea¹⁰⁶. The industry view is that the North Sea will continue to produce oil and gas until 2050 at least, although production will decline over time¹⁰⁷.

9.25 Over the next two decades, the process of decommissioning ageing oil and gas equipment will emerge as a new business activity. The decommissioning effort will ultimately cover 470 installations, more than 10,000km of pipeline and 5000 wells and the estimated cost is around £40.6 billion by 2040 (2013 prices).

9.26 Regulators will work together to encourage collaboration between asset owners to enable the industry to realise the full potential of the market and to ensure assets are not decommissioned prematurely.

9.27 It is possible that some elements of existing infrastructure may support carbon storage and sequestration. However, consideration must be given to associated degradation issues and on-going or residual liability for monitoring, maintenance and navigational issues.

¹⁰⁶ See footnote 96.

¹⁰⁷ Economic Report. Oil and Gas UK. 2013. p19. <https://publ.com/N6D1Taa>

Map 8

Oil, Gas, Pipelines and Gas Storage Around Scotland

Detail Key

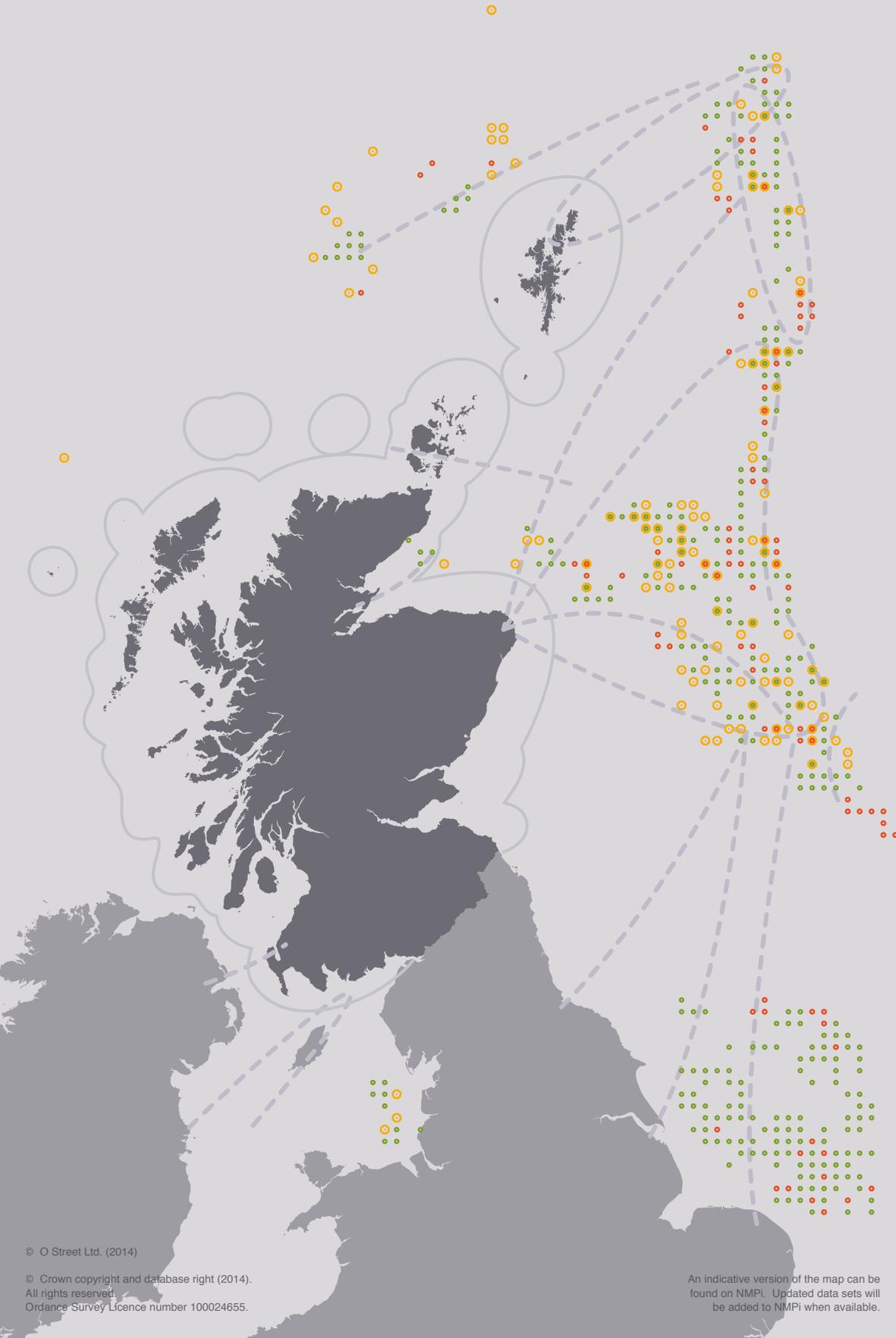
Oil and Gas

Key:

- 12 Nautical Miles
- Hydrocarbon Pipelines
- Significant Discovery Not yet Developed - July 2014

Hydrocarbon Fields - July 2014

- Producing
- Inactive



10. Carbon Capture and Storage (CCS)

Objectives and policies for this sector should be read subject to those set out in Chapters 3 and 4 of this Plan. It is recognised that not all of the objectives can necessarily be achieved directly through the marine planning system, but they are considered important context for planning and decision making.

Objectives

- 1  Safe, cost effective and timely deployment of Carbon Capture and Storage (CCS), assisting the delivery of Scotland's climate change objectives and positioning the North Sea as Europe's principal hub for surplus CO₂ storage, servicing electricity generators and heavy industry from sources throughout Europe.
- 2  CCS available as a realistic low carbon deployment option for electricity generation in advance of 2020, and to support the decarbonisation of electricity generation by 2030, without affecting the security of supply.
- 3  Scotland at the forefront of the development and deployment of CCS technology, putting in place successful commercialisation projects which promote the utilisation of existing infrastructure.
- 4  To further develop CCS technology as a potential source of large scale CO₂ supply for use in Enhanced Oil Recovery processes in the North Sea.
- 5  Initiate an Environmental Assessment, with relevant agencies, to allow early consideration of the environmental issues with deployment of CCS.

Key references

[Carbon Capture and Storage – a Roadmap for Scotland](#)

[National Planning Framework 3](#)

Scotland's Marine Atlas: Information for the National Marine Plan.

[Chapter 5: Carbon Capture and Storage](#). Pages 166 – 167.

National Marine Plan interactive (NMPi). [Productive/Oil, Gas and Carbon Capture and Storage](#) section.

Part 1: Background and context

10.1 Carbon Capture and Storage (CCS) is a set of technologies that has the potential to reduce CO₂ emissions from new and existing coal and gas-fired power plants and large industrial sources. CCS is a three-step process that includes:

1. Capture of CO₂ from power plants or industrial processes
2. Transport of the captured and compressed CO₂ (usually via pipelines).
3. Underground injection and permanent geologic sequestration of the CO₂.

10.2 The Scottish Government believes that CCS is a critical component in the decarbonisation of Scotland's energy supplies and that Scotland has a competitive advantage in the development of this technology.

10.3 The North Sea is the largest CO₂ storage resource in Europe and this, coupled with our existing oil & gas capabilities, ready supply chain and existing infrastructure means that Scotland is in a strong position to be at the centre of CCS development in Europe.

10.4 The Scottish Government has a clear policy to decarbonise electricity generation by 2030 and CCS will support this with potential to capture up to 90% of CO₂ emissions from fossil fuel power stations before they enter the atmosphere, thereby turning traditionally high-carbon fuels like coal and gas into low-carbon generation and transforming the way we generate power.

10.5 CO₂ can only be safely stored where geology is suitable. As such, CCS infrastructure is likely to have similar spatial characteristics to the offshore oil and gas industry. The technology required to capture CO₂ and then transport it to offshore storage sites continues to develop and the Scottish Government is funding various research studies and initiatives to advance understanding of this technology. The characterisation, modelling and analysis of geological store information available on selected North Sea storage sites is an example of the research underway in projects such as SiteChar¹⁰⁸ and CO₂ Multi-Store¹⁰⁹.

10.6 A research project 'Opportunities for CO₂ Storage around Scotland', launched by the First Minister on 1 May 2009, highlights the offshore potential of the North Sea Scottish sector to store emissions for the next 200 years. The successor study, Progressing Scotland's CO₂ Storage Opportunities, published in March 2011, showed that the Captain Sandstone field alone could hold 15 to 100 years of CO₂ output from Scotland's power industry, offering up the prospect of 13,000 new low carbon jobs being created in Scotland by 2020.

10.7 A further study was completed by Scottish Enterprise in June 2014 and details how the combination of Carbon Capture and Storage with Enhanced Oil Recovery (EOR) for the Central North Sea provides an excellent platform to position Scotland as a European hub for CCS and EOR.

108 SiteChar. <http://www.sitechar-co2.eu/>

109 CO₂ Multistore. <http://www.sccs.org.uk/images/expertise/projects/co2-multistore/JIP-CO2MultiStore.pdf>

CCS Commercialisation Projects

10.8 Piloting commercialisation of CCS will be key to its long-term development. The conversion of a Peterhead gas-fired power station ('Peterhead project') can pioneer CCS technology and make best use of existing infrastructure, helping to establish the area as a hub for CO₂ transport and storage. The Peterhead project is identified as a National Development in NPF3. It is on schedule to submit a planning application for the project in 2015 with a view to enter into operation in 2019/20. It aims to capture around 1 million tonnes of CO₂ per year from the existing gas power station and transport the CO₂ by existing pipelines for permanent storage in Shell's Goldeneye field (part of the Captain Sandstone field) approximately 100 km to the north east of Aberdeen. If built it will be the first commercial scale CCS project on a gas power station in the world.

10.9 Scotland's other key potential CCS project is the Captain Clean Energy Plant proposed for Grangemouth. This plant is a coal-gasification proposal which will capture the CO₂ and transport it through a pipeline to St Fergus, then offshore for storage in the Captain Sandstone field. Together the two projects provide clustering opportunities which will allow the linking and sharing of CCS infrastructure – a crucial enabler to the widespread deployment of CCS.¹¹⁰

Part 2: Key issues for marine planning

SUPPORTING ECONOMICALLY PRODUCTIVE ACTIVITIES

10.10 CCS is critical in helping Scotland to make significant carbon emissions reductions, as well as making a significant contribution to the security of supply and promoting economic growth opportunities.

10.11 Scotland has vast potential for CCS with significant offshore capacity (North Sea oil and gas industry) and infrastructure already in position, such as pipelines. Saline aquifers have a capability to store more than 200 years of Scotland's CO₂ output from its major fixed industrial sources¹¹¹ and many of the skills and engineering experience gained from the oil and gas industries are transferable to this new industry.

INTERACTIONS WITH OTHER USERS

10.12 Marine planning can promote positive interactions between sectors supporting opportunities for shared use of infrastructure, including pipelines and utility corridors as well as the transfer of skills to deliver successful CCS commercialisation projects. The main sectoral interaction expected with CCS will be with Oil and Gas.

¹¹⁰ National Planning Framework 3. Scottish Government. Paragraphs 3.19 and 3.20.
<http://www.scotland.gov.uk/Publications/2014/06/3539>

¹¹¹ Opportunities for CO₂ Storage around Scotland – an integrated strategic research study. Scottish Centre for carbon Storage and The Scottish Government. 2009.
<http://www.scotland.gov.uk/Publications/2009/04/28114540/0>

10.13 A new Centre for North Sea Enhanced Oil Recovery with CO₂ (CENSEOR-CO₂) was launched in May 2012. The Centre could boost jobs and growth in Scotland, accelerate development of CCS and increase the amount of oil removed from reservoirs beneath the sea by 5 to 25%. EOR may also serve as an economic enabler for the development of CCS as the CO₂ will gain a market value as a commodity for sale¹¹².

LIVING WITHIN ENVIRONMENTAL LIMITS

10.14 CCS is predicted to have substantial environmental benefits, supporting the delivery of the Scottish Government's climate change policy by helping to achieve carbon emissions reductions.

10.15 Environmental impact will depend on the extent to which it is possible to use existing pipelines, installations and wells. It should also be noted that the environmental impacts may vary depending on the ease with which connections can be made between onshore power generation and existing offshore infrastructure.

10.16 Storage of carbon dioxide requires a permit, which can only be issued if the carbon dioxide is to be permanently contained. There nevertheless remains a very small risk that CO₂ might leak from storage into the marine environment and, ultimately, the atmosphere and this risk must be managed¹¹³. For this reason, monitoring and verification of the risks of leakage play an important role in permitting and determining mitigation options.

10.17 Failure should be planned for and agreed as part of risk assessment and project planning with consideration given to all potential impacts, including:

- **Habitat damage:** The construction of new infrastructure required to deliver CCS could result in habitat damage or loss, siltation and smothering or reduction in water quality. Projects that involve the re-use of suitable existing redundant oil and gas infrastructure are likely to offer environmental benefits.
- **Acidification/Salinity changes:** Whilst surface and seabed installations are the most likely source of environmental damage from CCS activity in the marine environment, CO₂ could cause local acidification with the potential for permanent effects on marine habitats if persistent. Whilst highly unlikely, larger scale leakage from deep ocean storage poses a risk of affecting marine ecosystems across a wider area.
- **Pollution:** Solvents used in CCS and any discharged waters may carry contaminants, although water and scale volumes should be much less than oil and gas production.

¹¹² The first commercial scale CCS project (Boundary Dam Project in Saskatchewan Canada) officially started operating on 20th June 2014. The project will offset project costs from revenue gathered from the sale of CO₂ for use in Enhanced Oil Recovery (EOR) and also the sale of sulphur dioxide SO₂ for the production of sulphuric acid for industrial purposes.

¹¹³ Directive 2009/31/EC on the geological storage of carbon dioxide sets out a framework for addressing environmental risk. <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32009L0031>

CLIMATE CHANGE

10.18 As detailed above, CCS will reduce the levels of CO₂ released into the atmosphere and is therefore a mitigation measure to address climate change.

10.19 Climate change and associated sea level rise is expected to increase the incidences of coastal flooding and erosion. Wind and wave conditions may also become more severe creating harsher operating conditions for offshore installations. Developers should have regard to the future changes to sea level as well as potential changes in storminess, wind and wave conditions when designing and siting new land-falling components for CCS and new offshore structures, including pipelines and rigs.

Part 3: Marine planning policies



CCS 1: CCS commercialisation projects or developments should be supported through an alignment of marine and terrestrial planning processes, particularly where proposals allow timely deployment of CCS to re-use suitable existing redundant oil and gas infrastructure.



CCS 2: Consideration should be given to the development of marine utility corridors which will allow CCS to capitalise, where possible, on current infrastructure in the North Sea, including shared use of spatial corridors and pipelines.

Regional policy: Regional marine plans should consider the potential for CCS commercialisation within their area, particularly in light of the expected future activity set out in National Planning Framework 3.

Part 4: The future

10.20 The Scottish Government's aim is for Scotland to become a leader in CCS technology. More specifically, this would involve developing commercial scale deployment in Scotland, alongside the development of ancillary and support services and an appreciable share of global CCS business.

10.21 In order for CCS to make a significant contribution towards the decarbonisation of the electricity sector by 2030, its capacity to deliver required outcomes needs to be proven. The progress of the Peterhead project will be closely monitored and the Scottish Government will continue to encourage the European Commission to develop policy mechanisms to support and stimulate the development of CCS across the power and industrial sectors.

10.22 National Planning Framework 3 sets out the expectation that a CCS network may emerge around the Forth, where there is a particular cluster of industrial activities and energy generation, and the potential to link to existing infrastructure.

11. Offshore Wind and Marine Renewable Energy

Objectives and policies for this sector should be read subject to those set out in Chapters 3 and 4 of this Plan. It is recognised that not all of the objectives can necessarily be achieved directly through the marine planning system, but they are considered important context for planning and decision making.

Objectives

- 1  Sustainable development of offshore wind, wave and tidal renewable energy in the most suitable locations.
- 2  Economic benefits from offshore wind, wave and tidal energy developments maximised by securing a competitive local supply chain in Scotland.
- 3  Alignment of marine and terrestrial planning and efficient consenting and licensing processes including but not limited to data sharing, engagement and timings, where possible.
- 4  Aligned marine and terrestrial electricity transmission grid planning and development in Scottish waters.
- 5  Contribute to achieving the renewables target to generate electricity equivalent to 100% of Scotland's gross annual electricity consumption from renewable sources by 2020.
- 6  Contribute to achieving the decarbonisation target of 50gCO₂/kWh by 2030 (to cut carbon emissions from electricity generation by more than four-fifths).
- 7  Sustainable development and expansion of test and demonstration facilities for offshore wind and marine renewable energy devices.
- 8  Co-ordinated Government and industry-wide monitoring.

Key references

[Blue Seas – Green Energy: A Sectoral Marine Plan for Offshore Wind Energy in Scottish Territorial Waters](#)

Sectoral Marine Plans for Offshore Wind, Wave and Tidal Energy (once published)

Pilot Pentland Firth and Orkney Waters Marine Spatial Plan (once published)

[Scotland's Offshore Wind Route Map – Developing Scotland's Offshore Wind Industry to 2020 and Beyond](#)

[Offshore Wind Energy in Scottish Waters – Regional Locational Guidance](#)

[Tidal Energy in Scottish Waters – Regional Locational Guidance](#)

[Wave Energy in Scottish Waters – Regional Locational Guidance](#)

[Marine Licensing Manual](#)

[Marine Licensing Guidance](#)

[National Planning Framework 3 \(NPF3\)](#)

[National Renewables Infrastructure Plan. Stage 1. Scottish Enterprise](#)

[National Renewables Infrastructure Plan. Stage 2. Scottish Enterprise](#)

Scotland's Marine Atlas: Information for the National Marine Plan.

[Chapter 5: Renewable Energy and Power Cables](#). Pages 162–165.

National Marine Plan interactive ([NMPi](#)). [Productive/Renewable Energy and Cables](#) section.

Part 1: Background and context

11.1 Scotland's sea area has an estimated 25% of Europe's offshore wind and tidal resource and 10% of the wave resource. The Scottish Government is committed to building a globally competitive offshore wind and marine renewables industry based in Scotland to take forward the transition to a low carbon economy while ensuring security of energy supply.

11.2 Scotland has set ambitious targets for renewable energy by aiming to generate the equivalent of 100% of Scotland's own electricity demand from renewable resources by 2020 and to deliver an 80% reduction in greenhouse gas emissions by 2050. Offshore wind and marine renewables will play a part in this and the role of offshore generation will increase further into the 2020s and beyond.

11.3 Within the Scottish marine area, there are a number of planned development sites for offshore wind and marine renewable energy:

- The Crown Estate 'Round 3' Offshore Wind Sites – these sites were underpinned by Offshore Wind SEA undertaken by the Department of Energy and Climate Change in 2011.
- Scottish Territorial Waters Offshore Wind Sites.
- The Pentland Firth Strategic Area Wave and Tidal Energy sites with 'Agreement for Lease'.
- 'The Saltire Prize' sites with agreement for lease.

11.4 Within this Plan, since agreements for lease have been awarded, these developments are considered as 'planned developments at the licensing stage'.

Offshore Wind

11.5 As the global wind industry expands further offshore, Scotland is well placed to become a key hub for the design, development and deployment of the next generation of offshore wind technologies. In addition to the planned development sites detailed above for offshore wind, Scotland is also becoming a key location for test and demonstration facilities in renewable energy development. The Beatrice Project in the Moray Firth is the world's first offshore wind deep-water demonstration project and other key projects include the Hunterston Test Centre for Offshore Wind and the virtual hub of test and demonstration facilities which make up the Scottish Energy Laboratory.

11.6 Blue Seas – Green Energy: A Sectoral Marine Plan for Offshore Wind Energy in Scottish Territorial Waters was published in 2011 resulting in agreements for lease being awarded to five sites. It has since been reviewed to identify further Plan Options within the Sectoral Marine Plans¹¹⁴ detailed below.

Marine Renewables

11.7 As stated above, Scotland is a world-leading location in the development of marine renewable energy and has very significant wave and tidal energy resources. The UK Wave and Tidal Key Resource Areas Project¹¹⁵ found that Scottish waters offer the majority of the UK's wave resources (46 TWh/year) and significant tidal stream resources (32 TWh/year).

11.8 Based in Orkney, the flagship European Marine Energy Centre (EMEC) celebrated 10 years of real-sea experience in 2013. There have been more grid-connected marine energy converters deployed at EMEC than at any other single site worldwide, and the centre remains the only accredited marine energy laboratory.

11.9 The Pentland Firth and Orkney Waters (PFOW) were the site of the world's first commercial scale wave and tidal leasing round in 2010. Of the existing 38 UK sites leased by the Crown Estate, 25 are in Scotland.

11.10 Wave and tidal energy developments will be further supported by the Crown Estate leasing rounds for new demonstration zones. These zones are in areas which have been selected for their appropriate wave and tidal energy resources and access to necessary infrastructure and can be managed by third party organisations with a good understanding of local interests.

Sectoral Marine Planning

11.11 In the marine environment, planning for offshore renewable energy is progressed in this Plan and Sectoral Marine Plans for Offshore Wind, Wave and Tidal Energy. Sectoral Marine Plans contain Scottish Ministers policies, including their spatial strategy, to steer commercial scale offshore renewable energy development.

¹¹⁴ Reference to Sectoral Marine Plans will be added once published.

¹¹⁵ UK Wave and Tidal Key Resource Areas Project. The Crown Estate. 2012.

<http://www.thecrownestate.co.uk/media/5476/uk-wave-and-tidal-key-resource-areas-project.pdf>

11.12 The areas contained in Sectoral Marine Plans (SMPs) are referred to as adopted Plan Options. Plan Options are strategic development zones in which commercial scale projects should be sited following further zone appraisal, where appropriate, and consideration of the key strategic issues identified in the SMPs and Sustainability Appraisal. It is not expected that each Plan Option area will be fully developed.

11.13 Plan Options are identified through a multi-stage process involving a scientific scoping exercise to identify areas of resource and constraint. Regional Locational Guidance, detailing relevant information and an early-stage consultation is then applied to refine these 'Areas of Search' into Draft Plan Options. The Draft Plan Options are then subject to a Sustainability Appraisal (including Strategic Environmental Assessment, Habitats Regulation Appraisal and socio-economic assessment) and statutory consultation prior to adoption.

11.14 Proposals for offshore wind and marine renewable developments within Plan Options are subject to licensing and consenting processes. Whilst decision makers must take account of provisions within Plan Options and other material considerations, each application is considered in its own merits.

Part 2: Key issues for marine planning

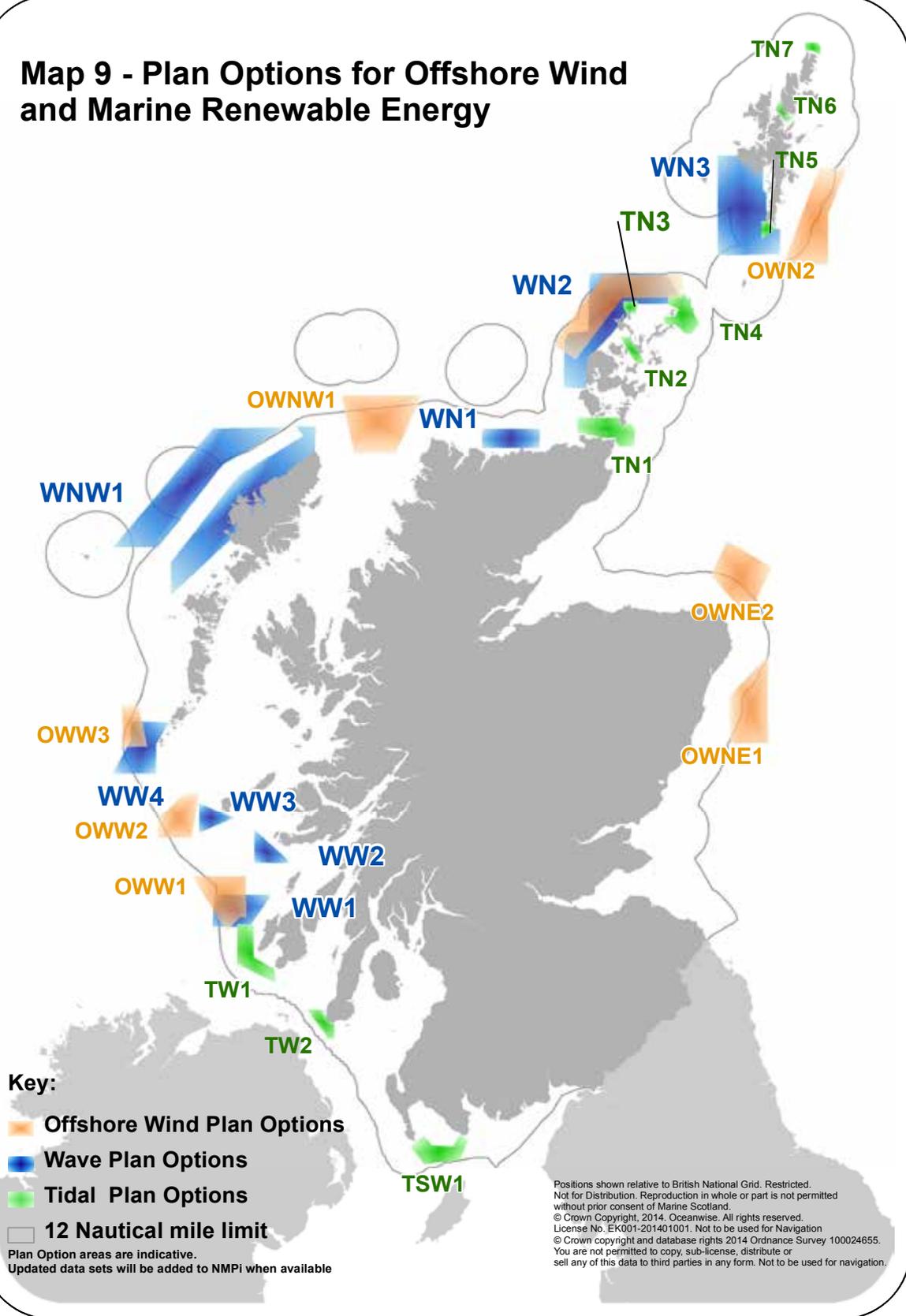
SUPPORTING ECONOMICALLY PRODUCTIVE ACTIVITIES

11.15 Scotland is committed to becoming a centre for global investment in renewable energy and low carbon technology, which represents a significant opportunity for local supply chain companies and international companies looking to expand and develop offshore wind and marine renewable energy. It is anticipated that the development of offshore wind, wave and tidal energy will create significant economic opportunities in Scotland. Marine and terrestrial planning processes can support the delivery of offshore wind and marine renewables and help to ensure infrastructure and onshore facilities are provided in a co-ordinated way.

11.16 Further growth of Scotland's offshore wind and marine renewable energy market can be achieved by attracting trade and investment from multi-national markets which have established renewable energy technology manufacturing capabilities. Work is underway and will continue between government, developers and the enterprise agencies to support early engagement and help facilitate supply chain infrastructure capable of supporting these activities. Scottish research institutions provide a base of academic excellence for delivering technological advancements and technology transfer and are also well placed to benefit from this new industry around Scotland.

11.17 General Policies 2, 3 and 4 in Chapter 4 support the delivery of economic and social benefits from sustainable marine developments and ensure consideration is given to the use of scenario mapping as a planning tool to assess socio-economic implications of commercial scale developments. For commercial scale developments, scenario mapping aims to provide a strategic assessment and decision making tool. This is based on socio-economic and environmental appraisals and focused consultation to inform communities of the effects of project construction, operation and maintenance activities of the practical scenarios a developer would consider when taking forward a project.

Map 9 - Plan Options for Offshore Wind and Marine Renewable Energy



National Renewables Infrastructure Plan (N-RIP)

11.18 The National Renewables Infrastructure Plan (N-RIP) is the strategic economic framework for developing Scotland's ports and harbours for the purpose of supporting offshore renewable energy industry needs with associated funding through the £70 million National Renewables Infrastructure Fund. Delivery of N-RIP will help to provide the infrastructure required by a strong supply chain, consisting of diversified and new Scottish companies, as well as encouraging inward investors to locate in Scotland. Opportunities for renewables development and activity are not restricted to the ports identified in N-RIP, with many other ports engaged with developers to support the sector.

Grid Provision

11.19 The full exploitation of Scotland's offshore renewable energy resources, and maximum economic benefit, is dependent on the construction and improvement of both onshore and offshore grid capacity.

11.20 NPF3 recognises the importance of offshore wind and marine renewables and aims to ensure that planning facilitates development of the onshore elements that support offshore projects. Enhancement of the electricity transmission grid, a national development in NPF3, includes support for grid connections to offshore renewable energy developments, and an action notes that further work on the marine grid is planned to encourage a more strategic approach. NPF3 also identifies five energy hubs around the coast where development will require a co-ordinated approach to ensure development takes place in a way that is balanced with coastal environments and communities: Pentland Firth and Orkney Waters, Peterhead, Grangemouth, Cockenzie, and Hunterston.

11.21 The sites identified in N-RIP are also recognised as nationally important sites for investment.

11.22 Sub-sea connections currently exist between mainland Scotland and some of the Scottish islands, and between Scotland and Northern Ireland. Further offshore grid projects for development have also been identified (Map 12). These include:

- Full integration of the Western and Northern Isles into the GB network. This will involve the construction of High Voltage Direct Current (HVDC) links between Lewis and the mainland, and from Shetland to the mainland, with a reinforced AC link connecting Orkney to Caithness, to be followed by an HVDC link as generation demands for connections come forward.
- A rational, cost-effective network of cables to ensure connection between offshore wind development areas around the Firth of Forth/Fife coast, the Moray Firth and the Argyll coast and the onshore network.
- A west coast 1.8 GW HVDC link between Hunterston and Deeside in North Wales (target for commissioning 2016).
- An east coast 1.8 GW HVDC link between Peterhead and Hawthorne Pit in Humberside (target for commissioning post 2020).
- An HVDC link from Spittal, Caithness to Blackhillock, Moray (current likely completion date – 2018).

11.23 The Scottish Government and other key stakeholders will develop a strategy for the marine grid in Scotland and will work with developers to ensure an integrated developer grid connection strategy is incorporated into the sectoral marine planning process to maximise efficient connections which take account of environmental, economic and social factors.

11.24 Chapter 14 provides further information and policies for marine power cables.

INTERACTIONS WITH OTHER USERS

11.25 In order to develop the economic potential of offshore wind and marine renewable energy, significant positive interactions are expected with submarine cables, manufacturing, construction, maintenance and ports and harbours sectors.

11.26 Key marine sectors can be affected by marine renewable energy development. Physical competition for space, navigational restrictions and the impact of physical structures in the sea may also affect sectors such as fisheries and aquaculture, marine recreation and tourism, shipping and defence, especially where planned development spatially interacts with existing uses. Impacts can be avoided or minimised through an inclusive approach which identifies affected sector contacts, improves communication between developers and these sectors, identifies the impacts and seeks to address these through effective communication and mitigation strategies.

11.27 Marine sectoral strategies can be developed at the planning stage and sectoral mitigation strategies at the project assessment and application stage to ensure that all affected sectors are aware of developer activities and timetables in appropriate timescales to allow other sectoral activities to be planned to minimise impact as much as possible and for mutual benefits to be maximised.

11.28 Within Plan Options, where there is significant potential for interactions with other marine activities, Regional Locational Guidance, developed in conjunction with stakeholders, will be further developed to support the micro-siting process for development in the areas of least sensitivity.

11.29 The renewables industry is involved in several working groups with the various sectors to develop best practice for co-existence and mitigation. The Fishing Liaison with Offshore Wind and Wet Renewables Group (FLOWW), set up in 2002 to foster good relations between the fishing and offshore renewable energy sectors, has delivered the publication of the Offshore Renewables and Fisheries Liaison Guidance¹¹⁶.

LIVING WITHIN ENVIRONMENTAL LIMITS

11.30 Offshore wind and marine renewable energy developments could have a wide range of environmental impacts throughout their project life-cycle as set out in Scotland's Marine Atlas: Information for the National Marine Plan. Effects could vary on a case by case basis and will depend upon the specific location, technology, the timing and the approach to activities and pressures from other forms of activity.

¹¹⁶ See footnote 64.

11.31 The Scottish Government recognises that improvements can be made to the mechanisms used to address these uncertainties. A new Scottish Offshore Renewables Research Framework with a supporting research strategy is being developed. This new framework will provide a mechanism for understanding, collaborating and co-ordinating research priorities across a range of topic areas. It will also provide a mechanism for new knowledge to feed into updates to the sectoral marine plans and support Marine Scotland's risk based licencing and consenting approach.

11.32 Strategic Environmental Assessment, Habitats Regulations Appraisal and Environmental Impact Assessment will assess key environmental risks which will be taken into account in plan and project development and consenting procedures. A strategic approach to mitigating potential impacts and cumulative impacts on the marine environment forms an integral part of marine planning and decision making, whilst issues arising in the coastal interface should align between marine and terrestrial processes.

CLIMATE CHANGE

11.33 Offshore wind and marine renewable energy is a key part of the mitigation measures and new technologies will put Scotland at the forefront of building a sustainable low carbon economy. Offshore and marine renewables will contribute to Scotland's climate change target for renewable sources to generate the equivalent of 100% of Scotland's gross annual electricity consumption by 2020 and the decarbonisation target to achieve 50gCO₂e/KWh of electricity generation in Scotland. Whilst the technologies themselves will involve the use of energy for construction, transportation and maintenance, they will contribute to the decarbonisation of electricity generation through their long-term operation.

11.34 A changing climate may result in changes in storminess which could create difficult operating conditions for offshore installations. Offshore renewable devices may also have the potential to change wave energy dissipation and coastal processes. Depending on the location, these effects could exacerbate the existing vulnerability of coasts to climate change by altering wave patterns and in some cases the effects could contribute to the protection of coastlines susceptible to erosion.

Part 3: Planning policies

SPATIAL PLANNING

  **RENEWABLES 1:** Proposals for commercial scale offshore wind and marine renewable energy development should be sited in the Plan Option areas identified through the Sectoral Marine Plan process¹¹⁷ (Map 9). Plan Options are considered the preferred location for the sustainable development of offshore wind and marine renewables. This preference should be taken into account by marine planners and decision makers if alternative development or use of these areas is being considered. Proposals are subject to licensing and consenting processes.

   **RENEWABLES 2:** Agreements for lease for wave and tidal energy sites in the Pentland Firth Strategic Area must be taken into account by marine planners and decision makers if alternative use of these areas, or which would affect access to these areas, is being considered. Proposals are subject to licensing and consenting processes. Regional Locational Guidance and the Pentland Firth and Orkney Waters Marine Spatial Plans should also be taken into account when reaching decisions.

   **RENEWABLES 3:** Marine planners and decision makers should consider proposals for sustainable development of test and demonstration sites for offshore wind and marine renewable energy development on a case-by-case basis where sites are identified. Regional Locational Guidance should be taken into account and proposals are subject to licensing and consenting processes.

MARINE LICENSING

 **RENEWABLES 4:** Applications for marine licences and consents relating to offshore wind and marine renewable energy projects should be made in accordance with the Marine Licensing Manual and Marine Scotland's Licensing Policy Guidance.

  **RENEWABLES 5:** Marine planners and decision makers must ensure that renewable energy projects demonstrate compliance with Environmental Impact Assessment and Habitats Regulations Appraisal¹¹⁸ legislative requirements.

   **RENEWABLES 6:** New and future planned grid connections should align with relevant sectoral and other marine spatial planning processes, where appropriate, to ensure a co-ordinated and strategic approach to grid planning. Cable and network owners and marine users should also take a joined-up approach to development and activity to minimise impacts on the marine historic and natural environment and other users.

   **RENEWABLES 7:** Marine planners and decision makers should ensure infrastructure is fit for purpose now and in the future. Consideration should be given to the potential for climate change impacts on coasts vulnerable to erosion.

¹¹⁷ See footnote 114.

¹¹⁸ General Policy 9: Living within Environmental Limits - Natura 2000 Sites. Para 4.43 - 4.46 is relevant here.

MAXIMISING BENEFITS FROM OFFSHORE RENEWABLES

 RENEWABLES 8: Developers bringing forward proposals for new developments must actively engage at an early stage with the general public and interested stakeholders of the area to which the proposal relates and of adjoining areas which may be affected.

 RENEWABLES 9: Marine planners and decision makers should support the development of joint research and monitoring programmes for offshore wind and marine renewables energy development.

 RENEWABLES 10: The Scottish Government Good Practice Principles for Community Benefits from Offshore Renewable Energy Developments¹¹⁹ should be followed by developers.

Regional policy: Regional marine plans should consider:

- Further assessing Plan Options areas against local/updated data knowledge to identify development potential, interactions and compatibility.
- Co-ordinating and developing a better understanding of the interactions between the sector and the environment and other users.
- Ensuring better alignment between marine and terrestrial planning.
- Links to relevant terrestrial plans.
- Grid requirements and onshore infrastructures for grid. Links to strategic grid initiatives and engagement with these e.g. the North Sea Countries Offshore Grid Initiative¹²⁰ could also be supported by regional marine planning.
- Co-ordinating with the Crown Estate on leasing rounds.

119 Consultation: Draft Good Practice Principles For Community Benefits From Offshore Renewables. 2014. Final version expected 2015. <http://www.scotland.gov.uk/Publications/2014/06/9554>

120 North Sea Countries Offshore Grid Initiative. 2012. <http://www.benelux.int/nl/kernthemas/energie/nscogi-2012-report/>

Part 4: The future

11.35 The 2020 Routemap for Renewable Energy in Scotland¹²¹ sets out a comprehensive path of actions to deliver on Scotland's renewable energy ambitions. Offshore wind and marine renewables will play an important role in helping deliver the 100% consumption target by 2020 and pave the way for further deployment of offshore wind energy in the 2020s as grid and interconnection upgrades and storage are further developed.

11.36 It is expected that offshore wind, wave and tidal energy will make a significant contribution towards meeting our future renewable electricity needs. Against this backdrop, Scotland's ambitions for renewables and the delivery of clean electricity in Scotland go beyond current 2020 targets. The Electricity Generation Policy Statement¹²² includes a non-statutory decarbonisation target to achieve 50gCO₂e/KWh of electricity generation in Scotland by 2030. This decarbonisation target is based upon estimates of the development of renewable energy in addition to changes in the patterns of use of thermal energy.

11.37 Forward looking actions for offshore technologies to progress and make the necessary transition to achieve Scotland's 2020 energy targets and 2030 decarbonisation targets include maintaining stability of market incentives and level of support, investment in infrastructure, support for innovation and capital support (for wave and tidal).

11.38 Floating wind turbines capable of deployment in waters deeper than 35 metres are considered to constitute the next technological step for offshore energy generation. They can potentially ensure a high amount of energy in environments that greatly lessen the constraints associated with turbines in shallower waters closer to shore. It is essential that these technologies are tested in a variety of environments to demonstrate all aspects of their functionality and accelerate their technical development. To that end Regional Locational Guidance has been produced to support offshore wind floating and deep-water demonstration projects. Where appropriate, Regional Locational Guidance could also be used to support the early stage development of projects for other emerging technologies and initiatives related to the development of offshore renewable energy.

11.39 The Scottish Offshore Renewables Research Frameworks should provide a collaborative and co-ordinated research programme supporting the sustainable development of marine renewable wind, wave and tidal industries and better inform future marine planning and decision making for offshore wind and marine renewables energy. A future co-ordinated national, regional and project specific environmental monitoring strategy will also be useful to identify potential opportunities for enhancement and recovery of ecosystem services in the exclusion zones around offshore energy generation sites (i.e. restoration and improvement on habitats damaged during the construction process).

121 Routemap for Renewable Energy in Scotland. Scottish Government. 2011.
<http://www.scotland.gov.uk/Publications/2011/08/04110353/0>

122 Electricity Generation Policy Statement. Scottish Government.
<http://www.scotland.gov.uk/Topics/Business-Industry/Energy/EGPSMain>

12. Recreation and Tourism

Objectives and policies for this sector should be read subject to those set out in Chapters 3 and 4 of this Plan. It is recognised that not all the objectives can necessarily be achieved directly through the marine planning system, but they are considered important context for planning and decision making.

Objectives

- 1  Position Scotland as a world-class sustainable coastal and marine tourism and recreation destination through the sustainable development of coastal and marine recreation activities and industries in Scotland.
- 2  Protection and enhancement of the unique natural resources which attract visitors and which are relied upon for recreational activities.
- 3  Promote diversification of the recreation and tourism sector to increase the value of assets in rural towns.
- 4  Continued and improved access to marine and coastal resources for leisure activities and recreational use.
- 5  Sustainable improvement of existing, and sustainable development of new facilities, encouraging the sharing of facilities and supporting infrastructure.
- 6  Improved data on marine and coastal recreational activities, including key recreation resources and access points, enabling better targeted and long-term planning for these activities.
- 7  Participation in a range of waterborne recreational activities that support participation and sport development, encourage an appreciation of the environment in which they take place, contribute to life skills and support a healthier nation and increase economic benefit.
- 8  Improved education and understanding of the marine environment for recreational users, including how to enjoy the resource responsibly in accordance with the Marine Wildlife Watching Code¹²³ and the Scottish Outdoor Access Code¹²⁴.

123 Scottish Marine Wildlife Watching Code. <http://www.marinecode.org/>

124 Scottish Outdoor Access Code. SNH. 2005. <http://www.snh.org.uk/pdfs/publications/access/full%20code.pdf>

Key references

[VisitScotland, Tourism Development Framework for Scotland](#)

[Scottish Tourism Alliance, Tourism Scotland 2020](#)

[Event Scotland, Scotland the Perfect Stage: A Strategy for the Events Industry in Scotland 2009–2020](#)

[National Planning Framework 3 \(NPF3\)](#)

[Scottish Planning Policy](#)

Scotland's Marine Atlas: Information for the National Marine Plan.

[Chapter 5: Leisure and Recreation](#). Pages 154–155.

National Marine Plan interactive (NMPi). [Productive/Leisure and Recreation section](#).

Part 1: Background and context

12.1 Scotland's marine and coastal areas support a range of recreational, sporting and visitor activities, ranging from coastal walking to international sporting events. Our rich cultural and natural heritage provides a range of opportunities for tourism based on local food and drink, sport and recreation, wildlife watching and historic attractions. Leisure, recreation and tourism encompass a wide range of interests and industries, many of which are complementary.

12.2 Marine recreation and tourism activity is widely distributed around the coast and ranges from individual, social and club participation to competitive events and commercial ventures. Much of this activity takes advantage of some of the most attractive coastal scenery and most varied and demanding marine conditions in the world, offering conditions for a range of activities and abilities, making it important to ensure these qualities are maintained and enhanced.

12.3 There is a need to improve data relating to the coastal and marine tourism and recreation sector in Scotland. Marine Scotland is undertaking a study on the value of the sector and will collate new data on participation levels and important areas to assist with marine planning. Based on existing data some of the most popular recreational activities are set out in the table shown¹²⁵.

¹²⁵ Derived from Land Use Consultants (2007) A Review of Marine and Coastal Recreation. SNH Commissioned Report No.247 (ROAME No. F05AA608), page 11 and stakeholder comments from Draft NMP consultation.

Activity	Key Areas
Recreational sea angling	Dumfries and Galloway, Argyll, north east coast and Orkney Islands.
Sailing	Clyde estuary, west coast and islands, Shetland and Orkney Islands.
Kayaking	West coast and islands.
Wildlife watching	Highlands, Islands, Moray Firth, north east coast, east coast, west coast, Firth of Forth.
Diving	Orkney Islands, Sound of Mull & Argyll, St. Abbs & Eyemouth, north west coast, the Moray Firth, sea lochs of the west coast.
Surfing	West coast, Hebrides, Sutherland and Caithness coasts, Orkney Islands, east coast.
Windsurfing	Tiree, Firth of Clyde: Ayrshire coastline, Firth of Forth: Fife coastline.
Personal watercraft	Firths and near shore areas.
Kite sports	Aberdeen and north east coastline, Troon, St. Andrews and Tiree.
Coastal walks	Multiple areas around the coast and islands.
Cruising	Key ports for visiting cruise liners include: Greenock; Leith; Rosyth; Queensferry; Kirkwall; Invergordon; Oban and Lerwick.

Part 2: Key issues for marine planning

SUPPORTING ECONOMICALLY PRODUCTIVE ACTIVITIES

12.4 Marine recreation and tourism contribute to Scotland's coastal, island and rural communities. The Government Economic Strategy has identified sustainable tourism as a growth sector, indicating it has major potential for future economic development. The VisitScotland National Tourism Development Framework for Scotland, which is wholly aligned to the industry-led strategy 'Tourism Scotland 2020', has been prepared to assist and promote growth in Scotland's visitor economy to 2020. The Framework sets out actions and provides guidance to help co-ordinate future development in the visitor economy which should be followed by marine planners and decision makers.

12.5 Many social benefits are closely linked to the economic return of marine recreational and tourism activities, and in some cases community regeneration has been focused on developments, such as marinas. There are clear health, wellbeing and social benefits to encouraging participation in outdoor activities and it is important to recognise the advantages to society that extend beyond the considerable economic benefits derived from them. This includes an extensive sporting network, with Scotland having national and international success in many marine sports.

12.6 Marine planning can support sustainable development of marine recreation and tourism by ensuring facilities and access¹²⁶ to coastal and intertidal areas are protected or improved, whilst ensuring any development or activity is sensitive to the marine environment. An aligned approach between terrestrial and marine planning is also necessary to facilitate the provision of appropriate coastal infrastructure required by a range of activities and facilitate shared use of such infrastructure for example: car parking, toilets, jetties, piers, slipways and marinas.

12.7 Recreation and tourism related activities which occur over relatively large areas, such as sailing, may benefit from strategic planning, taking specific regional, or even trans-national markets into account to realise their full economic potential.

12.8 Some key activities which can be facilitated by marine planning include:

12.9 **Recreational sea angling:** Activity is distributed around the coast, although participation numbers vary. Sea anglers often travel some distance to fish, bringing revenue to local areas. Participation and catches have declined in recent decades: recovery of the sport and significant economic return could be facilitated by a greater understanding of catches, identifying areas/stocks which can support increased angling effort, encouraging uptake of the sport at a grass roots level and promoting best practice amongst sea anglers. Better engagement at a local level could help to address spatial competition between sea anglers and commercial fishermen. The repair of facilities such as jetties and piers which have fallen into disrepair could also support growth of the sector.

¹²⁶ See footnote 124.

12.10 **Sailing:** Scotland's scenic sailing waters attract visitors from all over the world with the west coast of Scotland widely acknowledged to have some of Europe's best sailing. Sailing tourism plays a role in contributing to Scotland's economy and can generate income for remote rural areas. Industry projections¹²⁷ for the future indicate that development required to meet demands should take place on:

- **The Clyde and the west coast** – the main focus of development with an emphasis on the creation of strategic berthing hubs/clusters to provide for visitor markets and benefit rural areas.
- **The north** – more modest levels of development needed with an emphasis on the creation of a string of visitor hubs to encourage sailing itineraries and attract visiting boats from both Scotland and elsewhere.
- **The east coast** – whilst developments will be primarily influenced by the local Scottish domestic market, recent developments mean that it is now as well served as any part of the Scottish coastline with the development of new marinas and improvements to existing harbours. Continued development and provision of facilities in these areas could help to further attract visitors sailing up from north east of England and across the North Sea.

12.11 **Sporting events:** Scotland has hosted many regional, national and internationally recognised marine sporting events of economic importance to local areas in recent years¹²⁸. Recognition of unique qualities, areas of recreational value and opportunities for bespoke activities in regional marine plans could help to attract sporting events to Scotland.

12.12 **Kayaking:** Scotland is one of Europe's finest destinations for sea kayaking and kayak surfing which is becoming more popular. Participation in these activities increased significantly in the 2000s. Participants prefer an unspoilt marine environment and generally need little in the way of support facilities apart from car parking close to launch sites and access to beaches or foreshore.

12.13 **Wildlife watching:** Marine wildlife watching is a popular activity in Scotland. Marine wildlife tourism is emerging as a significant sector focusing on whales, dolphins, seals, basking sharks, seabirds, coastlines and seascapes. Access to harbour facilities/quaysides may be beneficial. There is also significant potential for Scotland to become a centre of excellence in training for wildlife guides.

12.14 **Diving:** Wreck sites and underwater geology, habitats and wildlife are key attractions for scuba divers. Established dive sites attract thousands of divers over a season. Access to harbour areas with charter boats and car parking are required; freshwater taps and other shared on-shore support facilities can also be beneficial in widening the appeal of an area to other tourism and recreation sectors.

12.15 **Surfing/windsurfing:** Scotland possesses a number of very high quality surfing breaks and excellent open water conditions including international competition sites such as Tiree and Thurso. Again, close shore access to car parks and shared onshore support facilities is required.

¹²⁷ Sailing Tourism in Scotland' by Tourism Resources Company for Scottish Enterprise, 2010.

<http://www.evaluationsonline.org.uk/evaluations/Browse.do?ui=browse&action=show&id=369&taxonomy=TOU>

¹²⁸ Examples of marine sporting events held in Scotland include: the Tiree Wave Classic windsurfing event, Open surfing events, the Tall Ships' visit in 2011 and participation in the Clipper Race.

12.16 **Heritage tourism:** Historic buildings around the Scottish coast, maritime museums, historic ships and festivals of the sea enhance the distinctiveness of coastal areas and play an important role in sustaining Scotland's remote and rural coastal and island communities.

12.17 **Kite sports:** Power kiting and kite buggying are developing sports in Scotland and rely on suitable wind resource and direction and a suitable distance from other activities in order to avoid disturbance.

12.18 **Personal watercraft:** Personal watercraft can operate in relatively shallow water, generally requiring trailer access to a slipway for launching and shore side facilities such as car parking. Again, close shore access to car parks and shared onshore support facilities are required. Speed restrictions on some popular inshore waterways may have led to displacement to coastal areas.

12.19 **Coastal walking and cycling:** The coast is highly valued by a large number of people for walking and cycling. A national long distance walking and cycling network has been identified as a National Development in NPF3. It will link recreational activities and key tourism locations around the coast, providing an important tourism asset. Aligned terrestrial and marine planning is required to ensure development of new coastal paths and access to the foreshore connects, where possible, with the national long distance route and that access to such routes is not prohibited. Developments which offer opportunities for shared infrastructure along these routes should be supported.

12.20 **Cruise industry:** Cruise tourism is a growing sector demonstrating strong potential to expand further, subject to the appropriate infrastructure being made available to accommodate larger ships. Development of port infrastructure for other commercial reasons, for example renewable energy, may offer these opportunities. Passenger ferries and boat tours play an important role in supporting the growth of this sector, providing visitors with key links between the mainland to the islands and attracting visitors with island-hopping breaks.

12.21 **Open water swimming and snorkelling:** Swimming and snorkelling take place in any body of water which is considered safe. Identification of areas when/where it is safe to enter water and key sites for snorkelling would help attract users whilst ensuring safety and reduce risk of interaction with other users.

INTERACTIONS WITH OTHER USERS

12.22 The majority of waterborne recreation takes place near the shore and within approximately three nautical miles. As such, alignment of marine and terrestrial planning processes is necessary to ensure positive interactions. In particular areas of the marine environment there can be competition for space although studies suggest there are relatively few examples of direct conflict¹²⁹. Where conflict does occur, it may be temporal and/or spatial in nature. In supporting sustainable growth of the marine recreation and tourism sector, marine planning can help to ensure that it co-exists with existing marine users and reduce conflict.

¹²⁹ Sectoral Interactions in the Firth of Clyde. Scottish Sustainable Marine Environment Initiative Clyde Pilot (2008). <http://www.clydeforum.com/images/stories/doc/ssmei/sectoral-interactions-report.pdf>

12.23 Key interactions of relevance to marine planning include:

12.24 **Commercial fishing:** Competition for target species can occur between recreational sea anglers and inshore fisheries. Marine planning can ensure better engagement between these sectors to help manage interactions.

12.25 **Shipping:** There are inter-sector interactions between recreational boats and cruise ships with the need to avoid commercial shipping lanes. There is also risk of interaction between some waterborne activities and shipping with a potential risk of collision.

12.26 **Development:** Access to water or the shoreline can be constrained by onshore coastal developments. However, such developments often offer positive interactions providing supporting facilities and infrastructure for the sector. Improvements to ports and harbours can also attract visitors.

12.27 **CCS, Offshore Wind, Wave and Tidal Energy:** Impacts of CCS and renewable energy devices on recreational activities are currently largely unknown. Concerns relate to potential exclusion of recreational pursuits from an area, risks to navigation from offshore installations and risks to access to shore from landfall infrastructure. Impacts on sea/ landscape and perception of 'wildness' are also of concern¹³⁰.

LIVING WITHIN ENVIRONMENTAL LIMITS

12.28 An unspoiled environment, high quality landscape and a sense of closeness to nature are important to many people. Scenery and environmental quality are key factors in attracting visitors to Scotland's coasts, with many of Scotland's beaches having received Blue Flag and Seaside Awards.

12.29 The quality of the recreational experience relies on having a healthy, safe and high quality environment. It is important to ensure these qualities are maintained and enhanced when considering the impact of developments and activities.

12.30 Some impacts on the environment can arise from recreational and tourism activities and the infrastructure required to support them. Impacts will vary in nature and extent as set out in Scotland's Marine Atlas: Information for the National Marine Plan.

12.31 Where codes of conduct and good practice exist for marine recreation and tourism activities these should be followed:

- Installation of new pontoons, moorings, anchoring and chain damage can damage sensitive habitats and disturb upper layers of seabed sediment. In addition to licensing procedures, examples of good practice exist for co-existence and managing such impacts from moorings and anchoring¹³¹. Installation of artificial wrecks can also impact on habitats and species however, these are subject to licensing procedures which considers impacts.

130 VisitScotland Survey identifies scenery and landscapes as amongst the reasons to visit Scotland in 55% of visitors surveyed (both urban and marine sightseeing). Scotland Visitor Survey: National results. 2011-2012. Visit Scotland. [http://www.visitscotland.org/pdf/Visitor%20Survey%202011-2112%20Scotland%20National%20Summary%20V1_pptx%20\[Read-Only\].pdf](http://www.visitscotland.org/pdf/Visitor%20Survey%202011-2112%20Scotland%20National%20Summary%20V1_pptx%20[Read-Only].pdf)

131 An example of good practice includes the Loch Creran Marine Special Area of Conservation Private and Commercial Moorings Pack. Scottish Government. 2011. (Also see footnote 136) <http://www.scotland.gov.uk/Resource/Doc/295194/0118401.pdf>

- In addition to commercial shipping, marine users and recreational boats, new pontoon developments can be responsible for introducing non-native invasive species, which may be difficult to eradicate. Guidance is available for producing site and operation-based biosecurity plans for preventing the introduction of non-native species.¹³²
- The Scottish Sea Angling Conservation Network issues good practice for recreational sea anglers on returning caught fish to manage removals of target species.

CLIMATE CHANGE

12.32 Climate change is likely to have a wide variety of impacts (positive and negative) on marine recreation and tourism. Rising temperatures and drier summers may encourage more outdoor recreation and elongate the tourist season; water quality issues may become more relevant for longer periods of the year and some activities such as windsurfing/surfing may be impacted by changing sea conditions.

12.33 Climate change could have adverse impacts on moorings and shore-side facilities which may require more resilient infrastructure, and more maintenance dredging may be required if sediment budgets change.

12.34 Coastal paths and coastal infrastructure may also become increasingly vulnerable to flooding and coastal erosion. As visitor numbers from tourists and recreational users increase, there could be a rise in emissions from cars and cruise ships. Measures such as encouraging visitors to use public transport and innovations in cleaner forms of transport and reductions in emissions will help in this area and support sustainable tourism.

Part 3: Marine planning and policies

 REC & TOURISM 1: Opportunities to promote sustainable development of marine recreation and tourism should be supported.

 REC & TOURISM 2: The following key factors should be taken into account when deciding on uses of the marine environment and the potential impact on recreation and tourism:

- The extent to which the proposal is likely to adversely affect the qualities important to recreational users, including the extent to which proposals may interfere with the physical infrastructure that underpins a recreational activity.
- The extent to which any proposal interferes with access to and along the shore, to the water, use of the resource for recreation or tourism purposes and existing navigational routes or navigational safety.
- Where significant impacts are likely, whether reasonable alternatives can be identified for the proposed activity or development.
- Where significant impacts are likely and there are no reasonable alternatives, whether mitigation, through recognised and effective measures, can be achieved at no significant cost to the marine leisure or tourism sector interests.

¹³² See footnote 51.

 REC & TOURISM 3: Regional marine plans should identify areas that are of recreational and tourism value and identify where prospects for significant development exist, including opportunities to link to the National Long Distance Walking and Cycle Routes, and more localised and/or bespoke recreational opportunities and visitor attractions.

 REC & TOURISM 4: Marine and terrestrial planners, marine decision makers and developers should give consideration to the facility requirements of marine recreation and tourism activities, including a focus on support for participation and development in sport. Co-operation and sharing infrastructure and/or facilities, where appropriate, with complementary sectors should be supported.

 REC & TOURISM 5: Marine planners and decision makers should support enhancement to the aesthetic qualities, coastal character and wildlife experience of Scotland's marine and coastal areas, to the mutual benefit of the natural environment, human quality of life and the recreation and tourism sectors.

 REC & TOURISM 6: Codes of practice for invasive non-native species¹³³ and Marine Wildlife Watching should be complied with.

Regional policy: Regional marine plans should consider:

- Identifying thematic links to other regions and acknowledging the different methods of travel across Scotland, e.g. Great Glen route.¹³⁴
- Identifying important areas for protection, provisions and improvements to access and facilities to support the sector.
- Promoting/ensuring better engagement between sectors and other marine users, e.g. Inshore Fisheries Groups and sea anglers.
- Aligning with Tourism Development Areas within Local Development Plans and promote marine based development strategies.
- Promoting education and the use of codes of conduct and good practice guidance, including signage.
- Supporting sustainable tourism including sustainable transport and green tourism.

¹³³ Code of Practice on Non-Native Species. Scottish Government. 2012

<http://www.scotland.gov.uk/Publications/2012/08/7367/0>

¹³⁴ The Great Glen Canoe Trail. <http://greatglencanoetrail.info/the-trail>

Part 4: The future

12.35 The growth of the marine recreation and tourism sector is dependent on a greater focus on co-ordination, engagement and investment in infrastructure which are supported by this Plan. There are also a number of initiatives which may further grow this in the future:

- Sailing tourism development strategies identifying geographic and development priorities such as berthing for local, home and visiting markets would support further sustainable development of the sector.
- There is a need for full understanding of the marine and coastal recreation and tourism sector including any potential for sustainable development of the sector. Research on the value of marine recreation and tourism in Scotland will aim to identify key areas and requirements for different marine and coastal recreational and tourism activities to allow for better consideration in marine planning.
- Development of a strategy for Recreational Sea Angling that could assess the potential and capacity for increased participation.
- Recreational boating will be supported by **sportscotland**, working with the industry to strategically plan for facility needs over the next 12 years.

13. Shipping, Ports, Harbours and Ferries

Objectives and policies for this sector should be read subject to those set out in Chapters 3 and 4 of this Plan. It is recognised that not all of the objectives can necessarily be achieved directly through the marine planning system, but they are considered important context for planning and decision making.

Objectives

- 1  Safeguarded access to ports and harbours and navigational safety.
- 2  Sustainable growth and development of ports and harbours as a competitive sector, maximising their potential to facilitate cargo movement, passenger movement and support other sectors.
- 3  Safeguarded essential maritime transport links to island and remote mainland communities.
- 4  Linking of ferry services with public transport routes and active travel routes to help encourage sustainable travel where possible.
- 5  Best available technology to mitigate and adapt to climate change, where possible, supporting efficiencies in fleet management and ensuring port infrastructure and shipping services are able to adapt to the consequences of climate change. Consideration of the provision of facilities for shoreside power in new developments to allow for this to be provided when markets require it, if it becomes cost effective to do so.

Key references

[National Planning Framework 3](#)

[National Renewables Infrastructure Plan. Stage 1. Scottish Enterprise](#)

[National Renewables Infrastructure Plan. Stage 2. Scottish Enterprise](#)

Scotland's Marine Atlas: Information for the National Marine Plan.

[Chapter 5: Productive / Maritime Transport \(Ports and Shipping\)](#) Pages 172 – 175 and [Chapter 5: Productive / Waste Disposal](#) Pages 176 – 177.

National Marine Plan interactive (NMPi). [Productive/Maritime Transport and Marine Management and Coastal Protection and Waste Disposal](#) sections.

Part 1: Background and context

13.1 Trade is essential to Scotland's economic prosperity, especially in today's global economy. Shipping is an important element of trade. Ports safeguard navigational safety of shipping as well as facilitating trade through the movement of freight, and therefore are vital to the Scottish economy and its growth. Their importance as a marine sector is illustrated by the number of people employed and the contribution to the Scottish economy. It is a competitive sector which takes a market driven approach to its development.

13.2 International protocols and conventions with topics such as security, safety, laws of the sea and pollution apply to shipping and ports. Government and regulators have a responsibility to ensure that measures are implemented in order to honour their commitments to these protocols.

13.3 Ports and harbours provide infrastructure for other sectors of both regional and national importance, including vital support to industries such as fishing, oil and gas, aggregates, aquaculture and the developing marine renewable energy industry. While a few ports specialise in specific cargoes, like Glensanda for crushed stone and Sullom Voe for oil, the majority are multi-purpose and undertake a variety of functions even if they are known for one particular commodity, such as Peterhead for fish or Grangemouth for containers. Irrespective of size, ports and harbours make an important socio-economic contribution at regional and national scales.

13.4 It is anticipated that ports will have an increasingly significant role in supporting future growth of the renewables industry thereby further extending their economic importance. They also support the tourism industry by providing landing points for passenger ferries, cruise ships and other marine tourism operators, as well as offering facilities for recreational users. As ports develop to support renewable energy industries, potential increases in capacity may offer greater opportunity for utilisation for the cruise industry. Development of smaller harbour facilities could support a wider diversity of recreational pursuits.

13.5 Lifeline ferry routes support Scotland's more fragile and remote communities, including the islands. Following a comprehensive review of ferry provision throughout Scotland, the Scottish Government has published a long-term Ferries Plan¹³⁵ for ferry services to 2022, outlining proposals for the type and level of service each community will receive. Spatial co-ordination of ferries with other modes of transport has an important role to play in providing integrated and sustainable travel options.

13.6 Operating at the interface of marine and terrestrial environments, aligned support of both marine and terrestrial planning processes will be important to ensure the sector can respond to market influences with necessary facilities and transport links.

13.7 Scotland's Marine Atlas: Information for the National Marine Plan and NMPi provide further information on shipping, trade within ports and harbours and ferry routes.

¹³⁵ Scottish Ferry Services: Ferry Plan. 2013 – 2022.

<http://www.transportscotland.gov.uk/water/ferries/scottish-ferries-plan>

PORT AND HARBOUR AUTHORITIES

13.8 The majority of port and harbour operations are administered by statutory Harbour Authorities, who have a range of statutory powers or duties for the purpose of improving, maintaining or managing a harbour and for ensuring safety of navigation. Harbour Authorities have considerable autonomy over their area of jurisdiction, which may include permitted development rights. Marine planners and decision makers will have regard for the statutory duties and responsibilities of a Harbour Authority and will consult with them where a proposal for consented development or activity will impact on their operations or property. Where Harbour Authorities are required to apply for licences or other permissions, their applications will be considered in accordance with the objectives and policies of this Plan.

Part 2: Key issues for marine planning

SUPPORTING ECONOMICALLY PRODUCTIVE ACTIVITIES

13.9 Oxford Economics estimate that in 2011,¹³⁶ 41,600 people were employed in the maritime services sector in Scotland. Of these, nearly two-thirds were employed in the ports industry with the majority of the remainder employed in shipping. It is also estimated that the maritime services (ports, shipping and maritime businesses) sector contributed over £2.2 billion to the Scottish economy in 2011.

Shipping/Freight/Trade

13.10 At any one time, the Scottish marine area is used by a significant number of vessels. Navigational safety is paramount to vessel movement and must be safeguarded. Displacement of shipping should be avoided where possible. Increased journey length increases fuel costs and emissions, and may also impact on frequency of journey required. This in turn may be detrimental to the economic success of some freight types or significantly influence the ports used. It is important that marine planning ensures shipping access and navigational safety to the 11 major commercial ports as well others of economic importance.

13.11 Scottish ports handled 76 million tonnes of foreign and domestic imports and exports in 2012 with 96% being handled by the 11 major ports¹³⁷. They contribute an estimated £1.7 billion to the Scottish economy and account for around 27,300 jobs in Scotland¹³⁸. Foreign imports and exports and domestic traffic will continue to contribute to national and regional economies. Increased freight handling capacity on the Forth, development of the Port of Grangemouth and expansion of facilities at Aberdeen Harbour, as identified as National Developments in the National Planning Framework 3, will support this. However, freight also includes local produce, such as fish and aquaculture products and remote and island communities may rely heavily on local freight services for transportation to markets. Some canal harbours also contribute to freight movement. Recognising that ports provide local and international freight and trade links, supported by effective road and rail infrastructure, co-ordination with terrestrial planning will be important to sustain and facilitate growth of port business and associated enterprises.

136 The Economic Impacts of the UK's Maritime Services sector in Scotland Oxford Economics 2013. <http://www.maritimeuk.org/wp-content/uploads/2012/01/The-economic-impact-of-the-UK-maritime-services-sector-in-Scotland1.pdf>

137 Scottish Transport Statistics. Transport Statistics. Chapter 9 Water Transport. 2013. <http://www.transportscotland.gov.uk/statistics/j285663-12.htm>

Scottish major ports are defined in the Transport Statistics. The 2013 Transport Statistics identified the Scottish Major Ports as Aberdeen, Cairnryan, Clyde, Cromarty Firth, Dundee, Forth, Glensanda, Orkney, Peterhead, Stranraer, Sullum Voe (operations at Stranraer have moved to Loch Ryan).

138 See footnote 136.

13.12 Safeguarding the viability of routes used by shipping, ensuring safety of navigation and encouraging development of Scottish ports and harbours are essential for the continuation and growth of economic prosperity provided by ports and harbours and the variety of sectors they support. This is especially important on the east coast to encourage economic activity and avoid movement away from Scottish ports to, for instance, the Humber or other English east or south coast ports.

13.13 **Oil and gas:** the location of Scottish ports in relation to oil and gas reserves in the North Sea means they have strategic importance in handling products as well as servicing of industry boats and infrastructure and general support of the industry. Sullom Voe, Flotta, Grangemouth, Aberdeen and Dundee are of particular importance.

13.14 **Renewable energy:** The National Renewables Infrastructure Plan (N-RIP) identifies a spatial framework of port and harbour sites, based on best fit locations against offshore renewable industry needs, i.e. construction/installation, manufacturing and inspection, repair and maintenance. The requirements for locations are:

- The proximity of the port to the renewables site.
- Sites that have, or have the potential for, integrated manufacturing or space for distributed manufacturing.
- Appropriate water depth.
- A skilled workforce.
- Already have investment plans or agreements of plans.

13.15 N-RIP sets out investment and infrastructure needs for offshore renewable energy, including quayside infrastructure, land remediation/reclamation and change of quayside water depth. An associated £70 million National Renewables Infrastructure Fund, announced in November 2010, will assist with development in the areas covered by Scottish Enterprise. Similar support is being offered to ports in the HIE area. N-RIP 3, currently under development, will consider port requirements to support wave and tidal energy and development.

13.16 It is important to note that opportunities for renewables development and activity are not restricted to the ports identified in N-RIP (Map 10). Indeed, many other ports are currently engaged in discussions with renewables companies around how they can help meet the needs of the industry, including future Operations and Maintenance activity.

13.17 To inform planning in this area, a survey of shipping density, vessel types and drafts, course and destination has been undertaken in Pentland Firth and Orkney Waters. Further studies will be undertaken if required.

13.18 **Fishing/aquaculture:** Fishing activity is widespread across Scottish ports and harbours, which provide essential support for both local inshore and larger pelagic vessels. Similarly, use by the aquaculture industry is widespread. Many ports offer market and processing facilities which are important to the viability of these sectors, as is transportation of produce. Chapter 6 sets out planning policy to maintain economic links between fishing and land-based activity.

13.19 **Aggregates and mineral transshipment:** Ports and harbours play an important role in transportation of aggregate material. In Scotland, the most notable is Glensanda Port which services Glensanda Quarry on the Morvern peninsula. It contributes significantly to the Scottish economy, with a business turnover of approximately £40 million and employs 200 people. As the largest hard rock quarry in Europe, it currently transports approximately

6 million tonnes per annum with expansion to 15 million tonnes per annum anticipated. Being a coastal quarry with no land access, it relies entirely on the marine environment for transportation of aggregate, supplies and personnel.

13.20 Tourism and recreation: Ports and harbours can support various elements of tourism/recreation such as cruise liners and smaller vessels, recreational boats, tour operators, charter boats and sea anglers. Small harbours can be of particular importance to local sports, activities and tourism enterprises. Harbours at the interface between canals and the marine area also provide important gateways to the marine environment for leisure craft, offering alternatives to difficult passage around the north mainland and acting as a international gateway for boats arriving from Europe. Maintenance or restoration of harbour facilities can boost local activity and generate social benefits for the local community as well as economic benefits for the harbours; necessary closure for safety purposes can have negative impacts for an activity and a community which previously relied upon the facility. Harbour developments, including marinas, have been successful in supporting increased boating activity with benefits to the sport, as well as local economies.

13.21 Cruise activity in Scotland has the potential to increase: in the future it could be enhanced by the provision of additional capabilities of existing cruise ports and the development of others. Predictions are for cruise liners to increase in size. If this is realised within a Scottish market, ports adapting to support renewable industry may also be able increase capacity to accommodate liners.

Ferries

13.22 Many of Scotland's more fragile and remote communities are supported by lifeline ferry routes. Many of these routes are subsidised by the Scottish Government or Local Authorities to maintain or improve the economic and social conditions of the Highlands and Islands. This includes support to business and tourism, delivery of goods and access to schools and health care. In 2009, over 10 million passengers and approximately 3 million cars, commercial vehicles and buses were carried on ferries in Scotland.

INTERACTIONS WITH OTHER USERS

13.23 Ports and harbours: The main interactions expected in coming years are with commercial shipping freight and continued support of sectors such as fishing, aquaculture and aggregates. Emerging and growth industries such as renewables and tourism and recreational usage, including usage by cruise liners, will also be important. The economic interactions are discussed in previous sections.

13.24 Shipping and ferries: have potential to conflict spatially with recreational pursuits. Consideration will be required should infrastructure to support marine tourism and recreation be planned in areas near lifeline ferry routes or other relevant areas used by shipping now and in the future.

13.25 Risk to shipping navigation may arise from some developments and may lead to increased collision risk, displacement of anchorages and displacement of fishing or recreational vessels into areas used by commercial shipping. Obstructions can lead to increased voyage distance and time resulting in financial and environmental costs, such as emission increases. International maritime law, and in particular the United Nations Convention on the Law of the Sea (UNCLOS), gives obligations to respect the rights of innocent passage and freedom of navigation.

Map 10

N-RIP Sites and Ports and Harbours identified as National Developments in Scotland

Detail Key

Shipping, Ports, Harbours and Ferries

Key:

— 12 Nautical Miles

N-RIP Sites

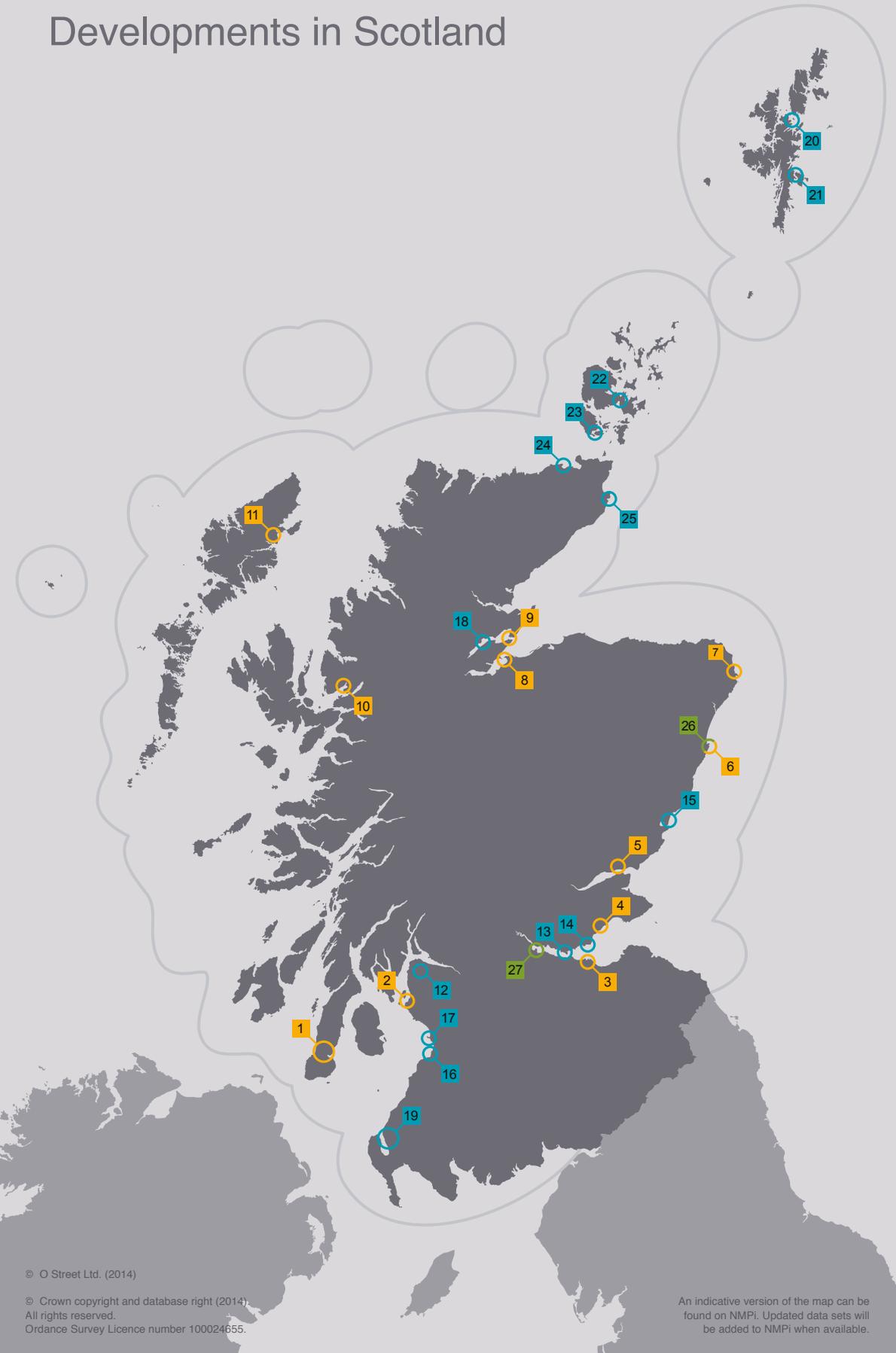
- 1 Machrihanish & Campbeltown
- 2 Hunterston
- 3 Leith
- 4 Methil
- 5 Dundee
- 6 Aberdeen
- 7 Peterhead
- 8 Ardersier
- 9 Nigg
- 10 Kishorn
- 11 Arnish

N-RIP - further potential sites

- 12 Inverclyde
- 13 Rosyth
- 14 Burntisland
- 15 Montrose
- 16 Ayr
- 17 Troon
- 18 Highland Deephaven
- 19 Stranraer & Cairnryan
- 20 Sella Ness
- 21 Lerwick
- 22 Hatston (Kirkwall)
- 23 Lyness
- 24 Scrabster
- 25 Wick

Ports and Harbours identified as National Development

- 26 Aberdeen
- 27 Grangemouth



Map 11

Major Commercial Ports in Scotland

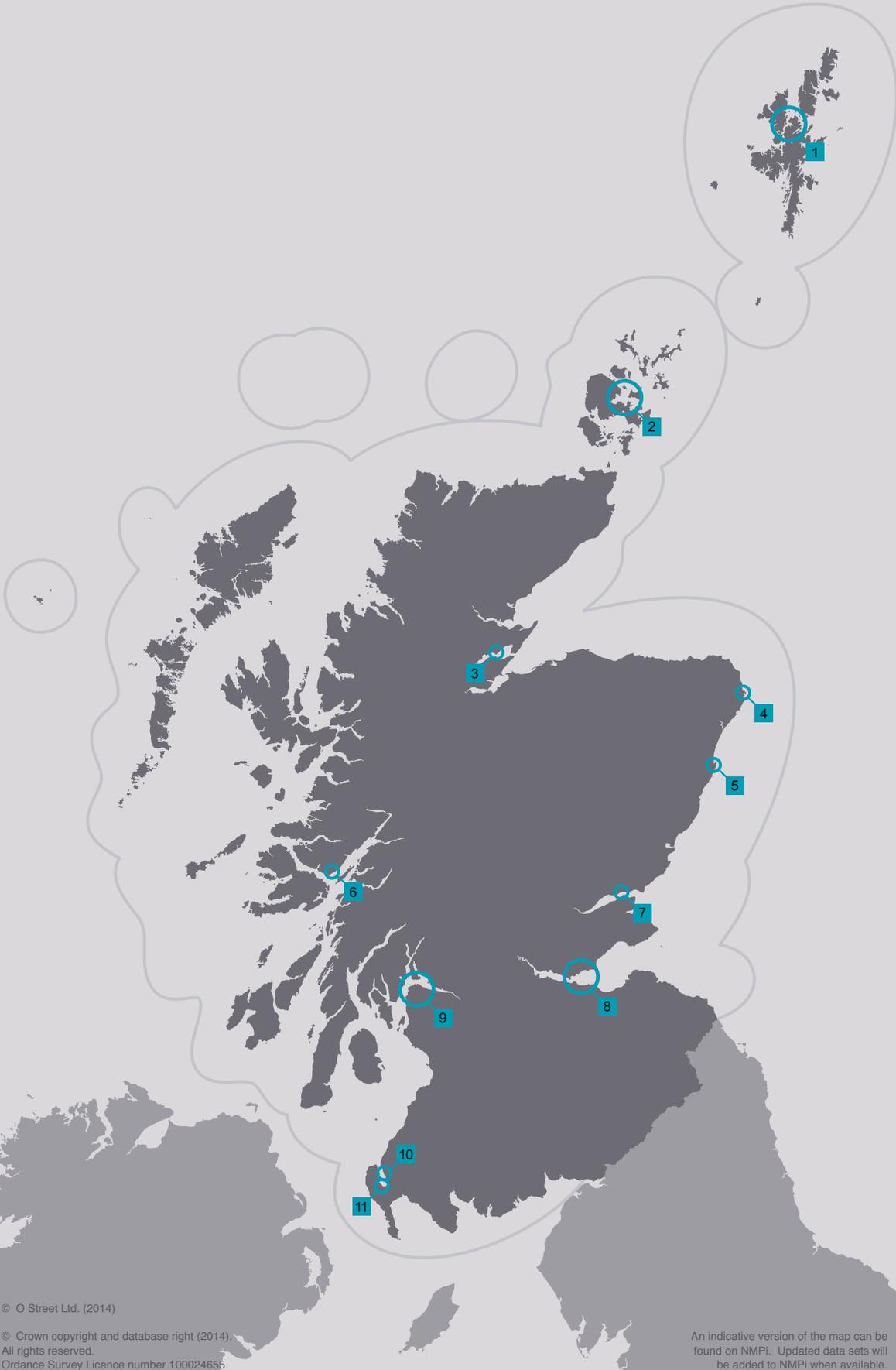
Detail Key

Shipping, Ports, Harbours and Ferries

Key:

12 Nautical Miles

- 1 Sullom Voe
- 2 Orkney¹
- 3 Cromarty Firth
- 4 Peterhead
- 5 Aberdeen
- 6 Glensanda
- 7 Dundee
- 8 Forth¹
- 9 Clyde¹
- 10 Cairnryan
- 11 Stranraer (Operations moved to Loch Ryan Port)



LIVING WITHIN ENVIRONMENTAL LIMITS

13.26 Ports and harbours, the shipping industry and ferries have a range of impacts on the marine environment. These are discussed in the Marine Atlas: Information for the National Marine Plan. Those of particular interest to marine planning include:

13.27 **Habitat loss/damage:** Dredging to maintain navigation channels can cause loss or damage to habitats and species and exposure of buried archaeological remains. Dredging may increase if ship size increases and deeper and wider navigation channels are required, and also as a result of port expansion to support the renewables industry. Moorings, anchoring and chain rotation can damage sensitive habitats and disturb upper layers of seabed sediment and potentially heritage assets¹³⁹. Dredging and moorings are licensable activities and therefore their environmental impacts are assessed through licensing procedures.

13.28 **Emissions:** Carbon dioxide (greenhouse gas) and sulphur and nitrogen oxides (air quality pollutants) from global shipping are a significant concern. Prevention of pollution by international shipping represents a significant element in the work of the International Maritime Organization (IMO), where substantial progress has been made in lowering shipping emissions.

13.29 **Biological pressures:** Ballast water is internationally accepted as a key vector for incidental movements of aquatic species around the world. The IMO Convention for Ballast Water Management has been drawn up in an effort to reduce the risk of transfer of marine non-native species. Ballast water treatment and management methods are being developed to ensure that the ballast water is treated to a known discharge standard, i.e. any organisms in the discharged ballast water have to be below a certain abundance to comply with the Ballast Water Management Convention.

CLIMATE CHANGE

13.30 In comparison to road transport, shipping is a fuel efficient method of moving bulk freight and is generally the most low carbon method currently available for long-distance movement. Coastal shipping and the movement of goods from Scottish seaports to their destination and vice versa is a lower carbon solution and has additional benefits of removing traffic from the road network.

13.31 At an international level, the International Maritime Organization has adopted technical and operational measures to reduce greenhouse gas emissions from ships and is working to develop a market-based measure which will achieve further reductions. Domestically, efficient routing of marine transport can be crucial in minimising fuel consumption, and in Scotland ferry operators and owners are seeking to reduce consumption and CO₂ emissions within the constraints of an ageing fleet. With public attitudes indicating an unwillingness to consider reductions in vessel speeds, most activity in ferries is focused on technological change.

¹³⁹ Existing control and best practice relating to moorings and anchorages include, but are not restricted to:

- Port Authorities and Harbour Trusts control anchorages within their jurisdiction; Work boat code of practice: An operator's guide (Maritime and Coastguard Agency 1998).
- Shipping and the Environment, a code of practice (International Chamber of Shipping 1997). Section 34 Consents under the Coast Protection Act 1934.
- A Licence from the Crown Estate is required for all moorings laid on Crown Estate owned seabed.
- The Creran Moorings Pack: <http://www.scotland.gov.uk/Topics/marine/Licensing/marine/Applications/lochcreran>
- Moray Firth SAC Management Scheme (see <http://www.morayfirth-partnership.org/assets/files/SAC%20REV%202/Rev2%20MF%20SAC%20MS&AP-final--first%20annual%20review%202010-amended%20online.pdf>)
- The Green Blue - <http://www.thegreenblue.org.uk/pdf/TGB%20Factsheet%2006%20Anchoring.pdf>

13.32 A changing climate bringing potential changes in storminess and harsher sea conditions could introduce a range of impacts to the transport sector, including disruption to shipping and ferry services and reduction of days at sea. This may pose an issue of accessibility to and between islands and may result in a need for more resilient transport infrastructure.

Part 3: Marine planning policies

 TRANSPORT 1: Navigational safety in relevant areas used by shipping now and in the future will be protected, adhering to the rights of innocent passage and freedom of navigation contained in UN Convention on the Law of the Sea (UNCLOS). The following factors will be taken into account when reaching decisions regarding development and use:

- The extent to which the locational decision interferes with existing or planned routes used by shipping, access to ports and harbours and navigational safety.
- Where interference is likely, whether reasonable alternatives can be identified.
- Where there are no reasonable alternatives, whether mitigation through measures adopted in accordance with the principles and procedures established by the International Maritime Organization can be achieved at no significant cost to the shipping or ports sector.

 TRANSPORT 2: Marine development and use should not be permitted where it will restrict access to, or future expansion of, major commercial ports or existing or proposed ports and harbours which are identified as National Developments in the current National Planning Framework or as priorities in the National Renewables Infrastructure Plans (Maps 10 and 11).

Regional marine plans should identify regionally important ports and harbours, giving consideration to social and economic aspects of the port or harbour and the users of the facility subject to policies and objectives of this Plan. Regional plans should consider setting out criteria against which proposed activities and developments should be evaluated.

<applies to inshore waters only>

 TRANSPORT 3: Ferry routes and maritime transport to island and remote mainland areas provide essential connections and should be safeguarded from inappropriate marine development and use that would significantly interfere with their operation. Developments will not be consented where they will unacceptably interfere with lifeline ferry services.

 TRANSPORT 4: Maintenance, repair and sustainable development of port and harbour facilities in support of other sectors should be supported in marine planning and decision making. **<applies to inshore waters only>**

  **TRANSPORT 5:** Port and harbour operators should take into account future climate change and sea level projections, and where appropriate take the necessary steps to ensure their ports and harbours remain viable and resilient to a changing climate. Climate and sea level projections should also be taken into the account in the design of any new ports and harbours, or of improvements to existing facilities. **<applies to inshore waters only>**

   **TRANSPORT 6:** Marine planners and decision makers and developers should ensure displacement of shipping is avoided where possible to mitigate against potential increased journey lengths (and associated fuel costs, emissions and impact on journey frequency) and potential impacts on other users and ecologically sensitive areas¹⁴⁰.

   **TRANSPORT 7:** Marine and terrestrial planning processes should co-ordinate to:

- Provide co-ordinated support to ports, harbours and ferry terminals to ensure they can respond to market influences and provide support to other sectors with necessary facilities and transport links.
- Consider spatial co-ordination of ferries and other modes of transport to promote integrated and sustainable travel options.

Regional policy: Regional marine plans should consider identifying regionally important ports and harbours and setting out criteria against which proposed development and use should be evaluated.

Part 4: The future

13.33 The future of ports, harbours and shipping will be driven by trends in world trade, available trade routes, transport technology and the development of marine industries.

13.34 A trend for larger ships which require larger ports and wider/deeper navigational channels is expected, although this is more relevant to deep sea container trade than to smaller coastal shipping vessels. New trade routes will open due to receding ice, notably the Northwest Passage and the Northern Sea Route with possible implications for Scottish ports.

13.35 Measures to support shipping emissions reduction targets will be necessary. This may include considering increasing availability of shore based electricity in ports for smaller or recreational vessels, seeking to ensure that ferries and other ships are not forced to take longer routes, and encouraging efficiencies in fleet management and technology advances. Modal shift is currently being supported through Scottish Government Grants¹⁴¹. On a large scale it may require associated port and harbour development.

13.36 Climate change may increase the severity of adverse weather and wave conditions, and rising sea levels are likely to put pressure on existing port and harbour infrastructure. In adverse weather some ports may be unusable, particularly smaller harbours.

¹⁴⁰ Marine Environment High Risk Areas provide a relevant example of environmentally sensitive areas. These are aids to mariners and are essentially an aid to passage planning.

<http://www.scotland.gov.uk/Topics/marine/seamanagement/nmp/home/nmpi>

¹⁴¹ Transport Scotland. Freight Grants <http://www.transportscotland.gov.uk/road/freight/freight-grants>

14. Submarine Cables

Objectives and policies for this sector should be read subject to those set out in Chapters 3 and 4 of this Plan. It is recognised that not all of the objectives can necessarily be achieved directly through the marine planning system, but they are considered important context for planning and decision making.

Objectives

- 1  Protect submarine cables whilst achieving successful seabed user co-existence.
- 2  Achieve the highest possible quality and safety standards and reduce risks to all seabed users and the marine environment.
- 3  Support the development of a Digital Fibre Network, connecting Scotland's rural and island communities and contributing to world-class connectivity across Scotland.
- 4  Safeguard and promote the global communications network.
- 5  Support the generation, distribution and optimisation of electricity from traditional and renewable sources to Scotland, UK and beyond.

Key references

[Submarine cables and offshore renewable energy installations proximity study](#)

[Subsea cables Industry Best Practice](#)

Scotland's Marine Atlas: Information for the National Marine Plan.

[Chapter 5: Productive / Telecommunication Cables](#) Pages 184 – 185
and [Renewable Energy and Power Cables sections](#) Pages 164 – 165.

National Marine Plan interactive (NMPi). [Productive / Renewable Energy and Cables](#) section.

Part 1: Background and context

14.1 Submarine cables are vital to the world's power, information and international telecommunications infrastructure, creating offshore power grid, interconnectors, and communication and broadband provisions. The internet revolution and e-commerce has seen unprecedented growth in international telecommunication cables whilst the development of marine and offshore renewables and the drive for improved interconnection has increased the need to use the marine area.

14.2 Over 95% of international telecommunication is by submarine cable and approximately 40% of all the UK's active international cables are on the Scottish seabed¹⁴². An international cable network passes north and south of Shetland connecting North America to Europe. These cables do not make a landfall in Scotland. Other cables connect mainland Scotland to Shetland, Orkney, Northern Ireland, the Faroe Islands and oil and gas fields (Map 12).

14.3 Submarine renewable power cables are subject to licensing controls anywhere within 0-200 nautical miles. International power interconnectors and international telecommunication cables are also subject to licensing controls. Cables are laid on the seabed and are routinely buried, where the possibility of impact by other activities exists and where seabed conditions are suitable, i.e. where there may be shallow gradients and softer sediments. For telecoms cables, this cable burial is carried out down to water depths of 1500m or more for protection and safety purposes. Renewable power export and array cables are typically in water depths of no more than 50m to 60m currently to though this may increase in the future. However not all cables can be buried or should be buried for a variety of reasons.

Part 2: Key issues for marine planning

SUPPORTING ECONOMICALLY PRODUCTIVE ACTIVITIES

14.4 Submarine power and telecommunications cables are of national and international economic importance and support the growth sectors of energy and creative industries (as part of digital), identified in the Government's Economic Strategy.

14.5 Growth of the marine and offshore renewable energy sector will increase demand for upgrade and improvements to the power grid. A strategic plan for grid will be developed by the Scottish Government to ensure sustainable development of submarine power cables to support the offshore wind and offshore renewables sector.

14.6 The sector also underpins the Scottish Government's digital strategy – Scotland's Digital Future¹⁴³ which will see rural and island communities in the Highlands and Islands benefit from the roll out of high-speed broadband. Such investment in broadband infrastructure as part of the digital strategy is intended to bring economic and social benefits to many isolated communities and encourage growth in related jobs.

¹⁴² Scotland's Marine Atlas: Information for the National Marine Plan. 2011. Chapter 5
<http://www.scotland.gov.uk/Publications/2011/03/16182005/76>

¹⁴³ Scotland's Digital Future: A Strategy for Scotland. Scottish Government. 2011.
<http://www.scotland.gov.uk/Publications/2011/03/04162416/0>

INTERACTIONS WITH OTHER USERS

14.7 Growth in the cable industry and other marine sectors increases the risk of potential damage to cables and further interactions with other users, for example competition for space with oil and gas pipelines, fishing and shipping. A joined-up approach to development and activity will be needed to protect cables whilst promoting co-existence. Key interactions of relevance to marine planning include:

14.8 **Marine and Offshore Renewables:** Interconnector and electricity power cables are integral to the successful delivery of offshore and marine renewable energy. A planned approach to the development of grid will provide the most efficient connections taking account of environmental and economic factors and other users.

14.9 **Fishing Activity:** There is a risk of adverse interaction between seabed cables and fishing activity and this increases as activity levels rise. Submarine cables can cause obstruction to fishing practices and fouling a cable can be extremely hazardous to fishing vessels, whilst damage to submarine cables is expensive to repair and can cause disruption to power distribution and international telecommunications at a national level. Submarine cables should be buried, where feasible, or suitably protected, to reduce conflict with other users and prevent damage to cables.

14.10 Engagement with affected stakeholders is supported to ensure appropriate awareness of the risks and consequences.

14.11 The fishing sector can gain access to accurate and comprehensive information on NMPi on the majority of submarine cables within UK waters held by Kingfisher under the KIS-ORCA¹⁴⁴ (Kingfisher Information Service – Offshore Renewable & Cable Awareness) project. This project provides free cable awareness charts; electronic route position lists and digital information for chart plotters to fishing vessels and legitimate marine stakeholders. Key fishing organisations and stakeholders are working with the sector to promote this project and assist with the local distribution of the data.

LIVING WITHIN ENVIRONMENTAL LIMITS

14.12 Cable installation and operation of submarine cables, if suitably routed, cause minimal impacts on the marine historic and natural environment. Cable installation projects are subjected to considerable route engineering and conflicts mitigation from the outset, to minimise the risks in regard to sensitive habitats and other similar environmental constraints. Other potential impacts include:

- During cable installation, sediment plumes may be generated. Potential risks to sensitive species can be further mitigated by planning the timing and direction of installation operations to minimise concerns.
- Electromagnetic fields especially those from High Voltage Direct Current (HVDC) electrical power transmission cables may have some effects on electro- and magneto-sensitive species. Although research on potential impacts is ongoing, the current indication is effects could be minimal. High Voltage Alternating Current (HVAC) cables, where the fields are constantly changing, are thought to pose lower concerns. The potential for electromagnetic field impact is significantly reduced through burial of cables mitigated by modern cable design.

¹⁴⁴ Kingfisher Information Service – Offshore Renewable & Cable Awareness <http://www.kis-orca.eu/>

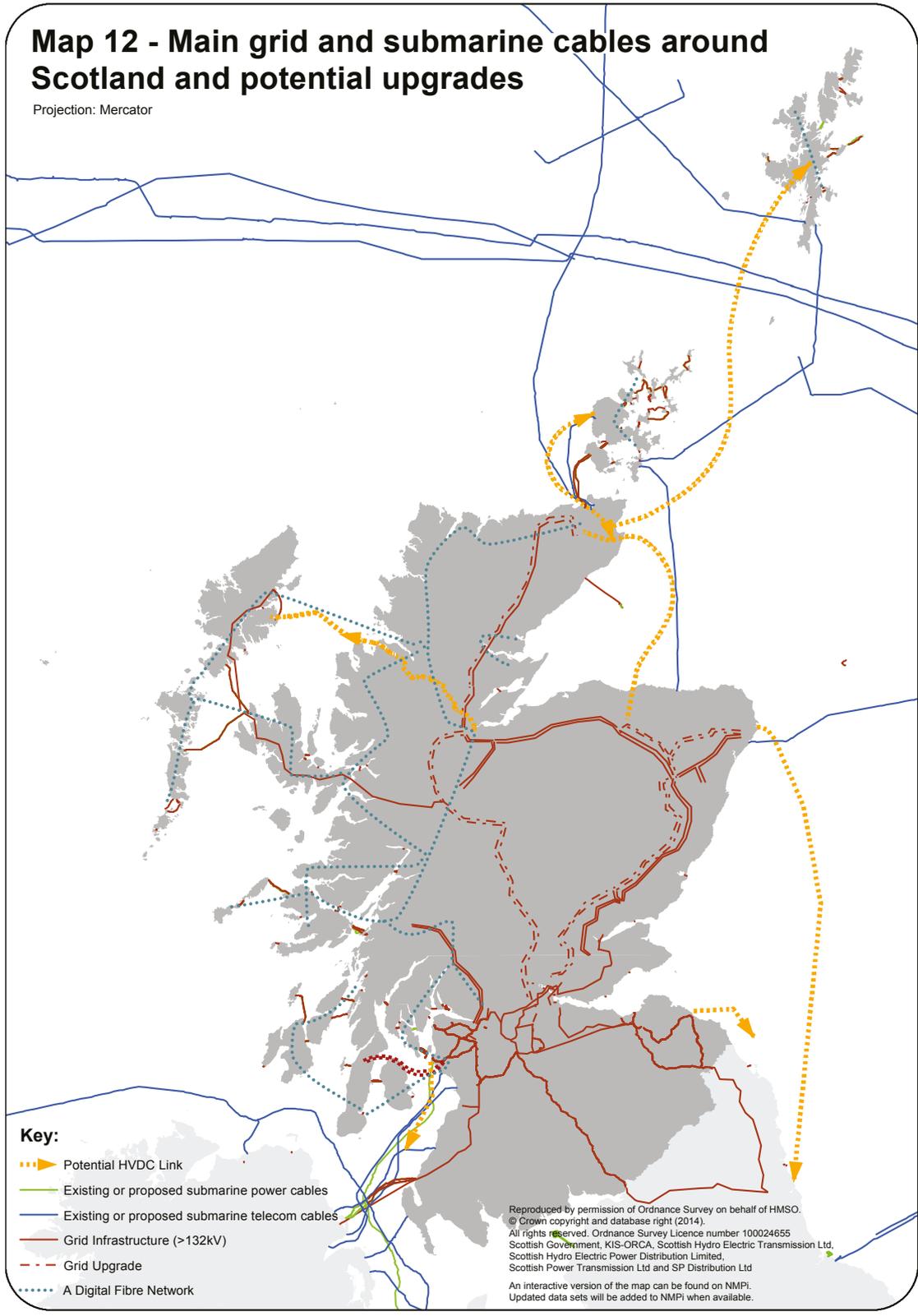
CLIMATE CHANGE

14.13 Climate change and associated sea level rise is expected to increase the incidences of coastal flooding and erosion which may have limited implications for the landfall of cables in the near-term. Changes in sedimentation and increase in currents due to climate change may change depositional regimes leading to potentially increased risks of exposure of previously buried cables.

14.14 Cable system life is around 25 years for telecommunications and approximately 50 years for power cables. Potential changes in storminess as a result of climate change may require more resilient infrastructure. However, prudent cable system planning and engineering normally mitigates these risks wherever possible at the project outset, as these factors are already a part of the standard consideration applied to cable planning. Risks are more likely to occur where the landing site for a cable is specifically constrained to a less-favourable site for other overriding reasons.

Map 12 - Main grid and submarine cables around Scotland and potential upgrades

Projection: Mercator



Key:

- - - - - ▶ Potential HVDC Link
- Existing or proposed submarine power cables
- Existing or proposed submarine telecom cables
- Grid Infrastructure (>132kV)
- - - - - Grid Upgrade
- · · · · A Digital Fibre Network

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 Scottish Government, KIS-ORCA, Scottish Hydro Electric Transmission Ltd,
 Scottish Hydro Electric Power Distribution Limited,
 Scottish Power Transmission Ltd and SP Distribution Ltd
 An interactive version of the map can be found on NMPI.
 Updated data sets will be added to NMPI when available.

Part 3: Marine planning policies

   **CABLES 1:** Cable and network owners should engage with decision makers at the early planning stage to notify of any intention to lay, repair or replace cables before routes are selected and agreed. When making proposals, cable and network owners and marine users should evidence that they have taken a joined-up approach to development and activity to minimise impacts, where possible, on the marine historic and natural environment, the assets, infrastructures and other users. Appropriate and proportionate environmental consideration and risk assessments should be provided which may include cable protection measures and mitigation plans.

   **CABLES 2:** The following factors will be taken into account on a case by case basis when reaching decisions regarding submarine cable development and activities:

- Cables should be suitably routed to provide sufficient requirements for installation and cable protection.
- New cables should implement methods to minimise impacts on the environment, seabed and other users, where operationally possible and in accordance with relevant industry practice.
- Cables should be buried to maximise protection where there are safety or seabed stability risks and to reduce conflict with other marine users and to protect the assets and infrastructure.
- Where burial is demonstrated not to be feasible, cables may be suitably protected through recognised and approved measures (such as rock or mattress placement or cable armouring) where practicable and cost-effective and as risk assessment direct.
- Consideration of the need to reinstate the seabed, undertake post-lay surveys and monitoring and carry out remedial action where required.

  **CABLES 3:** A risk-based approach should be applied by network owners and decision makers to the removal of redundant submarine cables, with consideration given to cables being left in situ where this would minimise impacts on the marine historic and natural environment and other users.

  **CABLES 4:** When selecting locations for land-fall of power and telecommunications equipment and cabling, developers and decision makers should consider the policies pertaining to flooding and coastal protection in Chapter 4, and align with those in Scottish Planning Policy and Local Development Plans.

Regional Policy: Regional marine plans should consider identifying suitable areas for land fall of submarine cables and integrate with spatial priorities for submarine cables within Local Development Plans.

Part 4: The future

14.15 Submarine cables are an important part of our national infrastructure and will be vital for the foreseeable future.

14.16 The Scottish Government supports the development of network infrastructure in the right places. New research and strategies will be undertaken to improve knowledge of the interactions between submarine cables and other activities. For example, as lead partner in the Irish-Scottish Links on Energy Study (alongside authorities in Ireland and Northern Ireland), the Scottish Government will seek to develop a spatial plan for an offshore electricity network that both supports development and ensures that impacts on other activities are fully understood and minimised. This process will include the opportunities for all such sectors to put forward views and information as part of a robust consultation.

15. Defence

Objectives and policies for this sector should be read subject to those set out in Chapters 3 and 4 of this Plan. It is recognised that not all of the objectives can necessarily be achieved directly through the marine planning system, but they are considered important context for planning and decision making.

Objectives



- 1 The Royal Navy, Army and Royal Air Force use Scotland's seas for defence purposes. They require:
- The ability to deploy and develop a flexible and broad range of capabilities.
 - The exclusive use of certain areas during particular times of the year.
 - The use of exemptions in planning law for the purposes of national security.
 - To retain the statutory right to close areas in internal waters and create by-laws for complete closures and exclusions.

Key references

Scotland's Marine Atlas: Information for the National Marine Plan.
[Chapter 5: Productive / Defence](#) Pages 182–183

National Marine Plan interactive (NMPi). [Productive / Defence section](#)

Part 1: Background and context

15.1 Scotland's seas and coasts are important for military training exercises, test and evaluation facilities and are critical for operational reasons. The Ministry of Defence (MOD) coastal establishments and the adjacent seas are used for maritime training activities and surveillance of potential threats to the country's offshore interests. Defence activities that use the marine environment, directly or indirectly, in support of operational capability are diverse and include naval vessels (including Royal Fleet Auxiliary) aircraft, naval bases, navigational interests, underwater acoustic ranges, maritime exercise areas, amphibious exercises, coastal training ranges and coastal test and evaluation ranges.

15.2 MOD submarine and other exercise areas and firing ranges are illustrated in Map 13. The major training activity twice yearly, is the NATO Exercise Joint Warrior, a combined forces exercise conducted mainly in the northern approaches. These waters, including those of the Inner Hebrides, form the Scottish Exercise Areas, part of the overall Practice Exercise Areas. These are marked on navigation charts and cover large areas of sea which are used extensively for training throughout the year. These maps are available on NMPi.

Detail Key

Defence

- Key:
- 12 Nautical Miles
 - Firing Danger Areas
 - Navy Exercise Areas

Map 13 Military Practice Areas around Scotland



15.3 The largest military establishment in Scotland is HM Naval Base Clyde which provides a base port for Naval ships and submarines and gives support to visiting UK and overseas vessels. In addition, the MOD currently provides Royal Navy Search and Rescue (SAR) services from HMS Gannet, based at Prestwick Airport and Royal Air Force SAR from RAF Lossiemouth both operating Sea King helicopters. The UK Aeronautical Rescue Co-Ordination centre is also currently based at Kinloss barracks, formally RAF Kinloss. The MOD's SAR helicopters will be withdrawn in a phased programme during the period 2015 to 2016 and replaced by a new UK wide contracted SAR helicopter service under the Department of Transport.

15.4 Whilst defence is a reserved issue there is a benefit in identifying the implications of defence marine use for other marine users and to minimise potential impacts.

Part 2: Key issues for marine planning

15.5 The military use of the Scottish marine environment varies in its geographic extent (Map 13) and intensity relative to training and operational needs over time. Using by-laws under the provisions of the Military Lands Act 1892 and 1900 and the Land Powers Defence Act 1958 the MOD can regulate and restrict the use of sea areas either temporarily or permanently. Military firing ranges are not in constant use and where appropriate other activities are permitted where consistent with operational requirements. However, in these areas, permanent installations will be at risk from live firing damage and are therefore unlikely to be compatible. In these situations restricted activities often have positive impacts and potential benefits for nature conservation.

15.6 Post-war sea-dumping was endorsed by Government as necessary to reduce munitions stocks. Dumping on the UK continental shelf ceased in 1972, and was stopped entirely in 1992 under the OSPAR Convention. The main disposal site for the UK was the Beauforts Dyke area off the south west coast of Scotland. Activities involving the seabed, such as certain fishing practices, may be restricted in munition areas. Such areas are well documented and information is available for users such as the fishing community.

INTERACTIONS WITH OTHER USERS

15.7 The presence of the MOD in Scottish waters and the variety of its activities means it interacts with a number of other marine users. Key interactions of particular interest to marine planning include:

15.8 **Sea fisheries:** The fishing industry can be displaced by MOD activities, usually by temporary restrictions to areas or the presence of munitions dumps. The industry and the MOD have an agreed code of conduct which aims to resolve conflicts arising from respective activities.

15.9 **Aquaculture:** Aquaculture developments may lead to navigational issues and possible disruption to MOD activity and so may be restricted in some areas.

15.10 **Oil and gas, CCS and marine renewables including wind and wave and tidal:** MOD activity has little impact on existing infrastructure, although conversely the development of new marine infrastructure may, in some cases, lead to navigational issues and possible disruption to MOD activity. Radar activity can also be affected by some installations and development requires careful consideration. However, mitigation measures such as design considerations and navigation marking can help address some of these issues in certain circumstances.

15.11 **Recreational boating activity:** Some recreational activities such as yachting may be restricted on a temporal basis in areas such as the Clyde.

15.12 **Shipping/boating:** The Right of Innocent Passage granted by United Nations Convention on the Law of the Sea (UNCLOS) could, in certain circumstances, significantly disrupt MOD operation where, e.g. vessels from a marina regularly cross a range danger area in territorial waters. In such cases, by-laws could not be enforced against the Rights of Innocent Passage and firing would have to cease. By-laws continue to be enforceable within internal waters.

LIVING WITHIN ENVIRONMENTAL LIMITS

15.13 The MOD is committed to the protection of the natural and historic environment and complies with relevant legislation. However, it is recognised that defence-related activities, including extensive test and evaluation functions, may pose risks to the marine environment and the MOD may be exempt from legislative duties on grounds of over-riding public interest in some cases. Where the MOD is exempt from environmental legislation it seeks to achieve similar levels of environmental protection by the application of internal managed measures often in consultation with Scottish Natural Heritage and other statutory nature conservation bodies. In order to minimise the environmental impact of all MOD activities in accordance with environmental legislation, the MOD has developed an electronic charting system¹⁴⁵ in partnership with UK Statutory Conservation Bodies.

15.14 Scotland's Marine Atlas details the main environmental issues relating to defence activity.

15.15 The main issues of relevance to marine planning are:

15.16 Introduction of non-native species: Naval shipping, like other shipping, has the potential to unintentionally introduce non-native and possibly invasive species to Scottish waters either by carrying them on underwater surfaces or when discharging ballast water. The MOD reduces these risks by proactive maintenance of its vessels' hulls and responsible management of ballast water on board. Where reasonably practicable, MOD vessels are fitted with ballast water treatment systems in accordance with the International Maritime Organisation Convention on this matter.

15.17 Noise: Certain sonar activity and use of live explosives can have impacts on marine species, including disturbance of behaviour and, in worst case, fatalities. The MOD complies with relevant legislation as well as guidance on the protection of marine European Protected Species¹⁴⁶ and has put in place management arrangements to ensure that negative impacts are avoided wherever possible.

15.18 Habitat change/species disturbance: Operational activity including the development of ports has the potential to impact on habitat and species and the MOD has put in place internal procedures to ensure that these impacts are avoided wherever possible. These include sustainability appraisals and environmental assessments.

145 Joint Nature Conservation Committee. Military Activity. MESAT. (<http://jncc.defra.gov.uk/page-6589>)

146 The protection of Marine European Protected Species from injury and disturbance: Guidance for Scottish Inshore Waters. Scottish Government. 2014 <http://www.scotland.gov.uk/Resource/0044/00446679.pdf>

15.19 MOD operations in Scotland are conducted in accordance with Scottish environmental legislation. Where exemptions or derogations from Scottish environmental legislation applicable to Defence are sought, the MOD should introduce standards and management arrangements that produce outcomes that are, so far as reasonably practicable, at least as good as those required by legislation.

CLIMATE CHANGE

15.20 Whilst climate change is likely to affect MOD-owned facilities and assets, and its operations in Scottish waters, appropriate adaptation measures will be brought forward, as appropriate, by the MOD to address these challenges. Adaptation of this sector remains a reserved issue for the UK Government. The MOD has a target to reduce fossil fuel consumption by 18% by 2020/21 (against 2009/10 baseline)¹⁴⁷.

Part 3: Marine planning policies

 DEFENCE 1: To maintain operational effectiveness in Scottish waters used by the armed services, development and use will be managed in these areas:

- **Naval areas including bases and ports:** Safety of navigation and access to naval bases and ports will be maintained. The extent to which a development or use interferes with access or safety of navigation, and whether reasonable alternatives can be identified, will be taken into account by consenting bodies. Proposals for development and use should be discussed with the MOD at an early stage in the process.
- **Firing Danger Areas (Map 13):** Development of new permanent infrastructure is unlikely to be compatible with the use of Firing Danger Areas by the MOD. Permitted activities may have temporal restrictions imposed. Proposals for development and use should be discussed with the MOD at an early stage in the process.
- **Exercise Areas (Map 13):** Within Exercise Areas, activities may be subject to temporal restrictions. Development and use that either individually or cumulatively obstructs or otherwise prevents the defence activities supported by an exercise area may not be permitted. Proposals for development and use should be discussed with the MOD at an early stage in the process.
- **Communications:** Navigations and surveillance including RADAR: Development and use which causes unacceptable interference with RADAR and other systems necessary for national defence may be prohibited if mitigation cannot be determined. Proposals for development and use should be discussed with the MOD at an early stage in the process.

   DEFENCE 2: For the purposes of national defence, the MOD may establish by-laws for exclusions and closures of sea areas. In most areas this will mean temporary exclusive use of areas by the MOD. Where potential for conflict with other users is identified, appropriate mitigation will be identified and agreed with the MOD, prior to planning permission, a marine licence, or other consent being granted.

¹⁴⁷ The Business Plan 2012 – 2015. [The Ministry of Defence, 2012. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/27185/mod_plan_final_11_06_12_P1.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/27185/mod_plan_final_11_06_12_P1.pdf)



DEFENCE 3: The established code of conduct for managing fishing and military activity detailed in the documents 'Fishing Vessels Operating in Submarine Exercise Areas'¹⁴⁸ and 'Fishing Vessel Avoidance: The UK Code of Practice Fishing Vessel Avoidance'¹⁴⁹ will be adhered to.

Regional Policy: Regional marine planners and defence interests should engage on a proactive basis to ensure that the operational requirements of defence are taken into account in the development of marine plans.

Part 4: The future

15.21 In the future, defence activity will require:

- The ability to maintain operational effectiveness throughout Scottish waters.
- Continued use of Scottish seas for training in all aspects of defence, including test and evaluation activities.
- Continued access to HMNB Clyde as the base port for Naval vessels.
- To be able to manage the potential impacts from marine reserves/MPA protection measures.
- Safeguarded use of the Scottish Exercise and Danger Areas and defence surveillance and communication capabilities (including RADAR).
- Maintenance of arrangements with the fishing community and fisheries in accordance with the agreed code of conduct relating to the de-conflicting of respective activities.

¹⁴⁸ Fishing Vessels Operating in Submarine Exercise Areas. Marine Guidance Note MGN 12 (F). Marine Safety Agency. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/282352/mgn012.pdf

¹⁴⁹ Fishing vessel avoidance: The UK Code of Practice. SMP 95 Change 5. Ministry of Defence. [http://web.archive.nationalarchives.gov.uk/20081120170436/http://royalnavy.mod.uk/upload/pdf/%5B\(1423\)-08-07-2002%5DUK_FV_Code_for_www.pdf](http://web.archive.nationalarchives.gov.uk/20081120170436/http://royalnavy.mod.uk/upload/pdf/%5B(1423)-08-07-2002%5DUK_FV_Code_for_www.pdf)

16. Aggregates

Objectives and policies for this sector should be read subject to those set out in Chapters 3 and 4 of this Plan. It is recognised that not all of the objectives can necessarily be achieved directly through the marine planning system, but they are considered important context for planning and decision making.

Objectives



1

Growth of the marine aggregates industry in Scotland, ensuring supply is available to meet demand should it arise while taking account of environmental impacts.

Key references

[Mineral Resources of Scottish Waters and the Central North Sea](#)

National Marine Plan interactive (NMPi). [Productive / Aggregates](#) section

Part 1: Background and context

16.1 Marine aggregate extraction removes sand and gravel from the seabed for use as construction aggregate or for land reclamation or beach replenishment. Although Scotland has considerable marine sand and gravel resource, historically the marine aggregate industry has been very small due to more readily accessible land supplies.

16.2 Most recently, marine aggregate licences have been issued for two sites in Scottish waters: the Firth of Forth and the Firth of Tay. Over 30 years ago aggregate was also taken from the Clyde. Local marine aggregate has been used for coastal defence at Montrose and for reclamation in the Moray Firth. There are no current licences for marine aggregate extraction. However, there is potential for further activity if extraction becomes viable under different economic conditions or if increased dredging capability (in terms of ability to dredge in deeper water depths) offers opportunity for extraction in new areas. There may also be increased demand for aggregate in Scotland for use in gravity bases for the emerging renewables industry and in coastal defence and adaptation schemes.

16.3 An assessment undertaken by the British Geological Survey on behalf of the Crown Estate¹⁵⁰ has identified marine sand and gravel deposits in Scotland. Potential mineral resource has also been inferred from geological data but has not yet been evaluated. Both resource maps can be accessed via NMPi.

¹⁵⁰ Scottish Coast Sand and Gravel Resources Report. The Crown Estate. 2013.

<http://www.thecrownestate.co.uk/media/5651/ei-scotland-sand-and-gravel-resources-report.pdf>

16.4 Land-based extraction provides the majority of aggregates in Scotland. In some cases, marine transportation is essential to its distribution and viability (see Shipping, Ports and Harbour chapter).

Part 2: Key issues for marine planning

SUPPORTING ECONOMICALLY PRODUCTIVE ACTIVITIES

16.5 Economic benefits of the aggregates industry include skilled, stable employment and the generation of income through the construction industry supply chain. While marine aggregate activity generates no current measurable economic value in Scotland, the potential generation of employment from this sector in the future could increase economic contribution.

16.6 However, Glensanda Quarry on the Morvern peninsula contributes significantly to the Scottish economy, with a business turnover of approximately £40 million. With access only via sea, it relies entirely on the marine environment for transportation of aggregate, supplies and personnel.

INTERACTIONS WITH OTHER SECTORS

16.7 A positive relationship would exist between this sector and transport and ports. Vessels require wharf facilities to land product and ports will benefit economically from this. Potential interactions with shipping and ferry services include short-term displacement during aggregate extraction. Impacts on lifeline ferry services and shipping would need careful consideration, as would dredging or dumping in the vicinity of activities which require high water quality.

LIVING WITHIN ENVIRONMENTAL LIMITS

16.8 Some environmental impacts can arise from aggregate activity. These include:

- Changes to hydrodynamics that may alter coastal processes.
- Damage or destruction of important sites of geodiversity interest.
- Loss of seabed habitat, and heritage assets.
- Impacts on species and fisheries and secondary impacts to marine life and habitat associated with sediment plumes.
- Disturbance of fish spawning, migration routes, nursery and overwintering areas.

16.9 Aggregate extraction is subject to licensing procedures which considers environmental impact.

CLIMATE CHANGE

16.10 Aggregate extraction could potentially affect coastal processes and thus alter local rates of coastal change. Potential changes in storminess as a result of climate change could impact on the window of suitability for aggregate extraction. Climate change may also potentially lead to increased need for aggregates for beach replenishment.

Part 3: Marine planning policies

  **AGGREGATES 1:** Marine planners and decision makers should consider the impacts of other development or activity on areas of marine aggregate or mineral resource. Where an interaction is identified, consideration should be given to whether there are permissions for aggregate or mineral extraction and whether they require any degree of safeguarding.

  **AGGREGATES 2:** Decision makers should ensure all the necessary environmental issues are considered and safeguards are in place when determining whether any proposed marine aggregate dredging is considered to be environmentally acceptable and is in accordance with the other policies and objectives of this Plan.

Regional policy: Regional marine plans should consider if areas of aggregate or mineral resource require any degree of safeguarding.

Part 4: The future

16.11 Potential commercially viable deposits of marine sand and gravel¹⁵¹ are present in Scottish waters. Work commissioned by the Crown Estate provides sand, gravel and mineral resource maps for Scotland which are designed to help visualise how aggregates and minerals are distributed off the coast. However, mineral resources remain inferred from geology and have not yet been evaluated. While there is little short-term demand for these resources, medium- to long-term future market demands and technological advances will influence their viability and strategic importance.

¹⁵¹ See footnote 150.

Glossary

Appropriate Assessment – The assessment that is required by Habitat Regulations (Conservation (Natural Habitats, &c.) Regulations 1994 to determine the potential effect of a project or plan on a Special Protected Area or Special Area of Conservation with respect to their qualifying interests.

BAT – Best Available Technology.

Benthic – A description for animals, plants and habitats associated with seabed. All plants and animals that live in, on or near the seabed are referred to as benthos.

Best Environmental Practice (BEP) – The most appropriate combination of environmental control measures and strategies.

Biodiversity – The variability among living organisms from all sources including, *inter alia*, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they form part; this includes diversity within species, between species and of ecosystems.

Biomass – Biomass is the biological material derived from a living organism. Fish stock biomass refers to the total estimated weight of a stock or species of fish (in ICES advice this is often called Total Stock Biomass or TSB).

BOE – Barrel of oil equivalent – Term used to summarise the amount of energy that is equivalent to the amount of energy found in a barrel of crude oil.

Bycatch – The catch of non-target species and undersized fish of the target species. Bycatch of commercial species may be retained along with non-commercial catch.

Carrying Capacity – The potential maximum production a species or population can maintain in relation to available food resources, or other environmental limit, within an area.

CCS – Carbon Capture and Storage.

Closed Area – An area within which fishing by one or more methods of fishing, or fishing for one or more species of fish, is prohibited. Such areas may be permanently closed or be subject to closures over time.

CO₂ – Carbon Dioxide.

Common Fisheries Policy – The Common Fisheries Policy establishes an EU system for the conservation of fisheries resources and the management of fisheries targeting them as well as market and financial measures in support of those objectives. In addition, it also covers fresh water and biological resources, aquaculture activities as well as the processing and marketing of fishery and aquaculture products.

Continental Shelf – The area of seabed extending from the shoreline to a depth of about 200 metres or where the slope increases sharply to abyssal depths. In the UK it is defined by the Continental Shelf Act 1964 and generally extends from the edge of the territorial sea to 200 nautical miles from the prescribed baseline in most cases.

Cumulative Impacts – changes to the environment that are caused by an action in combination with other past, present and future human actions.

DECC – Department of Energy and Climate Change.

Demersal – Demersal fish live on or near the seabed and feed on bottom-living organisms and other fish. Although fisheries may be directed towards particular species or species groups, demersal fish are often caught together and comprise a mixed demersal fishery.

Devolved Administration – The Scottish Government, and Welsh Assembly Government, and Northern Ireland Executive.

Discards – Are those components of a fish stock thrown back after capture because they are below the minimum landing size or because quotas have been exhausted for that species.

Dredging – The removal of material from the sea bed, for a variety of purposes, including the clearing of channels for navigation, or the extraction of minerals.

EU Birds Directive – EU Directive 79/409/EEC on the Conservation of Wild Birds, as amended.

EU Habitats Directive – EU Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Flora and Fauna, as amended.

EU Water Framework Directive (WFD) – EU Directive 2000/60/ establishing a framework for Community action in the field of water policy

EU Marine Strategy Framework (MSFD) – EU Directive 2008/56/EC on establishing a framework for community action in the field of marine environmental policy, known as the Marine Strategy Framework Directive.

Ecosystem – A dynamic interlinked complex of plant, animal and micro-organism communities and their non-living environment interacting as an ecological unit. An ecosystem can range in size, e.g from the size of an intertidal pool to the size of the Earth's oceans.

Ecosystem approach – An ecosystem-based approach to the management of human activities means an approach which ensures the collective pressure of human activities is kept within the levels compatible with the achievement of good environmental status; that does not compromise the capacity of marine ecosystems to respond to human induced changes; and that enables the sustainable use of marine goods and services.

Ecosystem functioning – How plants, animals, micro-organisms and the non-living environment that make up the ecosystem work together.

Ecosystem services – Ecosystem services are processes by which the environment produces resources utilised by humans, such as clean air, water, food and materials.

EMEC – European Marine Energy Centre.

Enhanced Oil Recovery – The process of obtaining stranded oil not recovered from an oil reservoir through certain extraction processes.

Eutrophication – The enrichment of water by nutrients, especially compounds of nitrogen and phosphorus, causing an accelerated growth of algae and higher forms of plant life. This in turn can produce an undesirable disturbance to the balance of organisms and the quality of the water concerned.

FLOWW – Fishing Liaison with Offshore Wind and Wet Renewables Group.

GES – Good Environmental Status, defined in the Marine Strategy Framework Directive as the environmental status of marine waters where these provide ecologically diverse and dynamic oceans and seas which are clean, healthy and productive.

GES descriptors: Descriptors set by the Marine Strategy Framework Directive which describe what the environment will look like when Good Environmental Status has been achieved.

GIS – Geographical Information System.

GVA – Gross Value Added, a measure of the contribution to the economy of each individual producer, industry or sector in the UK.

GW – Gigawatt.

Harmful Algal Blooms – Concentrations of phytoplankton producing toxins which can affect human health, oxygen levels in water and which can kill or harm fish and other vertebrate and invertebrates.

HLMO – High Level Marine Objectives.

HMNB – Her Majesty's Naval Base.

HVAC – High Voltage Alternating Current.

HVDC – High Voltage Direct Current.

ICES – International Council for the Exploration of the Seas is the oldest intergovernmental organisation in the world concerned with marine and fisheries science.

IMO – International Maritime Organisation.

Inshore waters – Term used generally to describe all waters within 12 nautical miles of the coast.

Integrated Coastal Zone Management – Brings together all those involved in the development, management and use of the coast within a framework that facilitates the integration of their interests and responsibilities.

Internal waters – Internal waters are UK marine waters on the landward side of baseline from which the extent of the territorial sea is measured.

Invasive non-native species – Invasive non-native animals or plants are those that have the ability to spread causing damage to the environment, the economy, our health and the way we live. A non-native species is a species, subspecies or lower taxon, introduced (i.e. by human action) outside its natural past or present distribution.

JNCC – Joint Nature Conservation Committee.

KIS-ORCA – Kingfisher Information Service–Offshore Renewables Cable Awareness.

kWh – Kilowatt hour.

Marine Protected areas (MPA) – Marine Protected Area is the term used for sites designated in accordance with the Marine (Scotland) Act 2010 and the UK Marine and Coastal Access Act 2009 for the purposes of protecting biodiversity, geodiversity and historical assets. It may also be used in the generic sense as 'marine protected areas' to refer to any designated area that contributes to the MPA network in Scotland's seas.

Marine spatial planning – A process to consider multiple users of the sea to minimise conflicts and to ensure that marine ecosystems are adequately protected.

MOD – Ministry of Defence.

MSY – Maximum Sustainable Yield: The highest theoretical yield that can be continuously taken from a stock under existing environmental conditions without significantly affecting recruitment.

Multi-trophic – In Integrated Multi Trophic Aquaculture (IMTA) systems, species which are fed or farmed (for example Atlantic salmon) are grown alongside species whose culture results in nutrient (or energy) extraction (for example sea urchins, mussels or seaweeds). The aims are for greater efficiency in resource use such as feedstuffs, space, and labour, with a consequent reduction in negative environmental impacts.

Natura Sites – EU wide network of nature conservation sites (Special Areas of Conservation and Special Protection Areas) established under EC Directive 92/43/EEC on the Conservation of Natural habitats and of Wild Flora and fauna and EC Directive 79/409/EEC on the Conservation of Birds.

Nautical Miles – The unit of length used in marine navigation. One nautical mile is slightly longer than a statute mile, equal to 1.15 statute miles and 1.85 kilometres.

Non-native species – A species that does not originate in local waters and which has been introduced from other parts of the world by humans, either deliberately or accidentally.

NPF3 – National Planning Framework 3.

N-RIP – National Renewables Infrastructure Plan.

OSPAR – The Commission which manages work under the OSPAR Convention (Convention for the Protection of the Marine Environment of the North East Atlantic).

PFOW – Pentland Firth and Orkney Waters.

Priority Marine Features (PMF) – Species and habitats which have been identified as being of conservation importance to Scotland. Most are a subset of species and habitats identified on national, UK or international lists.

RCAHMS – Royal Commission of the Ancient and Historical Monuments of Scotland.

Recruitment – New, young fish which enter the stock and the fishery. Often very highly variable in number, not always related to the size of the parent stock.

River basin – Area of land from which all surface water flows through a sequence of streams, rivers and, possibly, freshwater lochs into the sea at a single river mouth, estuary or delta.

SAC – Special Areas of Conservation (SAC) under the EC Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Flora and Fauna.

Scotland's Seas – Term used in this document to describe the area covered by Scottish territorial waters and the Scottish offshore region. See also references to territorial waters and Scottish offshore region.

Offshore Waters – Term used generally to refer to waters more than 12 nautical miles from baselines (i.e. the area stretching from 12 nautical miles out to limits of UK jurisdiction). In relation to marine renewable energy, it does not necessarily mean outside 12 nautical miles; it can refer to activity in the marine environment often within 3 nautical miles.

Scottish offshore waters – Term used generally to refer to waters off Scotland more than 12 nautical miles from baselines (i.e. the area stretching from 12 nautical miles out to limits of UK jurisdiction, i.e. 200 nautical miles).

Scottish territorial waters – Defined under the Territorial Sea Act 1987 as the waters stretching from baseline out to a maximum of 12 nautical miles, or the median line between adjacent countries.

SEPA – Scottish Environment Protection Agency.

Sites of Special Scientific Interest (SSSI) – Sites notified by Scottish Natural Heritage under the Nature Conservation (Scotland) Act 2004 in recognition of the special interest of their natural features.

SMP – Sectoral Marine Plan.

SPAs – Special Protection Areas under EC Directive 79/409/EEC on the Conservation of Birds.

Sport development – Encouraging participation and development in sport with a focus on schools and clubs participation and development by way of training, coaching, leadership and qualification through competition and events.

Strategic Environmental Assessment (SEA) – An assessment of the environmental impacts of any plan, programme or strategy of any public body in Scotland as required by the Environmental Assessment (Scotland) Act 2005 which transposes the Strategic Environmental Assessment Directive (Directive 2001/42/EC on the assessment of the effect of certain plans and programme on the environment).

Sustainable development – Development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

Sustainable economic growth – Building a dynamic and growing economy that will provide prosperity and opportunities for all, while ensuring that future generations can enjoy a better quality of life too.

Terrestrial Planning – The term ‘terrestrial planning’ is used throughout this Plan to refer to all elements of the land use planning system and therefore encompasses the National Planning Framework, local development plans, land use plans, and is synonymous with terms such as ‘town planning’, ‘town and country planning’, ‘land use planning’ and ‘urban and regional planning’.

TWh – Terawatt hour.

UNCLOS – United Nations Convention of the Law of the Sea.

Water Framework Directive (WFD) – Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy.



**The Scottish
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