

# Delivering Scotland's Blue Economy Approach



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# Ministerial foreword



Earlier this year, I published the Blue Economy Vision for Scotland. The Vision set out, for the first time, a long-term, outcomes based approach for the management of our marine environment. It provides an overarching framing for Scotland's marine policies, plans and decisions.

Under the Vision for 2045, we defined six interconnected outcomes to achieve social, environmental and economic goals, in tandem, for our seas, coasts and inter-linked freshwater habitats.

Within our Vision, we recognise the importance of Scotland's seas and coasts, including through their many and varied contributions to our food security, sustaining biodiversity, regulating our climate, supporting economic prosperity, nourishing our wellbeing and underpinning our cultural heritage.

However, we also acknowledge that Scotland's seas, like other nations', face growing pressures from the twin crises of climate change and nature loss. Without halting and reversing this marine environmental decline, we risk our ability to harness economic and social benefits from our marine resources. The Vision also acknowledges that the ongoing consequences of leaving the European Union, the COVID-19 pandemic, and now the emerging cost crisis, have altered the operational landscape for businesses and wider society, and are impacting our marine sectors and coastal communities. The challenges we face, and our new operational landscape, have created a pressing need, as well as a window of opportunity, to transform the way that we use our marine environment through a Blue Economy approach.

We have already seen that our Vision has catalysed action across Scotland, and there are a growing number of local case studies where people and organisations are embracing Blue Economy thinking and driving forward change. The Scottish Government also has a large programme of work underway that will help us progress towards our six Blue Economy outcomes. Taking stock of this activity, and understanding how it aligns with our outcomes, is a vital first step in delivering our Vision. It is also important for us to understand the types of enabling interventions and tools that we have at our disposal to ensure progress.

This document provides an illustration of where Scotland's Blue Economy is now. It sets out the current status of our marine environment, economy and society, and how planned policies and actions will help to drive progress. The document serves as the foundation for a national dialogue with our stakeholders to help us identify new strategic priorities and opportunities.

All of Scotland's society, including the public sector, businesses and organisations, communities and private individuals will have a role to play in achieving our Vision. With a shared ambition and coherent strategies, I look forward to building collective ownership of our Blue Economy so that all of Scotland's citizens, visitors and future generations can benefit from our vibrant seas and rich marine environment.

**Mairi Gougeon**

**Cabinet Secretary for Rural Affairs and Islands**

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# 1. Introduction



## Blue Economy Vision Statement

**By 2045, Scotland's shared stewardship of our marine environment supports ecosystem health, improved livelihoods, economic prosperity, social inclusion and wellbeing.**

The Blue Economy Vision was published by the Scottish Government in March 2022. The Vision sets out the need for transformative change to create fairer, more prosperous, nature-positive marine sectors and communities. It defines our long-term ambition for shared stewardship of Scotland's marine environment, which puts nature on a more equal footing with social and economic considerations. At its core, our vision recognises that economic prosperity and well-being are embedded within nature, and in order to harness blue opportunities, we must transform our economy and society to thrive within the planet's sustainable limits. By delivering the Blue Economy Vision, we will ensure that our marine assets support Scotland's wider goal to become a wellbeing economy as set out in the [National Strategy for Economic Transformation](#).

We have defined Scotland's Blue Economy as encompassing:

- » all sectoral and cross-sectoral economic activities on, or related to, the ocean, coasts and interlinked freshwater environments
- » the physical and ecological components of the marine environment
- » all people connected to the sea
- » relevant legislation, policies, programmes and international commitments
- » scientific research that enables evidence-informed policy and evaluates success





Figure 1  
Scotland's Blue Economy

Figure 1 sets out the aspects which make up Scotland's Blue Economy.

Alongside the Vision, we presented six interlinked outcomes to provide a focus for the efforts of the Scottish Government and our partners as we collectively work towards delivering shared stewardship of our Blue Economy (Box 1). Two of the Blue Economy outcomes describe our ambitions for the environment, focussing on nature, climate change and sustainable use of resources. A further two outcomes describe our aspirations for sectors that operate within the Blue Economy, with a focus on innovation, investment in Scottish supply chains, sustainability and international trade. The final two outcomes describe our ambitions for the people and communities of Scotland, focussing on equality, civic engagement and skills and lifelong learning. A successful Blue Economy approach will mean pursuing all six outcomes in tandem, and, ultimately, a transition away from conventional thinking that stipulates we must always trade off economic production against environmental protection, to instead recognising that we can achieve both. There will be difficult choices in delivering this transformation.

Science and evidence must underpin decision-making about what activities are prioritised where and when, and we must consider co-dependencies, interactions synergies between different interests and any cumulative impacts. It will be important to ensure sufficient time and support to those within the Blue Economy as part of this transformation.

The Blue Economy Vision and outcomes represent a long-term strategy document that serves as an overall framework for policies and actions. In order to achieve the Vision and outcomes by 2045, we recognise that we will need a combination of immediate, priority actions, and the development of longer-term decision-making tools, guidance and transformation plans. We need an approach that allows us to respond to new challenges and opportunities as they emerge. We also need to be able to measure our progress and evaluate our success to ensure that the right changes are happening. This means that we must take an adaptive approach, with multi-phased delivery of the Blue Economy Vision required between now and 2045.

## BOX 1 : the six Blue Economy outcomes

- » **EN1 Natural Capital Outcome:** Scotland's marine ecosystems are healthy and functioning, with nature protected and activities managed using an ecosystem-based approach to ensure negative impacts on marine ecosystems are minimised and, where possible, reversed.
- » **EN2 Climate Change Outcome:** Scotland's Blue Economy is resilient to climate change, contributing to climate mitigation and adaptation, with marine sectors decarbonised, resource efficient and supporting Scotland's Net Zero and Nature Positive commitments.
- » **EC1 Economic & Trade Outcome:** Established and emerging marine sectors are innovative, entrepreneurial, productive and internationally competitive.
- » **EC2 Food Security, Nutrition & Health Outcome:** Scotland is a global leader in healthy, quality, sustainably harvested and farmed Blue Foods, for our own population and beyond.
- » **SO1 Social Inclusion & Equalities Outcome:** Thriving, resilient, regenerated, healthy communities have more equal access to the benefits that ocean resources provide.
- » **SO2 Ocean Literacy Outcome:** Scotland is an ocean literate and aware nation.

[A full description of the Blue Economy outcomes](#) is available in the Vision.

This document sets out the first phase of delivery towards our Blue Economy Vision, as well as the commitment and timeline for subsequent phases. The purpose of this phase is to provide a clear picture of where we are now in relation to the Blue Economy outcomes.



An assessment of our current position is a vital first step if we are to identify where new or different actions are needed to deliver transformative change. We have undertaken a status review of Scotland's Blue Economy against the six outcomes, drawing together a range of existing data across the 'four capitals' (human, social, economic and natural assets) recognised in [Scotland's National Strategy for Economic Transformation](#). This includes data from several sources including the [Scottish Marine Assessment](#), [Scotland's Marine Economic Statistics](#), the [National Performance Framework](#), [Scottish Sea Fisheries Statistics](#) and the [Annual Population Survey](#). We have also taken stock of existing actions and commitments across the government and wider public sector landscape to identify how they contribute towards the Blue Economy outcomes, and the synergies between them.

Using the initial assessment, we have identified where we have areas already targeted by policy initiatives. We have evaluated the types of tools, interventions and levers that will be required to enable the achievement of the Blue Economy outcomes, and where ownership of these is likely to sit across the public sector, private sector, voluntary organisations and communities.

Since the publication of the Blue Economy Vision, we have undertaken our first round of stakeholder engagements, including roundtable events with public agencies, virtual information sessions and a stakeholder survey (Figure 2). We have highlighted throughout this document where feedback from these engagements has been incorporated. Finally, we have used the analysis from our phase one activities to define a pathway and timeline for subsequent phases of our Blue Economy approach.

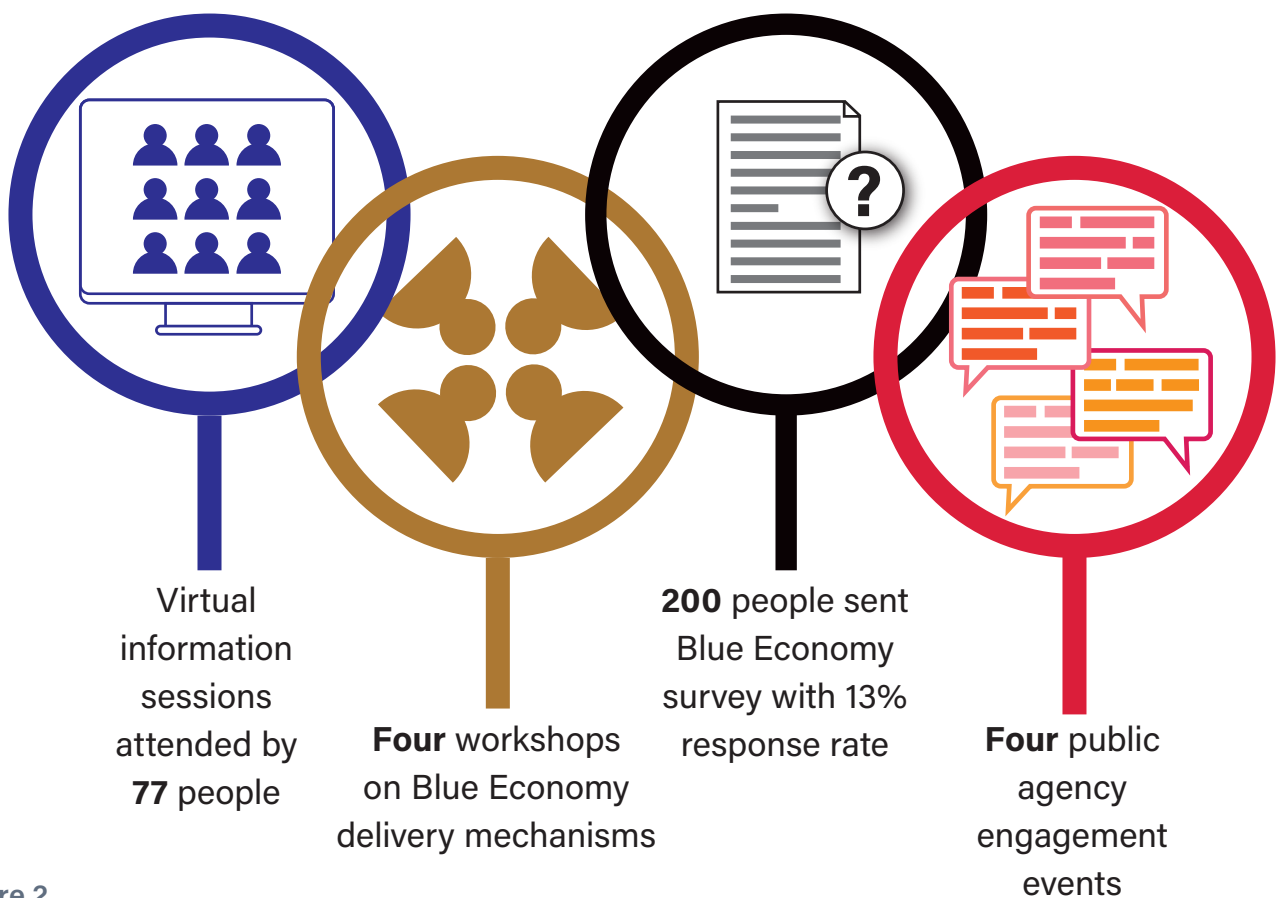


Figure 2  
Blue Economy stakeholder engagements since the publication of the Vision

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## 2. Delivering the Blue Economy Vision

The development of Scotland's Blue Economy from our current status towards our vision and outcomes for the Blue Economy will require a suite of different levers, tools and interventions. Collectively, these levers, tools and interventions can be considered as 'enablers' for the Blue Economy. The Scottish Government is responsible for several Blue Economy enablers. However, achieving the Blue Economy Vision for Scotland will only be possible through collective action, with the wider public sector, private sector, voluntary organisations, community groups and the general public also developing a sense of ownership of the Blue Economy and its various enablers.

Table 2.1 sets out a comprehensive list of enablers that could be used to deliver Scotland's Blue Economy Vision. The enablers have been identified from stakeholder feedback and a review of other international Blue Economy approaches.

The international approaches that were reviewed include the:

- » [High Level Panel's Ocean Solutions Report](#)
- » [EU's Blue Economy Policy Framework](#)
- » [UN Economic Commission for Africa's Blue Economy Handbook](#)
- » [Toward a Blue Economy: A Promise for Sustainable Growth in the Caribbean](#)
- » [Union for the Mediterranean's Declaration on a Sustainable Blue Economy](#)

For each enabler, we have undertaken an assessment of its associated ownership and link to Scotland's Blue Economy outcomes. The top two ranked delivery mechanisms by stakeholders were scientific research and innovation and marine planning.



Table 2.1

Enablers for Scotland's Blue Economy Vision and Outcomes. See Box 1 for key to Blue Economy outcomes

Enabler category	Enablers	Primary owners	Additional owners	Primary alignment to Blue Economy outcome
<b>Regulatory and management</b>	Marine Planning	National Governments	Local Government, Regional Planning Partnerships	Cross-cutting
	Incentivising co-location of marine industries	National Governments, Local Government, Regional Planning Partnerships	Private Sector, Other Public Sector	EN1, EN2, EC1, EC2
	Regulatory reform	National Governments, Local Government	Other Public Sector	Cross-cutting
	Maritime surveillance and enforcement	National Governments	Universities, Academic and Innovation community	EN1, EC2
<b>Ensuring nature is on a more equal footing to economic and social considerations</b>	Embedding circular economy and zero waste principles	Private Sector, National Governments, Local Government	Civil Society, Other Public Sector	EN1, EN2, EC1
	Use of natural capital approaches and accounting	National Governments, Private Sector	Local Government, Civil Society	Cross-cutting
	Managing ocean pollution, including from land sources	National and Local Government, Private Sector, Civil Society		EN1
	Ecosystem restoration and conservation	National Governments, Local Government, Other Public Sector	Voluntary Organisations, Civil Society, Private Sector, Universities, Academic and Innovation community	EN1

<b>Enabler category</b>	<b>Enablers</b>	<b>Primary owners</b>	<b>Additional owners</b>	<b>Primary alignment to Blue Economy outcome</b>
<b>Investment and Economic Development</b>	Sustainable finance, incentivising and de-risking investment	National Governments, Local Government, Private Sector	Other Public Sector	Cross-cutting
	Building & investing in national supply chains	Private Sector, National Governments and Local Government	Other Public Sector	EC1, EC2, SO1
	Increasing the market visibility of Blue Economy products and services	Private Sector, National Government, Other Public Sector	Local Government	EC1, EC2, SO1
	Maximising the cross-market opportunities for Blue Economy products and services	Private Sector, National Governments, Other Public Sector	Local Government	EC1, EC2, SO1
	Use of data and digitalisation across the Blue Economy	All Sectors		Cross-cutting
	Infrastructure development	Private Sector	Local Government, National Government	EN2, EC1, EC2, SO1
<b>Science and skills development</b>	Scientific research and innovation	Universities, Academic and Innovation Community, Funding Agencies	Private Sector, National Government, Other Public Sector	Cross-cutting
	Ocean monitoring and observation	Universities, Academic and Innovation Community, National Government	Private Sector, Civil Society, Voluntary Organisations, Other Public Sector	EN1, EN2, EC1, EC2
	Skills, education and training	All Sectors		Cross-cutting
<b>Collaborations and participation</b>	Civic engagement and participatory decision making	National Governments, Local Government, Civil Society	Private Sector	Cross-cutting
	Increasing community engagement within Blue Economy sectors	Local Government, National Government, Civil Society	Voluntary Organisations, Other Public Sector	EN1, SO1
	International collaborations	National Local Government, Private Sector, Universities, Academic and Innovation Community, International Organisations	Voluntary Organisations	Cross-cutting
	Public-private partnerships	National Governments, Other Public Sector, Private Sector, Local Government	Universities, Academic and Innovation Community,	Cross-cutting

The enablers shown in Table 2.1 do not represent specific individual actions, but rather broad categories of areas for action. Each enabler can support progress towards one or more of the Blue Economy outcomes, and could act synergistically across multiple marine industries. Some enablers, such as the use of [natural capital approaches and accounting](#), represent new ways of working and will require a process of development before they can be fully implemented in our Blue Economy approach. However, for other enablers, the Scottish Government has already identified and committed to immediate next steps that will support progress towards our outcomes. Section 3 of this document sets out in more detail the enablers and associated actions already under way in relation to the six Blue Economy outcomes.

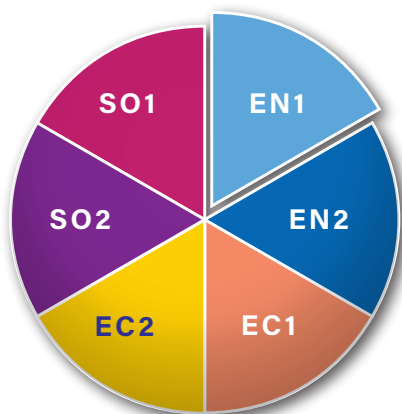
In the remainder of this section, we explore in more depth how four of these enablers support the delivery of our Blue Economy outcomes and Vision. The four enablers that we have focussed on are:

- » natural capital approaches to decision making
- » infrastructure development, with a focus on ports and harbours
- » use of data and digitalisation across the Blue Economy
- » skills, education and lifelong learning

The four focus areas represent enablers where either a significant gap or challenge has been identified in our current use of the enabler and/or where a substantial opportunity to use the enabler to provide broad support across all six Blue Economy outcomes exists. In selecting these four enablers, we have used feedback from roundtable discussions with key public bodies that will be important delivery partners for Scotland's Blue Economy approach. These bodies are the Crown Estate Scotland, Highlands and Islands Enterprise, Scottish Enterprise, South of Scotland Enterprise, NatureScot, Historic Environment Scotland and the Scottish Environment Protection Agency.

The four focus areas have not been chosen to represent the Scottish Government's immediate, or only, priorities for the Blue Economy going forward. Instead, they serve as an initial exploration into delivering our Blue Economy outcomes, which will allow us to take forward further discussions on how we can use different delivery mechanisms and which enablers will prove most effective in achieving our outcomes.

## Delivery focus 1: natural capital approach to decision making



Natural capital approaches will enable all six Blue Economy outcomes

**Rationale:** Scotland has rich natural capital assets, including land, air, water, soil, minerals and biodiversity. We have committed to increasing natural capital through our [National Performance Framework](#) and [the National Strategy for Economic Transformation](#), including a target of “Rebuilding Scotland’s natural capital by 2032”. Our [Wellbeing Economy Monitor](#) tracks the status of natural capital and uses it as a measure of economic success, beyond GDP.

The Blue Economy will further develop marine natural capital approaches as a framework to balance economic, social and environmental goals. Adopting a natural capital approach will mean tracking the overall status of marine natural capital stocks, and accounting for the potential impacts of decisions on the capacity of nature to provide us with monetary and non-monetary benefits. This will improve the sustainability and effectiveness of our policy choices, and secure the long-term future of economic and societal resources.

## How could a natural capital approach deliver the Blue Economy outcomes?

### EN1 Blue Economy Outcome – Natural Capital Outcome

- » Tracking the status of natural capital provides a way to measure if enough is being done to safeguard existing natural capital, and restore and recover previous loss and degradation.
- » A natural capital approach helps stimulate further actions to enhance and restore marine biodiversity through clearer recognition of economic and social dependence on nature.
- » The natural capital approach identifies non-monetary and monetary benefits of environmental goods and services, so that they can be considered to help minimise the negative impacts of decisions on natural capital assets.
- » Measuring the impact of activities on natural capital assets will help facilitate businesses and marine managers to better safeguard natural capital and ecosystem function.

### EN2 Blue Economy Outcome – Net-Zero/Climate Change Outcome

- » Measuring and tracking natural capital assets will help to identify the scale and trends of climate regulating and carbon sequestration services provided by our marine natural capital.
- » A natural capital approach can inform management decisions to increase climate change resilience and support planning for climate adaptation to address risks and opportunities.

## EC1 & 2 Blue Economy Outcomes – Economic & Trade / Food Security & Nutrition Outcomes

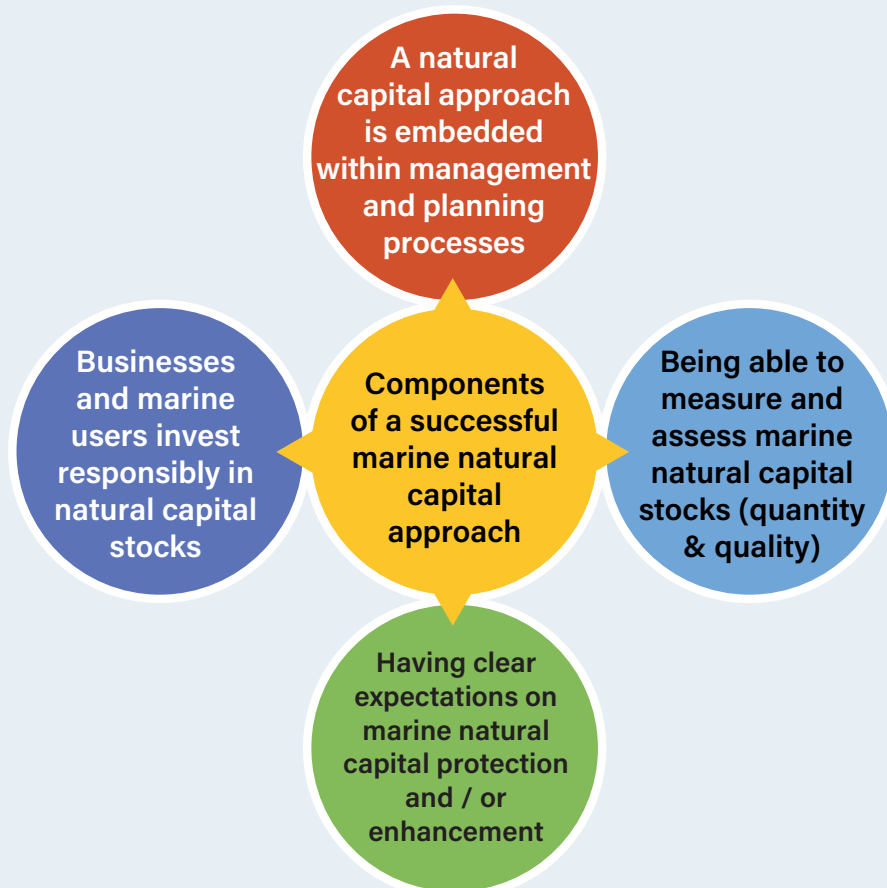
- » Natural capital underpins all economic activity. A natural capital approach helps realign incentives towards nature protection and restoration, and away from activities causing degradation that reduces the long-term capacity of nature to support economic activity.
- » Incentivising responsible private investment in natural capital will focus investment in the right types of natural capital in the right places such as in nature-based solutions that bring benefits for the environment, the economy and society as a whole.

## SO1 Blue Economy Outcome – Social Inclusion/Equalities Outcome

- » A natural capital approach and responsible private investment, can secure direct and indirect long-term benefits of nature for communities e.g. via wellbeing benefits of accessing the marine environment, through Fair Work and incentivising community ownership.
- » Natural capital assessments and monitoring can improve communication of the benefits of investing in maintaining natural capital in a good state to allow wider benefits to be realised.

## SO2 Blue Economy Outcome – Ocean Literacy Outcome

- » Wider ocean literacy can be achieved through communication of potential impacts on groups from natural capital degradation, protection or enhancement in management decisions.



Components of a successful marine natural capital approach



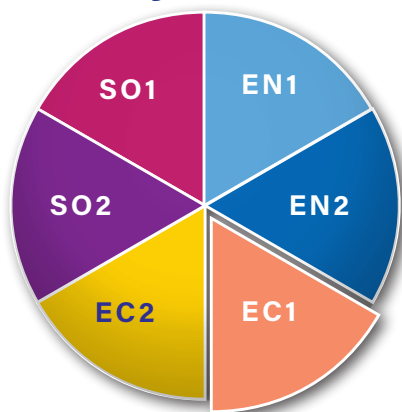
## Natural Capital Delivery Toolbox

- » A range of existing guidelines and tools that are available to support early implementation of natural capital approaches are listed below.
- » [Scottish Government Interim Principles for Responsible Investment in Natural Capital](#)
- » [DEFRA Guidance on Enabling a Natural Capital Approach](#)
- » [DEFRA Environmental Valuation Look up tool](#)
- » [Ecosystem Services Valuation Database](#)
- » [UN Rapid Natural Capital Accounting Tool](#)
- » [UK Marine Natural Capital Accounts](#)

## Challenges to implementation

- » Data gaps on the location, and status of marine natural capital assets.
- » Participation, engagement and collaborative working with and between marine users and sectors, and other relevant groups.
- » Building a wider understanding of natural capital to ensure ownership across those who are impacted or interested.
- » Valuing indirect and diffuse benefits of nature, and integrating qualitative information in decision-making processes
- » Having aligned scales of ambition across those implementing natural capital policies and decisions.
- » Knowing the right solutions and places for private investment in natural capital to increase the overall stock of natural assets and support a proactive approach.

## Delivery focus 2: infrastructure development – ports & harbours



Ports & harbours are a primary enabler across four outcomes, including environmental, social and economic outcomes. They also enable clean ecosystems & ocean literacy

**Rationale:** Physical infrastructure underpins nearly all Blue Economy sectors. Housing, transport and communication infrastructure are needed to accommodate local workers, facilitate market access and support supply chain logistics. Effective waste facilities are needed for clean ecosystems, while improvements in infrastructure can benefit coastal communities.

Ports & harbours are key Blue Economy infrastructure. Insufficient port capacity can already disrupt marine [supply chains](#), and there is an expectation that further adaptation and development will be required. Challenges to port development include: large upfront costs, complex environmental and social impacts and climate vulnerability. Enhancing strategic join up, de-risking investments and making ports & harbours sustainable and climate-smart is key to delivery of Blue Economy outcomes.

### How could ports and harbours deliver the Blue Economy outcomes?

#### EN2 Blue Economy Outcome – Net-Zero/Climate Change Outcome

- » Upgrading/developing ports will enable growth of offshore renewables and support oil and gas decommissioning. Ports are needed to support manufacture, assembly, operation and maintenance of Scotland's offshore wind sector.
- » Installing recharging and refuelling infrastructure for alternative fuels in ports and cargo terminals, including for docked vessels, can support transition to low-carbon shipping and fisheries, and significantly improve the air quality in coastal communities.

#### EC1 Blue Economy Outcome – Economic and Trade outcome

- » Development of port infrastructure will underpin sustainable trade routes, and enhance potential direct trade options with the European Union.
- » Port developments can streamline supply chain logistics to increase productivity and resilience while minimising emissions and supporting circular economy opportunities.

#### EC2 Blue Economy Outcomes – Food Security/Nutrition/Health Outcomes

- » Investment in ports & harbours can enhance facilities for seafood landings, sales and processing, helping with quality improvement targets and supporting improved traceability.

- » Increasing capacity will support seaborne transport for aquaculture, and enable sustainable aquaculture growth in remote and rural areas with limited road networks.
- » Alongside physical inspections at sea, continuing to use ports for inspection and enforcement reduces illegal fishing practices and enhances traceability to ensure value chain reinforcement.

### **SO1 Blue Economy Outcome – Social Inclusion/Equalities Outcome**

- » Ports can drive local development and foster social benefits through local employment, embedding Fair Work, improving island connectivity and direct seafood market access.
- » Ports & harbours support marine recreation, hold cultural and heritage value, and can support community-ownership of renewables.

### **EN1 & SO2 Blue Economy Outcomes – Natural Capital/Environment and Ocean Literacy**

- » Port development can contribute to improving ecosystem health through waste handling, noise reduction measures and by planning high traffic shipping lanes to accounting for marine mammals, amongst other measures
- » Ports & harbours can play a leading and proactive role in raising civic engagement with the Blue Economy and supporting environmental restoration and recovery.
- » Ports & harbour developments may also provide opportunities to enhance marine science and environmental surveillance capacity.

### **Challenges for Ports and Harbours in the Blue Economy**

- » Lack of strategic oversight on potential ports specialisms based on demand, location and resource can lead to competition, sub-optimal siting and challenges in integrated port management.
- » Development requires a long lead in time and large up front investments. Expansion or upgrade decisions are based on business confidence in future demand, which requires long-term priority setting from the Government.
- » Complexities of international, regional, and national regulations - e.g. lack of international standards for cold ironing, working across marine and terrestrial planning systems.
- » Ports & harbours are vulnerable to climate change. Severe disruptions due to extreme weather can be expected in the future, which could cause significant operational delays and damage.
- » Overlap between suitable locations and vulnerable, highly protected marine species and habitats, that provide natural resilience to sea level rise, storm surge and flooding.

## Toolbox & immediate opportunities

» **Consideration of Hub models and placed-based approaches:** Policies or best practice guidelines on supporting private investments that involve communities, local councils and other developers, e.g. housing, can ensure that economic opportunities from ports trickle down to local economies, and that port operations can be balanced with other local ocean activities and environmental concerns.

» **Embracing novel financing** models that can simulate private investment, including in the local workforce and skills development. **The Scottish National Investment Bank**, which seeks to invest where there is insufficient private sector investment, recently provided £30 million for the expansion of Aberdeen Harbour.

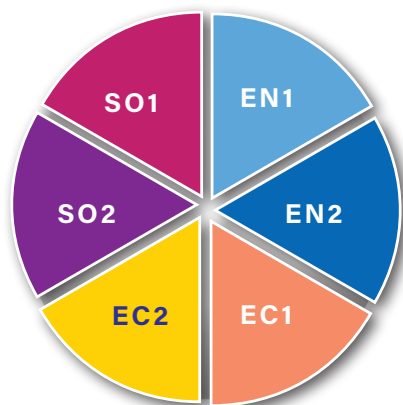
### Hunterston PARC: A Blue Economy Case Study

Hunterston PARC is seeking to adopt a Blue Economy approach in developing a local hub centred around port infrastructure. Hunterston has been identified as a key deep-water resource with significant potential to support transport, food and energy sectors. Peel Ports Group, in partnership with North Ayrshire Council and Scottish Enterprise, are proposing to develop a Port and Research campus with integrated rail connections, centred on a 320-acre brownfield site at Hunterston. The assets at Hunterston will sit within a wider Blue Economy strategy emerging through the Ayrshire Growth Deal and relating to the emerging project development for the International Marine Science and Environment Centre at Ardrossan.

By embedding business incubator space, innovation and university infrastructure, the developers are seeking to provide high quality, long term jobs, and build a more resilient local economy. The development is intending to use natural capital accounting processes as part of the wider strategic thinking linked to environmental considerations, alongside statutory environmental obligations. This will support application and use of digital technology within the marine environment to create capacity for research, development, monitoring to drive innovation and maximise the impact of the marine environment for socio-economic benefit and environmental benefit.



## Delivery focus 3: data & digitalisation in the Blue Economy



Data and digital technology can enable all six Blue Economy outcomes

**Rationale:** The volume of data on the marine environment is increasing exponentially. Sustained ocean observations, combined with local and traditional knowledge, underpin the operations in nearly all Blue Economy sectors, marine management decisions and environmental protection. Digital technologies including autonomous platforms, blockchain technology, machine learning, and simulation & visualisation techniques have versatile marine applications and are already being applied by industry, government and research scientists. Harnessing these advances to create a 'Digital Ocean' presents a significant opportunity within the Blue Economy that can deliver innovation, create jobs, improve safety, protect marine heritage and nature, enhance civic engagement with our seas and support adaptive and transparent decision-making.

However, significant challenges must be overcome to capitalise on the revolutions in ocean observations, data and digital technology. These challenges include improving data access, understanding data value and user needs, ensuring quality assurance standards, transforming real-time information to actionable forms, and incentivising the use of digital technology.

### How could data and digitalisation deliver the Blue Economy outcomes?

#### EN1 Blue Economy Outcome – Natural Capital Outcome

- » Digitalisation will expand the spatial and temporal scale of ocean observations and improve understanding of ecosystem processes and functioning, as well as the overall environmental status. This will support decision-making that protects and enhances our marine natural capital.
- » Satellites and other digital technology enable near real-time information flows that could improve oversight of human activities and supports responsive marine management and enforcement.

#### EN2 Blue Economy Outcome – Climate Change Outcome

- » Accelerating digitalisation within all lifecycle stages of offshore renewable developments will drive efficiency and support growth of the industry. Digitalised offshore energy systems are needed to integrate low carbon technologies into our energy system.

- » Sustained ocean observations are critical for understanding the role of the seas in capturing of atmospheric greenhouse gases, and to forecast and measure the impacts of climate changes.
- » Data systems can support traceability of resources through supply chains and the fate of any residual waste. Understanding inefficiencies provides corporate social responsibility and financial incentives to divert waste from landfill and reduce the use of virgin materials.

### **EC1 Blue Economy Outcomes – Economic & Trade Outcome**

- » Improving ocean communications, smart technology, and the use of 'digital twins' in marine businesses can reduce operational risk, optimise production through scenario planning and highlight opportunities to improve efficiency through combining cross-operator activities.
- » Digital technologies can support marine industries through improved business intelligence tools to better understand demand, supply, markets and networks, and by increasing the visibility of market opportunities across the Blue Economy.
- » For the maritime sector, implementing digital technologies can support transport cost reduction, and decrease harmful emissions generated during the voyage and at the berth.

### **EC2 Blue Economy Outcomes – Food Security & Nutrition Outcome**

- » Digital technology can support seafood traceability and sustainability certification across the value chain, ensuring Scottish seafood retains premium value in domestic and export markets.
- » Near real time environmental information flows - e.g. of harmful algal blooms, sea lice outbreaks and storm events - can support responsive management and operations in the seafood sector.

### **SO1 & SO2 Blue Economy Outcomes – Social Inclusion/Equalities & Ocean Literacy Outcome**

- » Integration of data streams relating to nature, heritage, people and economy can support the overall Blue Economy Vision and empower communities, especially to implement the "just" aspect of transition activities. Digital tools can also modernise and grow stakeholder engagement, including inclusion of younger people.
- » Openness of data and data literacy can enhance ocean literacy across society.

## Challenges for data and digitalisation in the Blue Economy

- » Assuring data quality & ensuring trust in data
- » Overcoming commercial sensitivity issues and enabling access to data held by governments and industry
- » Priority setting to guide investment and ensure the necessary resource and infrastructure to convert data into information, and thus actions/decisions
- » Integrating data and digital technology across different data types, and across research, government, private sector and society
- » A lack of institutional readiness to deal with the growing volume and frequency of data collection, and costs of digital technology
- » Ensuring that uncertainty and data deficiencies do not prevent timely decision making
- » Understanding baselines in environmental variables and sectoral activity when setting strategic policy or taking management decisions

## Toolbox & immediate opportunities

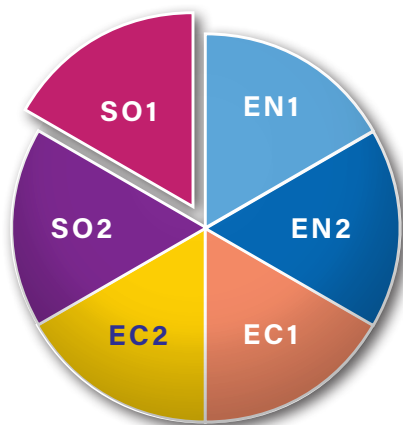
- » [Marine Scotland Information](#) – web portal providing access to descriptions and information about Scottish marine environment. Links to dataset and maps
- » [MEDIN](#) - a single point of access for marine datasets & data standards organisation.
- » [Scottish Government Digital Development Loans to improve capabilities of SMEs](#)
- » Data and digitalisation support from innovation network e.g. [Offshore Renewable Energy Catapult Data & Digitalisation Services](#) & [Scottish Aquaculture Innovation Centre](#)
- » The Global Ocean Observing System [Framework for Ocean Observing](#)
- » [OECD Value Chains in public marine data](#)
- » [Scottish Government Digital Strategy](#)

### Data for Net Zero: A case study

The Scottish Government is supporting a programme of research projects as part of the Net Zero Technology Centre led **Data for Net Zero (D4NZ) project**. With data science, visualisation, and computer modelling at its core, the D4NZ project will utilise the National Decommissioning Centre's simulator to power forward a reimagined offshore energy system enabled by data sharing and evidence-based decision-making.

The Scottish Government has invested over £4.5 million in the National Decommissioning Centre, alongside additional funding through our £125 million commitment to the Aberdeen City Region Deal.

## Delivery focus 4: future skills and life long learning



Future skills and learning are a primary enabler across four outcomes

**Rationale:** A competitive, resilient and socially fair Blue Economy needs highly qualified and skilled professionals. Yet, today, many Blue Economy sectors have difficulties finding the right people, which hampers their growth. A skills gap between education offers and labour market needs, especially with regards to technological developments and innovation, has been recognised across Scotland's Blue Economy. Similarly, many Blue Economy jobs are viewed as unattractive and/or people lack awareness of the potential career opportunities in the Blue Economy.

Supporting cooperation projects between business and education, at local, regional or transnational level, and targeted actions to close the skills gap, tackle unemployment and raise the attractiveness of "blue careers" among students and young professionals is key to delivering Scotland's Blue Economy outcomes. Ensuring that people have the right skills to work in Blue Economy sectors will also diversify the employment opportunities in rural economies and support the resilience of coastal and island communities.

### Marine skills and training in Argyll: A case study

The University of the Highlands and Islands (UHI), Argyll College, is delivering a series of enterprising initiatives in education that support place-based learning through marine sectors.

In 2021, with funding support from Skills Development Scotland, Argyll College UHI helped to design a new aquaculture pilot programme for secondary school pupils, called **Intro Aquaculture**. The course was co-funded and delivered by Scottish Sea Farms to S5 and S6 pupils at Tobermory High School. The course provided students with an opportunity to gain industry-recognised qualifications in boat handling and first aid, and valuable workplace experience alongside classroom teaching. The success at Tobermory has led to two other schools in Argyll introducing the course into their curriculum this year. Argyll College UHI, Scottish Sea Farms and the Scottish Government are now considering whether the course can be integrated into the Foundation Apprenticeship scheme. The Intro Aquaculture course complements other schemes across Argyll, including the modern apprenticeship scheme and range of SVQs available in Aquaculture Management. This approach is providing a pathway for high quality rural jobs in Scotland's Blue Economy for all, including for school leavers and those looking to re-skill later in life. The success of this approach has been recognised at the Awards for Land-Based and Aquaculture skills, organised by [LANTRA](#), the sector skills council for the land-based, aquaculture and environmental conservation industries.





3



### 3. Current status and activity under way

To provide us with a clear picture of Scotland's starting position in transitioning to a Blue Economy approach we have undertaken a status review. The review helps us to understand where there are gaps between our current state and the outcomes that we want to achieve by 2045. It also provides the foundation for our progress monitoring that will allow us to determine if significant and lasting change is occurring and if the Blue Economy approach is working. In this section, we have provided a summary of the status review against each outcome based on a range of data sources.

It will be important for all areas of Scotland's society to contribute towards the Blue Economy Vision if we are to drive forward the transformative changes needed to unlock the true economic potential of Scotland's seas, promote wellbeing and tackle the twin nature and climate crises through a just transition. For each outcome, we have summarised how Scottish Government policies, programmes and initiatives are helping to drive progress, both individually and on a cumulative basis. The summaries below each outcome set out the ambition for the individual work, and importantly what its contribution to the Blue Economy is and what transformative change will be delivered by it. Many of the examples are cross-cutting and contribute, therefore, to several outcomes.

The summaries provided are not intended to provide a comprehensive review. Instead, they describe examples of key areas of progress, including existing commitments for future action. Figure 3 provides a high level overview of key example activities against each outcome.



Figure 3

Key Examples of Existing Action Supporting the Blue Economy Vision

**Blue Economy Vision for Scotland:** By 2045, Scotland’s shared stewardship of our marine environment supports ecosystem health, improved livelihoods, economic prosperity, social inclusion and wellbeing.

EN1 Natural Capital Outcome	EN2 Climate Change Outcome	EC1 Economy & Trade Outcome	EC2 Food Security & Nutrition Outcome	SO1 Social Inclusion & Equalities Outcome	SO2 Ocean Literacy Outcome
New Biodiversity Strategy and Delivery Plan	Climate Change Plan update	Regional and City Growth Deals	New Seafood Strategy	National Transition Training Fund	Regional Marine Planning Partnerships
10% of Scotland’s Sea as Highly Protected Marine Areas	Change Climate Adaption Programme 2	ScotWind Supply Chain Commitments	New Aquaculture Vision	Infrastructure Investment Plan	Marine Scotland Ocean Literacy Survey
Marine Litter Strategy	Circular Economy Strategy and Bill	NSET New Market Creation	Future Fisheries Management Strategy	Islands Connectivity Plan	
Wild Salmon and Scottish Seabird Strategies	New Energy Strategy	Scotland Trading Nation Plan	Good Food Nation Act (2022)	Principles for Community Benefit from Offshore Renewables	Education Scotland STEM strategy
	Scottish Blue Carbon Forum		Farmed Fish Health Framework		

**National Marine Plan 2 and Marine Funding: SMEEF, Marine Fund Scotland, Crown Estate Net Revenues, ScotMER**

## 3.1 EN1 Natural Capital Outcome:

**Scotland's marine ecosystems are healthy and functioning, with nature protected and activities managed using an ecosystem-based approach to ensure negative impacts on marine ecosystems are minimised and, where possible, reversed.**

This outcome is about ensuring that we deliver a marine environment that is clean, healthy, productive, adapted for, and resilient to, climate change. It is also about safeguarding marine nature for present and future generations and maximising the resources and services that nature can provide. Achieving this outcome requires new decision-making tools to be made available to measure the social and economic value of marine natural capital.

### 3.1.1 Current status

Scotland's Marine Assessment 2020 provides the most comprehensive assessment of the status of Scotland's marine environment to date. The assessment shows that progress is being made in improving the state of Scotland's seas especially in relation to contaminants. Eutrophication is not an issue in Scotland's seas. There are mixed pictures for marine mammals, birds, fish and marine litter, and there are signs of change in plankton. There are increasing pressures associated with non-indigenous species, climate change and ocean acidification, while the ability to draw conclusions about benthic habitats and underwater noise is limited by current knowledge. Climate change is the most critical factor affecting Scotland's marine environment. Impacts are already being seen across the Scottish marine ecosystem. A robust measure for the overall status of Scottish marine natural capital does not currently exist. There is currently insufficient data to allow detailed assessment of the environment at the scale of the Scottish Marine Regions and Offshore Marine Regions. Understanding cumulative impacts remains a significant challenge.



### 3.1.2 Activity underway

At COP26, the First Minister endorsed the [Leaders' Pledge for Nature](#), an international commitment to reverse biodiversity loss and create a 'nature-positive' world by 2030. A new [post-2020 Global Biodiversity Framework](#) will be agreed this year at the [UN Biodiversity Conference COP15](#), in Montreal. Through the Scottish Government's leadership in launching and promoting the [Edinburgh Declaration](#), we are calling for the Framework to set out bold actions to tackle biodiversity loss, and to recognise the vital role of subnational governments in achieving this. Our overall ambition to protect nature, end biodiversity loss by 2030, and restore/regenerate biodiversity by 2045 are signalled in the new Scottish [Biodiversity strategy 2022-2045](#). The strategy aims to put in place the conditions to drive transformation in the way that we use and manage natural resources and provide a framework for prioritising and coordinating actions and investments. Scotland's [Land Use Strategy 2021-2026](#) considers management of natural capital across our land and seas. It guarantees investment of £12 million to help adapt to the threat of sea level rises and safeguard natural coastal defences such as sand dunes and saltmarshes from erosion, which protect an estimated £13 billion of assets.

Within the marine environment, Scotland's network of 231 [Marine Protected Areas](#) (MPAs) designates 37% of our seas for conservation purposes. Management measures have been put in place to protect marine features in most of the MPAs, and we have committed to establishing the remaining management measures by 2024. Through the [Bute House Agreement](#), we have also committed to designating at least 10% of Scotland's seas as **Highly Protected Marine Areas (HPMAs)** by 2026. This marks a step change in the protection of our marine environment and will enhance the existing MPA network by excluding all extractive, destructive or depositional activities within their boundaries (whilst only allowing others at non-damaging levels). HPMAs offer a major advance in conserving and enhancing Scotland's marine biodiversity and seeking to achieve [Good Environmental Status](#) for our seas. Through our MPA network, Scotland is providing a significant contribution to the [Global Ocean Alliance](#) ambition for marine protection and the expected Convention on Biodiversity target of reaching 30% global ocean protection by 2030.

We are also protecting marine nature via species level actions. Our [Wild Salmon Strategy](#) was published in January 2022, which sets out our vision for flourishing populations of wild Atlantic salmon. Alongside this, our Strategy Implementation Plan is currently being developed, which will set out in detail the actions which need to be taken to achieve our vision. The work within the Strategy and Implementation plan is underpinned by a strong science and evidence base. We are leading on development of a **Scottish Seabird Conservation Strategy**, which will be consulted on later in 2023. This will be informed by seabird research that includes seabird colony surveys, bird tracking, and modelling climate change and other impacts to understand the pressures and threats faced by seabird populations. We are also working in partnership with the UK Government and other devolved administrations to protect cetaceans through development of the [UK Dolphin and Porpoise Conservation Strategy](#), with the aim of publishing by the end of 2023.

To progress towards clean and healthy ecosystems, we published a refreshed [Marine Litter Strategy](#) in September 2022. The strategy builds on the work conducted in the previous strategy

and includes a new action plan to develop current and future measures to further prevent marine litter, and support its removal. The implementation and progression of the strategy will continue to be led by Marine Scotland, in a co-ordinating role. An action plan has been shaped by research and public consultation and seeks to maximise opportunities and minimise threats in addressing marine litter. Actions cover macro and micro plastic pollution sources, from bulky fishing gear to plastic pellets (nurdles), and they have a wide reach from upstream in city rivers to the beaches of our islands. The responsibility for delivery of the action plan is shared across local and national government, businesses, environmental and community groups, and private individuals.

Scotland's third River Basin Management Plans were published at the end of 2021. These Plans are important tools for the protection and enhancement of Scotland's rivers, lochs, estuaries and coastal waters (up to 3 nautical miles out to sea). They set out revised objectives for the 2021-27 period, and the associated work programme aims to ensure that 81% of Scotland's waterbodies achieve a 'good' or better classification by 2027, and continue to improve as natural conditions recover beyond that date.

To manage human activities in a way that ensures negative impacts are minimised, and to help us progress to an ecosystem-based approach to management, we have several initiatives underway. We shortly intend to consult on applying a cap to fishing activity in inshore waters (up to 3 nautical miles) that will limit activity to current levels and set a ceiling from which activities that disrupt the seabed can be reduced in the light of evidence as it becomes available. The consultation will deliver on the additional actions relating to fishing in the Bute House Agreement and is a key part of the delivery plan supporting Scotland's Fisheries Management Strategy 2020-2030, which places sustainable fisheries and protection of our marine environment and securing our natural assets for future generations at its core.

Our forthcoming **Vision for Sustainable Aquaculture** will also place an enhanced emphasis on environmental protection and will consider how the sector can develop in a way that reduces negative impacts to the wider marine ecosystem. This will include strong support for innovation, enabling the deployment of new technologies and operating methods, and considering how regulation can support sustainable practice in line with the best available science.

In 2020, we published [Scotland and the Sustainable Development Goals: A national review](#) bringing together evidence, actions and stories of how we are making progress to meet the goals. It contains inspirational examples of how people across Scotland are taking action to make us a more successful country and to ensure we are at the forefront of this international agenda. It also highlights some of the challenges we face in taking an ecosystem based approach.

Since the launch of the Blue Economy Vision, we have also increased our activity in relation to nature restoration and recovery. In May this year, the [Scottish Marine Environmental Enhancement Fund \(SMEEF\)](#) was launched in Aberlady Nature Reserve by the Minister for Environment and Land Reform. SMEEF is an innovative funding initiative that provides an opportunity for those using and benefiting from Scotland's rich natural marine resource to re-invest in the health of the marine environment by making voluntary financial contributions that are used to fund projects and activities

that recover, restore, or enhance the health of marine and coastal habitats and species. SMEEF is open year-round for financial contributions from donors and expressions of interest for grants. Funding rounds are opened throughout the year, with details of application deadlines provided on the SMEEF website. All marine businesses are being encouraged to come forward and support the work of SMEEF with donations to create a source of funding for projects which enhance the natural capital that they rely on. To date, the fund has already distributed £3 million of public monies and has recently opened its first privately financed funding round.

SMEEF is hosted by NatureScot and supported by a Steering Group with representation from NatureScot, Scottish Government Marine Scotland Directorate and Crown Estate Scotland. To ensure high ethical standards for private financing of nature restoration, recovery and enhancement and that contributions to SMEEF are in line with SMEEF's aims, due diligence on proposed contributions to SMEEF is carried out by an Ethical Contributions Board. The Board is made up of members that specialise in relevant areas including audit, risk, legal and financial governance.

We also continue to explore and develop new decision-making tools to support our Blue Economy natural capital outcome. We published updated [guidance on Socio-Economic Impact Assessment](#) for marine protected areas in October 2022. The guidance places a greater emphasis on stakeholder mapping and engagement to capture the potential economic, social and culture impacts of MPA designation on local fishers. It also advises the use of more recent and accurate inshore fishing activity data and incorporating a natural capital approach into the assessment process to better account for social and economic benefits derived from protecting marine nature.

Similarly, Scotland's Marine Tourism's strategy [Giant Strides 2020-2025](#) discusses over-tourism and looks at natural capital accounting, and what it means to be sustainable and use triple bottom line accounting to illustrate the total impact of activity in economic, societal, and environmental terms. It aims to ensure Scottish marine tourism is sustainable and meets changing consumer, workforce, community and environmental needs and expectations, whilst growing the industry's overall economic contribution to over £500 million by 2025, from £360 million in 2015.

## 3.2 EN2 Climate Change Outcome

**Scotland's Blue Economy is resilient to climate change, contributing to climate mitigation and adaptation, with marine sectors decarbonised, resource efficient and supporting Scotland's Net Zero and Nature Positive commitments.**

The Blue Economy Climate Change outcome is about ensuring that marine sectors, communities, and policy decisions contribute to our statutory climate change obligations, while also supporting plans to live with anticipated climate change impacts. It includes supporting development of Scotland's offshore renewables, hydrogen, and carbon capture and storage industries, decarbonising supply chains and vessels, and embedding circular economy, zero waste principles. It also includes developing an understanding of how our blue carbon stocks and marine natural capital underpin climate regulation and carbon sequestration.

### 3.2.1 Current status

The impacts of climate change and ocean acidification are already apparent in Scotland's marine and interlinked freshwater environments. The rate and magnitude of these changes are geographically variable. The expansion of Scotland's offshore wind sector has made a significant contribution to delivering a low carbon energy system. In 2020, 6.7% of energy in Scotland was generated by offshore wind. Data on the emissions associated with individual marine sectors is currently lacking, but there has been progress in reducing overall marine vessels emissions. In 2020, 2.1 million tonnes of CO<sub>2</sub> equivalent were emitted by marine vessels in Scotland. Reductions in vessel emissions reported in 2020 was primarily due to reductions in those from coastal shipping. Small reductions in the emissions from fishing activity are mostly due to changes in the fleet composition and their combined effort. Currently, we do not have an effective measure for the extent to which the Blue Economy is adapted for climate change. However, the next Scottish Climate Change Adaptation Programme (due for publication in Autumn 2024) will endeavour to strengthen adaptation monitoring and evaluation.





### 3.2.2 Activity underway

The introduction of the [Climate Change Act \(2019\)](#) sets legally binding emissions reduction targets that require Scotland to reach net zero emissions by 2045 with an interim target of a 75% emissions reduction by 2030. The [Climate Change Plan 2018-2032](#) acknowledges the need to focus on harnessing Scotland's potential, making the most of our vast wind and marine resources, our substantial potential for carbon capture and storage, and our expertise and experience in driving forward innovation. The Plan serves as a tool to align policy across government in a way that makes the most of these strengths and captures growing market opportunities. The 2021 [Net-Zero Nation: Draft Public Engagement Strategy for Climate Change](#) compliments the [Climate Change Plan 2018-2032](#) by outlining the overarching framework for engaging the people of Scotland in the national effort required to successfully realise the ambition included within the updated Climate Change Plan. It will work to ensure that people are aware of their actions and actively participate in shaping fair and inclusive policies that promote adaptation to, and mitigation of, climate change.

Since the first [Scottish Energy Strategy](#) was published in 2017, we have made strong progress in decarbonising our energy system through our marine assets. We have set out several specific statements and plans to develop our ambition and take action, including the draft [Hydrogen Action Plan](#); [Fuel Poverty Strategy](#); [Local Energy Policy Statement](#); [Heat in Buildings Strategy](#). In 2022, we announced financial backing of up to £80 million to help the Scottish Cluster carbon capture project accelerate its effort to help Scotland's just transition to net zero. We are continuing to build the evidence base for carbon capture and utilisation in Scotland, including exploration of non-pipeline transport solutions such as CO2 shipping and the unique opportunities these provide to Scotland. The [Scottish National Investment Bank](#), (the Bank) was established in November 2020. It is the first mission oriented investment bank in the UK and is being capitalised by the Scottish Government with £2 billion. The Bank will act as a mission focussed investor, making investments independently of Government, but in line with the three strategic missions (Net Zero, Place and People) set for it by Scottish Ministers. The Bank announced this year it has committed £30 million of funding for the expansion of Aberdeen Harbour, the largest infrastructure project in the UK. The expansion and development provides a key port for the UK's large-scale energy transition efforts. The expanded facility will provide greater land and water access for offshore wind developers.

We are developing Just Transition Plans for Scotland's sectors and regions, ensuring our transition to net zero is a fair and managed one. Our plans follow [the National Just Transition Planning Framework](#). This aims to build agreement among citizens, places, businesses and workers, following a common approach, to develop the best approaches to maximise or create opportunities, and minimise or reduce risks. The new [Energy Strategy and Just Transition Plan \(ESJTP\)](#), which is due to be published shortly, will provide a road map for the energy sectors role in achieving our emissions reduction targets and securing a net zero energy system for Scotland.

This plan will provide a whole-system vision and route map for Scotland's future energy system. It will look at how individual parts of the energy system – energy generation, distribution and demand - fit together and interact with one another. As this changing system will impact all parts of our lives,

the plan will amplify the voices of those most impacted by the transition and set out how changes in the energy sector in the decade ahead will be made fair for all, identifying concrete steps to manage the economic and social impacts of the transition fairly.

Marine Scotland's [Sectoral Marine Planning Process](#) supported the recent [ScotWind](#) seabed leasing for offshore wind by Crown Estate Scotland, which awarded options on offshore wind projects with a combined potential capacity of almost 28GW over the next decade. We are also now developing a [Sectoral Marine Plan for Offshore Wind Energy for Innovation and Targeted Oil and Gas Decarbonisation \(INTOG\)](#), which encompasses spatial opportunities and the strategic framework for future offshore wind deployment in sustainable and suitable locations that will help deliver projects to meet our net zero obligations. Our [Offshore Wind policy](#), published in 2020, compliments both Blue Economy environmental outcomes by managing the delicate balance between delivering our net-zero commitment and protecting Scotland's diverse marine environment and other marine users. Scotland has some of the best tidal and wave power resources in the world. The Scottish Government established the Scottish Marine Energy Industry Working Group as a forum for the sector to speak with one voice about its priorities and the steps needed to maintain Scotland's competitive advantage. The group will report to the Scottish Government in the near future on the key opportunities and barriers, and the collective actions needed in Scotland to build on the sector's achievements to date.

The second [Scottish Climate Change Adaptation Programme \(SCCAP2\)](#) was launched in 2019 and outlines how Scotland is preparing for the impacts of climate change to 2024. SCCAP2 sets out over 170 policies and proposals (and an associated research programme) to respond to the risks for Scotland identified in the 2017 UK Climate Change Risk Assessment (CCRA2). SCCAP takes an outcomes-based approach, derived from both the UN Sustainable Development Goals and aligned to Scotland's National Performance Framework. This approach is designed to integrate action on adaptation into wider Scottish Government policy and service delivery. There are seven high-level outcomes within SCCAP, covering Scotland's communities, businesses, and natural environment as well as our engagement with international partners. As noted above, a third Scottish Climate Change Adaptation Programme is currently in development in response to the risks set out in the 2022 UK Climate Change Risk Assessment (CCRA3). SCCAP 3 is due for publication in 2024.

In addition to expanding low-carbon energy, we are continuing to support decarbonisation of our sectors and supply chains. Our [Zero Emission Energy Transport Forecasts](#), that were published in May 2022 provide estimations on the electricity and ammonia demands to decarbonise Scotland's transport, including maritime transport. The forecasts will enable strategic planning and inform the market of possible demand scenarios to support private investments. The Scottish Government has also set a target to increase the proportion of low or zero emission ferries in Scottish Government ownership to 30% by 2032, and are leading the way with the introduction of three diesel-electric hybrid vehicle-carrying ferries. The number of low emission vessels will also increase over the next decade via our [Small Vessel Replacement Programme](#). The first phase of this programme will replace up to seven of the smaller vessels serving the Clyde and Hebrides network, with either fully electric or next generation diesel/electric hybrid ships. Investigations are currently under way in

conjunction with utility companies to identify the routes and ports capable of providing the power needed to charge and operate these ferries.

Our [Future Fisheries Management Strategy 2020-2030](#) includes an action to reduce fishing vessel emissions, encourage shorter supply chains and improve waste management in our fleets. We have recently published a [Fishing practices adapted in commercial fisheries](#) review into the actions and interventions needed to mitigate the climate-related impact from fisheries and associated industries.

We have consulted on proposed legislation to develop [Scotland's circular economy](#). The purpose of Scotland's circular economy will be to keep resources in use for as long as possible to benefit the environment by cutting waste, carbon emissions and introducing efficiencies to reduce the overall footprint resources. The circular economy can also provide economic benefit by improving productivity, opening new markets, and providing local employment opportunities. The aquaculture industry offers several immediate opportunities for embedding circular economy principles and we have already initiated work with [Zero Waste Scotland](#) to promote the sustainable use of aquaculture animal by-products for biogas production or feedstock, as alternative to incineration. The [National Plan for Industrial Biotechnology](#) recognises the opportunities of using marine biomass as a sustainable alternative to fossil fuels to produce a wide range of products and energy, and is providing further support in this area by seeking to grow the Scottish biorefining sector. Scotland will also be the first in the UK to introduce a bottle and can Deposit Return Scheme (DRS) for drinks containers and is working towards a target of achieving 90% collection rates by 2024. The scheme will launch across Scotland on 16 August 2023, helping to recycle billions of bottles and cans every year. Scotland's DRS will remove up to one third of litter from our streets, parks, and waterways, reduce the £46 million of public money spent removing litter and fly tipping from the Scottish environment each year and help Scotland take a step forward in the country's journey towards a more circular economy.

The natural environment has a pivotal role to play in the net zero transition, with its unique ability to sequester and store carbon as well as providing wider climate adaptation services and supporting biodiversity. Marine and coastal ecosystems are important natural carbon stores, their protection and restoration are important to reduce physical loss through habitat degradation, damaging activities and avoid potential associated Greenhouse gas emissions. To improve our understanding of Scotland's blue carbon habitats and species, the Scottish Government established the [Scottish Blue Carbon Forum](#) (SBCF) in 2018. To date, we have committed over £650,000 to the Forum's blue carbon research programme leveraging significant additional funding through partnerships and supporting projects and early career researchers to grow the blue carbon evidence and skills base in Scotland.

We have also invested £200,000 through the Nature Restoration Fund to develop a specialist Blue Carbon Laboratory at the University of St Andrews, further building the capacity and capability of the Forum and have provided £40,000 in seed funding for the four Blue Carbon International Policy Challenge Projects to provide policy blue prints for ocean-based climate action. The SBCF has supported fundamental research to map and account for Scotland's blue carbon, including work on

saltmarsh and seagrass habitats. Scotland currently has the only detailed assessment of saltmarsh surface soil carbon stock in the UK, which represents an important step towards their inclusion in the UK Greenhouse Gas inventory. The SBCF has made Scotland a frontrunner on blue carbon research, and is now providing a model and contributing valuable expertise to the new UK Blue Carbon Forum and the UK Blue Carbon Evidence Partnership.

Through the SBCF Scotland has joined the International Partnership for Blue Carbon (IPBC) and as one of Scotland's COP 26 commitments have launched the [Blue Carbon International Policy Challenge](#) providing seed funding, as mentioned above, for four policy challenge projects with an intention to establish blueprints for international and domestic policy actions, with outputs contributing to Scottish Government activity for COP27 – supporting a continued focus on ocean-climate action. One of these projects brought partners from Scotland, Kenya and the USA/Philippines together with the aim of developing and improving blue carbon awareness. By identifying distinct target audiences, the team will develop plain English guides to be translated into different languages, a community engagement video, and a Swahili translation of the citizen science Seagrass Spotter App to help African communities conserve seagrass. A further project brought partners from the James Hutton Institute and University of St Andrews together with representatives from Norway and Ireland to review current blue carbon habitat protection, restoration and creation approaches and consider future opportunities for blue carbon restoration.

## 3.3 EC1 Economy and Trade Outcome

**Established and emerging marine sectors are innovative, entrepreneurial, productive and internationally competitive.**

This outcome is about ensuring inclusive and sustainable economic development of Scotland's marine sectors and supporting them to invest in the Scottish supply chain and wider community benefits. It includes underpinning sectors with a skilled workforce and ensuring that sectors demonstrate inclusive, diverse, and fair participation in the labour market. It also means using a diverse range of metrics for measuring economic performance to inform decision making.

### 3.3.1 Current status

The value-added of Scotland's established marine sectors has decreased over the last ten years, primarily due to reductions in the oil and gas support sectors. In 2019, **£5 billion in Gross Value Added (GVA)** was generated by Scottish marine sectors (excluding oil and gas and offshore wind). Offshore wind, a growing and important sector, has the potential to contribute significantly to the value of Scotland's marine sectors but due to data limitations is not currently included in GVA figures. Average spend on research and development (R&D) by businesses in marine sectors is below Scotland's average – and Scotland's proportional R&D spend is below both the UK and EU-27 average. However, Scottish seafood exports has seen major successes in the last decade, with over **£1 billion of seafood exports in 2021**.

### 3.3.2 Activity Underway

The [Programme for Government \(PfG\)](#) 2021 to 2022 set out our ambition to create a greener economy that works for all of Scotland's people and places. The [National Strategy for Economic Transformation](#) aims to redesign our economy based on the principles of equality, sustainability, prosperity, and resilience. Within a decade, our vision is to have built a [Wellbeing Economy](#) and to have become a fairer, wealthier, and greener nation. People are very much at the heart of the new strategy which aims to reduce wealth inequalities by providing fair work for all. The delivery of



[Scotland's Vision for Trade](#) is supporting steps to improve the trading environment for Scottish goods and services sectors, including marine sectors, including via the identification of market access barriers. Scotland's Vision for Trade also sets out that trade policy should support our ambitions to deliver a sustainable net zero economy by developing our understanding of the strengths and opportunities of Scotland's environmental sectors.

Our regular publication of [Scotland's Marine Economic Statistics](#) tracks the overall performance of Scotland's marine sectors using the traditional economic metrics of Gross Value Added, turnover and employment. In June 2022, the Scottish Government's Wellbeing Economy Monitor was published, which provides the first suite of overall metrics that will be used to measure economic performance, beyond traditional economic metrics. It provides a framework to further develop the measures in relation to marine sectors and to support the analysis of wellbeing economies at more local levels.

To support economic development of marine sectors, the Scottish Government has provided significant investment through the [City and Region Growth Deals](#). These are agreements between the Scottish and UK Governments, and regional partners that deliver investment and interventions designed to stimulate transformational and inclusive economic growth. Support and investment have been committed to a range of projects through the Deals programme that will support the marine economies in Aberdeen, Argyll and Bute, Ayrshire, the Islands and in the South of Scotland. Key examples include investment of £9.5 million in a Marine Tourism programme as part of the Ayrshire Growth Deal, and a proposed £9 million investment into the Dales Voe Deep Water Port Development as part of the Islands Growth Deal. The Borderlands Inclusive Growth Deal includes a planned £16 million investment from the Scottish Government into the Stranraer Marina expansion project, which aims to repurpose Stranraer and Loch Ryan as a distinctive and successful marine leisure destination and an exemplar for sustainability in marina projects through the use of renewable energy technologies. The Borderlands Deal also supports the Natural Capital programme which consists of a series of five pilot projects which aim to improve the region's economic resilience through transformative working practices and demonstrate how the region's natural capital assets (natural resources) can form the basis of sustainable economic growth. The Marine and Coastal pilot will work across both shores of the Solway Firth and aims to support the commercial shellfish and fishing sectors by improving the natural habitat and developing practical techniques for habitat and species regeneration in order to improve the health of commercial fish stocks.

We continue to build on Scotland's history and success of innovation within our established and emerging marine sectors. Scotland's biotechnology sector, in particular, is recognised for its disruptive innovation that has capitalised on the world class research expertise in chemistry, biology, and engineering. Marine-based opportunities are increasingly being recognised as an emergent area with Scotland's bioeconomy, with significant potential for growth. The 2015 [Biorefinery roadmap for Scotland](#) identifies several resource streams which hold the greatest potential to further develop Scotland's bio-based economy, including municipal solid wastes and food processing by-products, marine biomass, and carbon dioxide. The roadmap aims to expand

existing equipment centres to support the biorefining of the identified key feedstocks, investigate new value chains and the development of sustainable supply chains for key feedstocks, support the further development of a bioresource mapping tool, and actively address recent policy challenges concerning aspects of seaweed harvesting.

We continue to support innovation and economic development in Scotland's established and emerging marine sectors. In 2020, the emerging Scottish seaweed-based industry had an estimated Gross Value Added (GVA) of £510,000 per annum and employed a total of 59 people. In February 2022, we published the [Seaweed Review](#) Statement. The review recognises that, although the existing seaweed industry in Scotland is small, there is growing interest in developing this industry further. This could create new high value products from wild seaweed through cultivating seaweed to supply various existing and emerging markets. Additionally, we published the final research report commissioned by the Seaweed Review Steering Group, [Understanding the potential scale for seaweed-based industries in Scotland](#). The report discusses projected future growth scenarios and novel and innovative applications for seaweed that have not yet been taken up on a large scale and remain in development.

The Blue Economy Vision outcomes are at the heart of the [Marine Fund Scotland](#), through which we are providing up to £14 million annually in vital grant funding assistance to a range of sectors including the aquaculture, fisheries and seafood sectors as well as projects addressing marine litter and fishing gear disposal. This has helped to support local supply chains, protect and create jobs in Scotland's coastal communities, and support for the industry to adapt and invest for the future. Marine Fund Scotland will continue to support the Blue Economy and seek to deliver economic and societal outcomes through sustainable economic development.

Scotland's marine sectors form a core part of our nation's international trade and exports. In 2019, we published the [Scotland: A Trading Nation](#) strategy, which identifies challenges and opportunities to leverage Scotland's unique trading position. It identifies opportunities through key markets in Scotland's [Food and Drink Exports Plan](#) and aims to grow Scotland's international exports from 20-25% of GDP by 2029. This is underpinned by £4.5 million of joint funding from the Scottish Government, industry and Scottish Development International and is helping Scottish companies take their products into new and existing markets, exploiting the most significant export opportunities for Scotland. If achieved it is estimated that this would contribute £3.5 billion to GDP, create around 17,500 jobs and add around £500 million in tax to the economy every year.

At a national level, we are supporting investment in Scottish supply chains through marine sectors. Scotland is at the forefront of global offshore wind development and through the recent ScotWind offshore wind leasing round, applicants have shown initial commitment to an average spend of £1.4 billion in Scotland per gigawatt of capacity built through the [Supply Chain Development Statement Outlooks](#). Engagement and collaboration between the public sector, offshore wind industry, ports and supply chain companies will be essential to realise supply chain opportunities associated with ScotWind. The [Scottish Offshore Wind Energy Council \(SOWEC\)](#) is a partnership between the Scottish public sector and the offshore wind industry set up to co-ordinate and grow the offshore wind sector in Scotland, ensuring the industry is sustainable, competitive and

commercially attractive. In 2021, SOWEC commissioned a [\*\*Strategic Investment Assessment\*\*](#) (SIA) to understand the investment in capacity and capability necessary to deliver a step change in the ability of Scotland's supply chain to grow and win offshore wind work. The report's priority recommendation was to establish a floating offshore wind port cluster in Scotland to support the development of a world-class supply chain for the floating offshore wind industry - fourteen of the twenty ScotWind projects have indicated they expect to deploy floating foundations. Since publication of the SIA report, industry has signed up to the principles set out in the Collaborative Framework Charter and SOWEC has been working on the development of a Strategic Investment Model to identify opportunities and priority investments associated with port infrastructure and manufacturing.



## 3.4 EC2 Food Security, Nutrition and Health Outcome

**Scotland is a global leader in healthy, quality, sustainably harvested and farmed Blue Foods, for our own population and beyond.**

This outcome is about enhancing the global reputation and success of Scotland's seafood as nutritious and sustainable. It includes supporting the growth, harvesting, and farming of seafood by investing in ports, harbours and sustainable trade routes, and decarbonising supply chain. This outcome is also about Scotland becoming a Good Food Nation, where people in Scotland enjoy the dietary benefits of our seafood and contribute to lower food miles through local consumption.

### 3.4.1 Current status

Fish stock sustainability has improved in Scotland's fisheries over the last decade, with **69% of commercial fish stocks of importance to Scotland being fished at sustainable levels in 2020**. However, work remains to be done. Sustainability in other food sectors such as aquaculture and processing is equally important, but harder to measure. **Scotland was the 38th largest producer of seafood globally in 2019**. Despite Scotland being a major seafood producer, the people of Scotland do not consume the recommended amount of fish – oily fish in particular. In 2018/2019, the **average Scottish consumer purchased 157g of fish and seafood per week**. Scotland's entire aquaculture supply chain, which includes Atlantic salmon, trout and shellfish production, contributes £620 million every year in Gross Value Added (GVA) to the Scottish economy, supports over 12,000 full time jobs and makes significant social contributions to remote and rural areas by generating highly skilled employment opportunities. The farmed salmon industry makes up over 90% of all Scotland's aquaculture production by value, with trout production and cleaner fish production becoming increasingly important both economically and strategically.



### 3.4.2 Activity Underway

Food and Drink is one of Scotland's key growth sectors – domestically and internationally – with a broad range of activity from farming, fishing, and aquaculture to processing of raw ingredients into products like smoked salmon and whisky.

[The Good Food Nation \(Scotland\) Act 2022](#) was passed by the Scottish Parliament in June and received Royal Assent on 26 July. The Act requires Scottish Ministers and certain public authorities to produce plans of their policies in relation to food and set out what they will do to make those plans real. These cross-cutting plans will also have to set out the main outcomes to be achieved in relation to food-related issues, the policies needed to do this and the measures we will use to assess progress. The national good food nation plan will consider policies around fisheries and seafood. A draft of the first national good food nation plan will be published in 2023. A period of public and parliamentary consultation and scrutiny will follow publication of the draft; the final national good food nation plan will be published in 2024. In 2021, the draft [Local Food Strategy](#) was published setting out a number of actions to encourage local food consumption. The [Strategy for Seafood](#) was published in October 2022, which promotes the Vision that Scottish seafood is renowned both at home and internationally for its quality and sustainability and is enabled by an innovative and productive sector that it is entrepreneurial, domestically, and internationally competitive, with a secure supply chain.

[Scotland's Future Fisheries Management \(FFM\) Strategy 2020-2030](#) sets out a range of principles and commitments intended to deliver a sustainable and responsible approach to fisheries management in Scotland. This includes a commitment to deliver a robust catching policy, in partnership with stakeholders, which would introduce a range of technical and spatial improvements for fisheries vessels, reduce waste, and encourage compliance with legislation. We consulted on the [Future Catching Policy \(FCP\)](#) in March 2022, which is a fundamental part of delivering sustainable and responsible fisheries management under the FFM. The FCP aims to support the fishing industry to fish responsibly and will support marketability of Scottish fish by demonstrating sustainability.

A package of work is currently in progress to deliver the recommendations from the independent [review of aquaculture regulation](#), led by Professor Russel Griggs to reform and streamline regulatory processes so that development is more responsive, efficient and transparent. This is key to developing a sector that is both environmentally and economically sustainable, reflecting the [Bute House Agreement](#) and the Scottish Government Programme for Government. The Scottish Aquaculture Council, Chaired by Cabinet Secretary for Rural Affairs and Islands, has been established to ensure equal progress towards our commitments. The [farmed fish health framework](#) for Scotland was published in 2018 in recognition that such an initiative was an essential component part for the consideration of the work of the Aquaculture Industry Leadership Group (AILG) and the industry 2030 strategy.

## 3.5 SO1 Social Inclusion and Equalities Outcome

**Thriving, resilient, regenerated, healthy communities have more equal access to the benefits that ocean resources provide.**

The Blue Economy Social Inclusion outcome is about ensuring that communities benefit from ocean resources. This includes access to fair, high-quality, skilled jobs in Scotland's marine sectors, with inclusion of those from areas of industrial decline or under-represented groups in the marine workforce. It also includes providing equitable access and enjoyment of the wellbeing benefits provided by our coasts and sea.

### 3.5.1 Current status

Two-thirds of people in Scotland live within a five-minute walk from their nearest green or blue space, with more than half of people visiting the outdoors at least once a week – both in Scotland as a whole, and coastal communities. The [2022 Ocean Literacy Survey](#), that was published in November 2022, shows that residents in Scotland appreciate the physical and mental health benefits that the marine environment gives them (83% report that visits to the marine environment are good for their mental health and 80% report that visits are good for their physical health). Employment in many marine sectors remains male-dominated. Females comprise 0.3% of the people working as Scottish fishers in 2021 and there remains work to be done to ensure marine sectors – a key source of employment for people living in coastal communities – are inclusive and equitable.

### 3.5.2 Activity Underway

We are working across the fishing energy and aquaculture sectors to deliver benefits to communities from ocean resources through a variety of mechanisms

The Scottish Government's [Good Practice Principles \(GPPs\) for Community Benefits from Offshore Renewable Energy Developments](#) set out national standards in relation to shaping and delivering community benefits from offshore renewable energy projects, complementary to environmental, supply chain and other socio-economic benefits to Scotland. Work is underway to review the GPPs for Community Benefits from Offshore Renewable Energy Developments and we plan to consult on the updated draft guidance next year.



In the 2021/22 Programme for Government, we committed to placing an enhanced focus on benefits to communities which host aquaculture enterprises. The forthcoming **Aquaculture Vision** will consider how the scale and impact of community benefits from aquaculture can be amplified.

The **Joint Fisheries Statement (JFS)** recognises the importance of fishing to many of our coastal communities as well as the need to work with industry on succession planning, training, access to domestic labour, and fair remuneration to encourage new entrants. This is delivered by protecting and, where necessary, recovering our fish stocks, reducing the effects of fishing on the marine and coastal environment, and supporting a modern, resilient, and environmentally responsible fishing industry. The JFS commits to supporting the health, safety, and wellbeing of those working in the seafood sector and recognises a healthy and resilient marine environment is the foundation for a prosperous seafood sector and thriving coastal communities. **Fair Work First principles** have been embedded within the criteria for the Marine Fund Scotland. Applicants to the fund are required to demonstrate how they deliver, or plan to deliver, on those principles, including the payment of the real Living Wage and appropriate channels for effective workers' voice, such as trade union recognition.

In 2017, the Scottish Ministers committed to distributing 100% of the net revenues from the Scottish Crown Estate marine assets within 12 nautical miles to coastal local authorities for coastal community benefit via the Scottish Consolidated Fund (SCF). The first year of payments to local authorities was made in 2019, and in 2020-2021, marine assets generated £11 million net revenue to the SCF. The net revenue allocation for Local Authorities are supporting and delivering on empowering local communities, building strong local partnerships and involving communities in local decision making.

We recognise the key role that ferry services play in supporting the economic, social and cultural development of island and remote mainland communities. The Scottish Government has committed to investing £580 million over 5 years in vessels and ports, as part of the **Infrastructure Investment Plan**. This substantial funding will improve Scotland's ferry services by delivering greater resilience to the network and will allow a wider range of vessels to be used. **The Islands Connectivity Plan** (ICP) will replace the current Ferries Plan from January 2023 and, as part of the ICP, we will produce and maintain a long-term plan and investment programme for new ferries and development at ports. This will aim to improve resilience, reliability, capacity, and accessibility, increase standardisation, and reduce emissions, meeting the needs of island communities and of those travelling to the isles for both business and leisure purposes. We will work with communities, businesses and ferry operators to explore ways of making better use of available ferry capacity for people, vehicles and freight, and to enable more sustainable travel opportunities.

Within Scotland's seas, there are many thousand marine heritage sites. **Our Place in Time: Scotland's Historic Environment Strategy for Scotland** sets a common vision of how our historic environment can be understood, valued, cared for and enjoyed. This vision extends to marine historic environment. We have designated eight **Historic Marine Protected Areas** within Scottish territorial waters to protect marine historic assets of national importance. As part of the 2020, Year of Coasts and Waters, Historic Environment Scotland awarded funding of £194,349 to 18 community-based projects to protect, promote or engage with Scotland's coastal or waterway heritage as part of the Coast and Waters Heritage Fund.

The Scottish Government is supporting development of high-quality, skilled jobs. We have committed up to £45 million in the budget to support young people in Scotland towards employment, training and apprenticeships through the Young Person's Guarantee, other education, training, skills investment and through the jobs grant. The number of young people in work increased by more than 15,000 last year and Scotland's youth employment rate is higher than the UK-wide figure. Education Scotland is working collaboratively with national and regional partners to deliver aspects of the **Developing the Young Workforce programme**, as set out in the [Youth Employment Strategy](#). There is a particular focus on supporting skills development and helping young people aged 3-18 prepare for the world of work as expressed within 'Building the Curriculum 4: skills for learning, skills and life and skills for work'. However, it also acknowledges more recent research and developments such as the development of **Skills 4.0, a skills model to drive Scotland's future**, or the **Career Review**

[Scotland's National Strategy for Economic Transformation](#) aims to ensure that our young people are successful learners; confident individuals; effective contributors and responsible citizens. To achieve this, the strategy aims to implement a lifetime upskilling and retraining offer that is more straightforward for people and businesses to access and benefit from. This will use evidence from the delivery of the [National Transition Training Fund](#), the [Flexible Workforce Development Fund](#), and what we know works well from Community Learning and Development. A new [Skills Pact](#) will be developed to underpin our commitment to strong partnership working with both employers and unions. The Pact will focus on action we can take together to improve investment in skills and training and ensure provision better meets the needs of employers and employees. As part of this, we will work collaboratively with employers and unions to explore how we can increase employer investment in upskilling and retraining.

Within marine sectors, we have several activities supporting skills development and training. Transport Scotland and Skills Development Scotland are working to baseline the skills necessary to support maritime decarbonisation and support Scotland's Climate Emergency Skills Action Plan. This analysis will help identify the existing and future skills requirements, as well as potential measures to maximise the economic opportunities arising from the decarbonisation of maritime vessels, and operations, and associated supply chains. Since its launch in 2009, the [Marine Alliance for Science and Technology Scotland](#) (MASTS) has supported training of more than 165 postgraduate researchers through the MASTS Graduate School and the Scottish Universities Partnership for Environmental Research Doctoral Training Partnership. This represents an investment of more than £13 million, co-funded by the Scottish Funding Council, UK Research and Innovation, and MASTS member organisations including Marine Scotland and NatureScot. Many of these researchers now work in areas of commerce, governance, research and innovation in Scottish companies and institutions. MASTS international researchers act as ambassadors, promoting the world class education and training in marine science that Scotland can offer. An important feature of MASTS graduate training is a focus on providing wider skills development beyond the compass of their core studies, preparing them for a broad spectrum of careers. The [Hydro Nation Scholars Programme](#) is also delivering high-quality PhD posts, directly funded by the Scottish Government, to study cutting-edge water topics. These posts are funded to help solve pressing challenges for the industry and create new expertise within Scotland.

## 3.6 SO2 Ocean Literacy Outcome

### Scotland is an ocean literate and aware nation.

The Ocean Literacy outcome is about the people living and working in Scotland having access to knowledge and learning about the ocean, its benefits, and its role in tackling the climate and nature crises. It is also about people valuing and respecting Scotland's seas and feeling part of a coastal nation with a long and proud heritage and culture. The outcome is also about people being able to make informed choices to support the sustainable use of marine resources and feeling empowered to participate in governance and decision-making forums about Scotland's seas.

### 3.6.1 Current status

The [Scottish Government Survey on Ocean Literacy](#), commissioned in partnership with the [Department for Environment Food & Rural Affairs](#), [Natural Resources Wales](#) and the [Ocean Conservation Trust](#), was published in November 2022, as part of the 'Understanding Ocean Literacy and Ocean Climate-related Behaviour Change in the UK' project, to better understand public awareness and attitudes towards the marine and coastal environment.

The headline report for Scotland shows that respondents in Scotland value the marine environment with 85% feeling that it is important to protect it, and just over 51% of respondents stated that their overriding emotional response to the marine environment is that of 'concern'. Mental and physical health were given as the top reasons for visiting the marine environment and a quarter of respondents said they felt 'calm' or 'relaxed' while there.

Nearly eight in 10 respondents (79%) are willing to make lifestyle changes and take individual action to protect the marine environment. The main reasons given for these changes was those of either concern about the climate (67%) or a wish to be 'greener' (63%). However, more than half of respondents have never heard of key terms describing the state of our ocean, how we impact it and how it impacts us, such as 'blue carbon' and 'natural capital'.

The survey reveals positive environmental behaviour from people in Scotland through individual actions, with the top three being recycling, reducing use of single-use-plastic and reusing plastic. Individuals' decisions about purchasing seafood were influenced by whether or not the fish was endangered or over fished, if the product was environmentally friendly and if it was locally caught.



### 3.6.2 Activity underway

A survey carried out in 2020 on [Attitudes in Scotland on the Marine Environment and Marine Issues](#) collected and analysed data on the attitudes and behaviours of Scottish residents on the marine environment, including uses of marine and coastal areas, environmental concerns, marine economic activities, and the management of Scotland's marine environment. The survey results demonstrated a strong appetite to learn more about the marine environment. The findings of this report continue to feed into a number of policy areas concerning the Scottish marine environment.

The [Community Adaptation Actions](#) document describes practical actions that communities can take to increase resilience and adapt to changes in the climate. The document describes 20 actions, split over three categories including community adaptation in the natural environment, community adaptation for built assets (schools, community centres, homes) and community adaptation to raise awareness and build capacity to adapt. The **Resilient Communities Strategic Framework and Delivery Plan** also aims to support Scotland's communities, individuals, and organisations to harness resources and expertise to help themselves assess and understand risk, including climate change. This is achieved through engaging the public, empowering communities, enabling collaboration and co-production, education and learning and evaluation and improvement.

To support local participation in governance and decision-making forums about Scotland's seas, the Marine (Scotland) Act 2010 provides that [Marine Planning Partnerships \(MPPs\)](#) can be established to develop regional marine plans. MPPs are made up of marine stakeholders who reflect marine interests in their region. The partnerships can vary in size and composition depending on the area, issues to be dealt with and existing groups. Local Authorities, Inshore Fisheries Groups, Local Coastal Partnerships play a role in the development of the regional marine plans. The Shetland, Clyde and Orkney Marine Planning Partnerships have been established and are actively developing regional marine plans.

### 3.7 The National Marine Plan

Marine planning will play a significant role in achieving our Blue Economy Vision. As demand for marine space continues to increase, marine planning provides a way to organise the use of our seas and the interactions among users, and between users and the marine environment.

In line with legislative requirements, Scotland’s current National Marine Plan (NMP) for Scotland has been reviewed twice to date. The most recent review (April 2021) focussed particularly on the impact of significant external national and global developments that affect the management of our resources, including; the twin global climate and nature crises, the UK Exit from the EU, the impact of the Covid-19 pandemic and the Scottish Government’s net zero targets, in addition to the development of a wider number of Scottish Government policies, targets and strategies. The 2021 review concluded that, whilst the NMP remains legally effective, the scale and pace of change within the wider policy, legislative, scientific and technological landscape points strongly to the need to update the existing NMP. This conclusion was strongly echoed by stakeholders who responded to the review consultation process.

The Scottish Ministers have, therefore, decided to commence the process of updating the existing NMP, to produce our second NMP (“NMP2”). Effectively managing how we use our marine space is critical in our transition to net zero by 2045, the achievement of our national and international biodiversity commitments and to maximise the opportunities that a Blue Economy approach can deliver for our environment and communities. The announcement of the new NMP development included a publication of a dedicated [Stakeholder Engagement Strategy](#) and the Statement of Public Participation to highlight the importance of working together with stakeholders.

The updated NMP will cover the management of both Scottish inshore waters (out to 12 nautical miles) and offshore waters (12 to 200 nautical miles) and will apply to the exercise of both devolved and reserved functions, as per the existing National Marine Plan (adopted in March 2015).





4



## 4. Next steps

This document has provided an initial assessment of our current Blue Economy status, as well as a summary of some of the activity already underway against the six outcomes set out in our Vision. This serves as the foundation to discuss and identify where additional transformations are needed to move us between our current status and where we want to be by 2045.

Within the Scottish Government, we are launching a number of new initiatives this year and next, which have been designed to support the outcomes as part of our Blue Economy approach. Key examples of these initiatives are detailed within this publication and they include the recently published Strategy for Seafood, the upcoming Aquaculture Vision, the Biodiversity Strategy Delivery Plan, the Energy Strategy and Just Transition Plan, and importantly our second National Marine Plan.

These initiatives, among many others, will help to set us on a path to our 2045 Vision. However, to achieve shared stewardship of our seas in Scotland, thinking about the Blue Economy must become an integral part of all policy development, delivery and decision making, throughout government and beyond.

We now need to build a sense of collective ownership of our Blue Economy and empower key actors to support delivery and mobilise resources. We will do this by mainstreaming a Blue Economy approach across government, and wider, working with partners and communities.

Mainstreaming is not novel to the Scottish Government. It is an approach that has successfully been used across the government, to deliver complex, multi-facet policy agendas. Mechanisms, for how to mainstream a policy, may differ and to successfully mainstream a Blue Economy approach, we must deliver clear mechanisms. At a fundamental level, we consider mainstreaming to be embedding Blue Economy concepts so that they become the norm, become part of policy making and are not optional.

Successfully mainstreaming a Blue Economy approach will require leadership to drive a cultural transformation. Thinking about a Blue Economy and using the evidence available to us about how



we deliver our outcomes must remain at the forefront of decision-making and delivery, without considering it to be a hindrance to progress. It will require leadership at all levels - those making day to day decisions that will have a direct impact on the marine environment, those making decisions with indirect consequences, and those in senior leadership, who must maintain strategic oversight and direction.

We have identified seven elements that will be the immediate focus of our work over the next 12 months to aid us in mainstreaming a successful Blue Economy approach. These elements are not dependent on each other and will mutually reinforce our approach as we work through them.

## **4.1 Mainstreaming mechanisms**

Policy making through a Blue Economy lens is already happening within the Marine Scotland Directorate. The Strategy for Seafood and the Marine Fund Scotland were developed in line with our Blue Economy outcomes and we will now build on those experiences, to develop guidelines and tools for work streams to use, so that policy and decision making right across the Marine Scotland Directorate has clear alignment with the Blue Economy agenda. This will include mechanisms to ensure individual policies minimise or reduce impacts on, or enhance marine natural capital, realise wider community benefits and protect our heritage, and support productivity, resilience equality and innovation in marine sectors and supply chains. As part of this, we will explicitly set out how each new activity in Marine Scotland links to our outcomes, and where the synergistic or cumulative benefits can be realised.

Taking our approach wider than Marine Scotland with other Scottish Government Directorates including Food and Drink, Energy and Transport, and with external partners, will then enable us to work towards our shared stewardship vision, so that any new policy development and decision making is likewise considered through that Blue Economy lens.

## **4.2 Engagement**

Thinking about our marine environment and our people needs to be at the forefront of minds when making decisions, not just within government, but within communities too. A focus on consensus building to embed the Blue Economy approach across sectors and interest groups will provide the greatest opportunities to mainstream the Blue Economy agenda.

To widen our engagement, and as a step towards building citizen representation into our Blue Economy ambitions, we will be holding a series of Blue Economy Dialogues, that will be open to a full range of organisations and communities. These will be focussed discussions, from which we will gather views on what those communities and organisations see as the challenges and opportunities of a Blue Economy agenda. As part of this engagement, we will seek to diversify the range of voices that we engage with and will draw on best practice from across the Scottish Government to expand engagement with children and young people.

We will also continue to build on existing engagement forums. From our stakeholder survey, a majority of respondents stated that their preferred method of engagement on the Blue Economy was workshops and virtual information sessions.

Table 4.1 notes a small selection of forthcoming opportunities for stakeholders to participate in relevant workshops. Marine Scotland will continue to communicate and advertise opportunities for workshops and other engagements as they open.

Table 4.1

Forthcoming Blue Economy Stakeholder Engagement opportunities.

Topic	Details
<b>National Marine Plan</b>	Engagements including workshops, meetings and surveys. Link to more details to be provided at a later stage at <a href="#">National marine planning - Marine planning</a>
<b>Future Fisheries Management Strategy</b>	Engagement to agree forward action plan on mitigation and adaption to climate change. Autumn/Winter 2022/2023
<b>Bute House Agreement - inshore fishing</b>	Consultation on new management measure for inshore commercial fishing vessels. Winter 2022
<b>Bute House Agreement - highly protected marine areas</b>	Consultation on policy framework and site selection guidelines. Autumn/Winter 2022
<b>Offshore Marine Protected Areas</b>	Consultation on fisheries management for offshore MPAs. Date TBC

## 4.3 Pilot projects

While we may be clear on what our Vision for a Blue Economy in Scotland looks like at a high level, we must also understand how that will translate at a regional or local level, to inform understanding and buy-in locally and stimulate activity at that level.

A key next step in our approach will be to establish a regional Blue Economy pilot programme. We will identify a suitable location, or indeed theme, where new or existing relevant partners can test a Blue Economy approach to local economic development, community engagement and marine environmental protection through some of the enablers identified in section two. In considering the criteria for selecting a suitable pilot location, theme or partners, we will evaluate where there is likely to be the greatest value add or return from this way of working.

As part of the pilot, we will identify local indicators that will enable us to measure the effectiveness of the approach against outcomes throughout the pilot. The pilot will help us to identify challenges and opportunities, informing our approach, so that we are clear on how we can scale it to the national picture and use it to inform our route to reaching our Vision.

## 4.4 Furthering the evidence base

We know that there is a wealth of knowledge and experience around the concept of a Blue Economy across sectors and nations, and we want to use that to further improve our own work. We already have a range of existing data sources and regular monitoring that provide us with an evidence base for implementing a Blue Economy approach in Scotland. We also have a good understanding where some of our priority research needs and knowledge gaps exist as set out in Scotland's Marine Assessment 2020 and through the Scottish Marine Energy Research Programme.

However, we must continue to build the underpinning evidence and data that will allow us to build an effective pathway to delivering our outcomes. We need a co-ordinated approach to developing and sharing our evidence base across our Blue Economy outcomes, and one that can mobilise Scotland's marine science community to support delivery. The first stage in this process will be to establish a process that allows us to dynamically identify and communicate our strategic research, monitoring and surveillance needs right across the Blue Economy outcomes. We will develop and deliver this process over the next 12 months. Accessibility of this evidence will also be crucial, to assist in meeting our Ocean Literacy outcome.

## 4.5 Funding and finance in the Blue Economy

The scale and multidimensional, multisectoral nature of our ambition for Scotland's Blue Economy, means that identifying opportunities to leverage funding and finance from both the private sector and wider public sector will be an increasingly important part of our Blue Economy approach going forward. This is particularly important given the context of the ongoing fiscal challenges following withdrawal from the EU, recovery from the COVID-19 pandemic and the ongoing cost of living crisis. The need to use private finance to meet wider global climate and biodiversity goals is now widely recognised.

Existing schemes, such as those set out in section three of this document, are key examples of steps that we are already taking to invest in the development of our Blue Economy - from promoting responsible investment in natural capital, to supporting innovation and development in Scotland's seafood businesses, to driving research to promote the sustainable development of offshore renewable energy. In addition to these schemes, we must now also look wider, to have a full grasp of the funding landscape and the opportunities for leveraging wider funding and finance to achieve our ambitions for Scotland.

Guided by the Blue Economy outcomes and existing principles, including the interim principles for responsible investment in natural capital, over the next 12 months we will work with partners to map current funding and financing opportunities, and consider how we can help to maximise these in support of our Blue Economy. We will also further develop the role of marine and Blue Economy interests within the wider programme of work across Scottish Government to establish a values-led, high-integrity market for responsible private investment in natural capital, as described in the National Strategy for Economic Transformation.

## 4.6 Monitoring and evaluation

Monitoring our progress and evaluating whether our actions are delivering the Blue Economy Vision is vital to ensure effective delivery. This will require a suite of metrics and indicators across the six Blue Economy outcomes.

As part of the status assessment that has been undertaken to support this publication, we have reviewed the existing data sources and routine reporting to understand the extent to which this data could be used as indicators to monitor our Blue Economy approach. We will set out this detailed status assessment and review of data sources in a separate Technical Publication shortly. We will use the review to then develop a monitoring and evaluation framework for the Blue Economy. Having a clear understanding of how we will measure progress towards our outcomes, will support us in understanding where we have gaps in our current approach in delivering those outcomes.

## 4.7 Governance

At the centre of our Blue Economy approach is leadership, but also effective governance. We must operate within a governance framework where a strategic narrative is maintained and policy actions and work across the piece are connected and linked together. Developing mechanisms to mainstream our approach within Marine Scotland will be part of our delivery and reporting responsibilities. Our Directorate-level governance framework will oversee progress of the planned Marine Scotland activity as set out in section three of this document and the six elements set out above as the focus of our work over the next 12 months.

Extending our approach beyond Marine Scotland will naturally put a responsibility on others to engage with and report on our Blue Economy approach and will link with wider interests. At that point, we need to have in place governance mechanisms, with multi-partner representation and linking with already existing governance arrangements, to provide assurance on our approach and make sure that a coherent strategic narrative is maintained between policy actions and Blue Economy outcomes. This process has already started with representation of marine interests with the Biodiversity Strategy delivery plan and governance mechanisms.

This next phase of our work is a vital step to engage across government and beyond, as we move to a position where we have the mechanisms to clearly and effectively assess that we are on track to meet our Vision and accompanying six outcomes.

# Glossary

- » **Bioeconomy** means all economic activity derived from bio-based products and processes which contributes to sustainable and resource-efficient solutions to the challenges we face in food, chemicals, materials, energy production, health and environmental protection.
- » **Blue Carbon** refers to the carbon captured and stored by marine species and habitats.
- » **Climate change mitigation** means actions taken to reduce greenhouse gas emissions or enhance the capture of atmospheric greenhouse gases to prevent climate change.
- » **Climate change adaptation** means living with, and increasing the resilience to the impacts of climate change, addressing climate risks and opportunities.
- » **Cold ironing** is the use of shore power by ships while in harbour.
- » **Digital twin** means a virtual representation of an object or system that spans its lifecycle, is updated from real-time data, and uses simulation, machine learning and reasoning to help decision-making.
- » **Digitalisation** is the transformation of a business, industry or organisation by using digital technologies to improve its processes.
- » **Fair work** is work that offers all individuals an effective voice, opportunity, security, fulfilment and respect. It balances the rights and responsibilities of employers and workers. It generates benefits for individuals, organisations and society.
- » **GDP** means Gross Domestic Product – the value of goods and services produced in a country, including in that valuation the impact of taxes on products and subsidies.
- » **Just Transition** is both an outcome – a fairer, greener future for all – and the process that must be undertaken in partnership with those impacted by the transition to net zero. Just transition is how we get to a net zero and climate resilient economy by 2045, in a way that delivers fairness and tackles inequality and injustice.
- » **National Governments** means the Scottish Government and the UK Government.
- » **Natural capital approach** is a way of thinking about nature (natural assets including geology, soil, air, water and plants and animals) as a stock that provides a flow of benefits to people and the economy. The flow of benefits and the capacity of nature to deliver those benefits both need to be maintained, including through investment in the maintenance and enhancement of the natural assets (see Box 1 on page 15 of Scotland's [Blue Economy Vision](#) document for more information).
- » **Ocean literacy** is commonly defined as holding 'an understanding of the ocean's influence on a person and their influence on the ocean.'

- » **SMEEF** means the [Scottish Marine Environmental Enhancement Fund](#).
- » **Wellbeing Economy** means an economy that is inclusive and that promotes sustainability, prosperity and resilience, where businesses can thrive and innovate, and that supports all of our communities across Scotland to access opportunities that deliver local growth and wellbeing.





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