

Scottish Crown Estate Strategic Management Plan Environmental Report

September 2019



Scottish Government
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List of Abbreviations

AQMA	Air Quality Management Area
BARR	Buildings at Risk Register
CCRA	Climate Change Risk Assessment
CCS	Carbon Capture and Storage
CES	Crown Estate Scotland
CES(IM)	Crown Estate Scotland (Interim Management)
CO ₂	Carbon dioxide
CO ₂ e	Carbon dioxide equivalent
COSLA	Convention of Scottish Local Authorities
FSC	Forest Stewardship Council
GHG	Greenhouse gas
HEPS	Historic Environment Policy Statement
HES	Historic Environment Scotland
HMPA	Historic Marine Protected Area
INNS	Invasive Non-Native Species
KPI	Key Performance Indicator
MSFD	Marine Strategy Framework Directive
NCMPA	Nature Conservation Marine Protected Area
NO ₂	Nitrogen dioxide
NO _x	Nitrogen oxides
NPF	National Performance Framework
NPF3	National Planning Framework 3
NSA	National Scenic Area
O ₂	Oxygen
OSPAR	Convention for the Protection of Marine Environment to the North-East Atlantic
PEFC	Programme for the Endorsement of Forest Certification
PM _{2.5/10}	Particulate matter
PPS	Plans, programmes and strategies
SAC	Special Area of Conservation
SCE	Scottish Crown Estate
SEA	Strategic Environmental Assessment
SEPA	Scottish Environment Protection Agency
SIMD	Scottish Index of Multiple Deprivation
SNH	Scottish Natural Heritage
SO ₂	Sulphur dioxide
SO _x	Sulphur oxides
SPA	Special Protected Area
SSSI	Sites of Special Scientific Interest
VOCs	Volatile Organic Compounds
WFD	Water Framework Directive

Non-Technical Summary

What is Strategic Environmental Assessment?

Strategic Environmental Assessment (SEA) is a means of systematically assessing the likely impact of a public plan on the environment and to seek ways to avoid, or minimise, where possible, any likely significant adverse effects. It also gives members of the public and other interested organisations an opportunity to consider this information and to use it to inform their views on the emerging proposals. Monitoring proposals are also developed to identify any unexpected adverse environmental effects, should these arise.

This Non-Technical Summary concerns the findings of the Strategic Environmental Assessment of Scottish Ministers' draft Strategic Management Plan for the Scottish Crown Estate (SCE) and has been prepared in accordance with the Environmental Assessment (Scotland) Act 2005 ('the 2005 Act'). Views are invited on both the Environmental Report and the Draft Strategic Management Plan.

An Introduction to the Draft Strategic Management Plan

The Scottish Crown Estate Act 2019 (the Act) received Royal Assent on 15 January 2019. It reforms management of the Scottish Crown Estate and establishes a framework to deliver wider benefits and new opportunities for local control of the management of individual Scottish Crown Estate assets.

The Act places a duty on the Scottish Ministers to prepare a plan for the management of the Scottish Crown Estate and makes provision for what must be included in the Plan and how it must be prepared, consulted on and reviewed. These requirements include setting out the Scottish Ministers' objectives, priorities and policies with respect to:

1. the management of the Estate (including the acquisition of new assets);
2. and an assessment of how those objectives, priorities and policies align with the Scottish Ministers' other objectives, priorities and policies.

The draft Strategic Management Plan's vision states that: "The Scottish Crown Estate is managed sustainably, responsibly and fairly, and in a transparent and inclusive manner, to deliver financial benefits and wider and long term social, economic and environment benefits for Scotland and it's communities".

Scottish Crown Estate assets extend across a wide range of sectors, including forestry, agriculture, most of the seabed and nearly half of the foreshore. These include aquaculture, energy infrastructure and moorings. In addition the Scottish Crown Estate includes commercial properties and rural estates.

The draft Plan considers the long-term management of Scottish Crown Estate assets, covering the period up to 2025. It includes a draft vision and 22 draft objectives, priorities and policies delivering the vision. These broadly cover the management of Scottish Crown Estate assets (including manager's duties and guidance), investment activity, community benefits, implementation of the Plan and

proposals on finance and administration. It is expected that the Plan will be reviewed every 5 years.

Environmental characteristics and key pressures relevant to Scottish Crown Estate assets

It is a requirement of the 2005 Act to provide details of the character of the environment which may be affected by the Plan.

Scotland's environment is rich in natural and cultural heritage and its seas are among the most biologically diverse and productive in the world. On land, the network of European protected sites supports many important and rare plants, birds and animals. Many biodiversity features are in good condition, but continuing efforts are needed to avoid the further decline of some species and habitats. Scotland's air, soil and water are generally in good condition, but there are concentrations of pollution in some parts of the country. Some of this is historic, but there are also on-going challenges, including diffuse pollution from urban and rural areas.

Scotland has high quality landscapes, with many iconic views and scenic areas supporting recreation and tourism. The historic environment includes World Heritage Sites, listed buildings, conservation areas, gardens and designed landscapes and archaeology including scheduled monuments. Many archaeological resources remain undiscovered. Scotland also has many natural resources and material assets, including high quality agricultural land, and extensive areas of forestry and woodland.

The Scottish Crown Estate assets are held 'in right of The Crown' and the Monarch remains the legal owner. The estate includes both marine and land based assets including four rural estates (forestry and agriculture), as well as aquaculture and other coastal and marine assets (including energy infrastructure). Scotland's transport infrastructure is also a key asset, supporting future growth. Crown Estate Scotland (Interim Management) is currently the manager of all the assets and responsibilities include leasing and management of the assets.

It is widely held that climate change is one of the most serious threats facing the world today. Climate change is predicted to lead to more extreme weather events, increasing water temperature and acidity, a rise in sea levels, changes in wave heights and changes to coastlines; all of which have the potential to affect other aspects of the environment.

The management of Scottish Crown Estate assets can have a wider impact on the national portfolio of material assets as a result of activities related to offshore energy infrastructure interacting with ports and harbours, and requiring a land-based distribution network. In the context of this report, the SEA topic of material assets refers to the potential impacts of the draft Strategic Management Plan for Scottish Crown Estate assets as well as wider terrestrial and marine assets; both natural and built.

The key existing environmental pressures which form part of the baseline, are detailed in the tables below.

Key Pressures - Material Assets

Marine Assets

Specific to aquaculture, invasive non-native species (INNS), primarily crayfish affect Atlantic salmon.

Illegal exploitation of fish, particularly of salmon, continues to threaten the aquaculture industry despite regulations which ban gill netting and the retention of salmon in coastal waters.

Projected changes to water temperature, acidity and primary productivity as a result of climate change threaten marine fisheries and aquaculture. Changes in storm frequency and severity, and the associated increased wave height also pose a risk to existing and planned offshore renewable energy infrastructure.

Terrestrial Assets

Climate change (such as changes in rainfall and water temperatures) may impact upon aquaculture, agriculture and forestry through for example, fluctuations in yields and risk of new diseases and pests. Wave exposure may also impact upon aquaculture success.

Land management practices and development put pressure on forestry and agriculture. Increasing development, land use change and lack of management may impact forestry and agriculture.

Fragmentation and gradual loss of native and ancient woods is a serious issue in unenclosed uplands. The causes are most likely to be a combination of excessive herbivores and poor regeneration capacity on sites with old trees.

Key Pressures - Biodiversity, Flora and Fauna:
Marine biodiversity
Key pressures include commercial fishing, aquaculture and diffuse pollution. The modification of coastline through the construction of supporting infrastructure, such as sea defences, ports and harbours, can have a significant impact on biodiversity as well as physical damage to the seabed. Changes in water quality and composition can impact biodiversity through availability of nutrients and oxygen consequently leading to habitat fragmentation.
INNS can cause harm to native species and have been identified as a key biodiversity pressure, particularly in coastal waters. In 2015, 18 bodies of water in Scotland were at risk of failing to meet environmental objectives due to INNS.
Climate change is affecting sea level rise, as well as sea surface temperatures which can have a significant impact on the availability of nutrients and oxygen, in turn affecting seabed habitats and the wider ecosystem.
Terrestrial biodiversity
Ancient, native and semi-natural woodland are a designated priority habitat and have been identified as having a significant risk of habitat fragmentation due to herbivores/grazing, pests and diseases and agricultural developments. Upland habitat has been modified through human activities, such as cattle farming, drainage and afforestation.
INNS can impact terrestrial environments such as Himalayan balsam which outgrows native grasses alongside riverbanks.
Climate change is a powerful stressor to freshwater and terrestrial ecosystems. This is due to increasing freshwater temperatures leading to a reduced dissolved oxygen, as well as changes in high river flows due to precipitation. Both of these can significantly impact biodiversity.
Key Pressures - Population and Human Health
Low standards of water bodies affect drinking water quality resulting in bacteria that can in turn result in risks to public health.
Pressures on water and air quality which affect human health are primarily caused by increases in environmental pollutants arising from human activities including new development and industrial activities as well as aquaculture, intensive agriculture and urbanisation.
Key Pressures - Soil and Geodiversity
Loss of organic matter threatens soil functions and can result from a wide range of pressures, such as land use change, development and climate change. The loss of organic matter from carbon rich soils can prompt the release of GHG, contributing to climate change, and also affecting biodiversity.
Soil sealing is the replacement of soil with impermeable surfaces or soil's compaction, and can result from activities such as mining and quarrying. Soil sealing also interferes with the soils' ability to perform key functions, including water absorption.

Soil contamination through atmospheric deposition, agriculture and forestry, and other industry, such as mining, waste management, and disposal of chemicals, can also significantly impact on soil function and biodiversity.

Soil erosion and other structural degradation can have a significant effect on soil functions with erosion having the potential to irreversibly alter soils' characteristics.

Changes in rainfall and extreme weather events as a result of climate change can contribute to soil erosion and compaction.

Key Pressures - Water

Diffuse and point source pollution can significantly affect water quality and the health of water ecosystems. These can result from nutrient contamination, leading to eutrophication, polluting drinking water sources and affecting availability of oxygen and consequent suffocation of fish and other biodiversity.

Water abstraction for activities such as hydropower generation and agriculture, can lead to a reduction in groundwater baseflow and surface water flow, potentially resulting in damage to ecosystems (including wetlands).

Water quality can also be impacted by development and land use change in coastal areas, leading to the loss of floodplain and associated habitats, and disrupting or significantly altering the range of fish and other organisms. The loss of floodplain to agriculture and other land use changes also has the potential to increase flood risk. The physical condition of water bodies can also be affected by suspended sediment due to erosion. Erosion rates are also expected to rise with climate change which will result in changes to the physical environment.

Climate change and the rise of impermeable surfaces (such as in urban areas) can lead to an increased likelihood of flooding. This can lead to the damage to material assets and pose risks to population and human health through the spread of infectious diseases through watercourses. Changes in, for example, sea surface temperature can also lead to a loss of habitats through changes in nutrient availability and accelerate the spread of INNS.

Manmade barriers to fish migration and physical changes to the beds and banks and diffuse pollution are also key pressures.

Key Pressures - Air

Point source pollution significantly impacts air quality. These include pollutants such as NO_x, CO₂ and PM_{2.5}, PM₁₀ as a result of, for example, energy production and agricultural ammonia emissions.

Key Pressures - Climatic Factors

The UN Intergovernmental Panel on Climate Change (IPCC) special report on the Paris Agreement found that Emissions of CO₂ need to reach net-zero levels globally by around 2050 – with a fall of around half (45%) from 2010 to 2030 –requiring rapid, profound and unprecedented cross-sectoral transformation of global energy, land, urban and industrial systems. Climate change is closely linked to other environmental topics. For example, rising temperatures, can lead to changes in

nutrient availability and therefore impact the range of certain species; both on land and in sea.

Changes in temperature, rainfall, frequency of extreme weather events and sea level rise are predicted with milder, wetter winters and hotter, drier summers expected. This trend has been consistent over the last decade with infrastructure already affected. The effects of these changes such as coastal flooding can pose a risk to SCE assets.

Possible negative consequences could also arise as a result of climate change adaptation measures. The installation of manmade flood defences (as a mitigation measure against climate change) can significantly impact biodiversity through habitat fragmentation and limiting distribution range. Coastal processes can also be altered, leading to increased risks of erosion or displacement of flood risk.

Key Pressures - Cultural Heritage and Historic Environment

Lack of maintenance and investment of the historic environment as well as confusion and tension around roles and responsibilities in relation to shared ownership and caring for the historic environment can result in disrepair, such as damage and decay in roof and wall structures.

Historic sites are exposed to high or very high risk from natural hazards as a result of climate change. Climate change-related impacts include damage to masonry, risk of dampness, condensation and fungal growth, vegetation growth, and accelerated decay. Historic landscapes and sites located within the coastal zones are particularly vulnerable.

Land management and development can impact on the historic environment and cultural heritage.

Key Pressures - Landscape and Visual

Competing land uses remain a principal threat to managing landscape change. Key drivers behind land use change include climate change and climate change adaptation, a changing economic base and economic efficiency.

With climate change it is likely that some land will be lost to the sea, that flooding will increase, and that the distribution patterns of natural and semi-natural habitats will change. Higher temperatures may also allow new crops to be grown and extend existing growing seasons.

Indirect effects from climate change, such as the spread of destructive pests and pathogens, could lead to more subtle landscape change through the loss of plant species.

Relevant related policies and environmental objectives

The Strategic Management Plan will contribute to the delivery of the National Performance Framework and the Scottish Government's purpose:

“To focus on creating a more successful country with opportunities for all of Scotland to flourish through increased wellbeing, and sustainable and inclusive economic growth.”

The property, rights and interests of the Scottish Crown Estate means that decisions on the sale or use of the assets can deliver significant economic, social and environmental benefits for Scotland and local communities. However, decisions on property, land and other assets sit within a wider regulatory and policy framework which includes relevant aspects of property law, environmental legislation, the marine and terrestrial planning and consenting systems.

The evolution of the environment without the Strategic Management Plan

The SEA process requires an assessment of the likely evolution of the environment in the absence of the Plan. The Plan's proposals involve the management of and investment in assets for national or community benefit. This provides an opportunity to minimise any potential impacts of new infrastructure requirements on environmental receptors through giving preference to investment in existing infrastructure. In addition, the flexibility provided to locally own or manage assets represents an opportunity for more agile management practices and local decision-making, which can take account of localised environmental key pressures and issues. This could provide the opportunity for management which is more responsive to change at this level.

In the absence of the proposed Plan, the management of Scottish Crown Estate assets would continue to be managed as at present under the existing 'good management' requirements in the Crown Estate Act 1961, until such time as the relevant sections of the Scottish Crown Estate Act 2019 come into force. However, less opportunity would be available to extend benefits from asset management to the local community or more widely in Scotland and to contribute to wider environmental objectives.

What reasonable alternatives have been considered?

The 2005 Act requires that the Scottish Government also identify, describe and evaluate the likely significant effects on the environment of any reasonable alternatives to the draft Plan, taking into account its objectives and geographical scope. For the purposes of the assessment the Strategic Management Plan objectives, priorities and policies were organised into themes. Some of these were scoped out of the assessment as they were considered unlikely to have significant environmental effects, for example, because they relate to administrative or procedural matters or concern the future provision of advice which will be non-binding in nature. The two scoped in themes are:

- Theme 1: Delivering Benefits And Realising Opportunities, and
- Theme 2: How Scottish Crown Estate Assets Are Managed.

Following consideration of various alternatives, it was concluded that there were no reasonable alternatives to the plan.

What are the findings of the SEA?

The SEA has concluded that the draft Plan, with its core purpose of promoting and supporting the implementation of tailored management for the benefit of Scotland and communities will have overall positive effects for the SEA topics of population

and human health, material assets and climatic factors, with the potential for some short term local negative effects for the latter arising from development on the ground. Mixed effects are anticipated for biodiversity, soil, water, air, cultural heritage and landscape and visual topics. Investment and management changes related to Scottish Crown Estate assets have the potential to alter the balance of ecosystem services provided by an asset, with some increasing and some reducing.

The draft Plan has the potential to positively and cumulatively contribute across a wide range of Scottish Government policy areas. However, there is an inherent uncertainty in the actions that will be taken and therefore in the resultant assessment findings.

Where appropriate, the requirements of existing statutory consenting and licensing regimes and environmental assessment requirements are taken into account as 'assumed mitigation' and factored into the assessment of the significance of effects. Finally, the report makes a number of recommendations for mitigation and / or enhancement measures, where appropriate. These are:

- Where the management of an asset is transferred, the draft management plan allows for assets to be brought back under Crown Estate Scotland (Interim Management) management/alternate management if the asset was deemed to be managed poorly or if maintenance became an issue. It is recommended that the Scottish Government or Crown Estate Scotland (Interim Management) monitor on a regular basis those assets subject to local control. **(material assets)**
- In terms of provisions for the sale of assets for less than market value, it is recognised that realisation of financial benefits or wider environmental or social benefits may not be immediate. It is therefore recommended that the length of time that any wider benefits will take to develop is considered, but does not prejudice the assessment of whether there is potential to sell assets for less than market value. **(material assets)**
- Consideration should be given to exploring opportunities through lower tier Plans, Programmes and Strategies as well as in the consenting and licensing of individual projects at local level where appropriate, to mitigating the environmental effects of increased tourism. **(population and human health, air and water)**
- Consideration should be given to opportunities to maximise provision of public access to recreation facilities, green infrastructure and green spaces. **(population and human health)**
- It is recommended that consideration is given to opportunities for building capacity and understanding on all aspects of environmental management and protection in community organisations when taking on asset management responsibilities through the provision of guidance and advice. **(all SEA topics including biodiversity, flora and fauna and cultural heritage)**
- Asset Managers should give consideration at the earliest stages to appropriate siting and design of new infrastructure in collaboration with community bodies where appropriate. **(soil and geodiversity)**

- The assessment findings support the draft plan's focus on increased investment activity for community or national benefit and which contributes to Scotland's Climate Change Plan. **(climatic factors)**
- Investment decisions at asset level should consider opportunities for enhancing the environment for the wider community benefit. **(landscape and visual)**

What monitoring is proposed?

The 2005 Act requires that the Responsible Authority monitors the significant environmental effects of the implementation of the Strategic Management Plan in order to identify any unforeseen adverse effects at an early stage and undertake appropriate remedial action where relevant.

The Scottish Crown Estate Act provides for a national framework to govern management of the assets at the national and local level. This framework includes national reporting and accounting arrangements.

The Scottish Government will monitor implementation of the plan, delivery of the objectives, priorities and policies and alignment with wider objectives, priorities and policies. The Scottish Government will work with Crown Estate Scotland (Interim Management) and prospective managers of Scottish Crown Estate assets to ensure that appropriate monitoring is undertaken alongside wider monitoring under the National Performance Framework.

The monitoring and review of the plan will be informed by the delivery of targets and indicators in Crown Estate Scotland (Interim Management) corporate plans and any management plans prepared by other managers. Corporate plans and management plans should set out how the manager plans to manage the asset over the next 3 years. Annual reports will also provide an assessment of how a manager has performed against the objectives.

Monitoring of significant environmental effects will be aligned with the monitoring for the Value Project which is a tool being developed by Crown Estate Scotland (Interim Management) to better understand, measure and monitor the (social, economic, environmental) benefits generated from the Scottish Crown Estate. It is recommended that the monitoring could also include gathering data on the location and extent of activities associated with the Strategic Management Plan objectives, priorities and policies and potential environmental effects.

How to comment on the Environmental Report

Comments on the Environmental Report are welcome by 22nd November 2019.

Details of how to comment can be found at: <https://consult.gov.scot/marine-scotland/scottish-crown-estate-strategic-management-plan>

Responses can also be submitted with the Respondent Information Form (Appendix A) to <mailto:scottishcrownestate.consultation@gov.scot> or by mail to:

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1 The draft Strategic Management Plan

1.1 Introduction

- 1.1.1 This report has been prepared in accordance with the Environmental Assessment (Scotland) Act 2005 (referred to hereafter as “the 2005 Act”). The 2005 Act requires all qualifying policies, plans, programmes and strategies (referred to generally as plans) to undergo SEA. This provides a systematic process for identifying, reporting and mitigating the environmental impacts of the proposed Plan.¹
- 1.1.2 The Strategic Management Plan is a qualifying plan in accordance with Section 5(4) of the 2005 Act, and is the subject of this assessment.
- 1.1.3 Table 1 shows the key facts in relation to the Strategic Management Plan which are further expanded upon in the following sections.

1.2 Scottish Crown Estate Act 2019

- 1.2.1 In 2014, the Smith Commission recommended that the management of Crown Estate assets in Scotland and their revenues should be devolved to the Scottish Parliament. This was enabled through provisions in The Scotland Act 2016, and on 1 April 2017, powers over the revenue and management of Crown Estate resources in Scotland were formally transferred. In parallel, Scottish Ministers committed to a two phase approach for devolving the management of Crown Estate assets:
1. The establishment of an interim body, ‘Crown Estate Scotland (Interim Management)’.
 2. The development and implementation of a statutory framework to change the long-term management of the Crown Estate in Scotland (the Scottish Crown Estate Act 2019). The 2019 Act renames Crown Estate Scotland (Interim Management) as Crown Estate Scotland and sets out the framework for its governance and decision making.
- 1.2.2 The 2019 Act reforms management of the Scottish Crown Estate (SCE) and establishes a framework to deliver wider benefits and new opportunities for local control of the management of individual Scottish Crown Estate assets – Figure 1 shows the other sectors/activities with which the management of the Scottish Crown Estate interacts.
- 1.2.3 The 2019 Act contains general powers and duties for the management of Scottish Crown Estate assets and the timing for commencement of the individual provisions of the 2019 Act is currently under consideration with Scottish Ministers. In the meantime, the current legislative framework contained in the Crown Estate Act 1961 continues to operate.

¹ Throughout this report the terms impacts and effects are used interchangeably

Table 1: Key Facts on the Strategic Management Plan

Responsible Authority	The Responsible Authority for undertaking the SEA is Marine Scotland
Title of Plan Programme, Strategy (PPS)	The Scottish Crown Estate Strategic Management Plan
Reason for the PPS	<p>The Scottish Crown Estate Act 2019 received Royal Assent on 15 January 2019. It reforms management of the Scottish Crown Estate and establishes a framework to deliver wider benefits and new opportunities for local control of the management of individual Scottish Crown Estate assets.</p> <p>The Act places a duty on the Scottish Ministers to prepare a plan for the management of the Scottish Crown Estate. Section 22 and section 23 of the Act make provision for what must be included in the Plan and how it must be prepared, consulted on and reviewed. These requirements include setting out the Scottish Ministers' objectives, priorities and policies with respect to:</p> <ol style="list-style-type: none"> 1. the management of the Estate (including the acquisition of new assets); 2. and an assessment of how those objectives, priorities and policies align with the Scottish Ministers' other objectives, priorities and policies.
Subject of the PPS	The draft Scottish Crown Estate Strategic Management Plan considers the long-term management of Crown Estate assets in Scotland which extend across a broad range of sectors including agricultural and forestry land, most of the seabed, just under half of the foreshore, and some commercial property.
Period covered by PPS	The Strategic Management Plan covers the period up to 2025.
Frequency of updates	Scottish Ministers are required to keep the Strategic Management Plan under review and must revise it after 5 years, if not before.
Area covered by the PPS	The Strategic Management Plan will cover the whole of Scotland.
Purpose and/or objectives of the PPS	The purpose of the Strategic Management Plan is to set out a definitive and transparent statement on the vision and high level objectives, priorities and policies for the future management of the Scottish Crown Estate, how the assets are to be managed under the new legal framework, and a broad outline of likely future changes to the management of the estate, including how the new framework could look at the end of the five year period.
Contact	For further information related to the Strategic Management Plan please contact: scottishcrownestate.consultation@gov.scot

1.3 Main Provisions of the Scottish Crown Estate Act 2019

- 1.3.1 The 2019 Act contains new powers for reform of the current legal framework for the management of assets, which dates back to the Crown Estate Act 1961, including new legal powers and duties to take account of wider economic, social and environmental benefits, as well as the financial return to the estate, when making decisions on the management of the estate and individual assets.
- 1.3.2 The 2019 Act allows, on a case-by-case basis, for local authorities, Scottish Harbour Authorities, Scottish Ministers, other public bodies and community organisations to become managers of SCE assets, while recognising that some assets may need to continue being managed at the national level.
- 1.3.3 The 2019 Act also includes a new accounting framework and powers and duties to provide for a national framework to underpin a mix of national and local management of assets by different organisations in future, such as national reporting duties. The 2019 Act places a duty on the Scottish Ministers to prepare a plan for the management of the SCE which is the Strategic Management Plan which forms the subject of this assessment.

1.4 Overview

- 1.4.1 Section 22 and section 23 of the 2019 Act make provision for what must be included in the Plan and how it must be prepared, consulted on and reviewed. These requirements include:
 - a) setting out the Scottish Ministers' objectives, priorities and policies in relation to the management of the Estate (including the acquisition of new assets), and,
 - b) assessment of how those objectives, priorities and policies align with the Scottish Ministers' other objectives, priorities and policies.
- 1.4.2 The draft Plan outlines the process for developing concepts introduced in the Act, including guidance for future managers of SCE assets to request a transfer or delegation of individual assets on a case-by-case basis.
- 1.4.3 A manager of an asset must have regard to the Plan when (a) preparing a management plan and exercising any of the manager's other functions. Crown Estate Scotland (Interim Management) must also prepare a Corporate Plan and must review this every three years.
- 1.4.4 Crown Estate Scotland (Interim Management) is currently consulting on a draft version of the new Corporate Plan 2020-2023 in advance of providing a final version for approval by Scottish Ministers:
<https://www.crownestatescotland.com/media-and-notice/news-media-releases-opinion/have-your-say-on-how-crown-estate-scotland-invests-in-property-and-natural-resources>
- 1.4.5 The Scottish Ministers' Strategic Management Plan and Crown Estate Scotland (Interim Management)'s Corporate Plan are related and complementary. Crown Estate Scotland (Interim Management)'s draft Corporate Plan has been prepared in parallel with, and informed by, the draft

Strategic Management Plan. In addition, early outputs from the SEA of the draft Strategic Management Plan have been shared with Crown Estate Scotland (Interim Management). Figure 2 sets out the statutory requirements under the Scottish Crown Estate Act and Crown Estate Scotland (Interim Management)'s corporate responsibilities to prepare plans.

1.5 Purpose of the draft Strategic Management Plan

- 1.5.1 The purpose of the first ever Strategic Management Plan is to set out a definitive and transparent statement on the vision and high level objectives, priorities and policies for the future management of the estate, how the assets are to be managed under the new legal framework, and a broad outline of likely future changes to the management of the estate, including how the new framework could look at the end of the five year period.

1.6 Other Initiatives

- 1.6.1 In 2018 Crown Estate Scotland (Interim Management) launched their local asset management pilot scheme process which will inform how aspects of the Act; including more permanent arrangements for local management of the assets; may be best implemented. The pilot scheme has been designed to encourage local authorities, development trusts and other eligible bodies to manage SCE land and property rights in their local area as part of a contractual arrangement with Crown Estate Scotland (Interim Management). The aim is that the scheme and the projects that emerge from it will enable different methods of managing assets to be tested, empowering communities and giving people more say in decisions that impact the land, foreshore and sea. The pilot scheme process will be evaluated and the findings will be used to inform the approach for the more permanent arrangements for local management in due course.

1.7 Wider Policy Context

- 1.7.1 The Strategic Management Plan will contribute to the delivery of the National Performance Framework and the Scottish Government's purpose:

"To focus on creating a more successful country with opportunities for all of Scotland to flourish through increased wellbeing, and sustainable and inclusive economic growth."

The diversity of the property, rights and interests of the SCE means that decisions on the sale or use of the assets can deliver significant economic, social and environmental benefits for Scotland and local communities. However, decisions on property, land and other assets sit within a wider regulatory and policy framework which includes relevant aspects of property law, environmental legislation, the marine and terrestrial planning and consenting systems.

1.8 Legal and Policy Framework

- 1.8.1 The 2019 Act includes the power to transfer ownership of an asset under a manager's management. The draft Strategic Management Plan sits within the framework under the 2019 Act and Scottish Ministers' policy framework for the management of the estate and individual assets. The seabed is considered a national strategic asset and Scottish Ministers policy is to minimise fragmentation of the ownership or equivalent rights to the seabed so there are likely to be less frequent or substantial changes in ownership of the seabed compared to other components of the estate and more constraints on a manager's ability to sell seabed.
- 1.8.2 In addition, Crown Estate Scotland (Interim Management) decisions on leasing the seabed and other parts of the estate operate within the wider regulatory framework. This means that leasing decisions for use or exclusive access to the seabed including the foreshore, mining rights and other parts of the estate will not usually in themselves provide the holder of the lease with the right to commence an activity, such as construction of a windfarm or oil and gas pipeline, extraction of material from the seabed, deposit of materials on the seabed or placement of any other structure on the seabed. A Crown Estate Scotland (Interim Management) lease will only be granted when all necessary consents and permits are in place.
- 1.8.3 An overview of the overarching policy context considered most relevant to the preparation of the Management Plan is illustrated in Table 2.

1.9 Overview of the Plan

- 1.9.1 In addition to the statutory requirements, the Plan includes policies on use of net revenue, intentions on what guidance will be developed and plans for how the discretionary powers for Scottish Ministers contained in the Act may be used. In summary the Plan includes:
- The Vision;
 - Objectives, priorities and policies in relation to:
 - The management of the Estate (including the acquisition of new assets);
 - Policies on Scottish Crown Estate revenue;
 - Future intentions on what guidance will be developed;
 - A process for inviting and considering proposals for transfer or delegation of management in the future.
- 1.9.2 The draft Scottish Government Strategic Management Plan Vision is:
- “The Scottish Crown Estate is managed sustainably, responsibly and fairly, and in a transparent and inclusive manner, to deliver financial benefits and wider and long term social, economic and environment benefits for Scotland and its communities”.*

1.10 Objectives, Priorities, Policies and Reasonable Alternatives

- 1.10.1 22 draft objectives, priorities and policies are set out for the draft Plan. These draft objectives, priorities and policies for the Strategic Management Plan have been presented as themes. Not all of them were considered likely to have significant environmental effects, for example, because they relate to administrative or procedural matters or concern the future provision of advice which will be non-binding in nature. Further commentary on the themes that are the focus of the assessment is provided, where appropriate, in section 2.3. Detail on each objective, priority and policy can be found in the Strategic Management Plan itself.

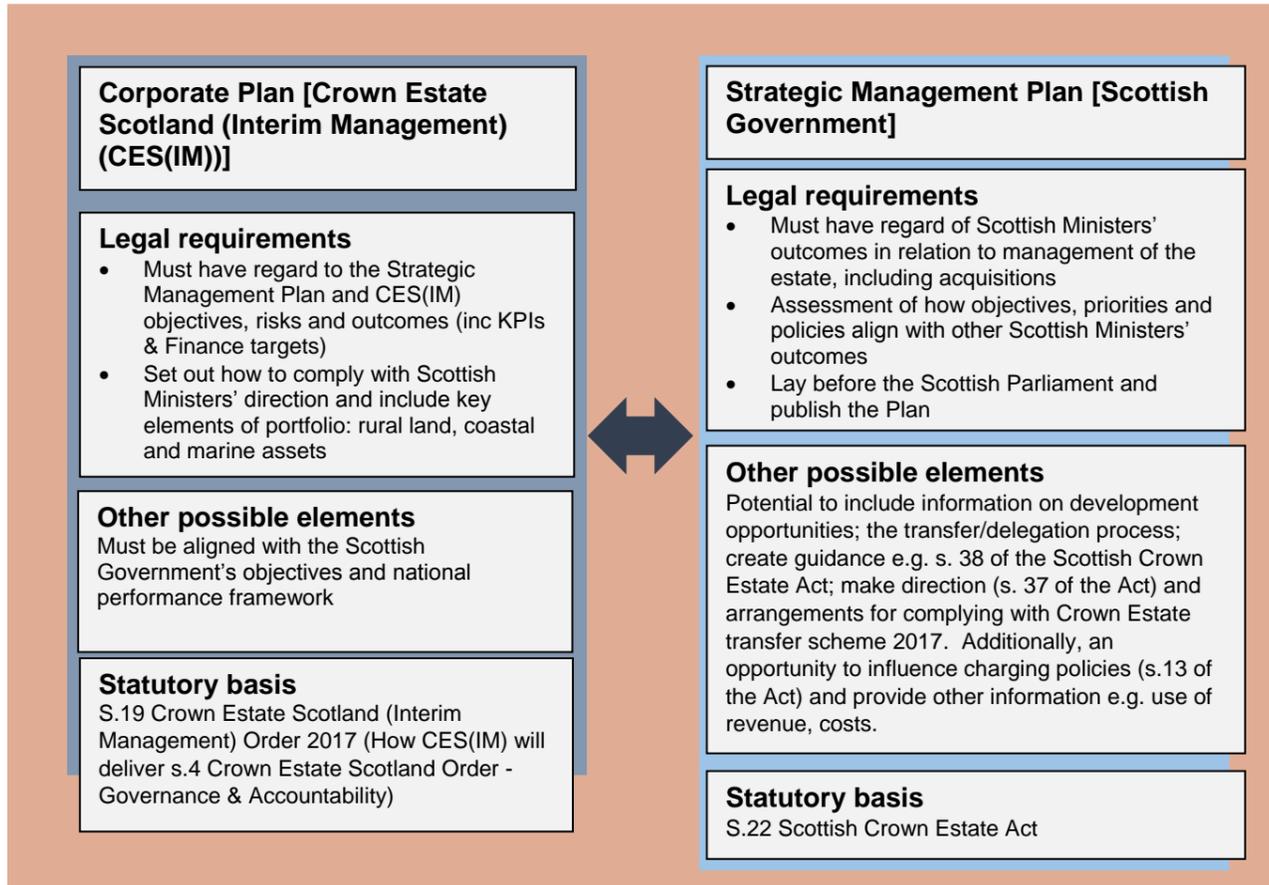
Figure 1: Scottish Crown Estate - Sectors and Activities

Scottish Crown Estate - Sectors and Activities

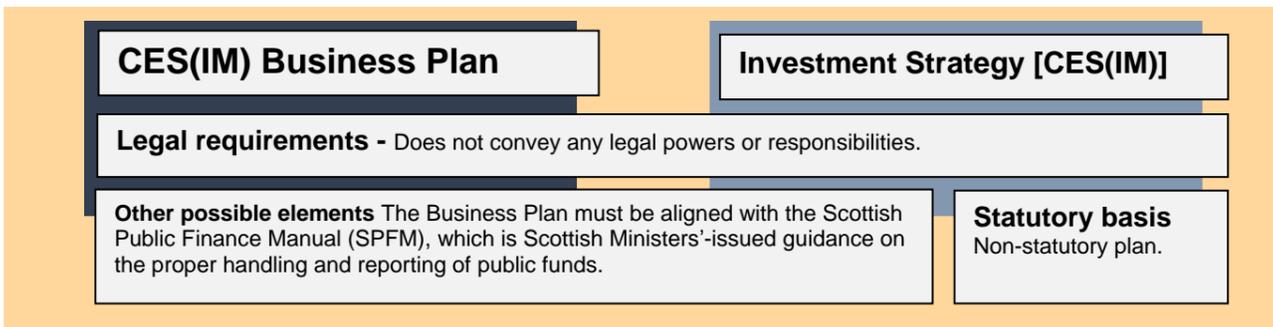


Figure 2: Relationships between the Strategic Management Plan and other Crown Estate PPS

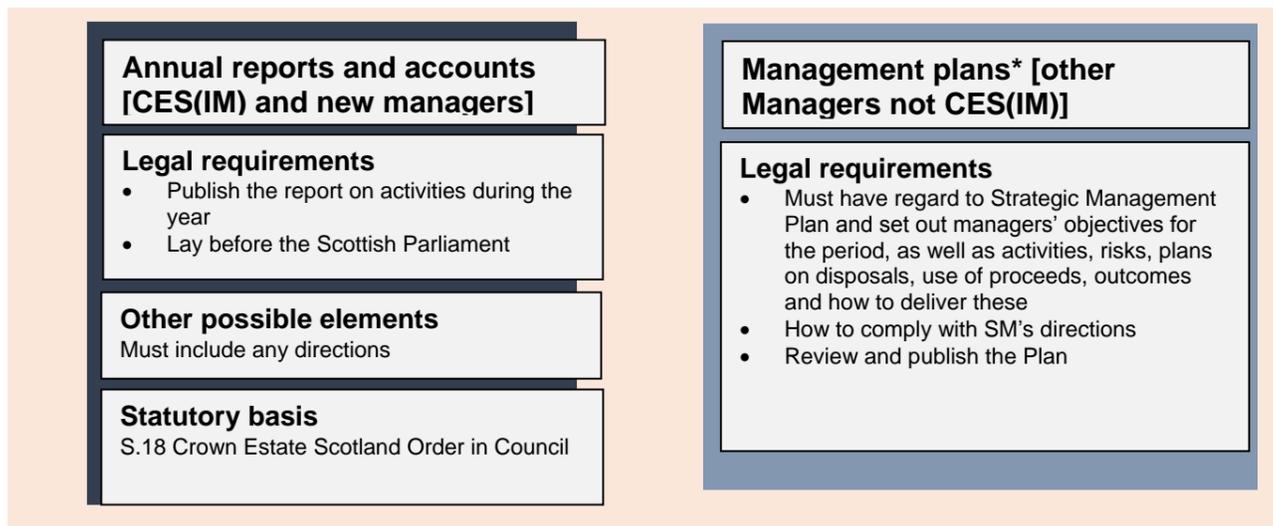
RELATE TO ALL ASSETS AND SHOULD BE IN COMPLIANCE WITH SCOTTISH MINISTERS' OBJECTIVES



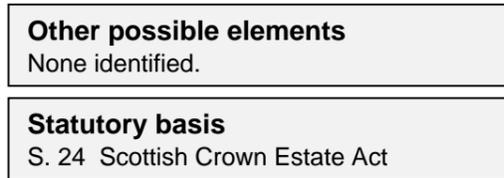
FRAMEWORK AGREEMENT



RELATE TO ALL ASSETS



How often are these plans, programmes and strategies reviewed?



* These are expected to apply to all management plans produced in the future

Table 2: Relationship with other Plans, Policies and Strategies

Plan, Programme or Strategy	Relationship with the Scottish Crown Estate Strategic Management Plan
National Planning Framework 3 ¹	This is a long term spatial expression of the Government's Economic Strategy, and of plans for development and investment in infrastructure. It identifies national developments and other strategically important development opportunities in Scotland. It supports development that facilitates adaptation to climate change, reduces resource consumption and lowers greenhouse gas emissions.
Programme for Government ²	Sets out government plans for the coming year including Bills that will be introduced to Scottish Parliament, a key theme being building a globally competitive, sustainable and inclusive economy. The draft programme will support communities to benefit from the new revenue from the Scottish Crown Estate marine assets.
Scottish Government's Economic Strategy ³	Sets a framework for a competitive and fairer Scotland based on two key pillars, increasing competitiveness and tackling inequality. The Smith Commission recommended devolution of the management of and revenues from the Crown Estate in Scotland, including the seabed surrounding Scotland's coasts. The Scottish Government will use these new powers to ensure that communities enjoy greater benefits from their local assets.
Climate Change Plan ⁴	Sets out actions towards a low carbon economy in the context for the Scottish Government's climate change proposals and policies and its statutory duties. It also provides information on sector emissions envelopes and reduction trajectories.
National Tourism Strategy ⁵	Launched in June 2012, with an ambition to grow visitor spend to £1bn by 2020, the Strategy has with five primary aims related to growing tourism, associated income and employment.
Scotland's National Marine Plan ⁶	Covers the management of both Scottish inshore waters (out to 12 nautical miles) and offshore waters (12 to 200 nautical miles). The plan provides direction to a wide range of marine decisions and consents made by public bodies including Local Authorities and the Crown Estate.
The Marine (Scotland) Act 2010 ⁷	Provides a framework which will help balance competing demands on Scotland's seas. It introduces a duty to protect and enhance the marine environment and includes measures to help boost economic investment and growth in areas such as marine renewables. It's main measures include marine planning, marine licencing, marine conservation, seal conservation and enforcement.
The Scottish Biodiversity Strategy ⁸	Aims to protect and restore biodiversity on land and in our seas, and to support healthy ecosystems, connect people with the natural world, for their health and well-being and to involve them more in decision making and maximise the benefits for Scotland of a diverse natural environment and the services it provides, contributing to sustainable economic growth. It supports an ecosystem approach.
Historic Environment Policy for Scotland ⁹	Outlines how we should undertake a duty of care for our historic environment and includes six policies which defines how the historic environment should be managed. These include Policy 3 – Plans, Programmes, Policies and Strategies and the allocation of resources should protect and promote the historic environment. Where detrimental impacts on the historic environment arising from these are identified and unavoidable, steps should be taken to demonstrate that alternatives have been explored and mitigation measures put in place.
The Scottish Energy Strategy ¹⁰	Sets out the Scottish Government's vision for the future energy system in Scotland. The Strategy is guided by the three core principles of a whole system view, an inclusive energy transition and a smarter local energy model and structured around six priorities including consumer engagement and protection, energy efficiency, system security and flexibility, innovative local energy systems, renewable and low carbon solutions and oil and gas industry strengths.
Economic Action Plan ¹¹	The aim of the actions is to put Scotland at the forefront in transitioning to a carbon neutral, circular economy. They will modernise transport and energy systems, achieve and maintain world class connectivity and harness innovation to create and scale successful businesses, while tackling key social challenges like the changing demographics of the population and the associated challenges of skilling and reskilling. These issues apply across cities, towns and rural areas, as well as in our islands. In doing so, the Scottish Government aims to create opportunities for every business, individual, family, local community and region in Scotland.
Land Use Strategy ¹²	Builds on the framework set out in 2011 and supports the long term goal that well integrated, sustainable land use delivering multiple benefits for all in society remains valid and achievable.
Land Rights and Responsibilities Statement ¹³	Seeks to inform policy and practice around land issues in Scotland, operating jointly with other relevant strategies and policies. It applies to all urban and rural land, buildings and other infrastructure in Scotland, for land owners, land managers, tenants or land users. The statement relates to existing strategies that will help inform future iterations of Scotland's Economic Strategy, the Land Use Strategy and the National Planning Framework.
First Land Rights and Responsibilities Protocol, Community Engagement in Decisions Relating to Land ¹⁴	Sets out practical advice on how landowners, land managers and communities can work together to make better – and fairer – decisions about land use.
Fair Work Framework ¹⁵	Supports world leading working life where fair work drives success, wellbeing and prosperity for individuals, businesses, organisations and society.

Plan, Programme or Strategy	Relationship with the Scottish Crown Estate Strategic Management Plan
Homes fit for the 21st Century ¹⁶	Supports affordable homes for all. It assists to build the new, high quality, affordable homes (including social housing) to meet current need and the demand arising from our growing and ageing population and to maximise the sustainable housing options available across all tenures, including for people living on lower incomes, and to significantly improve the quality of the existing housing stock and the places we create.
Scotland's Forestry Strategy ¹⁷	Seeks to increase the contribution of forests and woodlands to Scotland's sustainable and inclusive economic growth, improve the resilience of Scotland's forests and woodlands and increase their contribution to a healthy and high quality environment and increase the use of Scotland's forest and woodland resources to enable more people to improve their health, well-being and life chances.
UK Marine Policy Statement ¹⁸	Will facilitate and support the formulation of Marine Plans, ensuring that marine resources are used in a sustainable way in line with the high level marine objectives. These objectives support sustainable economic development, moving towards a low carbon economy and societal benefits of the marine area.
Sustainable Development Goals ¹⁹	These are the blueprint to achieve a better and more sustainable future for all. The goals are interconnected and address the global challenges we face, including those related to poverty, inequality, climate, environmental degradation, prosperity, and peace and justice.
Scotland's Farmed Fish Health Framework ²⁰	Aims to plan and respond to new and developing challenges, such as the maintenance of high standards of fish health. It looks to the long-term and continues to evolve as knowledge of fish health challenges and possible mitigation evolves.
A future strategy for Scottish Agriculture ²¹	Sets out strategic ambitions for Scottish farming. These include aligning agriculture with land and other assets, in all their biophysical diversity, supported by tailored policies that lead to real commercial results, taking action in difficult times to justify spending and support farming's stewardship of the countryside.
CES Draft Rural Assets Strategy ²²	Earlier in 2019, Crown Estate Scotland (Interim Management) published the Rural Assets Strategy Consultation which sought views on the management of Crown Estate Scotland (Interim Management)'s rural assets, including that of agricultural land, commercial forestry, salmon fishing, minerals, residential property and development land. The Strategy will cover the period 2019 – 2023.
Crown Estate Scotland Business Plans ²³	The purpose is to invest in property, natural resources and people to generate lasting value for Scotland through the values of collaboration, excellence, integrity and commercialism.

2 Approach to the SEA

2.1 Purpose of this Environmental Report

- 2.1.1 SEA provides a systematic process for identifying, reporting and mitigating the environmental impacts of the proposed Plan via the following distinct stages:
- Screening – determining whether a plan requires a SEA;
 - Scoping – establishing significant environmental topics, setting the environmental baseline, developing the approach to the assessment and consulting with SEPA, SNH and HES via a Scoping Report;
 - Environmental Assessment – assessing the likely significant environmental impact of the Plan and consulting on both the draft Plan and Environmental Report; this Environmental Report sets out the findings of the SEA;
 - Post Adoption Statement – how the assessment and the consultation results have been considered within the finalised Plan. Developing the monitoring strategy to assess progress once adopted;
 - Monitoring – monitoring significant environmental effects and taking appropriate remedial action for any unforeseen significant environmental effects;
 - SEA Activities to date.
- 2.1.2 The establishment of an interim body, Crown Estate Scotland (Interim Management) was pre-screened as having no or minimal effects on the environment as proposals were regarded as largely procedural in nature. Therefore, SEA was not required.
- 2.1.3 Prior to its introduction to Parliament, the draft Crown Estate Bill was screened as having no likely significant environmental effects (for example, as proposals would operate within the context of existing PPS and would build on current practice). Therefore, SEA was not required.
- 2.1.4 The Strategic Management Plan is a qualifying plan in accordance with Section 5(4) of the 2005 Act, and therefore screening was required. Given that the proposal was considered likely to have significant environmental effects a combined screening / scoping report was produced.
- 2.1.5 At each stage of the assessment process, there is a requirement to consult the statutory Consultation Authorities. These are Historic Environment Scotland (HES), the Scottish Environment Protection Agency (SEPA) and Scottish Natural Heritage (SNH). The combined screening / scoping report was submitted to the Consultation Authorities in April 2019 for the statutory consultation period of 5 weeks. The report set out initial information on the likelihood of significant effects arising from the draft Strategic Management Plan. It also provided an initial view on the proposed approach to the assessment including the evidence base that would be used to inform it.

2.1.6 Comments from the Consultation Authorities on the Scoping Report have helped to inform the content of the draft Plan and the SEA process. The SEA has subsequently progressed over the course of May to August 2019 in parallel with the preparation of the Plan itself.

2.2 SEA Methodology

2.2.1 The draft Plan has been assessed to ascertain the potential for significant environmental effects. The approach for predicting the environmental effects of the Plan, the consideration of mitigation and enhancement measures and implementing a monitoring programme are described in this section.

2.2.2 At scoping stage it was considered that, given the extent of the land and property managed by the Scottish Crown Estate which spans rural, coastal and marine assets, all environmental topics should be scoped into this SEA due to the potential for likely significant effects to occur across all topics. However, in cognisance of the complexity of the Crown Estate and the views of the Consultation Authorities on the Scoping Report, the baseline and subsequent assessment have been tailored to the nature and location of the SCE assets.

2.2.3 Due to the nature of the Plan and the hierarchy in which it sits, the assessment has been undertaken at the strategic, national level taking into account the broad spectrum of the assets.

2.2.4 The assessment is set out in a narrative style. A series of SEA objectives and assessment questions have been developed to assist in the prediction and evaluation of potential effects of the draft Strategic Management Plan on the environment (see Table 3). These SEA objectives have been informed by the environmental baseline (sections 4 and 7), and focus on the key environmental issues relevant to the assessment. Whilst the report is set out in a narrative style, these questions and objectives have informed the findings of the assessment process. A series of constraints maps has also assisted in presenting the baseline information, as well as exploring the relationship and interactions between the draft Plan and the environment.

2.2.5 In addition, a broad natural capital approach is used to help describe the multiple benefits the environment provides and to identify relevant environmental factors that the SEA can protect or enhance. The Scottish Crown Estate includes a wide range of natural capital assets, including, forests, moorland, rivers, lochs, farmland, coastal areas as well as the seabed. As stated in the Natural Capital Asset Index²⁴ a range of benefits or ecosystem services can be derived from these assets including:

- **Provisioning services** - such as provision of meat and crops from agriculture, water, minerals, timber, and energy (essentially the products obtained from ecosystems);
- **Supporting services** - of natural processes such as nutrient and water cycling (necessary for the production of all other ecosystem services);
- **Regulating services** - such as vegetation removing pollutants from air and water, trees and plants controlling the rate of soil erosion and regulating local climate and flood protection, pollination from insects

and carbon capture and storage (which lead to additional benefits that we can derive from the result of natural processes);

- **Cultural services** - such as natural spaces attracting tourism and recreational use, physical and mental health benefits and cultural heritage (connected to human behaviour and values, spiritual experience and sense of place).

- 2.2.6 The assessment will discuss how the changes to the management of the estate have the potential to affect the natural capital assets and the availability of benefits.
- 2.2.7 The assessment is focussed at the level of the objectives, priorities and policies of the Plan. Explanatory text is provided to support the assessment findings and set out recommendations for mitigation and monitoring.
- 2.2.8 Where appropriate the assessment evaluates the reversibility of positive and negative environmental effects, the risks, probability, duration, frequency, magnitude and significance of the potential effects (positive, negative, short, medium and long term) and the potential secondary (or indirect), cumulative and synergistic effects associated with implementing the Plan.

2.3 Consideration of Reasonable Alternatives

- 2.3.1 The 2005 Act requires that the Scottish Government identify, describe and evaluate the likely significant effects on the environment of any 'reasonable alternatives' to the draft Plan, taking into account its objectives, and geographical scope. The extent to which alternatives for the programme could be considered reasonable was influenced by the relevant legislative and policy context.
- 2.3.2 The Scottish Crown Estate Act 2019 places a duty on the Scottish Ministers to prepare a plan for the management of the Scottish Crown Estate and therefore a 'do nothing' option of no Strategic Management Plan is not a reasonable alternative.
- 2.3.3 As part of the assessment process, alternatives were considered around the themed objectives, priorities and policies. Examples of how alternatives were considered for elements of each theme are summarised below. The Objective/Priority/Policy under each theme to which the possible alternative most relates is noted in each case.

Theme 1: Delivering Benefits and Realising Opportunities:

- 2.3.4 **Preferred Objective/Priority/Policy (1): Scottish Crown Estate assets should be managed for the benefit of Scotland and communities, with market value being charged for sales or leases, unless the manager of the asset can demonstrate that wider benefits of equivalent scale will be delivered** – The preferred option of requiring market value unless other benefits can be delivered is a requirement of the Crown Estate Act 2019 and there is no alternative to this approach.
- 2.3.5 **Preferred Objective/Priority/Policy (2): In order to realise the benefits potential, and in recognition that some land and property has been**

acquired over time for specific investment purposes, there is likely to be sales of assets or parts of assets over the five year period of the Plan, particularly on land or at the coast in response to requests for public benefit purposes or opportunities to increase value to Scotland, recognising that the seabed is a national strategic asset that Scottish Ministers do not wish to become fragmented.

- 2.3.6 **Possible Alternative: To not sell any Scottish Crown Estate assets -** This would restrict the capital value of the estate to the future value of current assets and forego potential opportunities for increasing the capital value and revenue of the Scottish Crown Estate and wider benefits which could be achieved through sale of an asset and reinvestment of the proceeds. The capital value of the estate would be eroded unless the capital value of the current assets was maintained. Therefore this alternative is not considered to be in keeping with the overall vision of the plan.
- 2.3.7 **Preferred Objective/Priority/Policy (6): Scottish Ministers would like managers to consider the potential for investments that contribute to the achievement of Scotland’s Climate Change Plan, and would also like managers to consider the potential for increased investment activity for the purpose of regeneration for community or national benefit, including land on the coast around ports, harbours and other infrastructure, to realise opportunities for Scotland and local economies, and for these investments to normally be prioritised over other new commercial property investments.**
- 2.3.8 **Possible Alternative: To take a narrower view and keep the Scottish Crown Estate as it is and not invest elsewhere -** A possible alternative to this aspect of the Plan is that the discretionary powers to consider these benefits are not used, and to continue with an approach that is more similar to the current situation under the Crown Estate Act 1961 where the assets are managed mainly on a commercial basis with the aim of maintaining or enhancing revenue and the capital value. The Act includes new legal powers and duties to take account of wider economic, social and environmental benefits, as well as the financial return to the estate, when making decisions on the management of the estate and individual assets. This alternative would disregard these benefits and continue to manage assets on a purely commercial basis and has therefore been discarded as not in keeping with the overall vision of the plan.
- 2.3.9 This would also be more likely to lead to foregoing potential new marine and coastal investment opportunities with a consequent impact on the capital value and revenue of the Scottish Crown Estate and the delivery of wider social, economic and environmental benefits. The impact on revenue from marine assets would also impact negatively on the potential net revenue available for coastal communities and limit the opportunity for any resultant environmental and other benefits arising.

Theme 2: How Scottish Crown Estate assets are managed:

- 2.3.10 **Preferred Objective/Priority/Policy (8): The diversity of the Scottish Crown Estate means that a one size fits all approach to management is not practical and there are potential benefits of local control,**

management or enhanced input to decision-making within the national governance framework provided by the Scottish Crown Estate Act, and this framework provides the potential for different approaches in different parts of Scotland.

- 2.3.11 **Preferred Objective/Priority/Policy (9):** It is anticipated that by the end of the five year period there will be a variety of managers of Scottish Crown Estate assets with individual assets managed at the appropriate level and opportunities through either transfers, delegations or pilots for councils, communities and other eligible organisations to contribute to or control decisions on how assets are managed and used.
- 2.3.12 **Possible Alternative: Devolve management of all assets to local authorities, community organisations or Scottish harbour authorities -** Not all local authorities or communities may have the desire to manage the assets in their area or the property, rights and interests or the functions are better managed at the national level. Therefore this is not considered to be in keeping with the overall vision of the plan, and is not considered to be a reasonable alternative.
- 2.3.13 **Possible Alternative: Retain management of all assets at the national level -** The second alternative of retaining management of all assets at national level would limit community empowerment and control and it would not follow the principles of The Smith Commission's recommendations or of the 2019 Act as passed by Parliament. Therefore this alternative is not considered to be a reasonable alternative.

Theme 3: Revenue, Management of Liabilities and Other Issues:

- 2.3.14 This theme was scoped out as the objectives, priorities and policies relate to administrative or procedural matters or concern the future provision of advice which will be non-binding in nature.

Table 3: SEA Objectives and Assessment Questions for each Topic

SEA Topic	SEA Objectives	Assessment Questions
Material Assets	To promote the sustainable use and management of material assets	Does the Plan help to ensure sustainable use and management of SCE assets? Does the Plan require high quality and resilient design, protect and make most effective use of SCE assets?
Biodiversity, flora and fauna	To protect, maintain and where appropriate enhance biodiversity	Does the Plan promote the protection of designated and non-designated habitats and species? Does the Plan promote the connectivity and integration of priority habitats?
Population and human health	To protect and enhance human health and wellbeing in relation to SCE assets through improved environmental quality	Will the Plan affect any aspect of the environment which contributes to human health and wellbeing e.g. air and water? Will the Plan enhance public amenity?
Soil and Geodiversity	To maintain or improve soil quality and prevent further degradation of soils	Will the Plan safeguard soil quality, quantity and function?
Water	To protect and enhance the state of the water environment and manage flood risk	Will the Plan contribute to reducing levels of pollution? Will the Plan ensure the sustainable use of water resources? Will the Plan reduce or increase the number of people or properties at risk of flooding?
Air	To maintain or improve air quality and reduce emissions of key pollutants	Will the Plan contribute to reducing emissions of key pollutants to air? Will the Plan contribute to reducing levels of nuisance?
Climatic Factors	Reduce vulnerability to the effects of climate change, contribute to mitigation of, and adaptation to, climate change	Does the Plan support development of renewable energy / low carbon technologies? Does the Plan contribute to reducing existing and avoiding new GHG related to SCE assets? Does the Plan support adaptation to climate change?
Cultural Heritage and Historic Environment	To preserve and enhance historic buildings, archaeological sites and other culturally important features	Does the Plan protect and promote the historic environment?
Landscape and Visual	Protect and where appropriate enhance the character, diversity and qualities of landscapes associated with SCE assets	Does the Plan help to protect and enhance landscape character? Does the Plan help to protect and enhance landscape setting?

3 Environmental Baseline

3.1 Overview

- 3.1.1 It is a requirement of the 2005 Act to provide details of the character of the environment which may be affected by the Plan, including any existing pressures and the likely evolution of the environment in the absence of the Plan, as well as the environmental protection objectives, relevant to the plan. The Plan will be assessed against this baseline to provide an indication of the type and significance of any environmental impacts that could arise. The baseline is presented against each topic in the sections below with key environmental protection objectives included with relevance to each topic.
- 3.1.2 The management of SCE assets can have a wider impact on the national portfolio of material assets as a result of activities related to offshore energy infrastructure interacting with ports and harbours, and requiring a land-based distribution network. In the context of this report, the SEA topic of material assets refers to the potential impacts on Scottish Crown Estate assets as well as wider terrestrial and marine assets; both natural and built.
- 3.1.3 Scotland's environment is rich in natural and cultural heritage and its seas are among the most biologically diverse and productive in the world. On land, the network of European protected sites supports many important and rare plants, birds and animals. Many biodiversity features are in good condition, but continuing efforts are needed to avoid the further decline of some species and habitats. Scotland's air, soil and water are generally in good condition, but there are concentrations of pollution in some parts of the country. Some of this is historic, but there are also ongoing challenges, including diffuse pollution from urban and rural areas. Scotland has high quality landscapes, with many iconic views and scenic areas supporting recreation and tourism. The historic environment includes World Heritage Sites, listed buildings, conservation areas, gardens and designed landscapes and archaeology (including scheduled monuments). Many further archaeological resources remain undiscovered. Scotland has many natural resources and material assets, including high quality agricultural land, and extensive areas of forestry and woodland.
- 3.1.4 Crown Estate Scotland (Interim Management) own and lease both marine and land based assets including four rural estates (forestry and agriculture), as well as aquaculture and other coastal and marine assets (including energy infrastructure). Scotland's transport infrastructure is also a key asset, supporting future growth.
- 3.1.5 It is widely held that climate change is one of the most serious threats facing the world today. Climate change is predicted to lead to more extreme weather events, increasing water temperature and acidity, a rise in sea levels, changes in wave heights and changes to coastlines; all of which have the potential to affect other aspects of the environment.
- 3.1.6 The management of SCE assets can have a wider impact on the national portfolio of material assets as a result of activities related to offshore energy

infrastructure interacting with ports and harbours, and requiring a land-based distribution network. In the context of this report, the SEA topic of material assets refers to the potential impacts of the draft strategy on Scottish Crown Estate assets as well as wider terrestrial and marine assets; both natural and built.

3.1.7 The key environmental pressures identified are detailed in the tables below with further baseline detail provided in Appendix B.

Key Pressures - Material Assets
Marine Assets
Specific to aquaculture, invasive non-native species (INNS) , primarily crayfish affect Atlantic salmon.
Illegal exploitation of fish , particularly of salmon, continues to threaten the aquaculture industry despite regulations which ban gill netting and the retention of salmon in coastal waters.
Projected changes to water temperature, acidity and primary productivity as a result of climate change threaten marine fisheries and aquaculture. Changes in storm frequency and severity, and the associated increased wave height also pose a risk to existing and planned offshore renewable energy infrastructure ²⁵ .
Terrestrial Assets
Climate change (such as changes in rainfall and water temperatures) may impact upon aquaculture, agriculture and forestry through for example, fluctuations in yields and risk of new diseases and pests ²⁶ . Wave exposure may also impact upon aquaculture success.
Land management practices and development put pressure on forestry and agriculture. Increasing development, land use change and lack of management may impact forestry and agriculture.
Fragmentation and gradual loss of native and ancient woods is a serious issue in unenclosed uplands. The causes are most likely to be a combination of excessive herbivores and poor regeneration capacity on sites with old trees ²⁷ .

Key Pressures - Biodiversity, Flora and Fauna:
Marine biodiversity
Key pressures include commercial fishing, aquaculture and diffuse pollution . The modification of coastline through the construction of supporting infrastructure, such as sea defences, ports and harbours, can have a significant impact on biodiversity as well as physical damage to the seabed ²⁸ . Changes in water quality and composition can impact biodiversity through availability of nutrients and oxygen consequently leading to habitat fragmentation .
INNS can cause harm to native species and have been identified as a key biodiversity pressure ²⁹ , particularly in coastal waters. In 2015, 18 bodies of water in Scotland were at risk of failing to meet environmental objectives due to INNS ³⁰ .

Climate change is affecting sea level rise, as well as sea surface temperatures which can have a significant impact on the availability of nutrients and oxygen, in turn affecting seabed habitats and the wider ecosystem³¹³²³³.

Terrestrial biodiversity

Ancient, native and semi-natural woodland are a designated priority habitat and have been identified as having a significant risk of **habitat fragmentation**³⁴ due to herbivores/ grazing, pests and diseases³⁵ and agricultural developments. Upland habitat has been modified through **human activities, such as cattle farming, drainage and afforestation**.

INNS can impact terrestrial environments such as Himalayan balsam which outgrows native grasses alongside riverbanks³⁶.

Climate change is a powerful stressor to freshwater and terrestrial ecosystems³⁷. This is due to increasing freshwater temperatures leading to a reduced dissolved oxygen, as well as changes in high river flows due to precipitation. Both of these can significantly impact biodiversity.

Key Pressures - Population and Human Health

Low standards of water bodies affect drinking water quality resulting in bacteria that can in turn result in risks to public health.

Pressures on water and air quality which affect human health are primarily caused by increases in **environmental pollutants** arising from human activities including new development and industrial activities as well as aquaculture, intensive agriculture and urbanisation.

Key Pressures - Soil and Geodiversity

Loss of organic matter threatens soil functions and can result from a wide range of pressures, such as land use change, development and climate change³⁸. The loss of organic matter from carbon rich soils can prompt the release of GHG, contributing to climate change, and also affecting biodiversity.

Soil sealing is the replacement of soil with impermeable surfaces or soil's compaction, and can result from activities such as mining and quarrying³⁹. Soil sealing also interferes with the soils' ability to perform key functions, including water absorption.

Soil contamination through atmospheric deposition, agriculture and forestry, and other industry, such as mining, waste management, and disposal of chemicals, can also significantly impact on soil function and biodiversity⁴⁰.

Soil erosion and other structural degradation can have a significant effect on soil functions with erosion having the potential to irreversibly alter soils' characteristics⁴¹.

Changes in rainfall and extreme weather events as a result of **climate change** can contribute to soil erosion and compaction⁴².

Key Pressures - Water

Diffuse and point source pollution can significantly affect **water quality** and the health of water ecosystems. These can result from nutrient contamination, leading to eutrophication, polluting drinking water sources and affecting availability of oxygen and consequent suffocation of fish and other biodiversity.

Water abstraction for activities such as hydropower generation and agriculture, can lead to a reduction in groundwater baseflow and surface water flow, potentially resulting in damage to ecosystems (including wetlands).

Water quality can also be impacted by **development** and **land use change** in coastal areas, leading to the loss of floodplain and associated habitats, and disrupting or significantly altering the range of fish and other organisms. The loss of floodplain to agriculture and other land use changes also has the potential to increase flood risk. The physical condition of water bodies can also be affected by suspended sediment due to erosion⁴³. Erosion rates are also expected to rise with climate change which will result in changes to the physical environment⁴⁴.

Climate change and the rise of impermeable surfaces (such as in urban areas) can lead to an increased likelihood of **flooding**. This can lead to the damage to material assets and pose risks to population and human health through the spread of infectious diseases through watercourses. Changes in, for example, sea surface temperature can also lead to a loss of habitats through changes in nutrient availability and accelerate the spread of INNS⁴⁵.

Manmade barriers to fish migration and physical changes to the beds and banks and diffuse pollution are also key pressures⁴⁶.

Key Pressures - Air

Point source pollution significantly impacts air quality. These include pollutants such as NO_x, CO₂ and PM_{2.5}, PM₁₀ as a result of, for example, energy production and agricultural ammonia emissions.

Key Pressures - Climatic Factors

The UN Intergovernmental Panel on Climate Change (IPCC) special report on the Paris Agreement⁴⁷ found that Emissions of CO₂ need to reach net-zero levels globally by around 2050 – with a fall of around half (45%) from 2010 to 2030 – requiring rapid, profound and unprecedented cross-sectoral transformation of global energy, land, urban and industrial systems. Climate change is closely linked to other environmental topics. For example, rising temperatures, can lead to changes in nutrient availability and therefore impact the range of certain species; both on land and in sea.

Changes in temperature, rainfall, frequency of extreme weather events and sea level rise are predicted under all of UKCP18's scenarios with milder, wetter winters and hotter, drier summers expected⁴⁸. This trend has been consistent over the last decade with infrastructure already affected. The effects of these changes such as coastal flooding can pose a risk to SCE assets.

Possible negative consequences could also arise as a result of **climate change adaptation measures**⁴⁹. The installation of manmade flood defences (as a mitigation measure against climate change) can significantly impact biodiversity through habitat fragmentation and limiting distribution range⁵⁰. **Coastal processes** can also be altered, leading to increased risks of erosion or displacement of flood risk⁵¹.

Key Pressures - Cultural Heritage and Historic Environment

Lack of maintenance and investment of the historic environment as well as confusion and tension around roles and responsibilities in relation to shared ownership and caring for the historic environment can result in disrepair, such as damage and decay in roof and wall structures⁵².

Historic sites are exposed to high or very high risk from **natural hazards as a result of climate change**⁵³. Climate change-related impacts include damage to masonry, risk of dampness, condensation and fungal growth, vegetation growth, and accelerated decay. Historic landscapes and sites located within the coastal zones are particularly vulnerable.

Land management and development can impact on the historic environment and cultural heritage⁵⁴.

Key Pressures - Landscape and Visual

Competing land uses remain a principal threat to managing landscape change. Key drivers behind land-use change include climate change and climate change adaptation, a changing economic base and economic efficiency.

With **climate change** it is likely that some land will be lost to the sea, that flooding will increase, and that the distribution patterns of natural and semi-natural habitats will change. Higher temperatures may also allow new crops to be grown and extend existing growing seasons.

Indirect effects from climate change, such as the **spread of destructive pests and pathogens**, could lead to more subtle landscape change through the loss of plant species.⁵⁵

3.2 Likely evolution of the environment without implementation of the Plan

- 3.2.1 The SEA process requires an assessment of the likely evolution of the environment without the implementation of the Plan. The Plan's proposals which are the focus of the assessment involve the management of and investment in assets for national or community benefit.
- 3.2.2 Through the bespoke management of assets that the Plan promotes there is an opportunity to minimise any potential impacts of new infrastructure requirements on environmental receptors. In the absence of the proposed Plan, the management of Scottish Crown Estate assets would continue to be managed as at present under the existing 'good management' requirements

in the Crown Estate Act 1961, until such time as the relevant sections of the Scottish Crown Estate Act 2019 come into force - and may represent a missed opportunity for the (indirect) benefit to environmental objectives. Adopting a 'one size fits all approach' to the management of the assets would not allow opportunities to tailor the approach to the aspirations of communities.

- 3.2.3 The flexibility provided by the high level outcome to locally own or manage assets represents an opportunity for more agile management practices and local decision-making, which can take account of localised environmental key pressures and issues. This could provide the opportunity for management which is more responsive to change at this level. In the absence of the Plan, such an opportunity would not exist.
- 3.2.4 The draft Plan also includes provisions for the alignment of management practices to support the outcomes of Scotland's Climate Change Plan. In this way, there is an opportunity to tackle, mitigate and adapt (the use/management of) assets to climate change at the local level – an opportunity which would not exist in the absence of the Plan.
- 3.2.5 It is likely that the balance between activity in the management of coastal and marine areas will increase compared to land assets. The Plan provides an opportunity to mitigate/positively impact coastal environmental processes and work for the mitigation of any negative effects.
- 3.2.6 However, as the draft Plan includes high level objectives, priorities and policies, and no detailed provisions for the management of assets in direct relation to specific environmental receptors have been developed at this stage, it is expected that the evolution of the environment will not significantly differ in the absence of the Plan in the short term for example with respect to coastal erosion and the evolution of climatic factors.
- 3.2.7 In the absence of the Plan the management of these assets would continue within the requirement of 'good management' but may provide less opportunity for consideration of other benefits such as for the community and environment over and above increased profit.
- 3.2.8 The high level vision for the sustainable management of assets provides an opportunity to ensure the realisation of benefits not only for Scotland's communities but also for the natural environment.

4 Assessment Findings and Recommendations

4.1 Introduction

4.1.1 This section sets out the likely significant environmental effects that are expected as a result of the draft Plan. The assessment findings reflect the high-level nature of the Plan and focus on the scoped in themes as detailed in section 2.3 of this report.

4.2 Technical issues, uncertainties and assumptions

4.2.1 The 2005 Act requires a description of how the assessment was undertaken including any difficulties encountered in compiling the required information. These uncertainties and assumptions are outlined below.

4.2.2 Some of the difficulties encountered in compiling the baseline information reflect the challenge of measuring current status of the environment and identifying trends. These include data sets changing over time, for example by using different criteria and baselines. This means that it can be difficult to accurately assess trends.

4.2.3 The very high-level and broad nature of the Plan means that specific delivery actions are not included and therefore there is an inherent degree of uncertainty regarding the environmental impacts that may arise from the implementation of the draft plan. However, as set out in the following sections, existing regulatory frameworks will manage impacts of the Plan as it is taken forward, and the potential for environmental effects arising from individual management and investment proposals will continue to be assessed and mitigated, where appropriate through existing mechanisms, including through statutory consenting and environmental assessment regimes where relevant.

4.2.4 The assessment of each themed outcome therefore assumes that the management of existing estate will be subject to and meet the requirements of all existing regulatory regimes, where applicable.

4.2.5 It is assumed that increased investment as a result of this Plan will lead to new development on the ground and this assumption is fundamental to the assessment findings that follow. There is however considerable uncertainty around the nature and location of development that might occur and consequently, as indicated above, the range of potential environmental effects for many of the topics is ultimately uncertain.

4.3 Environmental protection objectives

4.3.1 Many established environmental protection objectives form the context for the assessment. A summary of established and relevant objectives and commitments is set out in the following sections.

4.3.2 International and national level policies and strategies aim to protect and enhance the environment. Objectives for water, soil and air seek to reduce

pollution, and to reverse the effects of past emissions. Environmental protection objectives for biodiversity, flora and fauna are aimed at protecting habitats and species from damage and disturbance, and the contribution they make to mitigating and adapting to the impacts of climate change; meeting Scotland's national and international targets; and reflecting the importance that Ministers and communities place upon conserving and, where appropriate, restoring Scotland's natural assets and the value that they embody for the economy, culture and national identity.

- 4.3.3 Landscape objectives protect Scotland's most scenic areas, reflect the importance of the interaction between people and the land, and aim to enhance areas where landscape qualities have deteriorated over time. Cultural heritage objectives range from protection of internationally important World Heritage Sites to the recognition and management of more locally important buildings and archaeology, and their wider setting.
- 4.3.4 Alongside all of these objectives, international and national climate change objectives are expressed both in policy, and in targets for reducing greenhouse gas (GHG) emissions, and also in supporting adaptation to changing weather patterns.

4.4 Assessment of themes

- 4.4.1 The predicted likely significant effects are set out in section 4.5 by SEA topic and include a discussion on natural capital and the ecosystem services that the implementation of the Plan could affect. The two themes which form the focus of the assessment are:
- **Theme 1: Delivering Benefits and Realising Opportunities**, and
 - **Theme 2: How Scottish Crown Estate Assets are Managed**
- 4.4.2 The full description of the objectives, priorities and policies is provided in the draft Strategic Management Plan.

4.5 The likely effects of the Strategic Management Plan

- 4.5.1 The two themes 'Delivering Benefits and Realising Opportunities' and 'How Scottish Crown Estate Assets Are Managed', are cross cutting. However, individually for both themes the level of predicted likely significant effects differ based on the nature of the theme and the likely resulting changes on the ground.
- 4.5.2 It is assumed that increasing investment will lead to new development and infrastructure on the ground, and therefore has the potential to give rise to significant effects across the SEA topics. Potential benefits over and above monetary value can be considered which support positive effects on population and human health and the material assets themselves. Although the direct effects on environmental receptors to which the principle of equivalent scale is applied are likely to be positive, these and the indirect impacts on other topics are currently uncertain reflecting the unknown future actions on the ground.

- 4.5.3 Changing the management has the potential to give rise to benefits for population and human health and the assets themselves. However, the predicted impact over the other SEA topics is uncertain, reflecting the unknown locality of the asset in question, future management aims and future uses.
- 4.5.4 The sections below provide more detail on the associated predicted effects across each individual topic.

4.6 Material Assets

- 4.6.1 The management of assets and benefits themes are likely to have positive effects on material assets as local knowledge is used to manage the assets appropriately for the benefit of the community. This could happen through measures that support, for example, safety and community empowerment.
- 4.6.2 A focus on regeneration over the development of new commercial land or properties has the potential to result in positive effects of preserving material assets although the specific actions involved are uncertain. In addition there is wider potential for positive effects where investment is made to deliver benefits to areas associated with SCE assets (but not under their management), when investment can be expected to directly or indirectly benefit the management of, or future opportunities for, existing assets.
- 4.6.3 Increased investment facilitating offshore renewable energy development has the potential to result in mixed effects on material assets beyond but including SCE assets through increasing domestic capacity for renewable energy generation and reducing reliance on fossil fuels. For example, leasing for offshore wind has the potential to impact on SCE marine assets and non-SCE terrestrial assets. Construction and decommissioning activities may interact with ports and harbours and terrestrial transport routes; operational activities such as energy distribution may require new substations and supply lines in coastal areas in order to connect into the national grid.
- 4.6.4 Prioritising investment differently may mean some potential developments are not realised and could impact positively or negatively on the potential environmental and community public benefits to be generated from land and property assets.
- 4.6.5 Under the asset management theme there is potential for negative effects where a local community body as new manager of an asset lose interest or resources to manage that asset. It is understood that these circumstances would however be mitigated by the due diligence process to be undertaken by Crown Estate Scotland (Interim Management) prior to hand over of any asset and also via the powers in the Scottish Crown Estate Act which allow monitoring of the manager's performance and subsequent transfer of an asset to another manager if required. There is potential to bring assets back under Crown Estate Scotland (Interim Management) management/alternate management if an asset was deemed to be managed poorly or if maintenance became an issue. It is recommended that the Scottish Government or Crown Estate Scotland (Interim Management) include

provision to mitigate these risks via a monitoring framework, to monitor on a regular basis those assets subject to local control.

- 4.6.6 Some managers may only want to manage one asset or part of one of the asset types, such as management of a stretch of foreshore in a part of Scotland. Any potential for fragmentation of the seabed ownership from this kind of transfer would potentially be mitigated by the requirements for consent from Scottish Ministers and Scottish Parliament. There is potential for shared supporting arrangements to reduce duplication and fragmentation. Therefore any residual negative effects are likely to be minor. Future decisions on the transfer and delegation process will also be informed by the experience of the local asset management pilot schemes.
- 4.6.7 Crown Estate Scotland (Interim Management) awards and manages leases for telecommunication and electricity cables, some of which are lain across borders. However, the likelihood of the management of these leases being transferred is low and national level management would be retained and therefore no changes to their management are predicted and no subsequent transboundary environmental effects are foreseen as a result of the draft Plan.
- 4.6.8 In terms of the sale of assets for less than market value, the realisation of financial benefits or wider environmental or social benefits may not be immediate for example, any environmental benefits may, in some cases, take longer to manifest than the financial revenue of short-term commercial interests. It is recommended that the length of time that any wider benefits will take to develop is considered but does not prejudice the assessment of whether there is potential to sell assets for less than market value.
- 4.6.9 A study has found⁵⁶ that other indirect positive effects could arise for material assets and local communities such as the potential for investment in offshore renewable energy deployment in coastal and island communities supporting the development of key industries including whisky and salmon farming in coastal locations.

4.7 Biodiversity, flora and fauna

- 4.7.1 Environmental effects on biodiversity from increased investment could arise from building improvements, repairs and maintenance of infrastructure assets. For example, indirect adverse effects could arise on marine life and habitats from impacts during construction of development including, for example, offshore wind turbines and tidal energy as well as future carbon capture and storage (CCS) infrastructure. This could lead to potentially negative impacts on biodiversity and seabed strata and/or bottom sediments and indirect negative effects on other local receptors (such as impacts on ecological status).
- 4.7.2 Construction in support of the Tourism Strategy has the potential to cause indirect adverse effects for example, risking the loss of in-channel habitats due to dredging. These impacts could continue through to the operation of the asset. Expansion of the finfish industry also has the potential to adversely affect the environment particularly in the vicinity of the structures

themselves. However, the effects in comparison to Crown Estate Scotland (Interim Management) retaining management are uncertain (asset management theme) but due to the role of Crown Estate Scotland (Interim Management) as a facilitator rather than the developer of the renewable energy, effects are likely to be negligible.

- 4.7.3 Similarly negative effects on species and habitats in the terrestrial environment could arise from investment related works related to rural assets such as habitat loss and soil sealing. These can be mitigated via consenting and licensing regimes. Biodiversity, flora and fauna may also experience a positive effect from woodland creation.
- 4.7.4 Turning to the management of the assets, the difference between management by Crown Estate Scotland (Interim Management) and a local community body is difficult to define and therefore any environmental effects are uncertain as ultimately both bodies would be subject to all relevant regulatory controls. The aims of any community bodies managing the assets are also unknown.
- 4.7.5 Nevertheless, and taking into account the relevant statutory controls, the residual effects for biodiversity, flora and fauna, across all of the themes are likely to be low reflecting the role of regulatory controls such as building regulations, the planning process and legal protection for habitats and species and the existing regulatory controls such as those within the Marine (Scotland) Act 2010 and the Marine and Coastal Access Act 2009.
- 4.7.6 Under the Nature Conservation (Scotland) Act (2004), as a public body, Crown Estate Scotland (Interim Management) has a duty to further the conservation of biodiversity when carrying out their duties. As this may not be the case for all community bodies which take over management, when the decision is made to transfer management of an asset to a local body, it is recommended that appropriate environmental management practices are put in place.

4.8 Population and Human Health

- 4.8.1 Changes in the management of Scottish Crown Estate assets have the potential for positive effects at a local level on population and human health in terms of local communities using local knowledge to manage the assets appropriately for the benefit of the community. The transfer of management could for example lead to landscape improvements or the provision of amenities following acquisition by the community body. This could provide a sense of place and support community cohesion and empowerment.
- 4.8.2 The proposed transfers of management have the potential to deliver indirect positive effects for public health. The quality of the external environment has been shown to play an important role in supporting health and wellbeing and meaningful social interaction. If the tailored management were to support the creation of places that encourage walking and cycling, this can positively influence the options available to act in healthy, sustainable ways. As well as encouraging physical activity and cardiovascular fitness, the quality of the environment can also help to provide communities and individuals with a

sense of understanding and control over their circumstances. Lack of a proper sense of control and influence on our environment has been linked to poor health outcomes. Approaches that better involve local communities in decision-making can create co-production models, providing positive influence and control for individuals. In this way, creating better places where communities can input positively to future changes can help to create and enhance social capital and cohesion, with resulting benefits for population health.

- 4.8.3 Managing the assets to benefit Scotland into the long term both nationally and locally also implies long term (and some more short term) indirect positive effects on population and human health, however the significance and nature of the effects are uncertain depending on the future management, the aims of the community body and the use of the assets in question.
- 4.8.4 The draft Plan signals that by 2025, Scottish Ministers expect Crown Estate Scotland to have contributed significantly to the delivery of the National Tourism Strategy by investing in small community ports and facilitating the investment of harbour authorities to improve the ports and harbours infrastructure of Scotland. This has the potential for positive effects into the long term for the local community and livelihoods although there is potential for indirect negative effects arising where this leads to increasing visitors via cruise boats and increased crossings could have consequences across several topics.
- 4.8.5 In connection, the potential effects on public access in relation to land and coastal/intertidal assets (in promoting human health) are uncertain depending on the actual changes that will happen on the ground as a result of additional investment and the aims of the future managers. This is an opportunity to ensure good/improved public access via inclusion as a consideration in the transfer or sale.

4.9 Soil and Geodiversity

- 4.9.1 It is assumed that more investment will give rise to increased development and activity on the ground. In the rural estate, this could take the form of a range of impacts on soil from, for example, farm diversification. Building works can result in the negative effects of soil sealing and erosion with permanent effects. Construction could also result in positive and negative effects on geological features. Forest restocking can impact on high carbon soils with long term implications for soil quality, or localised impacts on sedimentation. Changes in land management practices from new community management could result in mixed effects on soil characteristics.
- 4.9.2 Where appropriate, impacts on soils from forestry would be managed through the forestry grants process or long term forest plans and through the relevant statutory consenting and environmental assessment regimes. Relevant provisions under the Town and Country Planning regime would apply where relevant to farm diversification development, although long term localised impacts such as soil sealing could still occur. Ultimately any residual effects are judged as minor due to the existing regulatory controls in

place. Mitigation could include, for example, the avoidance of sensitive areas via micro siting and careful site design.

4.10 Water

- 4.10.1 Impacts on the water environment from increased development could include those from for example, forest restocking with positive long term effects but negative effects of pollution from the release of phosphate. Building and construction can have negative effects on water quality and quantity and cause soil compaction and sealing. Agricultural activities such as rearing of livestock, cultivation for crops, processing, storage and transport of products as well as waste generation, disposal and storage can all result in the negative effects of diffuse pollution. Agricultural activities can also place a variety of physical pressures on the water environment such as construction of flood protection, realignment of watercourses, removal of vegetation, run-off, drainage and riparian damage by livestock.
- 4.10.2 Relevant regulatory and other controls include the provision of long term forest plans, the forestry grant scheme, the CAR regulations and town and country planning regime. Any residual effects are judged as low in scale reflecting the role of the regulatory controls in place.
- 4.10.3 With a focus on investment in marine and coastal areas and an indirect effect of investment in and contribution to the delivery of the National Tourism Strategy; potential negative effects can arise via pollution from increased sea and coastal transport and construction of associated infrastructure (such as dredging and land reclamation for ports and harbours).
- 4.10.4 Development such as the expansion of marine finfish production has the potential to result in adverse impacts on water quality. However, Crown Estate Scotland (Interim Management) have no statutory function in relation to the fish farming industry and applications for planning permission are considered by local authorities and CAR licences by SEPA. Similarly, there is potential for indirect negative effects in the form of pollution risk from facilitating CCS and renewable energy projects. These activities are mitigated by existing consenting regimes including marine licensing and Environmental Impact Assessment. Overall the residual effects are likely to be minor considering the role of Crown Estate Scotland (Interim Management) as facilitator, the focus on regeneration rather than new build and the existing regulatory regimes under which the various assets operate.

4.11 Air

- 4.11.1 As the investment is focussed on meeting the Climate Change Plan, the draft Plan has the potential to contribute to positive effects on air quality, in cognisance of the inherent relationship between air and climatic factors.
- 4.11.2 Any potential adverse effects on air quality and indirect effects to population and human health would likely be limited to the short term from maintenance and construction. For example reduced air quality could come from forestry operations due to emissions from forest machinery and timber transportation

vehicles. However, the planting of trees can improve air quality locally due to removal of certain air pollutants (e.g. NO₂, particulates) by trees⁵⁷.

- 4.11.3 For the marine and coastal assets, longer term, indirect, local adverse effects from increased tourism could cause poor air quality locally and cumulatively over sites.

4.12 Climatic Factors

- 4.12.1 Investment will grow in the marine and coastal areas with the aim to contribute to the Climate Change Plan and Energy Strategy. The associated facilitation of offshore renewable energy development can contribute to reducing GHG and have an indirect positive effect on climatic factors. Similarly, enabling the development of CCS could have an indirect positive effect on climate change through helping to mitigate the concentration of CO₂ in the atmosphere. However, the development of both could have short term negative effects from construction. Again, mitigation is inherent in relevant existing regimes such as the CAR regulations and marine licensing, therefore any short term effects are predicted to be minor.
- 4.12.2 The general focus on regeneration rather than new build has the potential to minimise the negative effects from construction although the specific actions involved are uncertain.
- 4.12.3 The management practices deployed in relation to the four estates can have a significant impact on the capacity of forests to serve as carbon stores and contribute to climate change mitigation⁵⁸. In addition to forestry, other land management practices in relation to the four estates have the potential to significantly impact the level of GHG resulting from the current and future activities on these estates.
- 4.12.4 In terms of the rural and urban assets, further investment could result in positive effects on climatic factors by potentially improving the quality and energy efficiency of properties as part of wider development. However, impacts of potential construction of access tracks, traffic movements and construction related works and equipment are likely to increase emissions of GHG (climate change) and air pollutants albeit in the short term. Activities such as forest restocking, agroforestry and new forest planting support carbon sequestration provided that planting does not involve high carbon soils. Conversely, farm diversification may generate additional vehicle journeys and contribute to greenhouse gas emissions.
- 4.12.5 Forestry is regulated by long term forest plans, forestry grants scheme, the UK Forestry Standard (UKFS) and the principles of Sustainable Forestry Management (SFM). Building regulations apply to building improvements where relevant.
- 4.12.6 Effects on climatic factors are uncertain but overall positive with any residual adverse effects likely low in scale reflecting the regulatory requirements in place.
- 4.12.7 There is an opportunity to consider actions which support measures for the adaptation of marine and terrestrial SCE assets to climate change and which

support the Scottish Government's statutory GHG emissions reduction targets.

4.13 Cultural Heritage

- 4.13.1 A number of investment activities in the rural estate could lead to work to buildings, replacement farm buildings, diversification, agroforestry and new forestry planting which have the potential for direct adverse effects on known and unknown archaeology and built heritage assets through development and planting activities. Building maintenance and improvements could result in adverse effects on built heritage through alterations to buildings and on buried archaeology from construction works but can also support the quality of the built assets and maintaining these in viable use.
- 4.13.2 Focussing investment on regeneration rather than new build could have positive effects by helping to preserve the historic environment.
- 4.13.3 Impacts on listed buildings and scheduled monuments are managed through the relevant consenting processes and the planning process influences the potential impacts of development. The forestry grant scheme and long term forest plans as well as regulatory controls such as listed building consent require consideration of impacts on cultural heritage. Therefore, any residual negative effects would be judged as minor.
- 4.13.4 Investment and maintenance works at the coast could also impact on unknown archaeology. In addition, the facilitation of offshore renewable energy and CCS installations through the leasing process could indirectly result in physical impacts on marine archaeology such as shipwrecks and registered battlefields through dredging and pile driving. Also, changes in sedimentation caused by dredging and pile driving⁵⁹ are likely to result in heritage assets being uncovered and exposed to damage. Reflecting the role of regulatory requirements, the residual effects on cultural heritage are judged to be low in scale.
- 4.13.5 Careful consideration would be required such that a need for regeneration of rural assets is not ignored in favour of investment in the marine and coastal assets linked to the vision of the draft plan.
- 4.13.6 Overall, the potential effects on the historic environment would need to be considered by the managers of the asset in relation to the specific work being undertaken and an appropriate environmental assessment and environmental management practices should be put in place to mitigate or avoid damage, where applicable to, in particular, any unknown cultural heritage in the vicinity of the works.

4.14 Landscape and Visual

- 4.14.1 Where the draft plan leads to changes in the types of farming, grazing regimes, woodland cover, energy transport infrastructure and increased fishing activity, these are some of the changes which can alter the character of landscape and its visual amenity, and are relevant to SCE assets.

- 4.14.2 Activities resulting from investment such as forest restocking can have both positive effects in terms of landscape character and negative effects which may result from species choice, design, fencing or access tracks. Building improvements can bring both positive and negative landscape impacts. Farm diversification, agroforestry and planting of new forestry could all result in positive and negative effects on landscape. Nevertheless the residual effects are likely to be low and mixed reflecting the role of the regulatory requirements.
- 4.14.3 Activities may also potentially impact on the nation's wider portfolio of material assets. For example, leasing for offshore wind has the potential to not only impact on SCE marine assets but also to impact on non-SCE terrestrial assets via, for example, construction and decommissioning activities interacting with ports and harbours and terrestrial transport routes; operational activities such as energy distribution may require the location of new sub-stations and supply lines in coastal areas in order to connect into the national grid. Negative effects could result on landscape and visual receptors, some more short term (e.g. construction) with longer term effects requiring mitigation such as screening and appropriate siting.
- 4.14.4 The general preference for investing in regeneration (both terrestrial and marine) rather than new build goes some way to mitigating these effects by potentially minimising land take, construction and waste and not building on pristine land although the scale of effects is uncertain due to the unknown action that would happen on the ground.
- 4.14.5 The transfer of management to community bodies could support positive landscape management. However, the significance and nature of these effects are uncertain depending on the future use of the individual assets and the differing management aims of Crown Estate Scotland (Interim Management) and a community body.
- 4.14.6 Facilitating development of offshore renewable energy is likely to have potential indirect visual impacts on the character and qualities of coastal areas and seascapes particularly from offshore wind turbine development.
- 4.14.7 With the proposed increased investment at the coast, there is potential for indirect positive effects on the landscape and visual topic (and population and human health and material assets) where local communities involvement in development proposals helps to influence the design for community benefit.

4.15 Natural Capital

- 4.15.1 Investment and management changes related to Crown Estate assets have the potential to alter the balance of ecosystem services provided by an asset, with some increasing and some reducing.
- 4.15.2 Increasing investment for community or national benefit and contribution to Scotland's Climate Change Plan could protect assets by making them more resilient to climate change. This should help to protect ecosystem services by contributing to the prevention and management of flood risk. Investing in ports and harbours for the purposes of tourism has the potential to contribute

to increasing cultural services although there is potential for a shorter term reduction in regulating services such as air and water quality, supporting services such as habitat creation and cultural services such as landscape and cultural heritage to be affected by construction of and the new developments and the facilities themselves.

- 4.15.3 The transfer of management of certain assets including areas of foreshore, occupied seabed and coastal infrastructure would reduce the stock of some natural capital assets managed by Crown Estate Scotland (Interim Management). However, this should not directly result in the loss of natural capital assets or the services they provide as these would be transferred to the local community. Meeting obligations agreed in the transfer of the assets should ensure that ecosystem services such as the provision of food and timber are maintained and natural hazards such as flood risk are mitigated.
- 4.15.4 Managing assets for the benefit of Scotland's communities has the potential to support and enhance cultural services in terms of the potential for community empowerment and ownership.

4.16 Cumulative and In-Combination Effects

- 4.16.1 With increased investment there is likely to be more development on the ground. Whilst the Strategic Management Plan places a focus on regeneration, this may still lead to construction works which cumulatively across many different types of assets could have a negative effect for example linked to, air and water pollution resulting from impacts of individual projects at local level, albeit potentially limited to the short term. Nevertheless the improvement to existing assets and focus on tailored management for the benefit of Scotland and communities has the potential to create major positive effects for population and human health as well as material assets. The assessment identifies the potential for mixed effects arising from future actions at a local level, across the majority of the SEA topics. However, there is an inherent uncertainty in the action that will be taken and therefore in the resultant assessment.
- 4.16.2 The potential for effects in combination with other plans, programmes and strategies has also been considered. The draft Plan has the potential to positively and cumulatively contribute across a wide range of Scottish Government policy areas within the context in which it sits (including the Climate Change Plan and the National Tourism Strategy). This is captured across the breadth of a range of national plans, policies and programmes that have been identified in the assessment. Taking into account the high-level nature of the draft Plan there is however an inherent degree of uncertainty regarding the environmental impacts that may arise as a result of future actions undertaken.

4.17 Conclusion and Mitigation/Enhancement Measures

- 4.17.1 The SEA has concluded that the draft Plan, with its core purpose of promoting and supporting the implementation of tailored management for the benefit of Scotland and communities will have overall positive effects for the

SEA topics of population and human health, material assets and climatic factors, with the potential for some short term local negative effects for the latter arising from development on the ground. Mixed effects are anticipated for biodiversity, soil, water, air, cultural heritage and landscape and visual topics. Investment and management changes related to Crown Estate assets have the potential to alter the balance of ecosystem services provided by an asset, with some increasing and some reducing.

4.17.2 The draft Plan has the potential to positively and cumulatively contribute across a wide range of Scottish Government policy areas. However, there is an inherent uncertainty in the actions that will be taken and therefore in the resultant assessment findings.

4.17.3 Where appropriate, the requirements of existing statutory consenting and licensing regimes and environmental assessment requirements are taken into account as ‘assumed mitigation’ and factored into the assessment of the significance of effects. Finally, the report makes a number of recommendations for mitigation and / or enhancement measures, where appropriate. These are:

- Where the management of an asset is transferred, the draft management plan allows for assets to be brought back under Crown Estate Scotland (Interim Management) management/alternate management if the asset was deemed to be managed poorly or if maintenance became an issue. It is recommended that the Scottish Government or Crown Estate Scotland (Interim Management) monitor on a regular basis those assets subject to local control. **(material assets)**
- In terms of provisions for the sale of assets for less than market value, it is recognised that realisation of financial benefits or wider environmental or social benefits may not be immediate. It is therefore recommended that the length of time that any wider benefits will take to develop is considered, but does not prejudice the assessment of whether there is potential to sell assets for less than market value. **(material assets)**
- Consideration should be given to exploring opportunities through lower tier Plans, Programmes and Strategies as well as in the consenting and licensing of individual projects at local level where appropriate, to mitigating the environmental effects of increased tourism. **(population and human health, air and water)**
- Consideration should be given to opportunities to maximise provision of public access to recreation facilities, green infrastructure and green spaces. **(population and human health)**
- It is recommended that consideration is given to opportunities for building capacity and understanding on all aspects of environmental management and protection in community organisations when taking on asset management responsibilities through the provision of guidance and advice. **(all SEA topics including biodiversity, flora and fauna and cultural heritage)**

- Asset Managers should give consideration at the earliest stages to appropriate siting and design of new infrastructure in collaboration with community bodies where appropriate. **(soil and geodiversity)**
- The assessment findings support the draft plan's focus on increased investment activity for community or national benefit and which contributes to Scotland's Climate Change Plan. **(climatic factors)**
- Investment decisions at asset level should consider opportunities for enhancing the environment for the wider community benefit. **(landscape and visual)**

4.18 The influence that the SEA has had on the Plan

- 4.18.1 The SEA process aligned with the development of the draft Strategic Management Plan and helped to refine the objectives, priorities and policies into broader themes. It has allowed further consideration of environmental topics that may be affected by the implementation of the Plan and has offered recommendations on how these can be mitigated, or enhanced further.
- 4.18.2 Following the assessment of the consultation responses, the way that the SEA has influenced the development of the Strategic Management Plan will be further set out in the Post Adoption Statement.

5 Monitoring

- 5.1.1 Section 19 of the 2005 Act requires that the Responsible Authority monitors the significant environmental effects of the implementation of the Strategic Management Plan in order to identify any unforeseen adverse effects at an early stage and undertake appropriate remedial action.
- 5.1.2 The Scottish Crown Estate Act provides for a national framework to govern management of the assets at the national and local level. This framework includes national reporting and accounting arrangements.
- 5.1.3 The Scottish Government will monitor implementation of the plan, delivery of the objectives, priorities and policies and alignment with wider objectives, priorities and policies. The Scottish Government will work with Crown Estate Scotland (Interim Management) and prospective managers of Scottish Crown Estate assets to ensure that appropriate monitoring is undertaken alongside wider monitoring under the National Performance Framework.
- 5.1.4 The monitoring and review of the plan will be informed by the delivery of targets and indicators in Crown Estate Scotland (Interim Management) corporate plans and any management plans prepared by other managers. Corporate plans and management plans should set out how the manager plans to manage the asset under their management over the next 3 years and should include:
- the manager's objectives for the period;
 - the activities the manager proposes to undertake during that period;
 - any risks associated with those activities;
 - outcomes against which the achievement of the objectives may be assessed;
 - how the manager proposes to maintain and seek to enhance the value of the assets under their management;
 - and to set out whether the manager proposes to dispose of any Scottish Crown Estate assets during that period and, if so, how the manager proposes to use any proceeds of the disposal.
- 5.1.5 Annual reports also provide an assessment of how a manager has performed against the objectives. Therefore, annual reports and management plans will be one method used to monitor the performance of the managers of the assets.
- 5.1.6 Monitoring for SEA purposes will also be aligned with monitoring for the Value Project which is a tool being developed to better understand, measure and monitor the benefits generated from the Scottish Crown Estate.
- 5.1.7 The Value Project will identify the different types of benefits (social, economic, environmental) generated from the assets. Therefore the proposed monitoring and reporting mechanism for monitoring environmental effects would include use of this monitoring tool. It is recommended that the monitoring could also include gathering data on the location and extent of

activities associated with the Strategic Management Plan objectives, priorities and policies and potential environmental effects.

- 5.1.8 As stated in the Investment Strategy, it is expected that this Value Project will provide an appropriate monitoring framework for the purposes of SEA. Further information on the monitoring framework will be provided as part of the SEA Post Adoption Process.

6 Consultation

- 6.1.1 Public views and comments are invited on both this Environmental Report and the draft Strategic Management Plan to which it relates. Details of how to respond are provided below.

When can I respond?

Respondents are asked to submit responses to this Environmental Report directly to the Scottish Government by closing date of the 22nd November 2019.

How can I respond?

Online: You can respond online using the Scottish Government's consultation platform, Consultation Hub, at: <https://consult.gov.scot/marine-scotland/scottish-crown-estate-strategic-management-plan> Consultation Hub allows you to save and return to your responses while the consultation is still open. A copy of your final response will be emailed to you.

By Email or Post: Responses can be submitted by email, with the Respondent Information Form (Appendix A) to <mailto:scottishcrownestate.consultation@gov.scot> or by mail to

Crown Estate Strategy Unit
Marine Scotland
Scottish Government
Area 1-B North
Victoria Quay
Edinburgh
EH6 6QQ

How will responses be considered?

Following the consultation, a Post Adoption Statement will be prepared. The Statement will reflect on the views provided on the findings of the assessment and the proposals in the Consultation Paper and will explain how the responses received have been taken into account in finalising the Plan.

Consultation Questions on the Environmental Report

Respondents may find the following questions helpful to provide a focus for their responses to this Environmental Report. Please note that responses do not need to be limited to these questions, and more general comments on this Environmental Report and the proposals set out in the Consultation Paper are also invited.

1. Do you have any views on the evidence set out in the Environmental Report? If yes, please give details.
2. Do you agree with the conclusions and recommendations set out in the Environmental Report?

Appendices

Appendix A: Respondent Information Form

Consultation on the draft Strategic Management Plan for the Scottish Crown Estate

Respondent information form

Please Note this form **must** be completed and returned with your response. To find out how we handle your personal data, please see our privacy policy: <https://beta.gov.scot/privacy/>

Are you responding as an individual or an organisation?

Individual

Organisation

Full name or organisation's name

Phone number

Address

Postcode

Email

The Scottish Government would like your permission to publish your consultation response. Please indicate your publishing preference:

Publish response with name

Publish response only (without name)

Do not publish response

Information for organisations:

The option 'Publish response only (without name)' is available for individual respondents only. If this option is selected, the organisation name will still be published.

If you choose the option 'Do not publish response', your organisation name may still be listed as having responded to the consultation in, for example, the analysis report.

We will share your response internally with other Scottish Government policy teams who may be addressing the issues you discuss. They may wish to contact you again in the future, but we require your permission to do so. Are you content for Scottish Government to contact you again in relation to this consultation exercise?

Yes

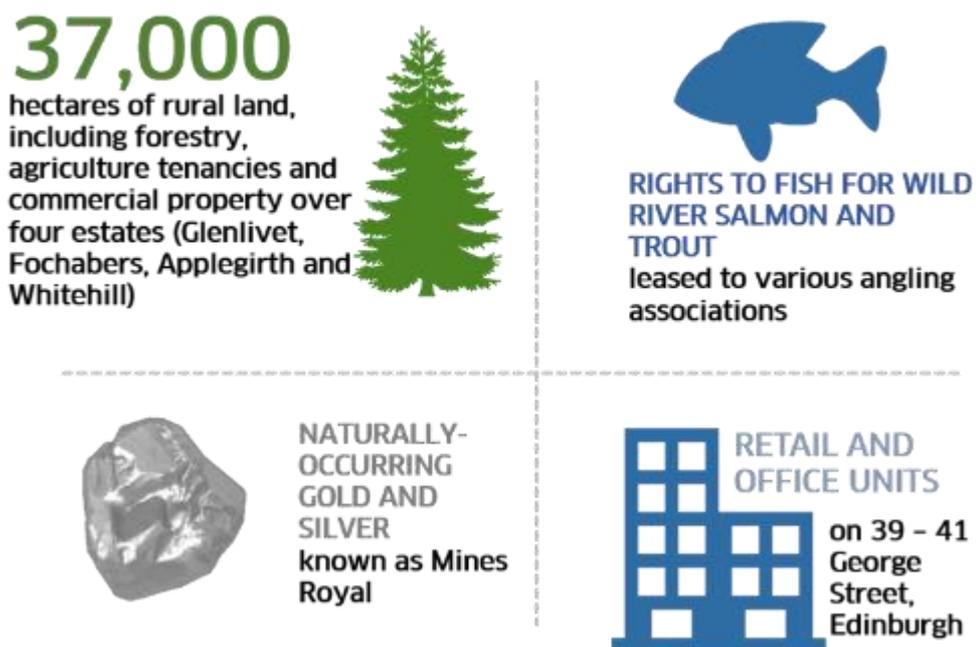
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7 Appendix B: Supplementary Environmental Baseline

7.1 Material Assets

7.1.1 The spatial distribution of SCE assets can be seen in Figure 6, Appendix C. A range of existing protection objectives and policies at the national and international levels relate to this topic area. Crown Estate Scotland (Interim Management) own and lease both marine and land based assets with the biggest proportion relating to the four rural estates (forestry and agriculture), aquaculture and other coastal and marine assets (including energy infrastructure). Figures 3 and 4 (in this section) represent the policy and legislative controls for these assets. Policy context for the remaining asset-related activities (salmon and trout river fishing, mineral extraction and mining and ownership of retail and office units) is included in the sections that follow.

Terrestrial Assets



7.1.2 Key terrestrial assets managed by Crown Estate Scotland (Interim Management) are shown in the inset and the policy context setting environmental objectives is presented in Figure 5.

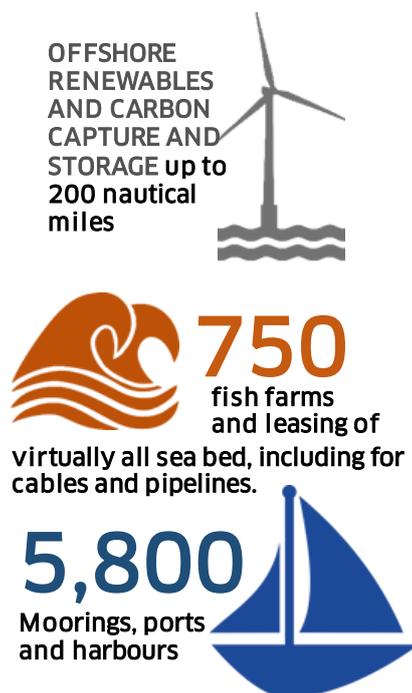
7.1.3 Crown Estate Scotland (Interim Management) manages 37,000 hectares of rural land with the vast majority let for uses such as farming, residential, commercial, sporting and mineral operations. This includes the four rural estates. Farming tenancies across the four estates total approximately 30,000 hectares⁶⁰.

- 7.1.4 75% of Scotland's land is agricultural land, and a diverse range of farming takes place across the country including arable farming, crofting, hill farming and lowland livestock and dairy farming⁶¹. Over half of Scotland's agricultural land is used for upland sheep farming and mixed sheep and beef cattle farming⁶².
- 7.1.5 Forestry assets on the four estates are managed directly by Crown Estate Scotland (Interim Management) rather than being let. Crown Estate Scotland (Interim Management) manages 5,000 hectares of commercial forestry, mostly in Glenlivet. Woodlands provide vital places for a diverse range of plants and wildlife to grow, feed, breed and take shelter. The Glenlivet Estate looks after over 550 hectares of native woodland and are increasing the native woodland cover along riparian corridors and with new plantings.
- 7.1.6 There are a range of statutory consenting regimes relevant to SCE asset classes, including the Town and Country Planning and marine licensing regimes, amongst others. The Water Environment (Controlled Activities) (Scotland) Regulations 2011⁶³ set the basis for pollution control in relation to the water environmental and pollutant discharge. These include point source and diffuse discharges and are therefore relevant to a number of Crown Estate Scotland (Interim Management) activities, including mineral extraction, forestry and agriculture.
- 7.1.7 Climate change legislation and sectoral plans to reduce greenhouse gas emissions are relevant to the assets and their management. SCE assets support the activities of renewable energy generation, but can also be vulnerable to climate change themselves, particularly asset located in low-lying areas around the coast. Section 7.7 includes detail around climate change objectives.
- 7.1.8 The woodlands within the Estate comprise semi-natural birch woodland, found mainly in Strathavon, and pockets of conifer plantations. Alder, aspen, birch and bird cherry are common, whilst ash, wych elm, gean and goat willow are all confined to a few brown forest soils in the lower reaches of the Avon and Livet. Oak is scarce, and unusually Scots pine woodland is absent. Self-sown Scots pine exists, thought to derive via seeds from plantations⁶⁴.
- 7.1.9 Two woodlands are classified as Sites of Special Scientific Interest (SSSI); Lower Strathavon Woodlands (semi-natural broadleaved woodlands) and Bochel Wood (Birch and Juniper woodland / heath)⁶⁵.
- 7.1.10 Crown Estate Scotland (Interim Management) manages around 140 river salmon fishing tenancies, on around 60 rivers across Scotland, including the Allan Water, the River Leader, the Findhorn, the Stinchar, the Clyde, the Almond and the Forth⁶⁶.
- 7.1.11 The four estates support a wide variety of visitor attractions and activities including walking trails, purpose built bike trails and fishing. Applegirth is also internationally renowned for its highly successful artificial sand martin nesting banks. Tourism contributes £4 billion to Scotland's economy every year with Scotland's scenery and landscapes being the highest motivation

for visiting. Nature-based tourism is estimated to contribute nearly 40% of all tourism spend supporting 39,000 full time equivalent jobs⁶⁷.

- 7.1.12 Office and retail units on George Street, Edinburgh owned by Crown Estate Scotland (Interim Management) fall within the Edinburgh Old and New Towns UNESCO World Heritage Site, as well as within the New Town Conservation Areas and are therefore governed by relevant historic and cultural heritage preservation and enhancement policies detailed in section 4.13.
- 7.1.13 Scotland is rich in various rock types used as building materials including basalt, flagstone, granite, sandstone and slate as well as various minerals. Peat continues to be used locally as a fuel source⁶⁸. Crown Estate Scotland (Interim Management) grants leases to commercial mineral operators to exploit minerals found on the four rural estates. Crown Estate Scotland (Interim Management) aims to balance income generation with responsible management. Crown Estate Scotland (Interim Management) also manage rights to naturally occurring gold and silver (known as Mines Royal) across most of Scotland. Mining and quarrying of these resources is the tenth top sector in terms of international exports, exporting over £1 billion in 2013⁶⁹.
- 7.1.14 Baseline information regarding water supply, quality and flooding related to the management of SCE assets is covered in section 4.10.

Marine Assets



7.1.15 The environmental protection objectives established at international, community, and Member State level for the key marine assets is presented in Figure 4.

7.1.16 Crown Estate Scotland (Interim Management) manages around half of the foreshore (around 50% of the 18,000 km) and most of the seabed out to the 12 nautical mile (nm) limit (the Scottish zone). Within this area, Crown Estate Scotland (Interim Management) awards and manages leases for telecommunication and electricity cables, oil and gas pipelines, offshore renewable energy projects (to 200 nm – the Scottish zone) (see inset), fish farms, some 5,800 moorings and ports and harbours. It also grants licenses and consents for associated activities and developments.

Aquaculture

- 7.1.17 Crown Estate Scotland (Interim Management) holds fishing rights for salmon and fish of the salmon kind (e.g. trout) in Scotland. Crown Estate Scotland (Interim Management) manages 140 river salmon fishing tenancies spanning across 60 rivers. These activities are controlled by the Salmon and Freshwater Fisheries (Consolidation) Act 2003⁷⁰ which consolidates legislation relating to salmon and freshwater fisheries in Scotland and sets

out regulation on the permitted methods of fishing for salmon and freshwater fish.

- 7.1.18 Crown Estate Scotland (Interim Management) leases approximately 750 fish farming sites to operators to grow fin fish and shellfish and Crown Estate Scotland (Interim Management) also licence seaweed harvesting to help ensure sustainable practice.
- 7.1.19 Aquaculture is increasingly important in Scotland, enabling sustainable economic growth in rural and coastal communities particularly in the Highlands and Islands, with significant wider impacts across the supply chain.
- 7.1.20 Over 8,000 people are employed in the Scottish aquaculture industry and it contributes £1.8bn each year to the Scottish economy.
- 7.1.21 Aquaculture in Scotland mainly provides finfish for consumption with farmed Atlantic salmon dominating the (96%). Scotland also has a successful shellfish-farming sector specialising mainly in producing blue mussels and Pacific oysters.
- 7.1.22 Salmon is Scotland's top food export and in 2016, the export sales of Atlantic salmon were estimated at £600 million.

Renewable Energy

- 7.1.23 Scotland is a net exporter of electricity. In 2015, the amount of electricity generated in Scotland by renewable sources equated to 59.4% of the gross annual consumption of electricity in Scotland. The Scottish Government is committed to generating an equivalent of 100% electricity demand from renewable sources by 2020, along with at least 11% renewable heat. Renewable energy currently supports approximately 12000 jobs in Scotland. Crown Estate Scotland (Interim Management) is responsible for the management and leasing of rights to the seabed for renewable energy development including carbon capture and storage out to 200 nm from shore.
- 7.1.24 Offshore wind is a continually growing sector and a key factor in delivering Scotland's ambitious renewable energy targets. Crown Estate Scotland (Interim Management) award and manage leases to the seabed out to from 12-200 nm and also support developers through pre-planning and consents for construction. Offshore wind farms include the 180MW Robin Rigg in the Solway Firth, the 588MW Beatrice project in the Moray Firth; and Hywind II of the Aberdeenshire coast which is the world's first floating offshore windfarm.
- 7.1.25 In terms of wave and tidal energy, Crown Estate Scotland (Interim Management) are responsible for bringing new development opportunities to market by leasing areas of the seabed and managing the associated seabed rights. Crown Estate Scotland (Interim Management)'s predecessor the Crown Estate invested directly in the MeyGen tidal power development in the Pentland Firth, the first commercial scale tidal stream array in the world. The first turbine of MeyGen was launched in in autumn 2016. This £10 million investment is now part of the Crown Estate Scotland portfolio.

7.1.26 Crown Estate Scotland (Interim Management) provide rights for offshore natural gas storage and CO₂ storage beneath the seabed, within the Exclusive Economic Zone. In this capacity, Crown Estate Scotland (Interim Management) works with developers to explore how CO₂ storage beneath the seabed could help the UK meet its carbon emission targets.

Moorings, Ports and Harbours

7.1.27 Crown Estate Scotland (Interim Management) is also responsible for managing moorings and some ports and harbours. Scotland's sailing tourism economy generates approximately £130 million and supports 2700 jobs and is predicted to grow by 28% over the next seven years. Marine recreation and tourism expenditure in Scotland is estimated at £3.7 billion per year based on 23 recreation and tourism related activities surveyed.

Figure 3: Environmental objectives for rural assets (forestry and agriculture)

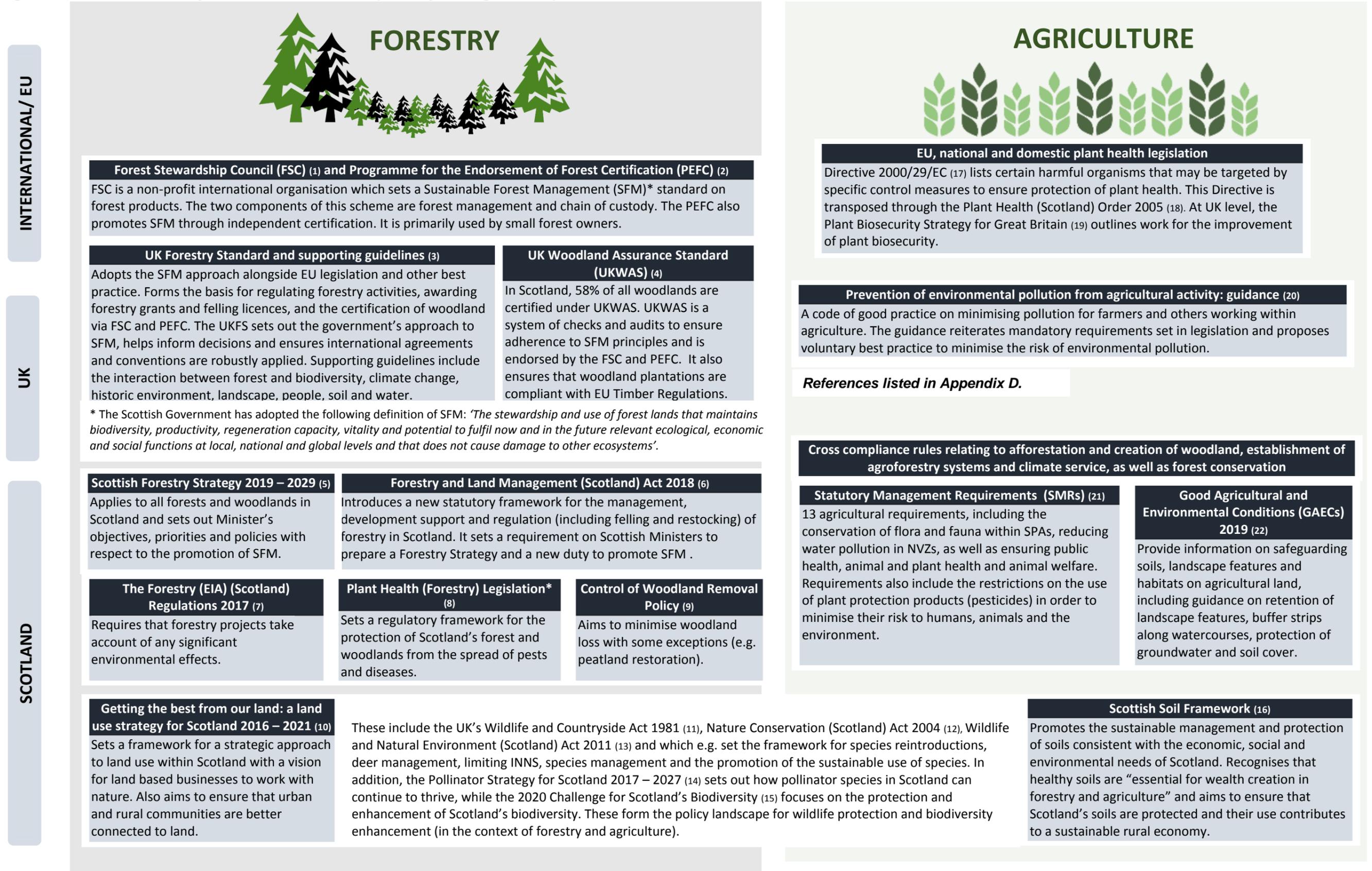
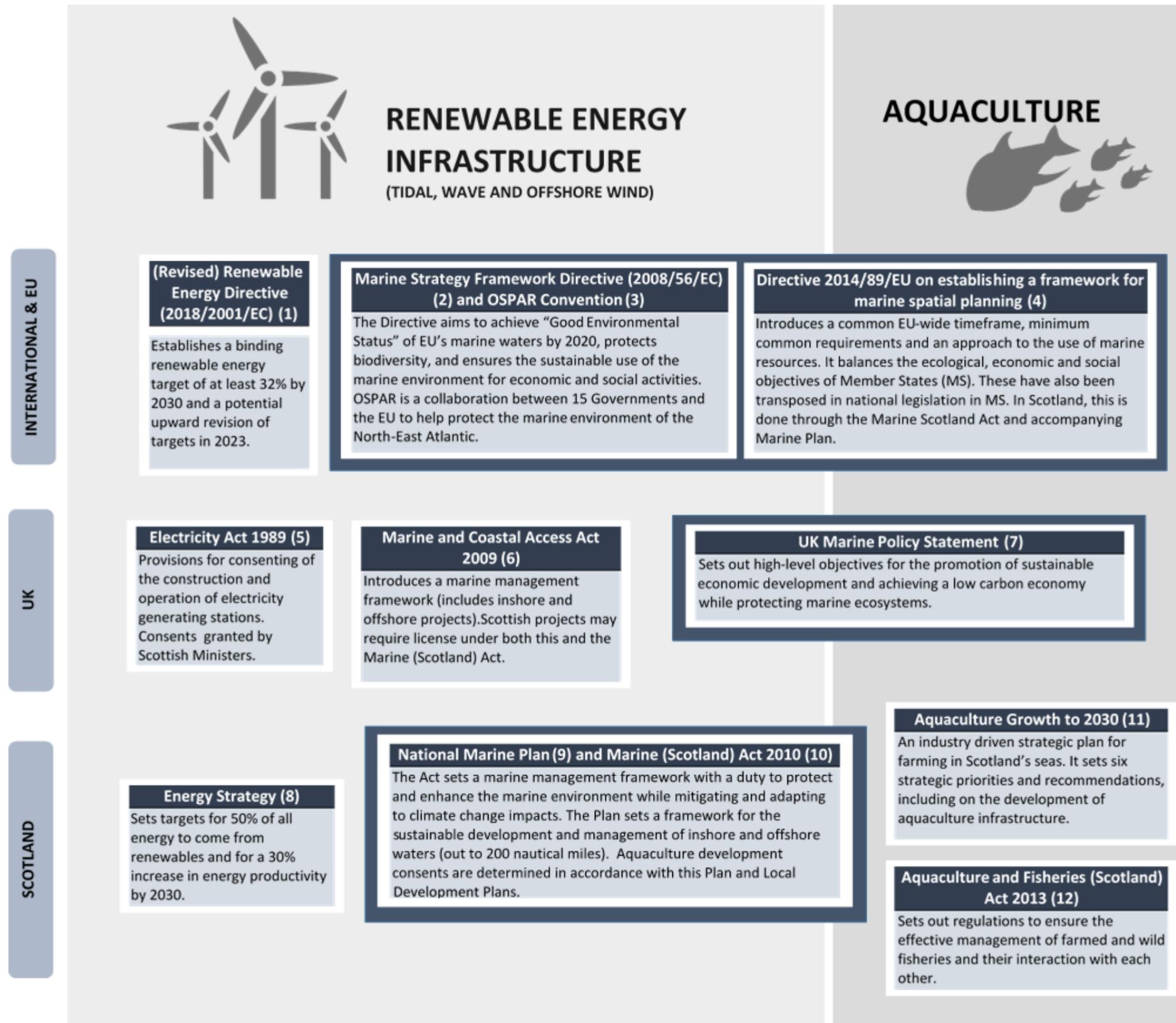


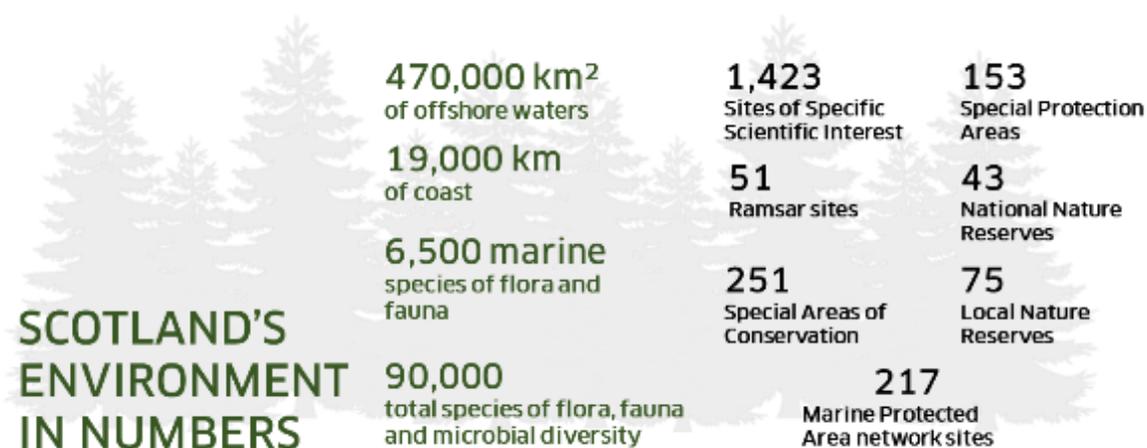
Figure 4: Environmental objectives for marine assets (energy and aquaculture)

References listed in Appendix D.



7.2 Biodiversity, flora and fauna

- 7.2.1 Scotland has a number of varied and ecologically complex landscapes and habitats, ranging from raised bog to native and ancient woodland, and is a home to a wide range of species.
- 7.2.2 Scotland's habitats and the species they support are protected by international, EU and national level legislation, plans, programmes and strategies. At EU level, the Habitats and Birds Directives form the basis of biodiversity protection and enhancement. In 2011, the EU adopted the Biodiversity Strategy for 2020 which aims to halt the loss of biodiversity and ecosystem degradation via six targets, ranging from ensuring the sustainability of agriculture and forestry to combatting invasive non-native species (INNS).



Source: Scotland's Environment Web and Scottish Natural Heritage

- 7.2.3 EU directives are transposed into UK and Scots law through the Wildlife and Countryside Act 1981 (as amended)⁷¹, The Conservation (Natural Habitats, &c.) Regulations 1994 (as amended)⁷², the Nature Conservation (Scotland) Act 2004⁷³, Wildlife and the Natural Environment (Scotland) Act 2011⁷⁴ and through provisions for marine habitats under the Conservation of Offshore Marine Habitats and Species Regulations 2017⁷⁵.
- 7.2.4 65 habitats and 1150 species have been listed as priorities for conservation action under the UK Biodiversity Action Plan⁷⁶. Nationally, Scotland's Biodiversity Strategy⁷⁷ aims to protect and restore Scotland's biodiversity, and help connect people with the natural world and maximise the benefits of Scotland's natural environment and its services in a sustainable way. The Strategy fits within the context of Scotland's Biodiversity: It's In Your Hands⁷⁸ which sets out a vision for 2030 of a Scotland which is a world leader in biodiversity enhancement and conservation. The achievement of this vision is underpinned by objectives across five categories: species and habitats, people, ecosystems and landscapes, and improving biodiversity knowledge and co-ordination of projects.
- 7.2.5 In Scotland, the Natura 2000 ecological network includes a number of SACs and SPAs. In addition, 75 Local Nature Reserves and 43 National Nature

Reserves exist. The biggest SACs, Inner Hebrides and the Minches, are located off the west coast of Scotland and cover a combined area of 1.38 million hectares. In addition to these, a recent consultation on proposed SPAs for Scottish marine birds and site classifications set out 15 addition sites to be designated⁷⁹. In June 2019, a further consultation on proposals to designate four new MPAs in Scottish waters was launched seeking views on the designation of North East Lewis, Sea of the Hebrides, Shiant East Bank and Southern Trench⁸⁰. A range of aquaculture, energy and other coastal assets are located within these SACs (Figure 7).

- 7.2.6 SCE mineral assets such as Ben Orchy and Glen Lyon stretch over a number of biological designated areas such as SACs as well as SPAs - Glen Etive and Glen Fyne. Similarly, Crown Estate Scotland (Interim Management) manage the rights to naturally occurring gold and silver across most of Scotland.
- 7.2.7 The Nature Conservation (Scotland) Act also sets a duty to further the conservation of biodiversity on all public bodies in Scotland. Crown Estate Scotland (Interim Management) published a Biodiversity Statement in 2018 which outlines the priority projects and targets for Crown Estate Scotland (Interim Management) management and leasing of assets in alignment with the Scottish Governments' 2020 challenge for Scotland's biodiversity.
- 7.2.8 As part of this statement, Crown Estate Scotland (Interim Management) also committed to working with partners to trial the Natural Capital Protocol in a series of projects with a focus on the SCE rural estates. The aim was for tenant farmers taking part in the project to better understand the impact of rural businesses on the natural environment, as well as assess the value of natural assets to inform decisions on land. The natural capital projects were delivered in collaboration with SNH, SEPA, Scottish Land and Estate and the Scottish Forum on Natural Capital.

Terrestrial Biodiversity

- 7.2.9 Scotland has an expansive range of terrestrial habitats and land uses consisting of both natural and cultivated and artificial broad habitat types. The habitats most relevant to the SCE assets are uplands, woodlands and forests, and peatlands.

Uplands

- 7.2.10 Scotland has 90% of the high mountain habitat in the UK which accommodates some of the best examples of near-natural habitats and wildlife in the northern and remote parts of Europe. The uplands comprise bog and rough grassland, heather moorland, bracken, fen, marsh and swamp, as well as inland rock and montane habitat⁸¹. Crown Estate Scotland's 37,000 hectares of rural assets are primarily located in upland areas. These include rural land and forestry over the four estates including agricultural tenancies and managed forestry.
- 7.2.11 The estates are also located in or within the catchment areas of a number of areas designated for their biodiversity, including the Glenlivet estate which spans Ladder Hills (SAC), the River Spey's catchment area (SAC) and the Cairngorms (SAC).

- 7.2.12 The majority of upland habitat features are considered to be in favourable⁸² condition, however some, such as upland bogs have seen a reduction in the proportion of sites in favourable condition between 2010 and 2014⁸³.

Woodlands and Forests

- 7.2.13 Woodlands and forests cover 1.4 million hectares or 18% of Scotland's land area and support a wide range of important flora and fauna diversity with most rare and threatened species in Scotland found in and around semi-natural woodland. In relation to wildlife, this habitat type is in a moderately good condition with predicted improvement in the future.
- 7.2.14 There are a number of SCE assets within this habitat and these are located within a wide range of designated land, including the Dryfe Water SSSI within Applegirth estate, which consists of approximately 6,300 hectares of agricultural, minerals and managed forestry tenancies. The SCE forest estate consists of native woodland and semi-natural birch woodland, as well as alder, aspen, birch and bird cherry. However, oak and ancient Scots pine woodland are scarce.

Wetlands and Peatlands

- 7.2.15 Wetlands, including peatlands, can be found across Scotland and are a key provider of environmental services such as carbon sequestration and water purification. Scotland's peatlands store approximately 1,600 million tonnes of carbon.
- 7.2.16 Some of the SCE assets, such as Knapdale Mines Royal, are located within nationally important carbon-rich soils, deep peat, priority peatland habitat or areas likely to be of high conservation value⁸⁴. There are also a number of RAMSAR sites (wetland sites of international importance) including some located within Crown Estate Scotland (Interim Management)'s managed areas.
- 7.2.17 Most of the wetlands which fall within protected sites are in favourable condition, however lowland raised bogs are an exception with nearly 60% of sites in unfavourable condition⁸⁵.

Marine Biodiversity

- 7.2.18 The spatial distribution of Marine Protected Areas and their spatial relation to SCE assets can be seen in Figure 7. The network includes SPAs, SACs, SSSIs and Nature Conservation MPAs (NCMPAs). The Convention for the Protection of Marine Environment to the North-East Atlantic (the 'OSPAR Convention') is the mechanism through which the EU and 15 governments collaborate to protect the marine environment in the North-East Atlantic⁸⁶.
- 7.2.19 Scotland's coastal and offshore waters include several complex habitats including North Sea fan and sponge communities, sea loch egg wrack beds and sea lochs⁸⁷. Scotland's seas are thought to be among the most biologically diverse in the world. These habitats are protected by a number of designations such as SACs, NCMPAs and SPAs, forming the MPA network and covering areas from coastal environments to undersea cliffs. Scotland is home to 24 species of internationally important breeding birds⁸⁸ as well as 20 cetacean species protected under the Habitats Directive⁸⁹.

There are also a wide range of Priority Marine Features (PMFs) which help conserve and enhance the marine environment⁹⁰. A Strategy for Marine Nature Conservation in Scotland's Seas⁹¹ underpins these PMFs. Crown Estate Scotland (Interim Management) manage a number of aquaculture assets with the aim of ensuring the sustainability of salmon fishing as well as developing the shellfish sector. Crown Estate Scotland (Interim Management) licences seaweed harvesting, fin fish and shellfish farms.

7.3 Population and Human Health

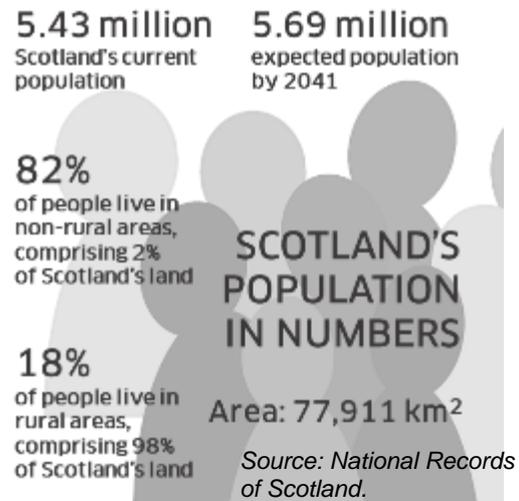
7.3.1 Crown Estate Scotland manages assets across the length and breadth of mainland Scotland, as well as many of its surrounding islands. These assets include resources which provide livelihoods and places for recreation and enjoyment within the upland, coastal and marine environment. In addition, Crown Estate Scotland is responsible for managing retail and office units in central Edinburgh.

7.3.2 Most of Scotland's population and industry is concentrated in the Central Belt and on the East Coast, and primarily in four key city regions (Edinburgh, Glasgow, Dundee and Aberdeen) (Figure 8).

7.3.3 The SCE four rural estates include 507 tenants (116 in Applegirth, 207 in Fochabers, 154 in Glenlivet and 30 in Whitehill). Over recent years, the population of rural Scotland has continued to grow at a faster rate than the rest of the country due to increased accessibility to rural land and inward migration. As SCE assets include tenements and other housing across the four rural estates, this trend is particularly relevant. The four rural estates are located within Dumfries and Galloway (Applegirth), Moray (Glenlivet and Fochabers) and Midlothian (Whitehill) local authority areas. Since 2017, the population of Midlothian has increase by 1.39%, while that of Moray and Dumfries and Galloway has decreased by 0.27%. Both Moray and Midlothian are projected to grow in the next 10 years by 13.3% and 4% respectively, while population in Dumfries and Galloway is projected to decline by 1.5%.

7.3.4 The Scottish Index of Multiple Deprivation (SIMD), which identifies small concentrations of multiple deprivation across all of Scotland, shows that the 15% most deprived data zones in Scotland are located predominantly in urban areas, including Glasgow, Dundee, and Edinburgh. These deprived areas are recognised as being more vulnerable to negative impacts due to pre-existing health problems and inequities. The 20% most deprived areas in relation to SCE assets can be seen in Figure 9. A number of SCE aquaculture and other coastal assets, as well as rivers the fishing rights for which Crown Estate Scotland (Interim Management) own and lease, are located in close proximity to areas of high multiple deprivation, for example on the west coast Glasgow and in the Firth of Forth.

7.3.5 Significant inequalities in levels of obesity persist between those living in the least and most deprived groups in Scotland. Overall, around 32% of adults living in the most deprived areas are classed as obese, compared with 20% of those living in the least deprived areas. Additionally, it is reported that this



gap is widening for children. Similarly, the proportion of adults who regularly meet the guidelines for moderate or vigorous physical activity has not changed significantly over the last decade.

- 7.3.6 A high quality environment with good air and water quality is an important contributor to good health. Access to outdoor recreation facilities can also benefit our health and well-being. In the context of SEA, relevant PPS to population and human health include legislative measures for the improvement of air and water quality and their safeguarding. These include the Drinking Water Directive, Bathing Water Directive and Ambient Air Quality Directive at EU level, as well as national plans such as Cleaner Air for Scotland.
- 7.3.7 Air quality is important for human health and research has shown that air pollution reduces average life expectancy and can contribute to premature deaths. The majority of Scotland's inhabitants live in urban areas with relatively elevated air pollution levels.
- 7.3.8 Water quality has seen significant improvement over the last 25 years and the majority of surface and ground waters are in good or high overall condition and continue to improve.
- 7.3.9 The physical environment is an important factor in influencing human health and wellbeing. Access and utilisation of recreation facilities, green infrastructure and green spaces can provide opportunities for active travel and regular exercise and to help deliver benefits for physical and mental health and well-being.
- 7.3.10 Crown Estate Scotland (Interim Management) lease land and property within their rural estates with the aim to encourage a wide range of uses, including the provision of public access for recreation such as mountain bike trails. Figure 11 shows the distribution of Scotland's Great Trails and the National Cycle Network in relation to the four rural estates.

7.4 Soil and Geodiversity

- 7.4.1 Objectives for the protection and enhancement of soils are set at the European and national level. At EU level, the Thematic Strategy for Soil Protection establishes common principles for the safeguarding and sustainable use of soils through responsible management and degraded soil restoration measures.
- 7.4.2 At national level, the common principles are reflected in the Scottish Soil Framework, which sets out a vision for the protection and enhancement of Scotland's soils, while ensuring the balance of environmental, economic and social needs. In addition to this, there are a number of legislative and regulatory provisions which promote the remediation of contaminated land, including the Environment Act 1995 and the Contaminated Land (Scotland) Regulations 2005.
- 7.4.3 A number of PPS and legislation related to water also have a significant impact on the state of soils as they impact on the contamination, erosion, loss of organic matter and landslides. These include the Flood Risk

Management (Scotland) Act 2009, the Delivering Sustainable Flood Risk Management guidance associated with the Act, Flood Risk Management Strategies and Local Flood Risk Management Plans. Wider water legislation related to contamination, river basin management and the provision of water services is provided in more detail in section 7.5.

- 7.4.4 Scotland's peatlands play a key role in regulating atmospheric pollutants, reducing flooding and benefitting biodiversity and due to this have been afforded special protection through the Scotland's National Peatland Plan. The Draft Peatland and Energy Policy Statement further looks to align peatland protection, enhancement and management with energy policy to maximise GHG abatement and deliver multiple benefits.
- 7.4.5 Scotland has a diverse range of soils, primarily with acidic and organic rich surface layers, ranging from peaty gleys found on undulating hills to humus-iron podzols in the lowlands. Agricultural land is primarily concentrated in the east of Scotland with arable soils particularly vulnerable to wind and water erosion.
- 7.4.6 Agricultural soils have the potential to hold an estimated 115 Mt, which is equivalent to 22% of total CO₂ emissions from Scotland's energy sector. Peatlands are an important carbon sink, storing approximately 1.6 billion tonnes of carbon. Other soils can also act as a sink for GHG. Carbon rich soil is predominantly located in the north-west of Scotland (Figure 13). Blanket bog is the most widespread and semi-natural peatland type in Scotland and contains 15% of the world's peatland habitats. Other peatland types in Scotland include raised bogs and fens which are designated as UK priority habitats.
- 7.4.7 A large proportion of designated peatlands are in poor condition. A large percentage of upland blanket bogs, lowland raised bogs, and upland fens, marshes and swamps are in unfavourable condition.
- 7.4.8 The distribution of prime agricultural land and its location in relation to SCE assets is displayed in Figure 12. Several SCE assets stretch over or are in close proximity to areas of agricultural land and peatland soil. These include Glenlivet, Fochabers and Whitehill (Figures 14-16).
- 7.4.9 Two of the four SCE rural estates (Applegirth and Fochabers) are partially situated on land suitable for prime agriculture (Figure 12). Due to its upland location within the Cairngorms National Park, Glenlivet can be classed as suitable for rough grazing and improved grassland denoting its low agricultural potential. The state of rocks and landforms is stable at known sites, however little is known about the state of geodiversity outside of protected areas.

7.5 Water

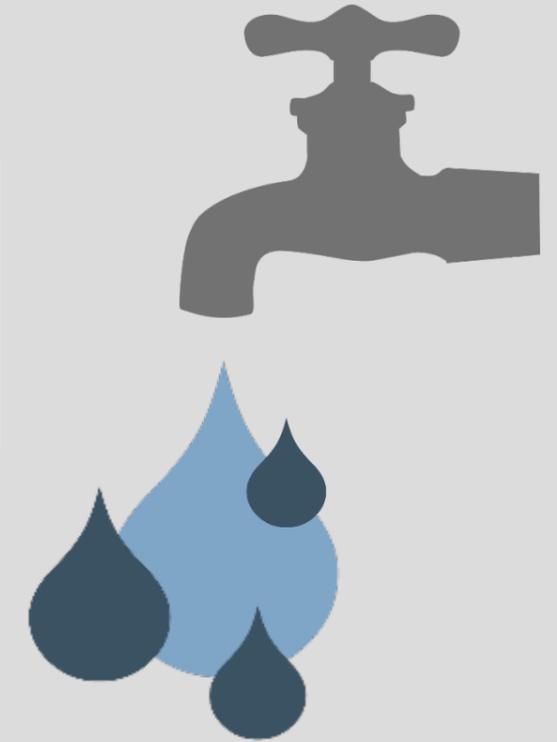
- 7.5.1 As the Plan seeks to influence the management of existing assets, including those relating to aquaculture, moorings, offshore energy generation and recreation, it has the potential to impact the water environment.

- 7.5.2 The majority of marine SCE assets are located within Scotland's territorial waters (Figure 6) including aquaculture, moorings, energy, communications and infrastructure. Activity relating to offshore renewable energy and gas and carbon capture and storage within Scotland's offshore waters has the potential to impact water quality.
- 7.5.3 Water environmental objectives are defined by a range of international and national plans, programmes and strategies and aim to protecting and enhancing the state of the water environment by reducing water pollution, minimising the impact of INNS, reducing flood risk and ensuring the sustainable use of water resources. These are presented in Figure 5.
- 7.5.4 The Marine (Scotland) Act includes provisions for the creation of regional Marine Planning Partnerships and Marine Plans to allow for localised decision- making which reflects regional marine interests. The Clyde Marine Planning Partnership and Shetland Islands Marine Spatial Plan are the first of the 11 regional marine plans to be developed.
- 7.5.5 Scotland contains a wide range of water bodies, including 12,500 km of rivers and streams, 25,500 lochs, 220 km of canals, and a number of reservoirs and wetlands. Scotland's freshwater network forms 90% of the volume of UK freshwater. Scotland's coast stretches 19,000 km with marine water out to 12 and 200 nautical miles making up Scotland's territorial and offshore waters respectively. This covers a total of 470,000 km² with the majority of SCE marine assets located within Scotland's territorial waters.
- 7.5.6 The condition of Scotland's rivers has improved significantly over the last two decades with the majority being in good condition or better. This is also the case for nearly 2/3 of lochs and 80% of groundwater bodies. Scotland's bathing water quality has also improved in over the same period improvement in quality over the same period with more than 80% of waters in good condition or better and fulfilling the necessary classification criteria.
- 7.5.7 A number of water bodies in Scotland are designated as protected areas for their importance in supporting wildlife conservation, provision of drinking water supply, shellfish harvesting and bathing. There are currently 85 shellfish waters, 86 bathing waters, 5 Nitrate Vulnerable Zones, 231 Marine Protected Areas and a wide range of areas designated for the protection of habitats and species (such as SACs, SPAs and Natura 2000 sites) .
- 7.5.8 Approximately 284,000 homes, businesses and services are vulnerable to flooding from rivers, surface waters and sea with risk increasing in the future. This can damage material assets, pose risks to population and human health through the spread of infectious diseases and also lead to a loss of habitats, resulting from erosion.
- 7.5.9 97% of Scotland's coastal waters and 85% of estuaries are in good or high environmental condition, and most offshore waters are also in good condition. However, there are localised impacts from commercial fishing, aquaculture, and diffuse pollution which can have a negative impact on local ecosystems. In addition to the number of designations aiming to protect the biodiversity of marine environments, the Marine Strategy Framework Directive (MSFD) sets out a framework for an ecosystem-based approach to

the management of human activities within the marine environment with an aim to achieve a “Good Environmental Status” for all marine environments by 2020.

- 7.5.10 Scotland has approximately 125,000 km of rivers and 220 km of canals with most of these relatively undisturbed by human activity. These range from highland burns to lowland rivers such as the River Tay.
- 7.5.11 Crown Estate Scotland (Interim Management) manages 140 river salmon fishing tenancies spanning across 60 rivers in Scotland, including the Findhorn, Stinchar and the River Almond. Most of these are let to angling associations and include the Rotten Calder stretch of the River Clyde, River Avon and River Ayr and Greenock Water. Figure 15 shows the poor potential status of water in close proximity to a number of SCE assets, including aquaculture located within the River Clyde catchment area and near Port William in the south-west of Scotland.

WATER



INTERNATIONAL/ EU

Water Framework Directive (WFD)(1)

Sets a framework to stop the deterioration of the status of EU water bodies and protect their water quality. Also sets out requirements for the assessment of the ecological and chemical status of water bodies.

Floods Directive (2)

Governs the mitigation of flood risk and its adverse effects on the environment, human health, the economy and cultural heritage. Transposed into law in Scotland through the Flood Risk Management (Scotland) Act 2009 (below).

A Blueprint to Safeguard Europe's Water Resources (3)

Identifies strategies which national and regional authorities and policy makers can implement to improve water management. These focus on improving existing EU water policy and legislation and the way in which these are applied (e.g. wetland restoration and pollution control); considering these policies when implementing wider plans in areas such as agriculture and energy; and plans to increase water efficiency through the setting of national targets.

Marine Strategy Framework Directive (MSFD) (4)

A comprehensive framework for the protection, enhancement and restoration of the marine environment at EU level. Aims to achieve Good Environmental Status (GES) of the EU's marine waters by 2020 and protect the resources upon which marine-related economic and social activities depend.

Bathing Water Directive (5)

Outlines the classification, management and monitoring requirements for bathing water across the EU. Also stipulates that water quality information should be made available to the public.

SCOTLAND

Marine (Scotland) Act 2010 (6) and Scotland's National Marine Plan (7)

The Act sets a framework to balance the competing demands on Scotland's seas while aiming to protect and enhance the marine environment and ensuring economic growth through projects such as the expansion of renewables. The Plan provides a framework for the management of all developments and activities affecting marine areas, including measures for the prevention of adverse effects on water quality, coastal processes and flood risk.

Water Environment and Water Services (Scotland) Act 2003 (8)

The Act implements regulations on the protection of the water environment (including rivers, estuaries and the sea) as set out in the WFD.

LOCAL AND REGIONAL WATER PLANS

Regional Marine Planning Partnerships and Plans (9)

The Marine (Scotland) Act also includes provisions for the creation of regional Marine Planning Partnerships and Marine Plans to allow for localised decision-making which reflects regional marine interests.

River Basin Management Plans (10)

River basin management planning protects and improves Scotland's water environment for the benefit of people, wildlife and the economy. They aim to address significant problems affecting water quality, physical condition, water flows and levels, and the migration of wild fish. Plans set out a range of actions to address these impacts.

Water Resources (Scotland) Act 2013 (11)

Sets a requirement for Scottish Ministers to ensure the development of Scotland's water resources, including bringing large-scale abstraction under Ministerial control.

Fisheries

These set out regulatory measures for the effective management of farmed and wild fisheries, including the regulation of fishing methods.

Aquaculture and Fisheries Act 2013 (13)

Salmon and Freshwater Fisheries (Consolidation) (Scotland) Act 2003 (14)

Flood Risk Management (Scotland) Act 2009 (12)

The Act transposes the Flood Directive and outlines and makes provision for a revised statutory process for flood protection schemes.

Pollution protection

These set a framework for controlling activities which have the potential to negatively impact Scotland's water quality and provide a regulatory mechanism for their monitoring.

Pollution Prevention and Control (Scotland) Amendment Regulations 2017 (15)

Water Environment (Controlled Activities) Regulations 2011 (as amended) (16)

Water Services etc. (Scotland) Act 2005 (17)

Water Supply (Water Quality) (Scotland) Amendment Regulations 2001 (18)

Public Water Suppliers (Scotland) Amendment Regulations 2017 (19)

Private Water Suppliers (Scotland) Regulations 2006 (20)

Figure 5: Environmental objectives for water

7.6 Air

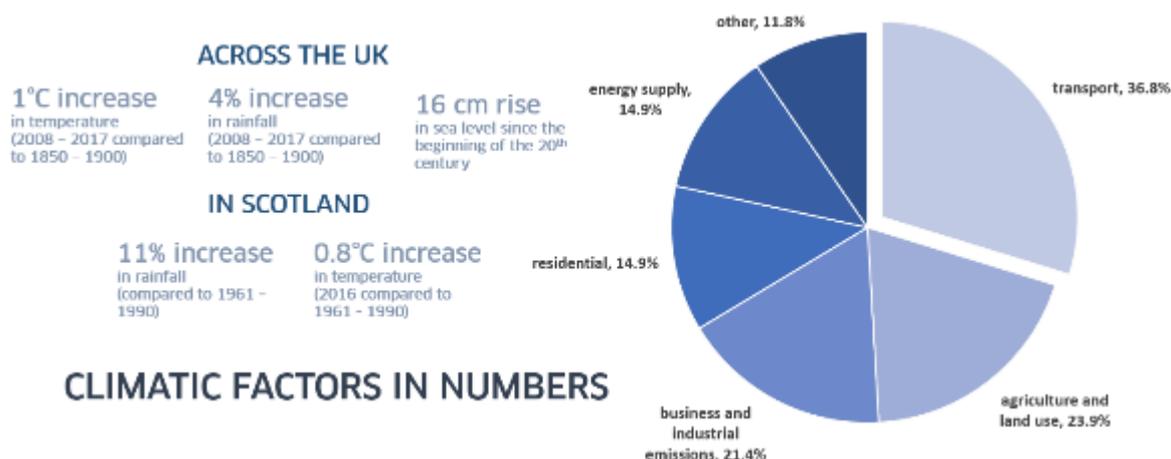
- 7.6.1 Air quality objectives in Scotland are set to maintain or improve air quality and reduce levels of pollutants harmful to human health and the natural environment, as well as reduce levels of nuisance, such as noise, dust and light pollution. Air quality objectives are set at the European level by Directive 2008/50/EC which sets air quality standards for ground-level ozone (SO₂, non-methane VOCs and ammonia), particulate matter (PM), nitrous oxides (NO_x), heavy metals and other pollutants, as well as Directive 2016/2284/EU which sets national emission ceilings for certain pollutants responsible for acidification and eutrophication, as well as ground level ozone pollution and fine PM.
- 7.6.2 At UK level, a number of legislative measures such as the Environment Act, Clean Air Act and the Pollution Prevention and Control Regulations provide a regulatory and legal framework for controlling emissions from a wide range of pollutants with the Environmental Act providing the legal basis for the establishment of local air quality management regimes where areas have or are at risk of exceeding legal emissions limits. At national level, the Air Quality Standards (Scotland) Regulations 2016 transpose Directive 2008/50/EC into Scottish law.
- 7.6.3 Cleaner Air for Scotland sets out a suite of actions for the improvement of air quality in the period 2015 – 2020, ranging from actions to achieve compliance with legal EU emissions limits to implementing a National Low Emission Framework. Currently, a review of the Strategy is taking place.
- 7.6.4 Wider environmental objectives with a potential to affect air quality in relation to SCE assets include steps to decarbonise the energy sector as part of the Energy Strategy.
- 7.6.5 As the plan looks to influence asset management, it has the potential to affect air quality through activities such as mining, energy generation and broader infrastructural developments. Crown Estate Scotland (Interim Management) grant leases to commercial mineral operators on their four rural estates, and also hold rights for naturally occurring gold and silver (known as Mines Royal).
- 7.6.6 Crown Estate Scotland (Interim Management) encourage commercial exploration proposals and development, providing they meet statutory regulations and environmental standards. Mineral extraction activities and resulting dust can contribute to air pollution, including through the release of PM₁₀, PM_{2.5}, SO₂ and methane. SCE mineral extraction assets are located primarily in the West of Scotland including Glen Orchy, Glen Lyon, Loch Tay, as well as Alford and Ochills in the East of Scotland. Energy infrastructure which might create transportation and other built asset requirements is located across Scotland's coast and offshore waters with the highest concentration of assets within the 12 nautical mile boundary.
- 7.6.7 Air quality in Scotland has generally significantly improved since the 1950s, particularly in relation to CO and SO₂ with a significant fall in both NO₂ and PM₁₀ emissions since 2008. However, in 2017, seven automatic monitoring

sites and one site exceeded the annual mean objective for NO₂ and PM₁₀ respectively .

- 7.6.8 There are currently 164 monitoring sites in the UK and 99 in Scotland which record pollutant concentrations, including ground-level ozone, ammonia, NO_x, SO_x, CO and PM. 14 local authorities have declared a total of 38 Air Quality Management Areas (AQMAs), which are mainly located in densely populated urban areas (see Figure 18 and 19). There are currently no AQMAs within Local Authority areas containing SCE assets.
- 7.6.9 Key drivers of air pollution include fine particulates from the combustion of fuels (e.g. from road transport, biomass and waste disposal), as well as from other energy generation and industry, such as agriculture.
- 7.6.10 In addition, ships and other marine vessels, release a significant proportion of total anthropogenic air pollutants, including NO_x, SO_x, PM and VOCs. These are particularly prominent in areas with major ports, however as emissions from other sources decline, shipping emissions will become more and more significant. Scotland is becoming an increasingly popular cruise destination with Cruise Scotland, the cruise industry guide, estimating a 15% increase in the number of cruise ships in the port of Cromarty Firth this August (109 ships in 2019 compared to 93 in 2018) . This increasing number of cruise ships could put further pressure on port areas already suffering from low air quality.
- 7.6.11 Shipping and other marine vessel emissions are particularly relevant to SCE assets as Crown Estate Scotland (Interim Management) owns, leases and manages a large proportion of the seabed and infrastructure within both Scotland's coastal and offshore waters.

7.7 Climatic Factors

7.7.1 Scotland has a temperate climate characterised by cool summers and mild winters, and an average of over 1,500 mm of rainfall annually⁹². Over the last century, the UK and Scotland’s climate has begun to evolve as a result of anthropogenic GHG emissions. Emissions by sector are shown in the inset.



**please note that these do not add to 100% due to the negative contribution of forestry as a carbon sink*

Sources: Met Office and Scottish Government

7.7.2 In addition to the changes shown in the inset, climate change has caused an increase in the frequency of extreme weather events, with nine of the ten warmest years on record occurring since 2002.

7.7.3 In 2017, total actual source emissions in Scotland were 40.5 MtCO_{2e} – a 46.8% decrease since the baseline year (1990) and a 3.3% decrease from 2016 emissions. In 2017, forestry was the biggest carbon sink⁹³.

7.7.4 The Climate Change (Scotland) Act 2009 (the 2009 Act)⁹⁴ set the statutory framework for GHG emissions reductions in Scotland, with targets for reductions of 80% by 2050, with an interim 2020 target of 42%. These targets are more ambitious than those for the UK as a whole, or the EU.

7.7.5 In March 2017, the Committee on Climate Change (CCC) published their advice on the potential level of ambition for new Scottish climate change targets⁹⁵. This advice informed the development of the ‘Consultation on proposals for a new Climate Change Bill’⁹⁶. This Consultation Paper set out a range of proposals for updating the 2009 Act, including increasing the level of ambition of the 2050 target to a reduction in greenhouse gas emissions of at least 90% from the baseline. The Climate Change (Emissions Reduction Targets) (Scotland) Bill⁹⁷ was introduced into Parliament on 23 May 2018 with headline targets for reducing all greenhouse gases from baselines of 56% reduction for 2020, 66% for 2030, 78% for 2040, and 90% for 2050. Further advice was published by the CCC on 2 May 2019⁹⁸. This recommended that the Scottish Government could achieve net-zero emissions of all greenhouse gases by 2045, if the UK has a target of net-zero emissions by 2050. In response, the Scottish Government put forward

amendments to the Climate Change Bill to update the Bill targets to 70% by 2030, 90% by 2040 and net-zero emissions by 2045. These were accepted by the Scottish Parliament's Environment, Climate Change and Land Reform Committee at Stage 2 reading of the Bill on 18 June. The Bill also includes a requirement for Ministers to seek regular advice as to whether the targets are still appropriate.

- 7.7.6 Developed in 2009, the Climate Change Delivery Plan⁹⁹ set out the high level measures required in each sector to meet Scotland's statutory climate change targets, looking forward to 2020 and beyond. This has been taken forward following the 2009 Act through the development of a series of Reports on Policies and Proposals (RPPs).
- 7.7.7 The Climate Change Plan: the Third Report on Policies and Proposals 2018-2032¹⁰⁰, published on 28 February 2018, builds on the previous RPP reports, takes forward these ambitions and explores opportunities to further reduce Scotland's greenhouse gas emissions between now and 2032. The Climate Change Plan sets out Scotland's ambitious approach to mitigating the effects of climate change across a range of sectors, including transport, housing and energy, alongside provisions for the restoration of degraded peat and afforestation to increase Scotland's carbon sequestration capacity. and sets out the path to a low carbon economy. The Scottish Government has committed to updating the Climate Change Plan within 6 months of the Climate Change Bill receiving Royal Assent. The Scottish Energy Strategy: The future of energy in Scotland¹⁰¹ was informed by the development of the Climate Change Plan.
- 7.7.8 Section 53 of the 2009 Act placed a duty on Ministers to produce an adaptation programme to address the risks identified for Scotland under Section 56 of the 2008 Act. Scotland's first statutory Climate Change Adaption Programme to address the risks in the 2012 UK Climate Change Risk Assessment¹⁰². was published in 2014¹⁰³. The Second Scottish Climate Change Adaption Programme 2019-2024: A Consultation Draft¹⁰⁴, builds on the work of the first Programme to address the impacts identified for Scotland by the 2017 UK Climate Change Risk Assessment¹⁰⁵ as well as the Evidence Report Summary for Scotland¹⁰⁶. The finalised second adaptation programme is due to be published later in 2019. Both Programmes note that adaptation and resilience of strategic transport networks to cope with the effects of climate change is vital to ensure the continued health of the Scottish economy and the safety and well-being of people and communities accessing lifeline services.
- 7.7.9 In November 2016 the United Nations Framework Convention on Climate Change (UNFCCC) Paris Agreement came into force¹⁰⁷. The Agreement sets out goals to limit global warming to well below 2°C, and to pursue further efforts to limit it to 1.5°C. The Agreement also covers a range of other issues such as mitigation through reducing emissions, adaptation and loss and damage.
- 7.7.10 The Scottish Energy Strategy: The future of energy in Scotland¹⁰⁸ draws together existing Scottish energy policies and new ambitions within a single overarching Strategy, and sets a long term vision for the energy system in

Scotland. The Strategy notes that future transport needs will be met substantially through electricity or alternative fuels, presenting new infrastructure challenges and new patterns of behaviour for users. It also sets out a new 2030 “all-energy” target for the equivalent of 50% of Scotland’s heat, transport and electricity consumption to be supplied from renewable sources.

- 7.7.11 Scotland’s soils and peatlands are the biggest terrestrial store of carbon in Scotland with peatlands alone holding around 1.6 billion tonnes of carbon¹⁰⁹; 60 times more than carbon stored by trees and other vegetation¹¹⁰. Inshore and offshore waters also store a significant resource of blue carbon, including 18 (MtC) or organic carbon stores in the top 10 cm of sediments across Scotland’s seas¹¹¹. 9.4 Mt organic carbon and 47.8 Mt inorganic carbon are contained within surface inshore sediments of SACS and NCMPAs and the habitats they support¹¹².
- 7.7.12 Crown Estate Scotland (Interim Management) leases virtually all seabed inwards of 12 nautical miles and this covers approximately 750 fish farming sites with other aquaculture activities including the leasing of seaweed, shellfish and mussel farms. These include shellfish aquaculture leases in the Firth of Lorn and Loch Linnhe, and fin fish in Loch Tuath¹¹³. Coastal and aquaculture assets have the highest concentration in the West of Scotland where sea level rise is expected to be the lowest with Shetland and the south of the UK experiencing the highest sea level rise¹¹⁴ Figure 23. The productivity and boundaries of aquaculture sites could be impacted by the effects of climate change as a result of sea level rise and its impact on shoreline morphology through coastal erosion and an increase in extreme weather events. Changes such as these can significantly alter the suitability of sites for fish farming, as well as lead to an increased emergence and virulence of diseases, parasites and pathogens found in fish farms¹¹⁵. Figure 22 shows modelled coastal erosion for 2050 with predicted erosion primarily along the east coast of Scotland and alongside island coastlines. This is in close proximity to a number of SCE assets ranging from aquaculture to energy infrastructure.
- 7.7.13 In addition to the above natural assets, built infrastructure is also under risk of the increasing effects of climate change which will continue to alter Scotland’s coastline¹¹⁶. These include mooring sites, which can be affected by sea level rise and coastal erosion¹¹⁷.
- 7.7.14 Crown Estate Scotland (Interim Management) is also responsible for the leasing of rights to renewable energy development and CO₂ storage up to 200 nautical miles from shore. These will play an integral part in the low carbon energy transition¹¹⁸ and include the Acorn Carbon Capture and Storage (CCS) infrastructure based at the St Fergus Gas Terminal on the Aberdeenshire coast. In relation to wind turbine developments, climate change can have an impact on wind power generation through increased seasonal wind variability and wave pattern changes, which could impact site suitability for future wind farm developments¹¹⁹. A number of other built assets could be affected by an increase in extreme weather events, including pipelines and broadband cables such as the Northern Lights cable off the coast of Orkney.

- 7.7.15 Globally, sea level is projected to continue to rise up to and beyond 2100 due to GHG-related thermal expansion, and loss of mass from ice sheets and glaciers¹²⁰. This will have strong regional patterns and by 2100 sea level rise in Edinburgh is expected to be between 0.08 – 0.49 m and 0.30 – 0.90 m for the low and high emissions scenarios respectively¹²¹. It is also expected that a significant increase in the occurrence of sea level extremes, such as storminess and storm surges, by 2100 is also likely.
- 7.7.16 Changes to temperature and rainfall patterns and intensity are affecting woodlands in Scotland. While productivity is likely to increase due to warmer summers where nitrogen and water are not limiting factors, a warmer climate can contribute to the spread of INNS and pathogens, contributing to habitat fragmentation and further impacting wider ecosystem services and biodiversity. SCE forests are currently composed of a mixture of semi-natural woodland and conifer plantations. However, a changing climate is expected to alter the suitability distribution and growth rates of a number of species¹²².

7.8 Cultural Heritage

- 7.8.1 Scotland's historic and cultural heritage environmental objectives are set by a range of policies, programmes and strategies. At EU level, the European Convention on the Protection of the Archaeological Heritage (the Valetta Treaty) protects archaeological sites and heritage relating to past human activity both on land and in water. The treaty also sets out provisions for the creation of archaeological reserves and protection of excavated sites.
- 7.8.2 At national level, the Historic Environment Scotland Act 2014 expands on existing provisions for ancient monuments and listed buildings and amends provisions by the Environment (Amendment) (Scotland) Act 2011, Ancient Monuments and Archaeological Areas Act 1979 and Planning (Listed Buildings and Conservation Areas) (Scotland) Act 1997 . It also creates new provisions for the designation of battlefields, gardens and other landscapes of historic significance.
- 7.8.3 In marine environments, historic Marine Protected Areas (HMPAs) are designations created through the Marine (Scotland) Act 2010 and later amended through the Historic Environment Scotland Act 2014. These ensure the protection of historic heritage in marine and coastal environments.
- 7.8.4 The Historic Environment Policy Statement (HEPS) works in conjunction with the Our Place in Time: The Historic Environment Strategy for Scotland to set out a policy framework for the protection and enhancement of Scotland's historic environment. HEPS wants to ensure that decision-making affecting the historic environment in Scotland, such as funding decisions, estate management, as well as agriculture, energy and planning policy, is done in a way which promotes and protects Scotland's historic heritage.
- 7.8.5 Provisions for the care of the historic environment and cultural heritage are also more widely set within the context of the National Planning Framework and Scottish Planning Policy.

Terrestrial Historic Environment

- 7.8.6 There are 35 Crown properties in Scotland of which eight are buildings in good condition. These include Edinburgh Castle, Stirling Castle, Argyll's Lodging, Blackness Castle, Linlithgow Palace, Fort Charlotte, Dunblane Cathedral and Glasgow Cathedral.
- 7.8.7 Crown Estate Scotland (Interim Management) also owns and leases buildings on 39 – 41 George Street in the centre of Edinburgh which fall within the Edinburgh World Heritage Site Boundary (WH2) and New Town Conservation Area. (Figure 20).
- 7.8.8 The Glenlivet Estate contains a number of listed buildings and sites, including Bridgend of Glenlivet, Glenlivet Distillery, Battle of Glenlivet Battlefield. A number of designated historic environments fall within the Fochabers Estate including Tugnet Salmon Fishing Station (listed building); Prehome Chapel House (listed building); Cowiemuir Cairn and Stone Circle (scheduled monument); Leitcheston Dovecot (listed building) and Gordon Castle "garden and designated landscape. Figure 21 shows historic environment designations within Glenlivet.
- 7.8.9 In considering the land and property that Crown Estate Scotland (Interim Management) leases to tenants, the majority of historic sites in Scotland (between 90 and 95%) are undesignated. These are included within the 320,000 records contained by the Canmore database. Despite not being designated, these are of historic and cultural importance to local communities.
- 7.8.10 The condition of undesignated historic heritage is largely unknown, while that of designated sites is generally moderate with site variation. In 2017, 68% of pre-1919 buildings were in any critical disrepair, while 5% were in critical, urgent and extensive disrepair. The prevalence of disrepair in critical elements is found to be associated with the age of construction with dwellings built post – 1964 having lower rates of disrepair. 83% of scheduled monuments are considered to be in optimal or generally satisfactory condition and 750 historic buildings on the Buildings at Risk Register (BARR) have been saved between 2009 and 2018 with more than 200 others in the process of being restored.

Marine Historic Environment

- 7.8.11 Underwater historic heritage includes the remains of aircraft, sea vessels and items lost overboard but little is known about underwater heritage in comparison to terrestrial records. Underwater heritage can be located in the water column or on the seabed or beneath sediment. Marine heritage also includes remains of structures which were built under or partially suspended in water, such as fish traps, crannogs, piers and bridges.
- 7.8.12 There are eight historic MPAs in Scotland's waters, including listed lighthouses and scheduled monuments. Crown Estate Scotland (Interim Management) owns and manages assets off the coast of the Orkney Islands in close proximity to the Heart of Neolithic Orkney World Heritage Site, which contains sites such as Skara Brae and Maeshowe, and Scapa Flow which has a number of German High Seas Fleet wrecks belonging to Crown Estate

Scotland (Interim Management). All of the historical MPAs are also within the 12 nautical mile boundary where Crown Estate Scotland (Interim Management) has the right to issue leases which might impact on these. Figure 20 shows HMPAs in relation to SCE assets.

- 7.8.13 There are also a number of historic designations within salmon river fishing SCE asset areas such as 3 scheduled monuments and 37 listed buildings in Glasgow's Coatbridge North Ward where Crown Estate Scotland (Interim Management) leases the River Clyde and North Calder Water salmon fishing rights.

7.9 Landscape and Visual

- 7.9.1 Scotland is internationally renowned for its varied and dramatic landscapes including impressive mountain ranges, broad plateaus, expansive lowlands, and striking coastal features. Many of these landscapes are the result of ancient glacial and periglacial activity as well as changes in sea level. The primary classifications are the Central Lowlands, the Highlands and Islands to the north and west, and the Southern Uplands. Situated among these natural features are the many iconic manmade landmarks and townscapes that help to give Scotland its reputation as a tourist destination.
- 7.9.2 The European Landscape Convention recognises the importance of landscapes for the cultural, social and economic development of Member States and aims to safeguard these through protection, management and planning considerations.
- 7.9.3 At the national level there are a range of plans and programmes relating to landscapes, including the SNH Landscape Policy Framework, Scottish Biodiversity Strategy, SNH Natural Heritage Futures national prospectuses. At the regional and local levels, there are a range of plans, such as Local Development Plans, National Park Management Plans and other local landscape plans and initiatives focusing on preserving and enhancing sensitive landscapes. Landscapes of the highest quality have been designated and include 40 National Scenic Areas (NSA) and two National Parks.
- 7.9.4 Wild land character is displayed in some of Scotland's more remote upland, mountain and coastal areas, which are very sensitive to any form of intrusive human activity. Wild land areas as shown on SNH's Wild Land Areas Map (2014) are not a designation, however Scottish Planning Policy recognises these areas as 'nationally important'. In some circumstances development may be appropriate on wild land, where any significant effects on the qualities of these areas can be substantially overcome by siting, design or other mitigation.
- 7.9.5 There is a high concentration of wild land and National Scenic Areas (NSAs) along the west coast of Scotland, where a number of SCE aquaculture and other coastal assets are located, and in the Highlands (Figure 10). The Glenlivet rural estate also stretches across areas of the Cairngorms National Park.

- 7.9.6 Scotland's landscapes have evolved over thousands of years as a consequence of natural and cultural forces, and they are still changing. In general landscape change has not resulted in any types of landscape character being lost or significantly altered despite important changes to some physical elements of landscapes resulting in observable trends. Regional and local landscapes are becoming less distinct as a result of more similarity in building form, settlement patterns, and agricultural practices. For example, the development of renewable energy technology such as wind farms is affecting the extensive views and strong natural character of many of Scotland's rural landscapes. Similarly, in agriculture there has been a focus on maximising yields which has resulted in a move towards a monoculture, at the expense of a more diverse landscape of field types and hedgerows.
- 7.9.7 The seascape surrounding terrestrial Scotland is also impacted by the development of marine aquaculture. Aquaculture development is predominantly located along the western and northern coasts of mainland Scotland, as well as around many of the offshore islands. The continual development of marine aquaculture has the potential to impact coastal character and visual amenity, if poorly sited or designed. In addition to aquaculture development, energy generation development, including on and offshore windfarms can impact landscape and seascape if poorly sited and designed.
- 7.9.8 Scotland's National Marine Plan recognises the importance of landscape and geodiversity features beyond site designations and considers them for their scenic and geological values.
- 7.9.9 Climate change is expected to lead to extensive landscape change across Scotland with the greatest changes likely to occur in lowland and coastal areas where human population is highest. Direct impacts are likely as a result of changing temperatures and patterns of precipitation, weather events, and sea level change. However, mitigation and adaptation measures are expected to have a greater influence on both Scotland's landscapes and quality of life than the direct effects of climate change¹²³.
- 7.9.10 The coast and foreshore are under many pressures particularly from climate change, rising sea level and coastal erosion. These areas are also very important recreational resources, which is dependent on the landscape and environmental quality of these areas¹²⁴.
- 7.9.11 Development and changes in land use associated with urban expansion associated infrastructure, is also a key pressure and the distinctive landscape settings of many towns and cities is being lost as a result of settlement expansion and the need for associated infrastructure. Measures that seek to reduce the need to travel, manage demand and encourage modal shift, could in turn reduce the need for new infrastructure and consequently reduce the likelihood of disturbance to the landscape posed by new construction¹²⁵.

Appendix C: Environmental Baseline Maps

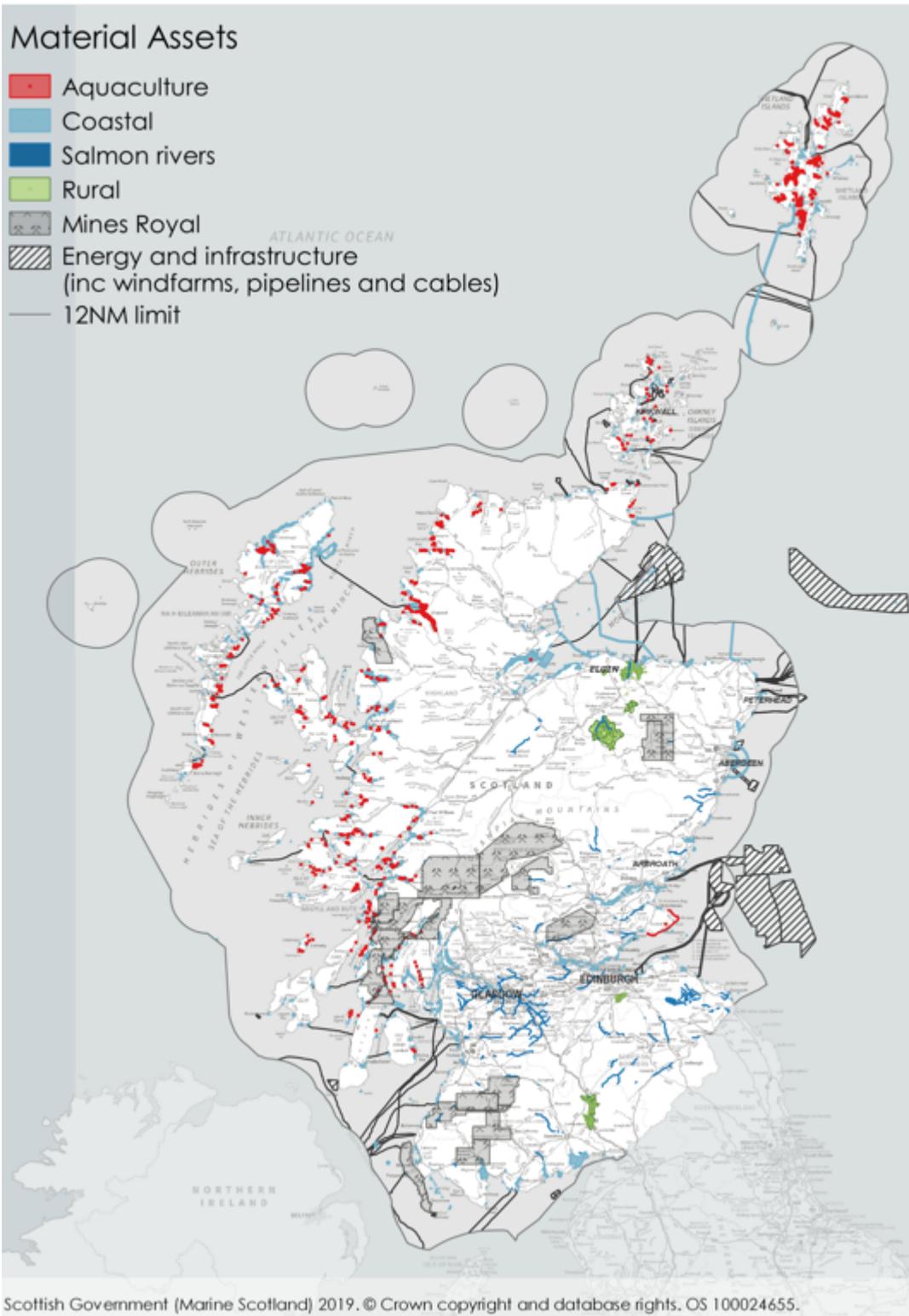


Figure 6: SCE assets and their distribution across Scotland

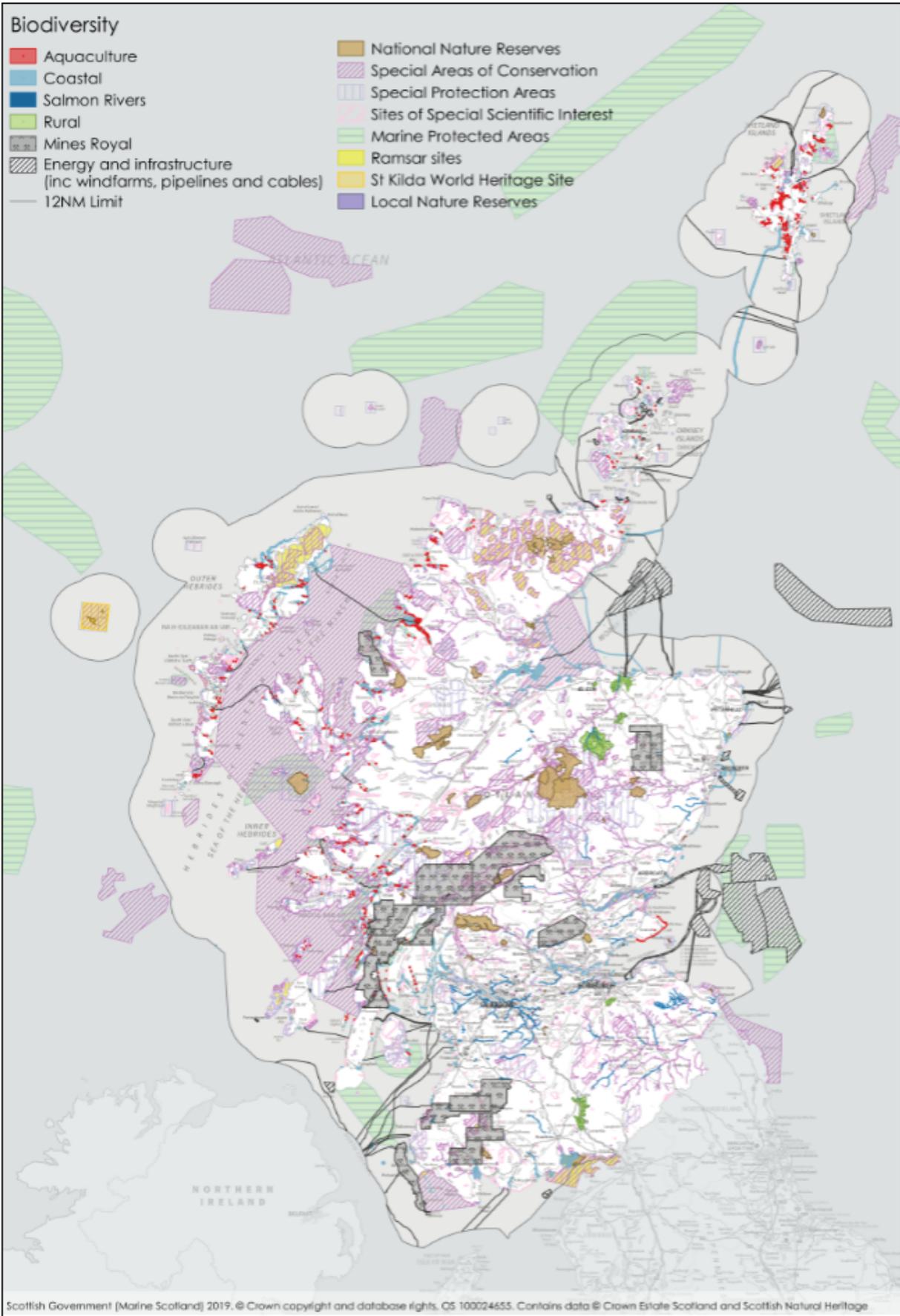


Figure 7: SCE assets and biodiversity designations

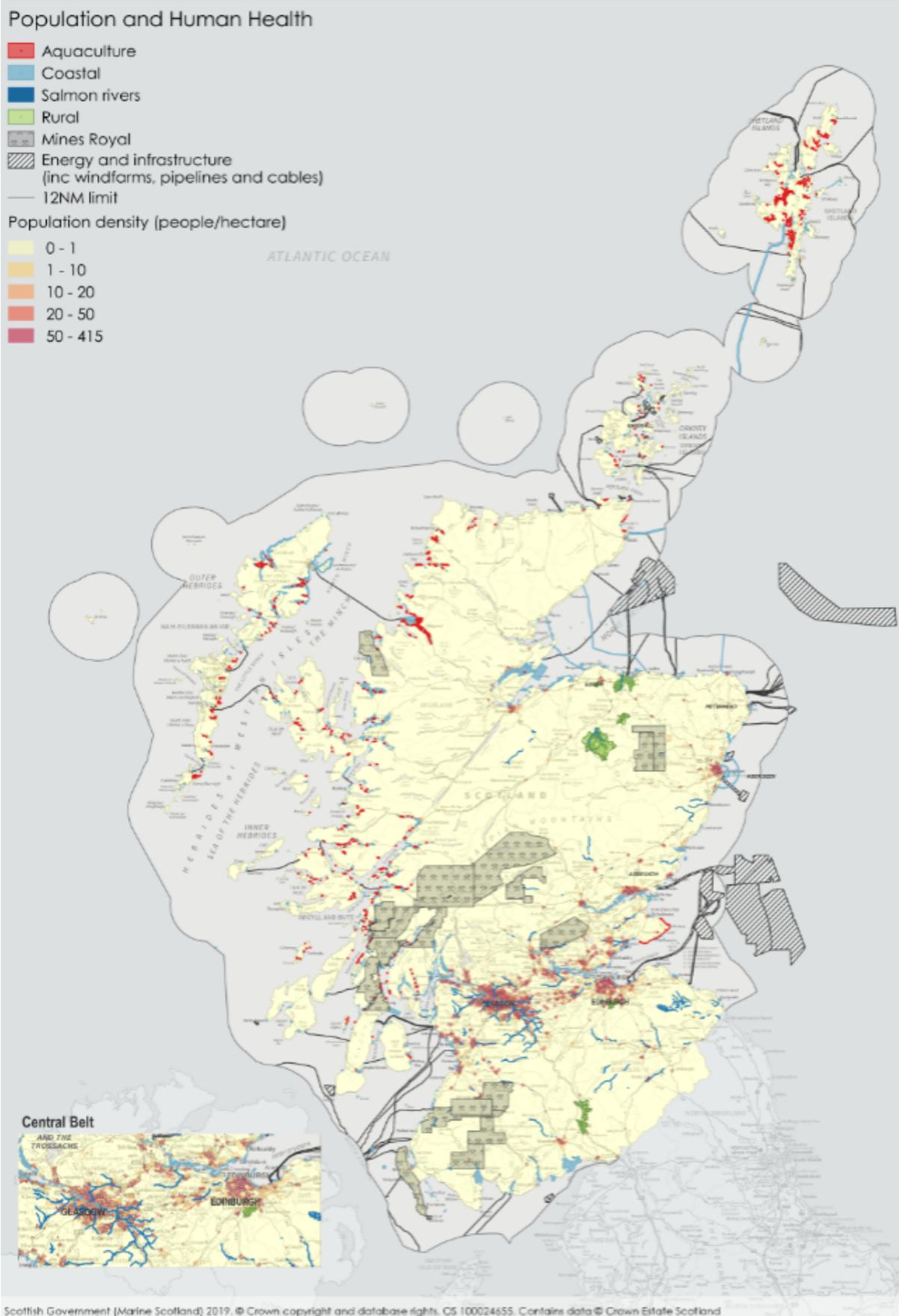


Figure 8: SCE assets and population density (people/hectare)

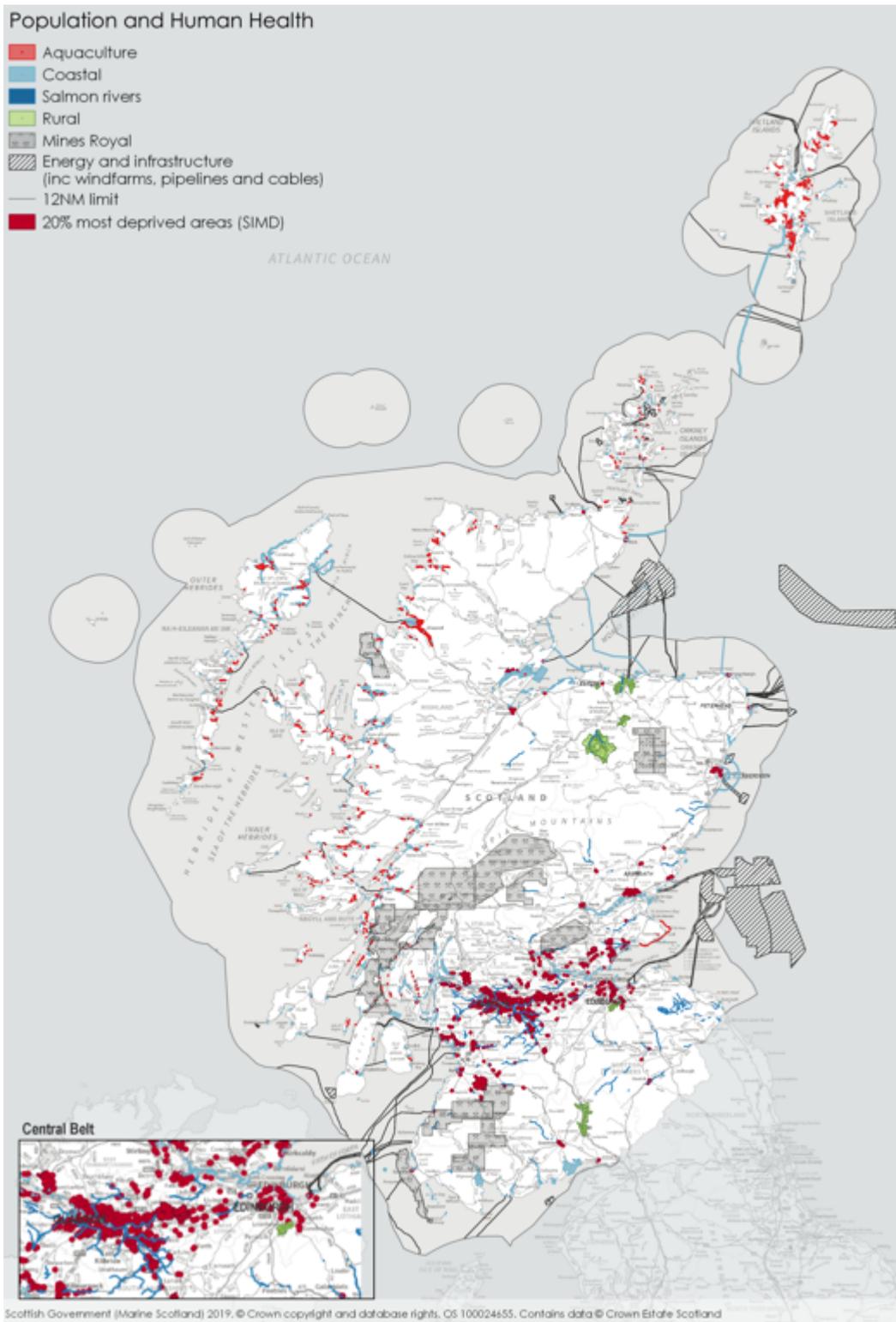


Figure 9: SCE assets and 20% of the most deprived areas based on the Scottish Multiple Index of Deprivation (SIMD)

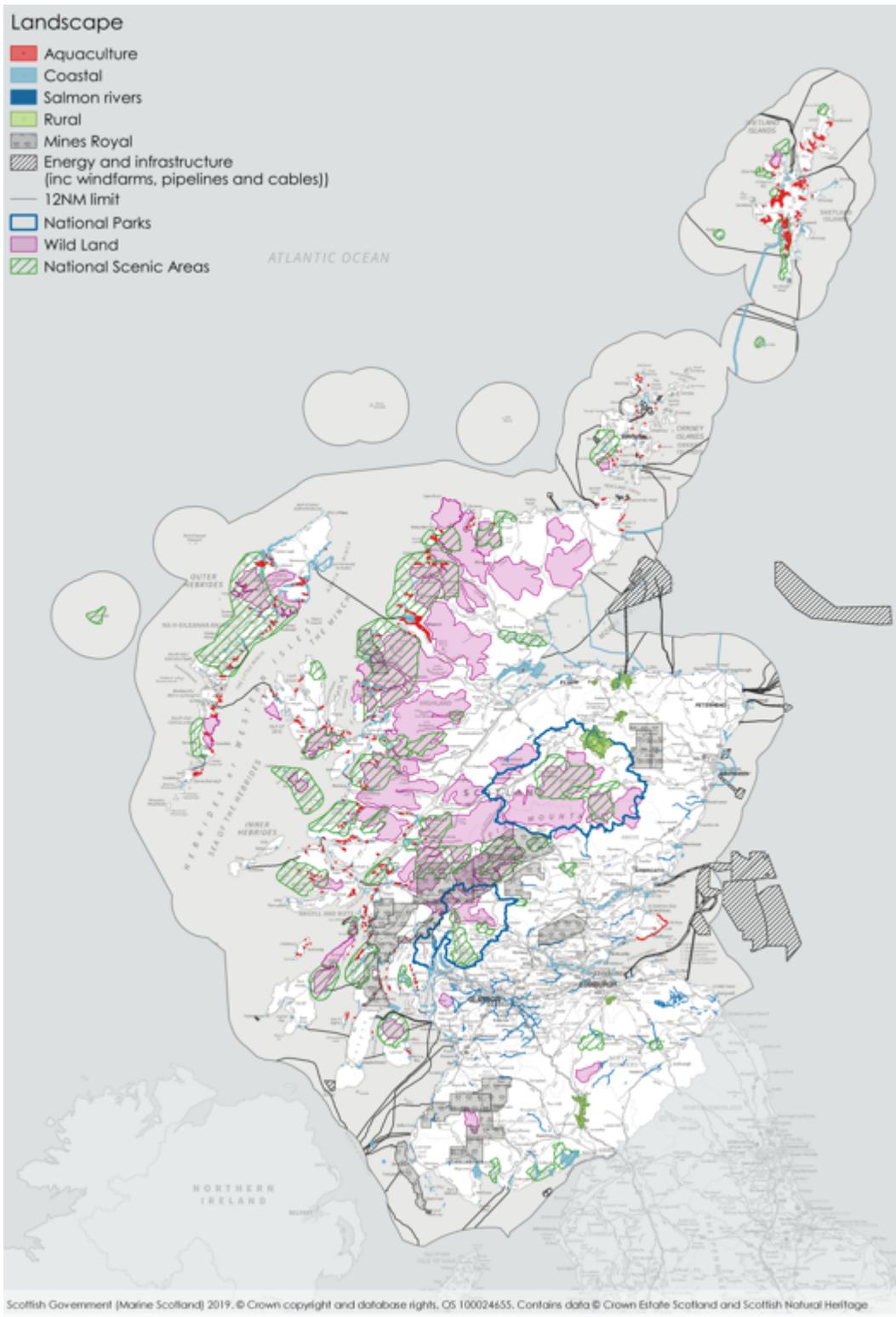
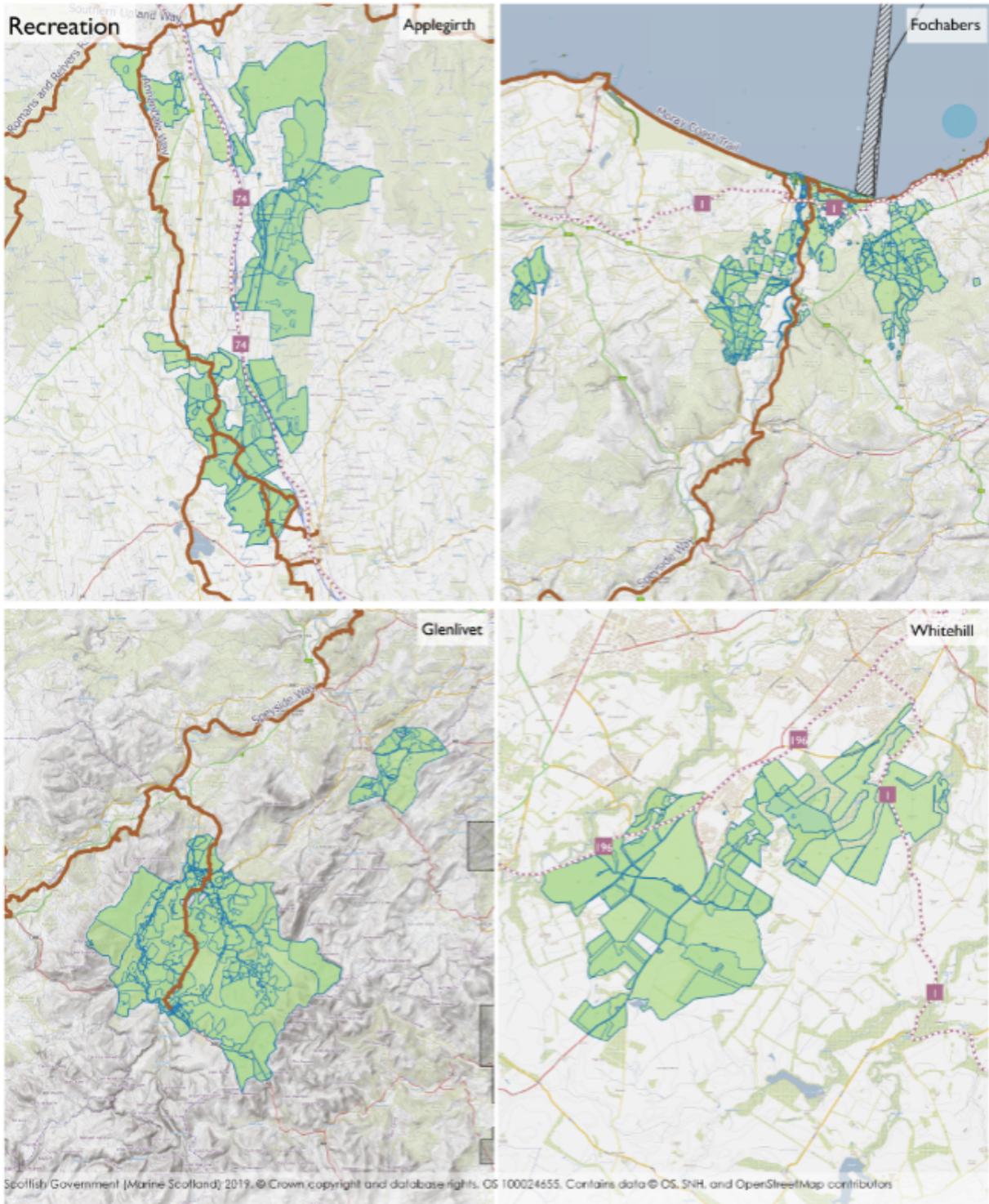


Figure 10: SCE and landscape designations



Recreation

- Coastal
- Salmon Rivers
- Rural
- Energy and infrastructure (inc windfarms, pipelines and cables)
- Mines Royal
- Scotland's Great Trails
- National Cycle Network

Figure 11: SCE rural estates and recreation

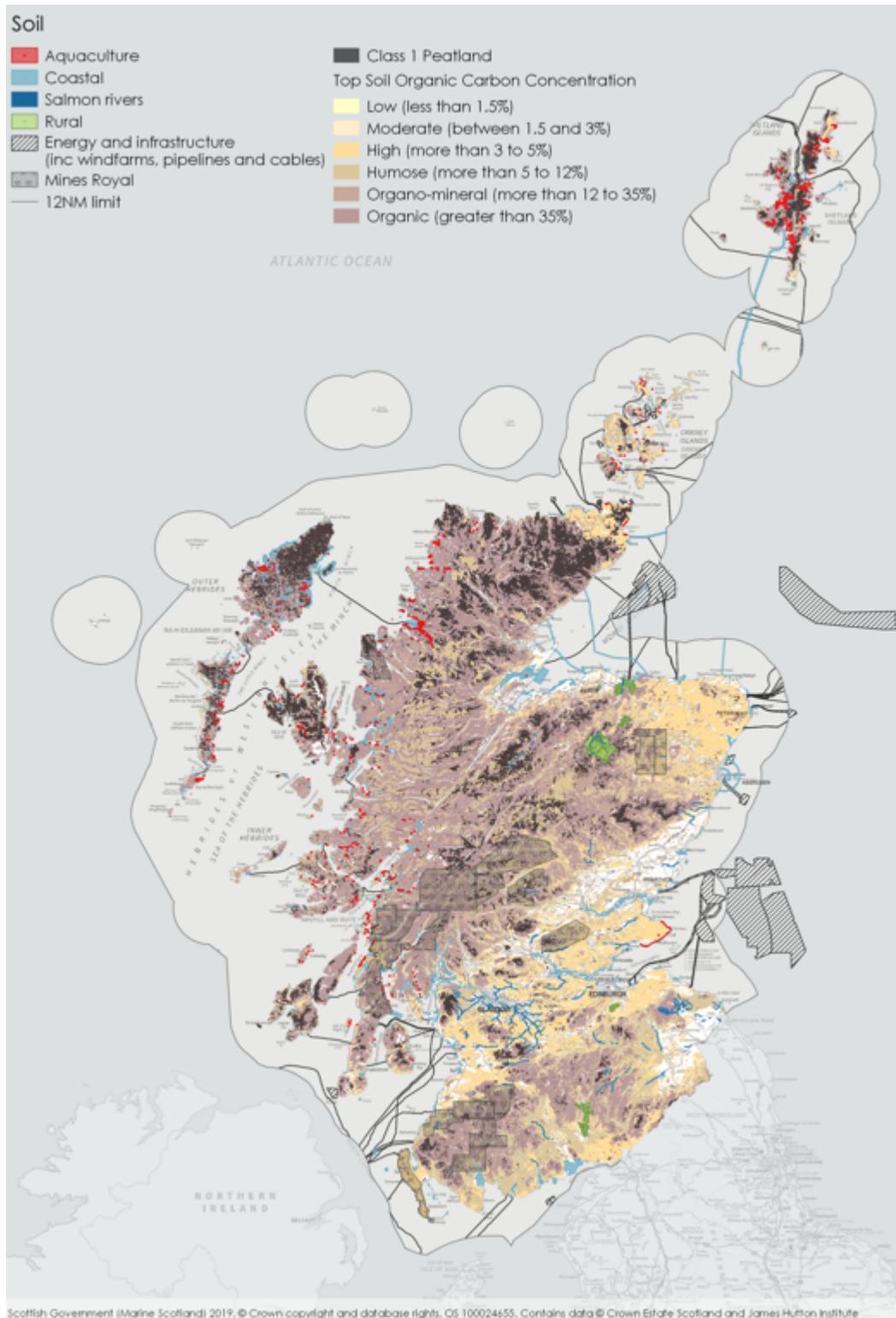


Figure 13: SCE assets, top soil organic carbon concentration and class 1 peatland

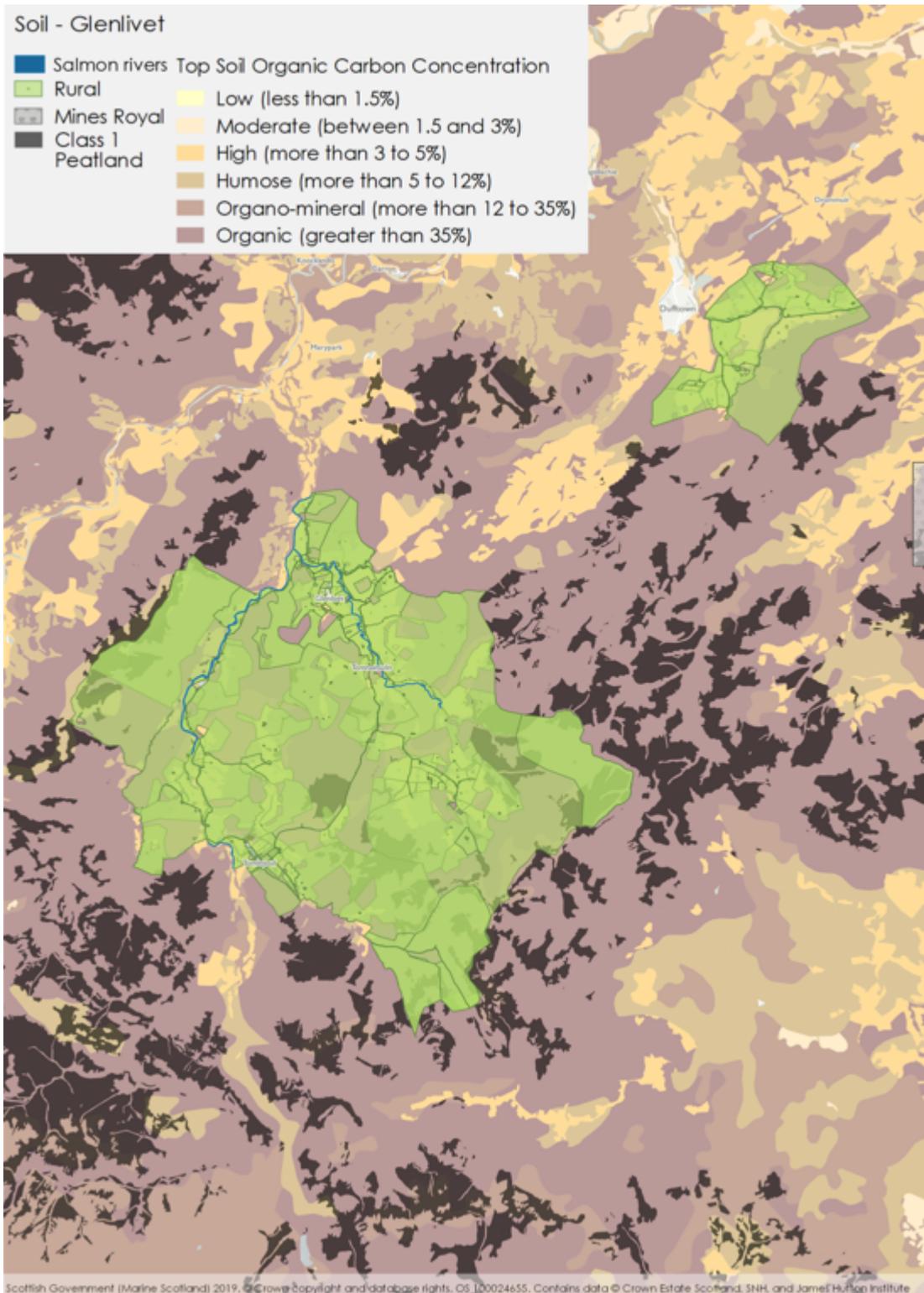


Figure 14: Glenlivet rural estate top soil organic carbon concentration and class 1 peatland

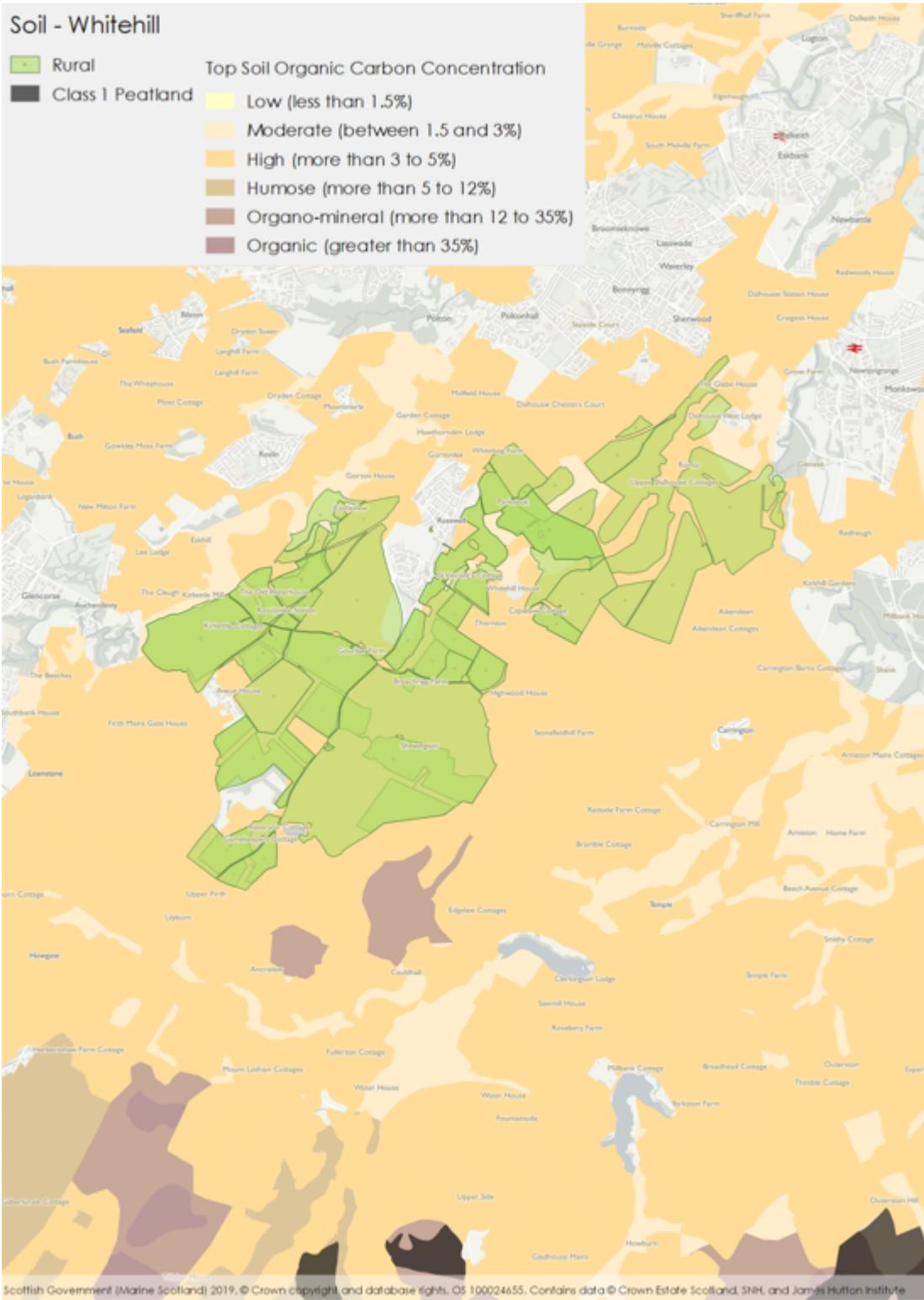


Figure 15: Whitehill rural estate top soil organic carbon concentration and class 1 peatland

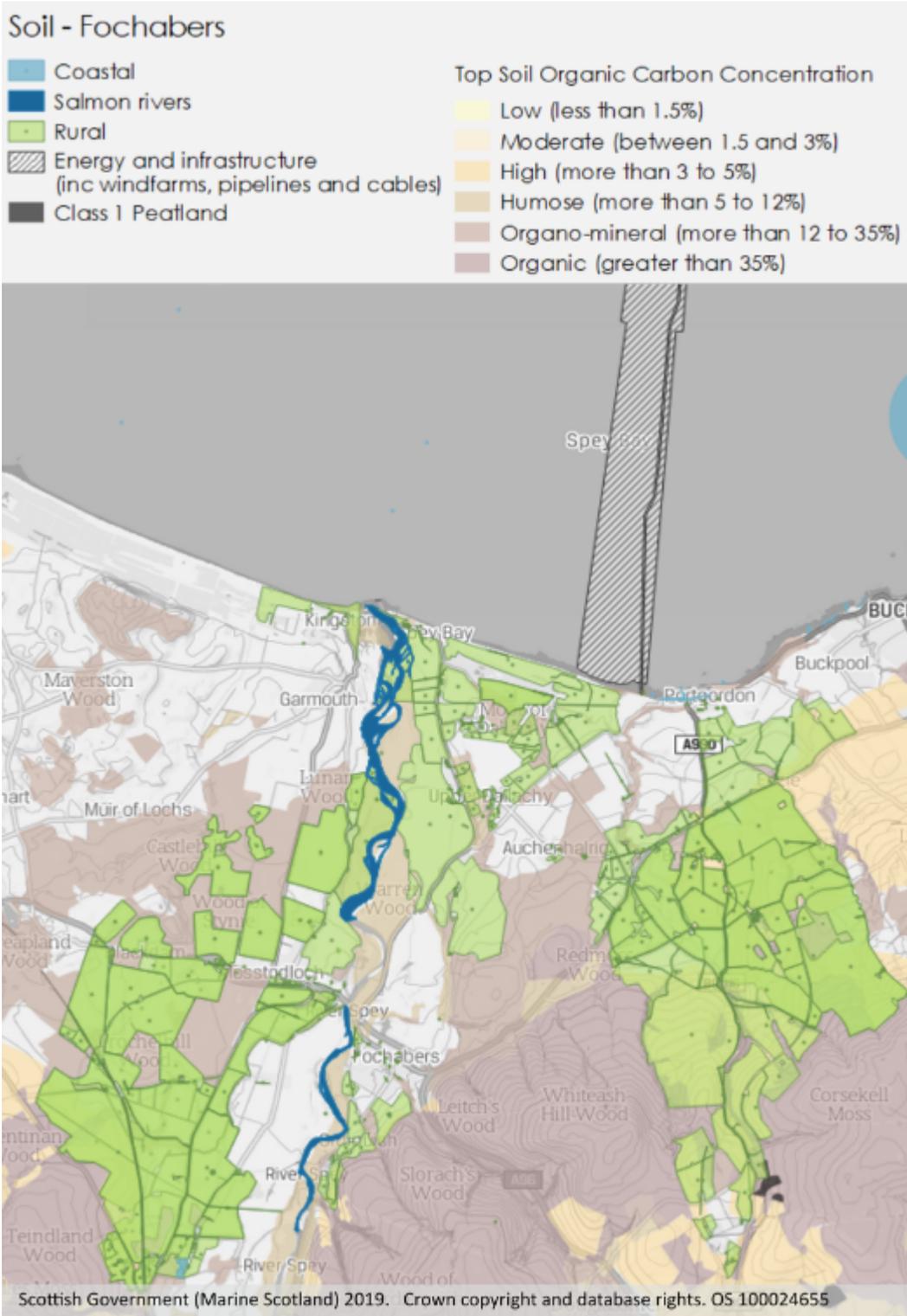


Figure 16: Fochabers rural estate top soil organic carbon concentration and class 1 peatland

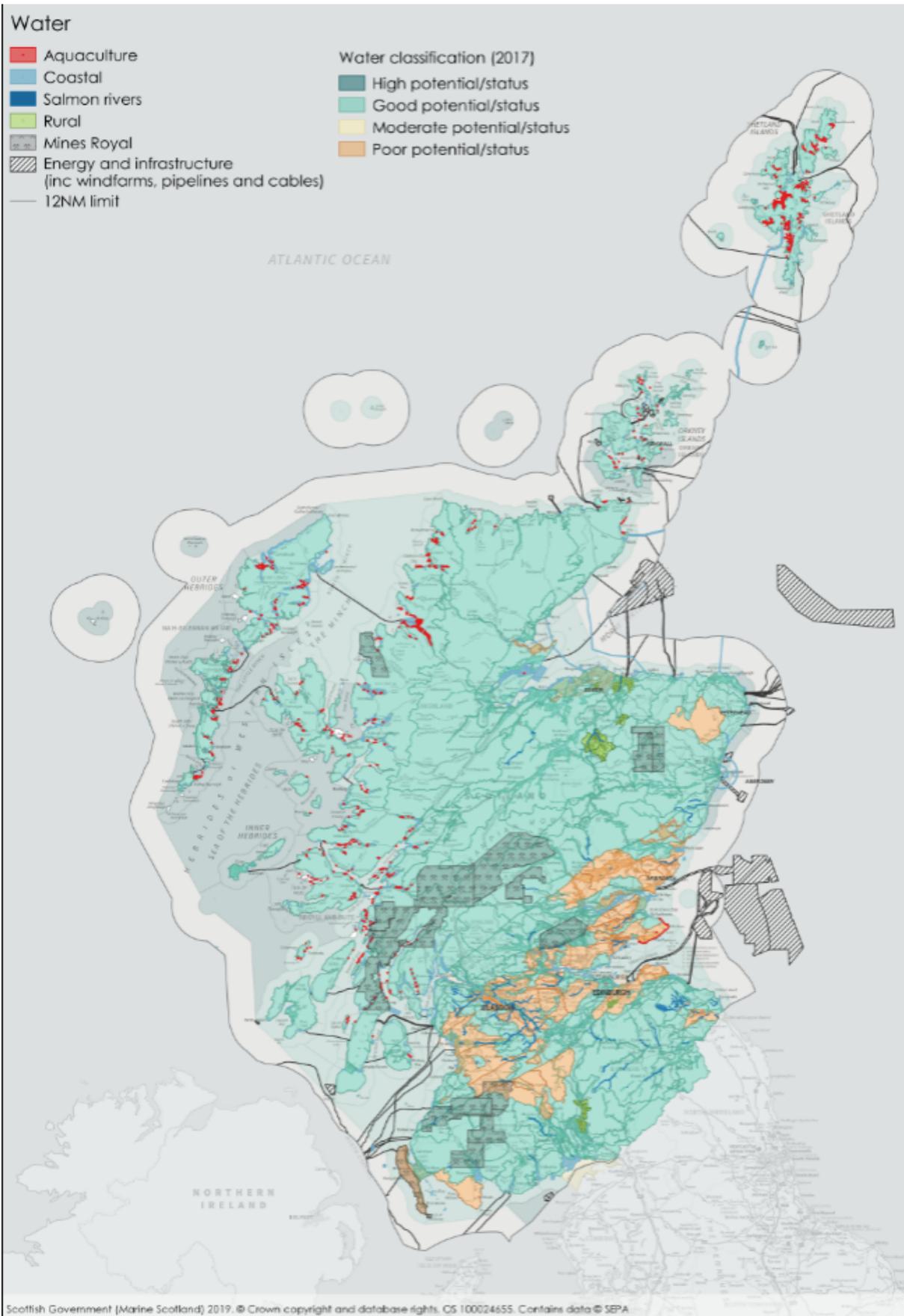


Figure 17: SCE assets and water classification (2017)

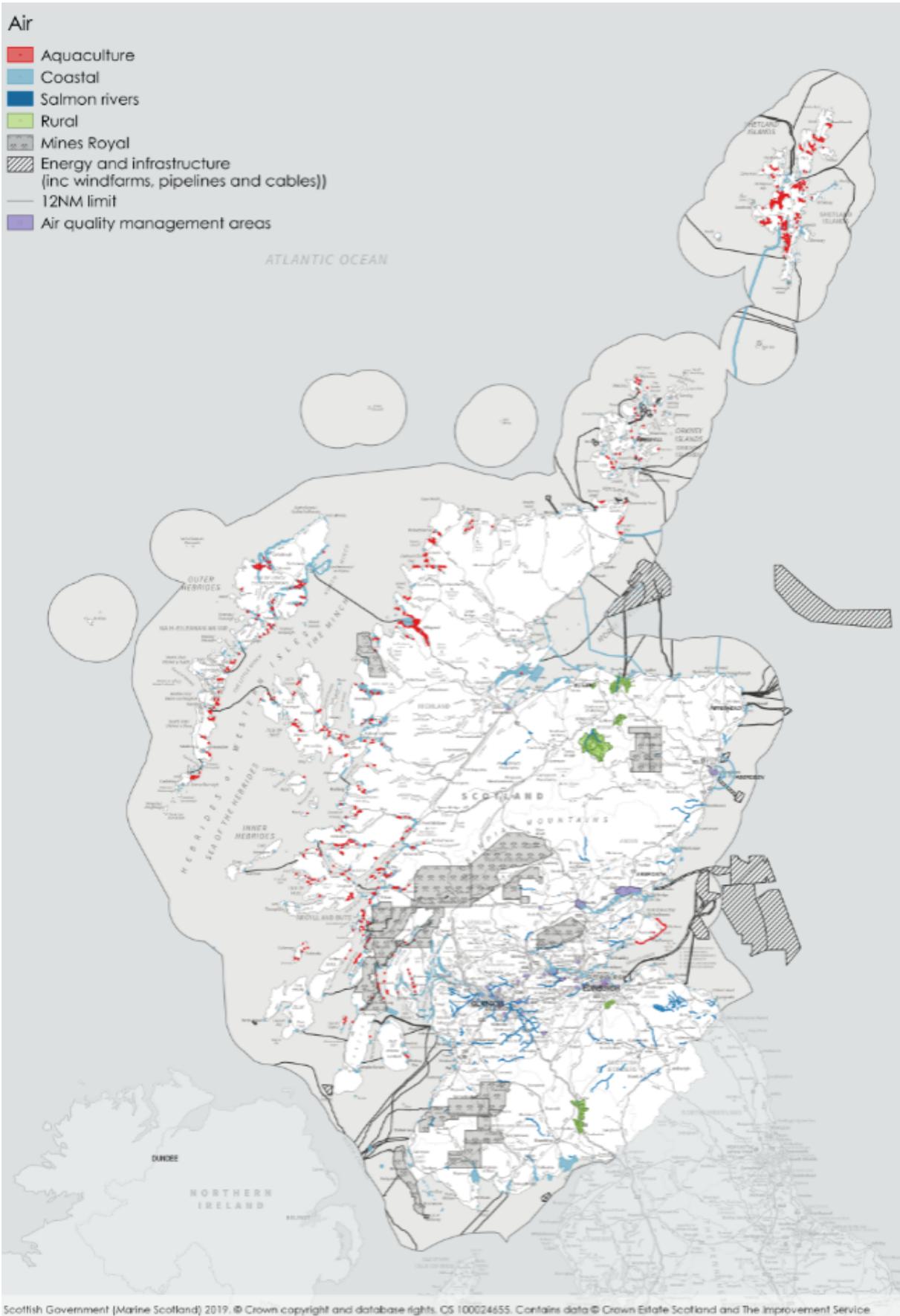


Figure 18: SCE assets and Air Quality Management Areas (AQMAs)

Air

- Aquaculture
- Coastal
- Salmon rivers
- Rural
- Mines Royal
- Energy and infrastructure (inc windfarms, pipelines and cables)
- 12NM limit
- Air quality management areas



Figure 19: SCE assets and AQMAs in Perth, Dundee, Aberdeen and the Central Belt

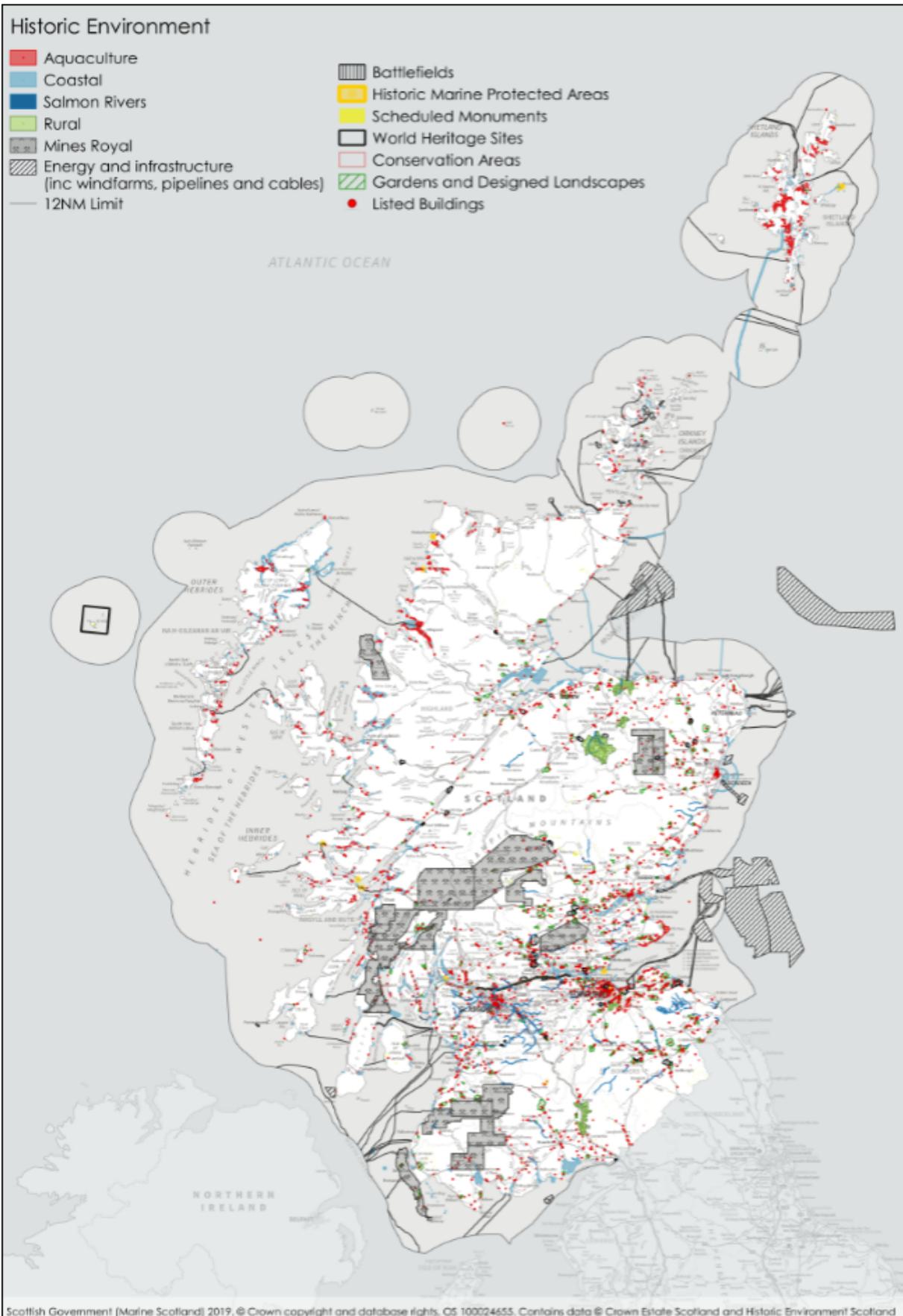


Figure 20: SCE assets and historic environment designations

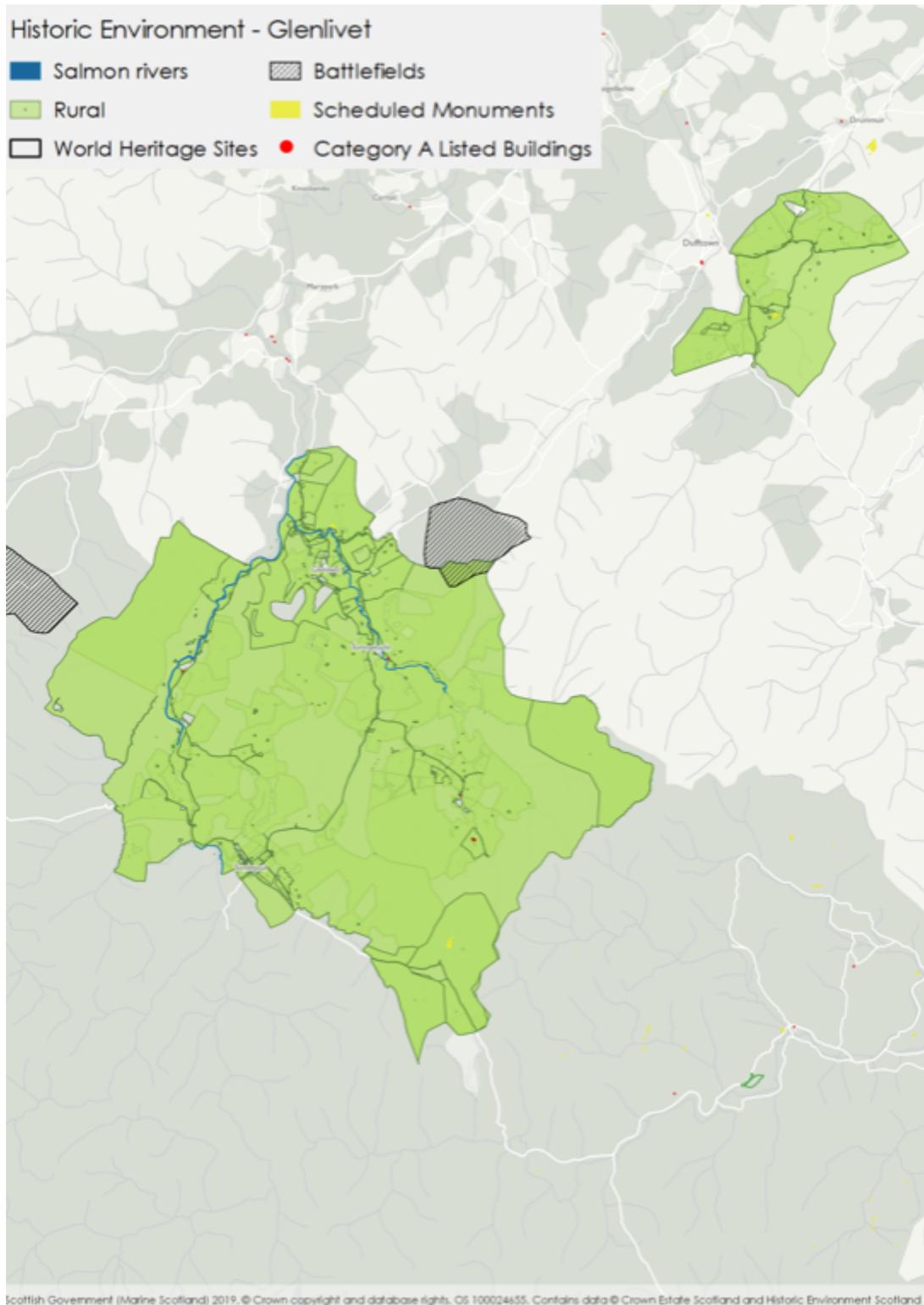


Figure 21: Glenlivet rural estate and historic environment designations

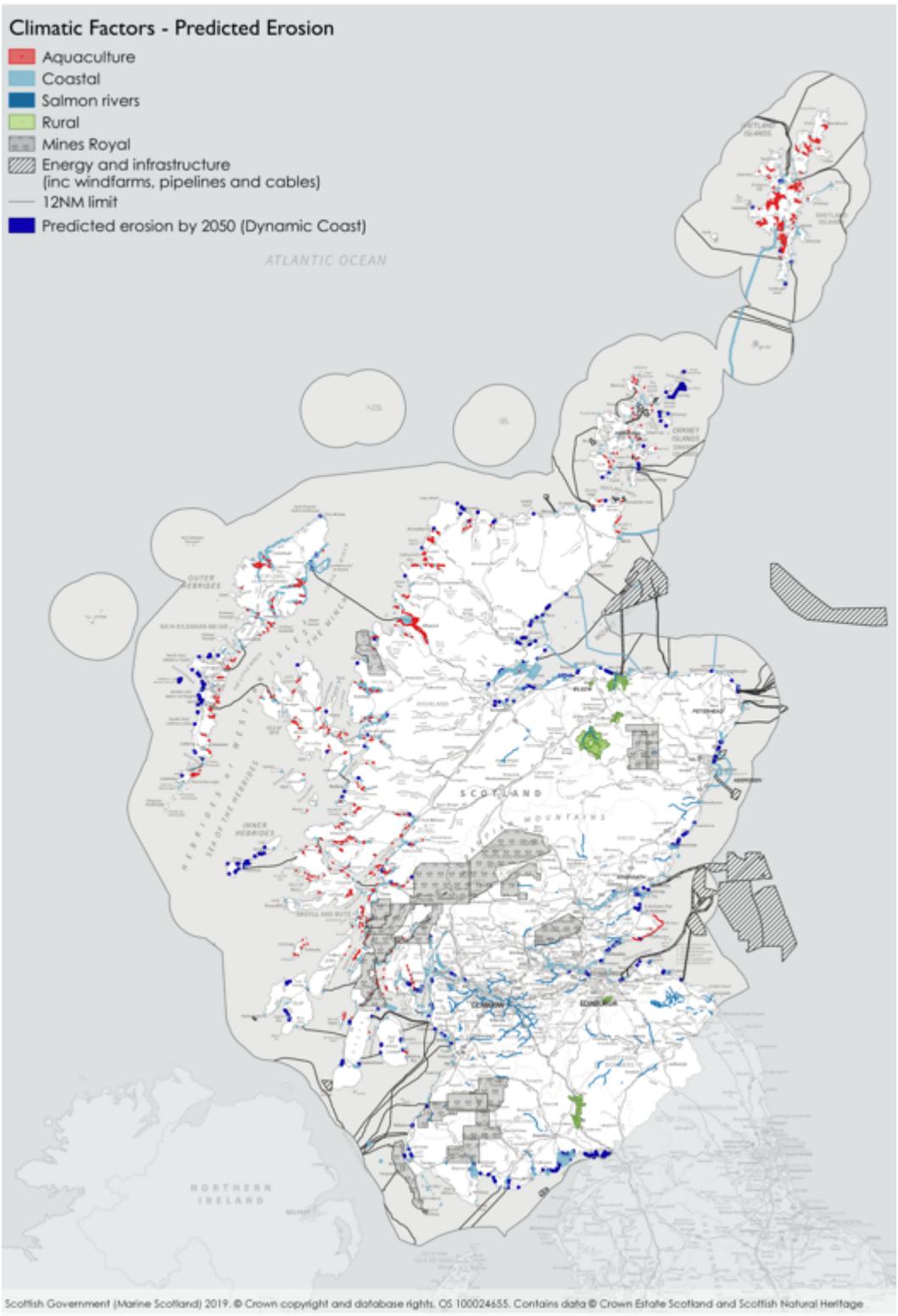


Figure 22: SCE assets and predicted coastal erosion by 2050

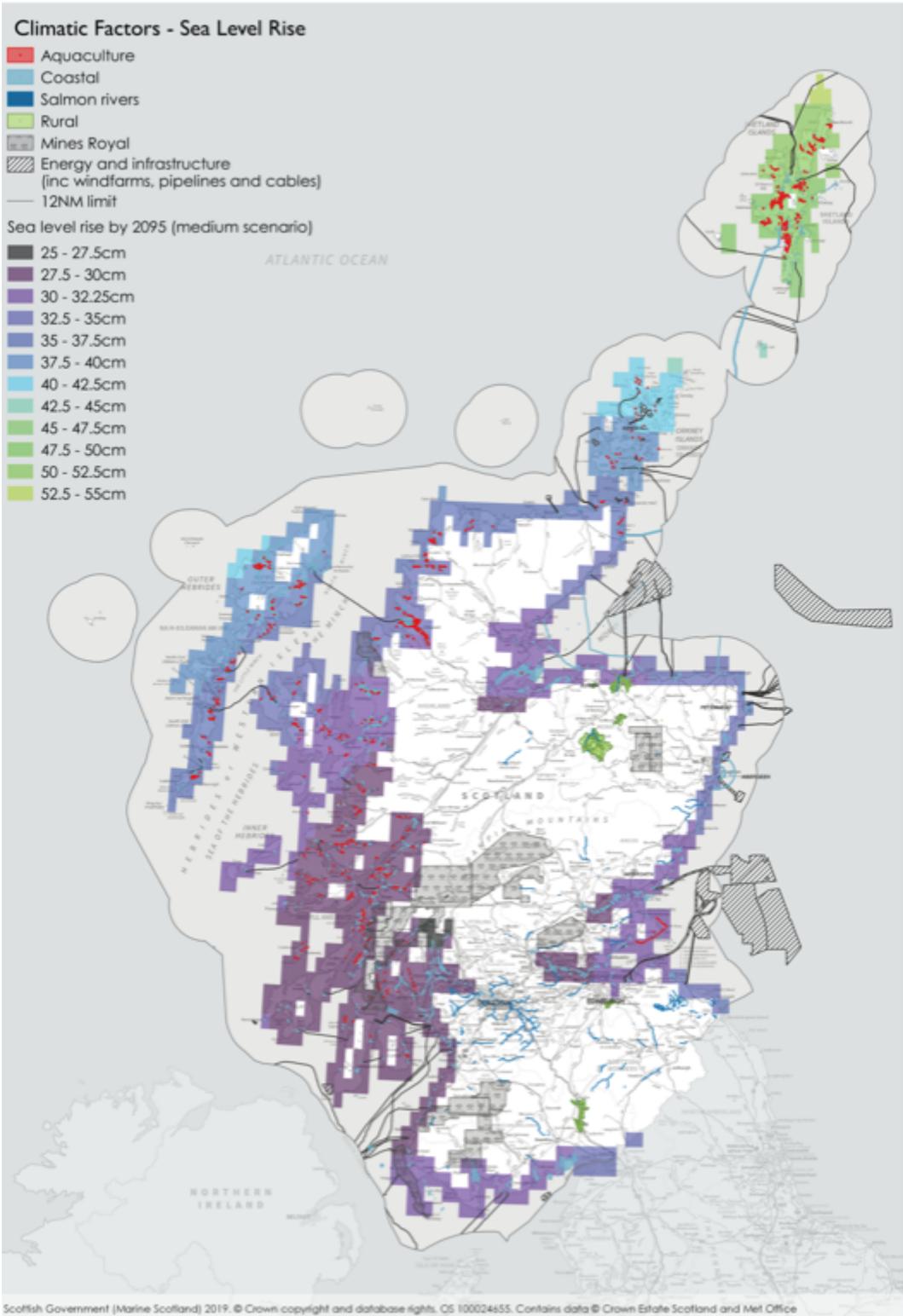


Figure 23: SCE assets and predicted sea level rise by 2050 for a medium emissions scenario based on UKCP09 projections

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