

The Blue Economy in the Highlands and Islands

Towards a regional delivery plan

EXECUTIVE SUMMARY

February 2023



1 INTRODUCTION

CONTEXT

1.1 The Blue Economy encompasses a range of sectors and overall makes a significant contribution to Scotland and the UK's economy. It is also important to the fabric and sustainability of communities in many areas across the country. There is worldwide recognition that we are only at the beginning of realising its potential, for example in areas such as food security, clean energy, pharmaceuticals and, with a wide range of applications, to provide new solutions to many global challenges.

AQUACULTURE

1.2 An established sector in the Highlands and Islands with ambitions to grow significantly in value, Aquaculture plays a key role in Scotland's internationalisation activity and would be an enabler to develop more high value seafood processing in the region. Aquaculture in Scotland is arguably at a pivotal moment, with substantial opportunities to develop finfish, shellfish and seaweed production. Aquaculture is a key part of HIE's support of the Food and Drink sector and on-going leadership from HIE will be critical during this period, with links development of seaweed cultivation, marine biotechnology and marine carbon sequestration.

FISHERIES AND COMMERCIAL CAPTURE FISHING

1.3 Commercial capture fishing is a very established sector in the region. It is important for the social and economic fabric of many communities, but it is facing a range of challenges driven by factors such as Brexit, climate change and skills shortages. The sector is currently in a phase of transition: it needs to increase its productivity and competitiveness whilst safeguarding fish stocks. It is a key market for marine environmental services to monitor conditions, manage fish stocks, and assess and mitigate environmental impacts. There are opportunities to explore and develop solutions that focus on planning and managing access, reducing risk and benefits of mixed use of marine areas.

SEAFOOD PROCESSING

1.4 The development of seafood processing in the Highlands and Islands has the potential to anchor quality jobs and value-adding activity in coastal communities for the long term. However, the sector is currently under-developed in the region. Seafood from the Highlands and Islands is a premium product and there may be competitive advantage for locating processing close to production sites. Transforming the sector and capturing the value will require strategic planning and investment, investment in business growth, and a recruitment of a skilled local workforce. This should focus on high value market development, product and process innovation, and maximising use of technology.

MARINE ENERGY AND RENEWABLES

1.5 The offshore renewable energy sector in the Highlands and Islands is a dynamic and rapidly expanding field and will play an increasing role in providing energy for Scotland, the UK and globally. There is already extensive activity and expertise operationally and in research and development, along with a supportive environment. This is the foundation for future development and growth – e.g., The European Marine Energy Centre (EMEC) which, along with its work on wave and tidal energy, is leading and partnering on a range of research projects on hydrogen capture. The next ten years have been described as 'the decade of delivery' in renewable energy and marine energy is a substantial part of that.

1.6 Marine renewable energy is central to achieving net zero emissions by 2025, offering cheaper, cleaner and faster decarbonisation. It is also an enabler for industries such as transport, including sustainable aviation, ferries, trains, buses, lorries and private transport. An important area for development across renewable energy is the development of storage solutions to ensure continuity of supply, move energy from one place to another without grid connection, and as independent power sources e.g., hydrogen fuel cells.

1.7 Although at an early stage, there are indications of the potential to integrate or co-locate other marine activities with marine energy installations to make better use of marine space and achieve certain synergies. As an example, seaweed cultivation with offshore wind farms, and enabling and managing access for commercial fisheries.

1.8 There are also interesting activities and opportunities to expand local energy systems and community ownership of marine renewable energy to power communities and sell constrained energy to raise income to reinvest in the community. The Highlands and Islands is very well placed as a location to develop and innovate approaches to the expansion of renewable energy generation as a community asset as part of place-based economic and social development.

1.9 The sector offers highly skilled roles, transferable skills and for workforces at risk, such as oil and gas, the opportunity to pivot to the renewables sector and repurpose their skills. The scope of marine renewables in the Highlands and Islands makes a strong inward investment proposition and a vibrant sector will attract and retain talent and contribute to the sustainability of communities. Added to this, the marine renewables innovation and R&D in the region adds strategic value to its Blue Knowledge Economy and international¹ status.

1.10 Realising the opportunity presented by marine energy and renewables requires the right supporting infrastructure, and critical enablers such as port and shoreside facilities, and handling capacity. The evidence clearly shows that additional port upgrades and supporting infrastructure will be required to support scaling up of bottom-fixed and floating offshore wind in Scotland and retain key value add activities such as manufacture and component assembly.

1.11 HIE currently has a very important, strategic role in supporting the development of marine renewables within the Scottish-wide policy context.

OIL AND GAS

1.12 The North Sea Transition Deal (NSTD) was announced in March 2021 by the UK Government's Department of Business, Energy and Industrial Strategy (BEIS). It supports the industry's transition to clean, green energy and a secure future for high-skilled oil and gas workers and the supply chain. The Deal recognises that the oil and gas industry will have a critical role in maintaining the UK's energy security through the transition to net zero carbon.

1.13 The North Sea Transition Deal is between the UK Government and oil and gas industry. It will support workers, businesses, and the supply chain as it transitions to a net zero future by harnessing the industry's existing capabilities, infrastructure, and private investment potential to exploit new and emerging technologies such as hydrogen production, carbon capture usage and storage, offshore wind and decommissioning.

¹ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/972520/north-sea-transition-deal_A_FINAL.pdf

1.14 The aim is that the Oil and Gas sector and government will work together to deliver the skills, innovation and new infrastructure required to decarbonise North Sea production. It will strive to bring and sustain upstream and downstream supply chain activity.

1.15 The Deal will be the main mechanism for managing the transition of the Oil and Gas sector and the process will be vital for Scotland and the Highlands and Islands. There must be a planned, smooth transition with public sector intervention to mitigate the risk for businesses, the supply chain, workforces and communities. HIE will keep close to this within the region and work with relevant agencies such as SDS, SE and the Scottish Government to be able to support the transition process and limit any negative consequences on economic and social development.

DECOMMISSIONING

1.16 Decommissioning of oil and gas and, going forward, offshore wind turbines is an opportunity for Scotland and for the Highlands and Islands. It is reliant on adequate port infrastructure and shoreside facilities such as landing areas, decommissioning facilities and skills, transport connectivity, reconditioning and reusing of components and waste handling.

1.17 There is increasing interest in the application of circular economy principles to oil and gas decommissioning in the UK. Zero Waste Scotland has identified ways in which oil and gas assets could be reused and reconditioned for economic gain.² Two approaches in particular include the re-use of components (e.g., steel, pipelines, and cables) and the reconditioning of equipment (e.g., vessels, tank, and accommodation blocks) in other industries.

1.18 There will be opportunities for oil and gas employees whose jobs are at risk to redeploy their skills in decommissioning and the availability of a skilled workforce will help to attract inward investment in decommissioning.

1.19 In the longer term, end-of-life marine renewable energy installations will ensure a reliable supply of decommissioning contracts in the Highlands and Islands. To be strategically and potentially transformative, the Highlands and Islands should aim to capture market share in manufacture, assembly and installation, energy generation (including maintenance), energy storage, and decommissioning.

1.20 Within decommissioning, there is an ongoing need to review and develop processes through innovation, R&D and applying circular economy principles.

SEABED MINING

1.21 Although more exploratory work around mineral presence is required and would need significant investment, there is evidence of minerals, specifically metals in sediments in the waters off the coasts of Shetland and the Outer Hebrides. With current exploration and extraction processes, the environmental impacts of recovering these minerals are likely to be significant and controversial.

1.22 More research into the opportunities and implications of seabed mining will be required and if seabed mining in Scotland progresses, then marine environmental services will have a big role to play in modelling and assessing potential impact, planning activity, managing risk and monitoring. Exploration will also be a key activity, drawing on the expertise and knowledge from Oil and Gas.

² <https://www.zerowastescotland.org.uk/sites/default/files/North%20Sea%20Oil%20and%20Gas%20Rig%20Decommissioning%20%26%20Re-use%20Opportunity%20Report.pdf>

1.23 Seabed mining operations in Scotland are not likely in the short to medium term but should remain on the long-term Blue Economy agenda.

MARINE BIOTECHNOLOGY AND BIOPROCESSING

1.24 Stakeholders across the UK recognise that seaweed is a very valuable resource that is not currently being exploited and requires to be supported to grow sustainably. It could provide much-needed diversification of coastal employment, end the threat of excessive wild seaweed harvesting, grow crops which mitigate climate change, and if co-located with salmon farms help to mitigate environmental impacts. There is also scope to explore the potential to co-locate seaweed cultivation with bottom-fixed and floating offshore wind turbines.

1.25 Whilst seaweed harvesting and cultivation is part of aquaculture it is inextricably linked to marine biotechnology which is where the real added-value market opportunities lie. There is an opportunity to use the natural resources of seaweed and algae to lever the marine biotechnology sector in the Highlands and Islands and more widely in Scotland. This would help to ensure that we retain and benefit from the high value-added activities. The risk to be addressed is that of exporting rather retaining the product locally to maximise its value, and ensure ground is not lost in terms of research and innovation, product development, processing and manufacture.

1.26 The scale of the opportunity, the reach of the impacts and the opportunity to be at the forefront of this global sector is potentially transformative for the Highlands and Islands. Achieving it will be complex, requiring the public, private and education sectors to work together to fast track the development of the sector, invest in research and remove inhibitors and constraints to sustainable sector growth. It will require strong strategic leadership and supportive national policy. There is a clear, strategic role for HIE here, and a huge opportunity for the region, but the policy decisions rest with the Scottish Government.

1.27 A long-term vision and coherent policy (industrial strategy) is essential to de-risk developments and provide clarity for investment.

MARINE ENVIRONMENTAL SERVICES

1.28 Monitoring and assessment, and associated systematic large-scale data capture, provides the opportunity to put into practice the ecosystem to manage human activities in the marine environment and understand climatic events and conditions. There is a global need across the Blue Economy for data on environmental conditions to better understand how, where and when anthropogenic influences have affected the baseline of natural processes. Long term monitoring is required to estimate the past, the present and forecast future environmental parameters leading to knowledge on ecological integrity and carrying capacity of environmental assets. Credible evidence-based predictions can support and justify growth where proven to be sustainable.

1.29 Fully understanding the marine environment and the impacts of different activities is crucial for its sustainable management balanced with maximising the economic and social potential. This requires robust, credible, objective, and up-to-date evidence. However, data and data collection about the marine economy and our interactions with the marine environment are limited and do not currently provide all of the data required to fully inform decision making.

1.30 These are global challenges, and there is a global market for better data, monitoring and data integration.³ Better data collection, analysis and application will improve the understanding of how Blue Economy sectors impact on the marine environment, and in turn how the changing marine environment and quality impacts on the sectors.

1.31 Research undertaken for the sustainable development of the UK's Blue Economy highlighted that there is a gap in data collected and used by small operators, for example small fishing vessels and shellfish producers. A mechanism is required to facilitate small operators to gather data and report it centrally to monitor collective activity and impact.

MARITIME TRANSPORT AND SHIPBUILDING SERVICES

1.32 Marine transport is vital for the Highlands and Islands, connecting islands to each other and to mainland Scotland. It supports remote and island communities, helps to provide essential services, facilitates tourism, and is critical for transporting goods - bringing supplies in, and taking local produce to market. It is also a lifeline for residents, connecting communities and families.

1.33 Marine transport is also a critical part of the Blue Economy supply chain for example operation, maintenance and support vessels for aquaculture, oil and gas and renewables.

1.34 Cargo, support vessels and ferries have a large carbon footprint and the drive for faster transport could make this worse. As a result, the global need for 'clean' maritime transport is driving research and development, for example hydrogen powered ferries. The Highlands and Islands is an ideal location to deploy and test clean maritime transport, offering a mix of environments, weather and wave conditions, and mainland and island destinations. It interfaces with the development of hydrogen capture in Orkney.

1.35 Given the importance of marine transport in the region, clean solutions will be vital if Scotland is to achieve net zero by 2045. These solutions will have a worldwide application across all forms of marine transport.

1.36 The region has well-established marine vessels engineering, maintenance and servicing industry. There are small boat building and repair businesses across the region providing employment and services, sustaining an important and valuable skills base, and generating income in communities. It also supports the sail tourism market as well as the local market for boats and maintenance.

1.37 There are examples of innovation and development in eco-friendly boat building that can be developed going forward. Linked to this, testing and developing hydrogen powered ferries has international potential. However, boatbuilding is an important and traditional industry in the region. The UHI offers a Modern Apprenticeship in Boat Building and Repair.

1.38 Large scale commercial shipbuilding does not appear realistic in the Highlands and Islands – there are other Blue Economy sectors that have greater potential, and which should be the focus of intervention and resource.

³ <https://www.frontiersin.org/articles/10.3389/fmars.2016.00161/full>

MARINE AND COASTAL TOURISM

1.39 Visit Scotland provides strategic leadership to Scotland's tourism sector covering the Highlands and Islands and including marine and coastal tourism. Tourism and hospitality have been severely impacted by COVID-19 and Brexit, with travel restrictions, skills shortages and rising prices e.g., energy and supplies. Cruise tourism ceased entirely for a period of time. HIE Business Panel evidence⁴ indicates that tourism and hospitality businesses in the region are still lagging in terms of recovery, and this was the case even prior to the latest economic shocks associated with rising costs. Many are having to scale back which is conflating capacity issues.⁵

1.40 However, domestic tourism is recovering with some Scottish destinations reporting that they are at, or perhaps beyond capacity. Coupled with social distancing and its impact on capacity restrictions, it has put pressure on infrastructure, notably ferries.

1.41 Assuming steady recovery, the future is very positive for marine and coastal tourism, and it will continue to make a vital contribution to the economy, providing jobs, and supporting businesses and supply chains. However, the region, and local areas must continue to work to attract and service high value tourism to maximise visitor spend. There is substantial scope to diversify and grow marine tourism activities, for example in and on-water activities such as scuba diving, sailing, and water sports; marine environmental and heritage tourism. There is potential to establish the Highlands and Islands as a green tourism destination (including marine and coastal). There is also scope to consider how marine tourism interacts with other Blue Economy sectors, for example tourism and fishing ports and harbours.

1.42 HIE is likely to continue to support marine tourism as appropriate through local area teams and work in partnership with VisitScotland at regional level, recognising the lead role of VisitScotland.

PORTS AND HARBOURS

1.43 The Highlands and Islands must ensure that it is in a position to secure the opportunities presented by the Blue Economy and remove shoreside constraints to growth. A central strand is the ports and harbours that, as an infrastructure asset, are vital for sectors such as tourism, aquaculture, renewable energy, decommissioning, and wild capture fisheries.

1.44 To date, HIE has taken a direct interventionist role in making financial contributions to port developments. This has primarily focused on Trust ports rather Local Authority ports as Local Authorities have greater borrowing powers for capital investments. HIE's funding has been aimed at helping Trust ports respond to market opportunities, for example offshore wind and decommissioning. This recognises that a constraint to growth and development of non-Local Authority owned ports is the ability to raise funding in response to opportunities. There can be a significant time lag between successfully raising finance and being able to do so again in response to an emerging market opportunity. Not being able to make regular investments means that ports lose out on potential market growth, market diversity and revenue.

1.45 The research indicates that investment in ports and harbours in the Highlands and Islands will increase in terms of value and the number of 'asks'. This will not be feasible for HIE to fund at required levels. Recognising these financial constraints, the regional, cross-sectoral importance of ports and harbours and their critical role as an enabler of the development of the Blue Economy, HIE has established a Ports and Harbours Infrastructure Group. Membership is drawn from existing

⁴ <https://www.hie.co.uk/research-and-reports/businesspanel/>

⁵ See for example: <https://www.bbc.co.uk/news/uk-scotland-62049326>

HIE teams including tourism, food and drink, energy, strategy and regional development, along with area managers. Specialist external organisations and individuals will be co-opted to input on an as-needs basis. The aim of this group is described in its terms of reference as:

“to support the specific and significant challenges to meeting the region’s infrastructure, decarbonisation, and environmental commitments, the importance of ports and harbours to the Highlands and Islands region, and to support Scottish Government in meeting net zero targets by 2045.”

1.46 The Group will position HIE as a strategic enabler of the development of Ports and Harbours. It will undertake foresighting to anticipate and plan for the ‘asks’. It will work to help leverage additional funding for example public sectors funding (Scottish Government), private investment and lending.

1.47 This Group is well-placed to pursue a co-ordinated and targeted approach to identifying preferred options for port investment in response to market opportunity in marine sectors in the region. Ensuring that appropriate port capacity and capability is on offer to industry where it is needed most is critical to realising any transformational impacts through sectors such as offshore wind or decommissioning, for example.

BLUE KNOWLEDGE

1.48 It is clear that the Highlands and Islands has a very strong base in Blue Economy science, research and knowledge. It has world class facilities and expertise, with exceptional access to natural assets for research, testing and development. As well as the sheer scale of its coastline and marine areas, it has a wide range and distribution of different types of environments and conditions which is very valuable for testing and developing solutions. Added to this, the presence of industry across a wide range of sectors can help to lever industry involvement in research and should help to align research with industry need. However, evidence suggests that research and education could be better aligned with industry and there is an important facilitation role required to enhance triple helix collaboration (industry, education, and the public sector). Provision of industry-aligned education and research strengthens skills and expertise across the workforce is an important component of the inward investment prospectus.

1.49 As well as research, the facilities and access to natural assets provide excellent learning and education opportunities for students and for industry. Employers can access learning to upskill and reskill staff, increasingly important given the pace of change for example through technological developments, automation, and climate emergency.

1.50 HIE recognises that a strong education and research base in the region helps to attract people, retain them, and offers local people learning opportunities across the skills and education system.⁶ It is also an important part of the scaffolding that supports the development and competitiveness of the wider Blue Economy and joint venture innovation, and research and development projects lead to spin offs and catalyse new commercial enterprises. HIE works closely with UHI and other HE providers in the region for the strategic development of the knowledge sector and blue economy knowledge forms a substantial strand of this.

⁶ <https://www.hie.co.uk/latest-news/2021/january/27/milestone-for-region-s-own-university/>

2 CONCLUSIONS AND PRIORITIES

INTRODUCTION

2.1 This study aimed to develop the strategic understanding of the blue economy in the Highlands and Islands and the sectors it comprises. Based on this, the work then focused on identifying the opportunities for growth and development that have the potential to be transformative for the region and Scotland, the priorities, and the role that HIE might play in catalysing and supporting this growth. This work has all been set within the broad policy context and drivers at regional, Scottish and UK levels as well as internationally.

2.2 This chapter draws together the evidence, provides high level conclusions and suggests priorities and steps for HIE and partners for the sustainable development of the Blue Economy in the Highlands and Islands. It is intended as a framework to inform the development of a Blue Economy regional delivery plan that targets resources where they can have the greatest impact. It recognises that in some sectors and activities, HIE is not best placed to take a lead role and its work may focus at a more locally place-based rather than regional level, for example through local area teams.

CONCLUSIONS

Defining the Blue Economy

2.3 The Blue Economy is a range of economic sectors and related policies that focus on the productive use of ocean resources, whilst at the same time pursuing sustainable environmental, social, and economic management. Within the Highlands and Islands context, the Blue Economy encompasses: Aquaculture; Fisheries; Seafood processing; Marine renewable energy; Oil and gas; Decommissioning; Seabed mining; Marine biotechnology and bioprocessing; Marine environmental services; Marine transport and shipbuilding; and Marine and coastal tourism.

2.4 Not all of these sectors are strategically important for the region. However, Blue Economy sectors in the Highlands and Islands are inextricably linked by overlapping spatial requirements – there is a degree of competition for the same marine space. Whilst there are commonalities and linkages between each of the sectors, they are not tightly integrated. In common with the rest of the UK, they are subject to very different regulatory requirements.

Policy environment

2.5 In the Highlands and Islands, in Scotland and in the UK, there is a supportive policy environment for the sustainable development of the Blue Economy and broadly, the sectors within it. Trends in Government and Enterprise Agency support at the UK and Scottish level (as well as other devolved administrations) has seen a shift in emphasis from a sectoral policy focus to one of opportunities. This recognises the important role and potential of the marine environment in tackling global issues such as food and energy security, human health and pharmaceuticals, and climate change. It also recognises the economic and social value of the world's seas and oceans.

2.6 In Scotland, there are a wide range of policies and strategies to manage, guide and support the sustainable development of the marine environment and Blue Economy sectors. These are very much 'policy on' and active, for example Scotland's National Marine Plan and the supporting Regional Marine Plans for each of Scotland's eleven marine planning regions.

2.7 A point to be aware of is that the weighting of marine sector interests in devolved administrations are not necessary fully understood at UK level and reflected in UK policy, where these impact on, for example, Scotland. As an example, support mechanisms such as Contracts for Difference (CfD) have arguably favoured offshore wind, having made no specific provision for wave and tidal energy putting these sources at a disadvantage and potentially inhibiting development. This has however been addressed to some extent by the announcement in late 2021 that the UK government will invest £20 million per year in Tidal Stream electricity as part of CfD auctions.⁷

2.8 Some sector-specific marine facilities have conditionality on their planning permission or operation, which prevents co-location of other marine uses, thereby limiting the degree of collaboration with other sectors. For example, at the European Marine Energy Centre (EMEC) in Orkney, only renewable energy activity is permitted. Some of the port infrastructure in Kirkwall is hypothecated to renewables and cannot be co-opted by other marine sectors, though in principle it still benefits them by creating more capacity overall.

2.9 There is scope for much more cross-sector engagement and collaboration in the Blue Economy in the Highlands and Islands which would help plan and balance the different uses and users, and ensure sustainability, managing environmental impacts. This will help to improve communication across industry stakeholders and strategic/public sector partners. It will enhance cross-sector knowledge and understanding and improve trust and cooperation between sectors and industry. It will enable a collaborative approach to identifying and addressing shared constraints and challenges and opportunities for synergies and clustering. HIE has a central role to play here, to help facilitate this collaborative activity and embed a whole-Blue Economy approach as opposed to sector-based.

Strengths and opportunities

2.10 There is no doubt that the Blue Economy sectors in the Highlands and Islands have strong growth potential. They are at different stages of maturity and development. Generally, they are competing in global marketplaces which are developing quickly. Scotland, and the Highlands and Islands are well positioned to capitalise on the market opportunities, but the lack of adequate infrastructure is a shared constraint to growth. Whilst ports and harbours may be the focus, the Blue Economy is underpinned by wider infrastructure needs such as transport and digital connectivity which are critical for productivity and access to markets.

2.11 Developing and trialling new devices and equipment for Blue Economy sectors is an important area, and the Highlands and Islands has a strong track record in Blue Economy science, innovation, and R&D. This is a key area for public sector intervention and essential if the region is to retain and build competitive advantage in Blue Economy sectors. Innovation aligned to industry need is key, and with a set of common challenges and constraints there can be common solutions, sharing the risk of investment in innovation and making manufacture more viable by stimulating larger scale more reliable demand.

2.12 At Scottish (and UK) level, government and public agencies including HIE should give greater consideration to the potential for co-location and clustering of different marine uses and achieving cross-sectoral synergies benefits in the region. There is an opportunity to benefit from overlapping spatial requirements, and optimise the interdependencies of different sectors, and the benefit that can be gained, e.g., marine energy and aquaculture, or using offshore wind farms to regenerate fisheries. There is also scope to consider how marine tourism can work with other sectors, for example tourism built appropriately around and integrated with fishing ports and harbours. There

⁷ <https://www.gov.uk/government/news/uk-government-announces-biggest-investment-into-britains-tidal-power>

is increasing vertical integration in commercial capture fishing, aquaculture and seafood processing value chains and a high dependency of one stage on another. Fishing is likely to be increasingly integrated with seafood processing, as traceability and control over supply become prominent.

2.13 Collaboration between industry, the public sector, education and communities (a quadruple helix approach) needs strengthened, and embedded at blue economy level, highlighting the cross-sectoral opportunities for sustainable growth, and understanding and addressing constraints.

PRIORITIES FOR THE DEVELOPMENT OF THE BLUE ECONOMY IN THE HIGHLANDS AND ISLANDS

2.14 The Blue Economy encompasses a wide range of sectors, industries and activities. The Highlands and Islands cannot be a global leader in all of these, and HIE cannot be the strategic leader – that would not be feasible (resource would be spread too thinly) nor appropriate (other organisations are better placed to fulfil that function).

2.15 The table below uses a RAG system to identify the strategic priorities for the sustainable development of the Blue Economy in the Highlands and Islands, and HIE's strategic role within that. It is based on the findings of the research including consultations and workshops. Where a sector is green, it is recommended that HIE takes a strategic role and approach to developing it. An assessment of amber indicates an important sector for the region and one that HIE should work in as a partner with other organisations, but not be the strategic lead. This does not of course preclude responses and activities on an 'as needed and appropriate basis', including that of local area teams. Red indicates where HIE should have a watching brief going forward but not a direct role in the sector. HIE may respond to the impacts of changes in the sector, for example oil and gas. In assessing and identifying the key priorities for HIE, it is important not to be over-ambitious and commit HIE to taking a strategic lead across too many sectors, spreading resource too thinly and diluting impact.

Priorities and strategic development

Sector/enabler	Level of strategic priority and role for HIE	Rationale
Blue Economy sectors		
Aquaculture	Green	<ul style="list-style-type: none"> A key sector that has significant potential and policy support for growth. Requires a strong strategic lead to capture the value and proactively drive the sector's development in the Highlands and Islands and Scotland.
Fisheries and commercial capture fishing	Red	<ul style="list-style-type: none"> An important sector in the Highlands and Islands facing challenges and opportunities. Not a strategic priority for HIE intervention as this lies elsewhere in Scotland and the UK.
Seafood processing	Yellow	<ul style="list-style-type: none"> Within Food and drink in the region, there are important pockets of activity including in remote rural and island communities. However, to achieve regional and transformational growth would require significant resource and input from a low base.
Marine energy and renewables (including green hydrogen)	Green	<ul style="list-style-type: none"> The Highlands and Islands has a competitive advantage in renewables covering wind, wave and tidal. Transformational opportunity with HIE as a strategic leader, working with stakeholders across research, education and skills, industry and the supply chain.
Oil and Gas	Red	<ul style="list-style-type: none"> An important sector in the region and will continue to be so during energy transition. HIE's role is likely to be in responding to impacts and implications of energy transition. Strategic lead is embedded in UK Government policy and strategy.
Decommissioning	Yellow-Green	<ul style="list-style-type: none"> A growth sector in the Highlands and Islands, and with the right support it has considerable long term growth potential in decommissioning of marine renewable energy structures. The Highlands and Islands are critical to the UK's drive for decommissioning. Opportunity to capture market share in energy decommissioning, given the assets at the region's disposal suited to decommissioning activity.
Seabed mining	Red	<ul style="list-style-type: none"> Extremely limited activity and potential at the current time.
Marine biotechnology and bioprocessing	Yellow-Green	<ul style="list-style-type: none"> Strong growth potential with high value-added applications. Includes seaweed cultivation (and harvesting). Key will be to take strategic-level action to ensure that the high value activities take place in the region. This action is to be taken by a partnership of organisations including HIE, Scottish Government and others. Decisions are required in the relatively short term as to the extent to which Scotland will seek to capitalise on the opportunities and the commitment. Based on this, it might become 'green' in terms of level of strategic priority for HIE.
Marine environmental services	Green	<ul style="list-style-type: none"> Scotland has a strong digital tech sector including in innovation, research and development. Marine environmental services are vital in terms of monitoring the marine environment in the Highlands and Islands, Scotland and internationally. This means there is a large, valuable, and developing market for technology, expertise, knowledge and systems. This industry offers a transformational opportunity for the region, building on existing activities and the natural, science, tech and other assets.

Sector/enabler	Level of strategic priority and role for HIE	Rationale
Marine transport and shipbuilding services		<ul style="list-style-type: none"> • Marine transport is vital in the Highlands and Islands, for example for logistics and distribution, travel, tourism, servicing key sectors, and in the delivery of essential services. HIE should therefore continue to seek to influence the provision of fit for purpose marine transport in the region. • There is a thriving industry in small boat building, and vessel repair and maintenance. • HIE's development role in these two strands will sit at local area office level rather than regional and strategic. • Where HIE has a strategic role (linked to renewables and blue knowledge) is in the development of clean and green marine transport.
Marine and coastal tourism		<ul style="list-style-type: none"> • Tourism is important in the region in terms of enterprise activity, employment and sustainability of thriving communities. • Opportunities tend to be local and place-based and so response is at local area level. • Strategic role lies with other organisations, in particular VisitScotland.
Cross-cutting enablers		
Ports and Harbours (and landside infrastructure)		<ul style="list-style-type: none"> • The Highlands and Islands' port infrastructure is critical to realising the ambition for, and potential of other sectors and supply chains. It is critical for the region and is strategically important for Scotland. • The required level of investment to upgrade ports to meet current and anticipated market demand is significant and cannot lie solely with HIE. It also includes private sector investment at substantial levels. • HIE's role is in supporting the co-ordination of the activities of strategic partners (potentially through a cluster approach) to ensure that investment is targeted, and capacity is developed where it is needed most and will have the greatest impact. This will be in response to market need, rather than spreading investment too thinly through a blanket, whole-region approach.
Blue Knowledge		<ul style="list-style-type: none"> • Blue knowledge, skills and education are a strength in the Highlands and Islands, through organisations such as SAMS UHI, Shetland UHI, other universities such as Heriot Watt, and organisations and initiatives such as EMEC, and Wave Energy Scotland. • Whilst Blue Knowledge and education are strategic and important to the Highlands and Islands, and HIE has a role and of course an interest in it as an enabler for other sectors and in talent attraction and retention, HIE is not positioned to be the strategic lead.

2.16 The table illustrates that the sectors that HIE should focus on in terms of taking a strategic role are: Aquaculture; Offshore renewables; and Marine Environmental Services. They are not simply the sectors with the biggest existing footprint, they reflect where the Highlands and Islands has a particular advantage that will lever significant opportunities. Some are established, with potential to grow, and some are more early stage. As noted in the table, Marine Biotechnology and Bioprocessing could be classed as a 'green' priority by HIE, but in recent years has remained on the cusp of being a sector with transformational potential. The opportunity is there but the level of policy and strategic level commitment is unclear. Similarly, Decommissioning is a sector that in future HIE could have more of a strategic role in, but this is considered to be more longer-term as Energy-related decommissioning activity increases – for operational Energy infrastructure, along with renewable energy installations currently in development – including those being planned and developed as part of ScotWind for example.

2.17 Sustainability must be at the heart of the development of Blue Economy sectors and the enabling infrastructure must support this, for example ports and harbours facilitating and supporting the greening of marine transport. It must also recognise that the Blue Economy is a Scotland-wide opportunity, and that there are not necessarily hard regional borders defining its operations.

KEY STEPS TO SUPPORT BLUE ECONOMY GROWTH

2.18 This section highlights the recommended steps for HIE and partners to plan and implement the strategic and sustainable development of the Blue Economy. It starts by setting out a number of principles that the research has identified and that should underpin the work going forward.

Principles for the sustainable development of the Blue Economy

- It will take an ecosystem approach to developing the Blue Economy as a whole and the sectors it comprises and that are a focus for growth.
- The economic and social development around the Blue Economy will be based on the premise of safeguarding physical and natural assets and minimising negative environmental impacts.
- It will add value to wider Blue Economy activities in Scotland and the UK – recognising that the marine assets in the Highlands and Islands can and do benefit the Scottish economy and deliver strategic added value (SAV).
- It will reflect the Place Principle and promote a shared understanding of place, and the need to take a collaborative approach to development and so achieve better outcomes for the region, its people, and its communities.⁸
- It will support and develop sectors in the Highlands and Islands that have a high potential for sustainable jobs and growth. This will include in the supply chain.
- It will contribute to shared prosperity through creation of high value jobs, local investment opportunities, and community wealth building.
- It will incorporate partnership working to understand and address skills challenges to ensure an available and skilled workforce, and that there is a fair distribution of the opportunities and benefits.
- It will catalyse and encourage cross-sectoral working and clustering of activity.

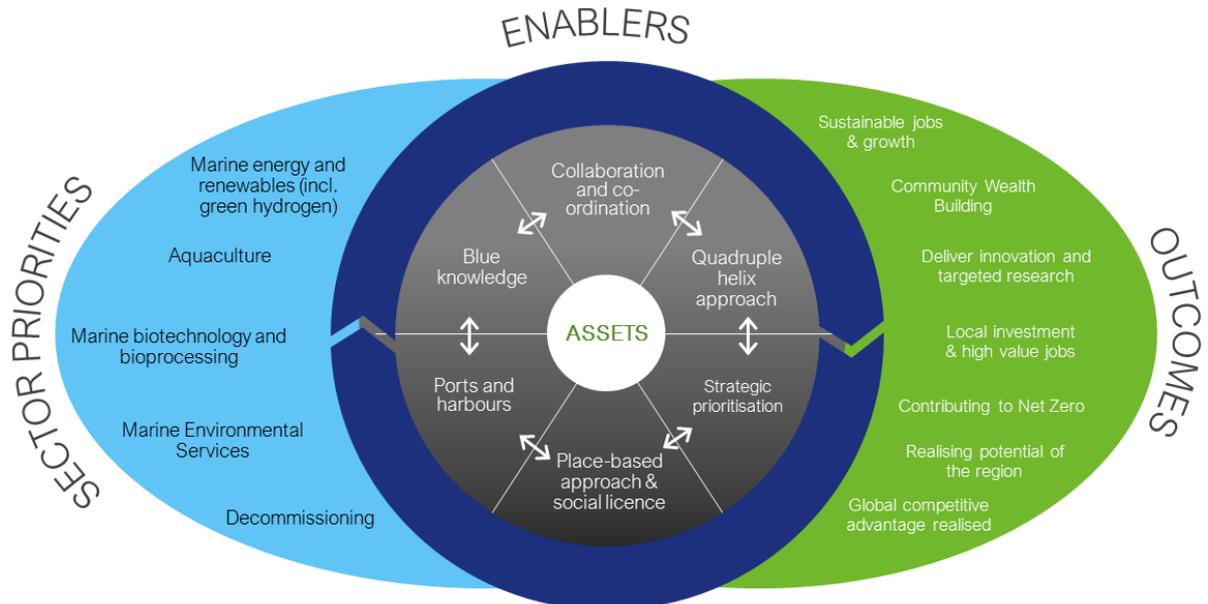
⁸ <https://www.gov.scot/publications/place-principle-introduction/>

- It will be collaborative by adhering to a quadruple helix approach. It will include good practice in community participation as a means of establishing greater socio-economic resilience.
- Resources will be used in the most efficient way to maximise impact. Integral to this will be clear and agreed articulation of the roles and commitment of each stakeholder, including an identified strategic lead. In some cases this will be HIE, but not for all sectors.
- It will be ambitious, responsive and deliver innovation in industry and in response to industry need.
- Addressing market failures and constraints will be central to the Strategy.
- Its progress and achievements should be monitored on an on-going basis and the impacts evaluated regularly. This will be used to actively drive performance.

Next steps

2.19 The study has identified five Blue Economy sectors that should be the priority focus for HIE, along with sectors that HIE should continue to be involved in but not the strategic lead. By focusing resource and activity in these five sectors, HIE will be instrumental in capturing and growing their value to the Highlands and Islands and to Scotland. There are of course interdependencies and synergies to be achieved within these, and with the other sectors that comprise the Blue Economy. Blue Knowledge and Ports are two key cross-cutting enablers. The diagram below illustrates the priorities, the enablers and the potential outcomes that will benefit the region socially, economically and environmentally.

HIE's Priorities for the Blue Economy, and the enablers and outcomes



2.20 This report provides an evidence base for HIE and partners to consider and use to agree priorities and plan next steps. Every stage will require cross-sector and multi-agency cooperation and collaboration. The ultimate aim is to develop a Blue Economy regional delivery plan for the Highlands and Islands that partners sign up to. The following steps are likely to be required.

2.21 The research has led to ekosgen recommending five sectors that HIE's Blue Economy regional delivery plan should focus on. However, as discussed, there are other sectors that have a significant presence in the region currently, are important economically and socially, and have growth potential. An initial point to consider is whether a regional delivery plan is developed that is solely about these five sectors and HIE's work, or if there is a broader regional action plan and the priority sectors for HIE are embedded within it, along with other sectors and strategic leads.

2.22 There is already substantial activity in the region across the Blue Economy sectors and within education, research, industry, and the public sector. There are also physical clusters, some that have been deliberately created such as in Oban, around the European Marine Science Park. Others have evolved naturally over time, often built around a natural asset, for example aquaculture and the supply chain in areas with sheltered inshore waters. Thematic clusters are also very valuable, for example the Scottish Blue Economy Cluster Builder. Linked to clustering of activities, there are synergies, and potential synergies that can be explored and exploited between Blue Economy sectors, and potentially sectors in the wider economy.

2.23 At an early stage, it will be useful to identify likely opportunities for synergies and clustering of activities and supply chains and consider the role of clusters and how these can be built on and developed. This should not seek to duplicate existing clustering but should add to it and consider how sector-level clustering could be layered to provide a Blue Economy super cluster.

2.24 The Blue Economy regional delivery plan, its objectives and the actions that will flow from it will be a valuable tool to stimulate investment and attract inward investment to the Highlands and Islands and Scotland. Understanding the current 'prospectus' under this theme will be an important basis to ensure that the strategic value is maximised.

2.25 Knowledge sharing will be essential at every stage of developing, planning, and implementing a regional delivery plan and this should be undertaken through a consortium approach, established at an early stage. The consortium and knowledge exchange will evolve over time, driven by the stage of development, implementation, and actions. Once the plan is implemented, on an on-going basis, knowledge accrual will involve collecting, analysing, managing, and sharing accurate and robust data. This will be used for a range of functions such as assessing and monitoring impact, fine-tuning the plan and the actions flowing from it, achieving efficiencies, and identifying and managing risks.

2.26 Coastal and marine environments are highly valued by local communities and by wider society in Scotland. There are a great many interested groups and stakeholders, reflecting the range of attitudes and views on how the marine environment should, and should not be used. This includes different uses and user groups, for example leisure and tourism, aquaculture, fisheries, and marine energy. There are often tensions between the uses, the users, and communities and these must be understood, balanced, and managed. There are opportunities for communities in the Highlands and Islands to benefit from a strategic approach to sustainable Blue Economy development, but the key is to ensure that there is responsible and evidence-based environmental stewardship and that this is demonstrated and communicated accurately. There are two points here. First, regional strategy development must ensure that there is social license in the Highlands and Islands, and this means involving communities in a quadruple helix from the start. This will help to addressing constraints and threats posed by a lack of social licence. The second strand links back to marine environmental services. Communities and stakeholders must have access to accurate and credible evidence about environmental impact and implications, and the benefits that sustainable development can deliver.

CONCLUDING REMARKS

2.27 There is no doubt that there is enormous potential to further develop the Blue Economy in a sustainable way in the Highlands and Islands, and for it to be transformational for the region and for Scotland. It is important that this potential is optimised and that the assets and competitive advantages in the Highlands and Islands are used to benefit the region and the people who live, work, learn, and do business within it.

2.28 It is a large and complex economy, that cuts across and is part of wider economic, social, and environmental development considerations and themes such as climate change and net zero, the digital economy, and place-based development.

2.29 There are a number of areas for HIE to consider and reach decisions on, and then extend to wider stakeholders. This decision-making will sit within the wider context in which HIE operates, alongside its strategic objectives.⁹

⁹ <https://www.hie.co.uk/media/5006/strategyplusplanplus2019-2022-1.pdf>



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