



Scotland's Blue Economy and Climate Change- following on from COP 26

Report to Scottish Enterprise

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1 OVERVIEW

1.1 INTRODUCTION

COP26 was a remarkable conference for the ocean: a strong mobilisation across state and non-state actors advocating for stronger commitments to protect marine ecosystems have anchored the ocean in the realm of international climate negotiations (Deprez et al., 2021). This means that alongside multilateral agreements to mitigate and adapt to climate change in terrestrial environments and ecosystems, actions to protect the ocean from climate change and plastic pollution will receive dedicated attention from global climate institutions.

The Glasgow Climate Pact (COP26, 2021) emphasises the importance of multi-institutional collaboration on knowledge production and innovation based on a plurality of perspectives to produce evidence and strengthen governance structures that will drive decision-makers towards strategic ocean actions. This means that, actions that aim to mobilise multi-institutional partnerships and collaboration must be prioritised in the agenda of governments, financial institutions, and enterprises for the ocean.

As such, the Blue Economic Cluster Builder (BECB) project, and its objective of fostering collaboration among small and medium enterprises (SMEs) operating across blue economy sectors in Scotland has a great potential to accelerate the climate agenda for the ocean in Scotland. By building connections and enhancing synergies across businesses operating in blue economy, the BECB aims to leverage innovation on low carbon technologies and accelerate the adoption and implementation of these technologies locally and globally.

1.2 COP26 AND THE OCEAN

After decades of international climate negotiations, marine ecosystems are now, for the first time, fully recognised as carbon sinks in the preamble of global climate negotiations. Thereby, the [Glasgow Climate Pact](#) (COP26, 2021) notes the importance of preserving the integrity of the ocean and its ecosystems to address climate change issues, including the climate justice agenda given the vulnerability of coastal communities and the impact of climate change on global food supply chains. Countries are now adopting actions for the ocean as part of their National Determined Contributions (NDCs) for climate change.

However, there are still big gaps to be filled to enhance coordinated actions for the ocean. As opposed to terrestrial territories that have well-established boundaries of governance between one state and another, the nature of the ocean with no clear boundaries or separation between one jurisdiction and another for different purposes, imposes big challenges for institutions to coordinate actions to avoid the over-use and depletion of its resources and ecosystems (Borgese et al., n.d.; Ekstrom et al., 2009).

Indeed, it is well-established in science that the fragmented ocean governance is a major contributor to marine ecosystem degradation (Borgese et al., n.d.; Ekstrom et al., 2009). Therefore, multilateral collaboration across states and institutions is crucial to increase the quality of governance and the level of comprehension about the impacts of climate change on marine ecosystems and on its capacity to capture greenhouse gases (GHG).

Given the level of importance of collaboration to strengthen ocean governance, the United Nations Framework Conventions on Climate Change (UNFCCC) constituted bodies invites a joint effort across states and institutions to integrate relevant work aiming at accelerating ocean-based actions to mitigate and adapt climate change across the globe. Strengthening relationships between states and institutions, sharing knowledge, and advancing with an integrative ocean science are pointed out at the Glasgow Climate Pact as key actions to achieve a sustainable future for the ocean.



As such, the paragraph 58 of the Glasgow Climate Pact welcomes “the informal summary reports by the Chair of the Subsidiary Body for Scientific and Technological Advice on the ocean and climate change dialogue to consider how to strengthen adaptation and mitigation action and on the dialogue on the relationship between land and climate change adaptation related matters”. This paragraph recognises that there are still substantial gaps to be filled in the body of studies that connect the land with the ocean in climate change adaptation and mitigation measures. In other words, the majority of the studies about climate change are either focused on analysing causes and effects of climate change on the earth or in the ocean, but little is known about how terrestrial and marine ecosystem are connected in climate issues.

In a similar vein, the Paragraph 60 of the Glasgow Climate Pact invites the Chair of the Subsidiary Body for Scientific and Technological Advice “to hold an annual dialogue, starting at the fifty-sixth session of the Subsidiary Body for Scientific and Technological Advice (June 2022), to strengthen ocean-based action and to prepare an informal summary report thereon and make it available to the Conference of the Parties at its subsequent session”. This means that, from 2021 onwards there will be an annual dedicated session run by the Subsidiary Body for Scientific and Technological Advice to summarise and analyse the latest and most relevant findings about the impact of climate change on the ocean and the outcomes will be considered in the negotiations at the Conference of the Parties (COP) to set recommendations and for new agreements.

In summary, the Pact highlights two key issues: a) the importance of collaboration, and b) the relevance of advancing with knowledge production to drive decision-makers through reliable data. In another term, it indicates that scientific bodies, NGOs, industries, and governments must collaborate to produce and share knowledge about the ocean and climate change, particularly about the interaction between land-based and ocean-based ecosystems.

In parallel with the Glasgow Climate Pact that anchored the ocean in official climate agreements, COP26 was also marked by the signature of the statement elaborated by the High Level Panel for a Sustainable Ocean Economy (2021), signed by head state from Australia, Canada, Chile, Ghana, Indonesia, Jamaica, Japan, Kenya, Mexico, Namibia, Norway, Portugal, Palau, and the US. The statement aims to accelerate the progress of ocean-based climate actions, by investing in nature-based climate solutions, harnessing ocean-based renewable energy, decarbonising ocean industries, secure sustainable food for the future, advancing the deployment of carbon capture and storage, and expanding ocean observation and research. The signed document does not set clear actions, but it points out in which industries the signatory countries will focus their attention to accelerate ocean-based climate actions.

In addition to that, the strong mobilisation of the ocean community at COP26 resulted in the signature of the The Ocean for Climate Declaration (2021), signed by more than 100 organisations, including NGOs, scientists, companies and international organisations. The declaration describes recommendations for state and non-state actors to accelerate the adoption of low-carbon economic practices for ocean-based activities and to reduce the current level of degradation of marine ecosystems. Both state and non-state actors must proactively commit with sharing knowledge, enhancing collaboration, strengthening governance measures, increasing finance mechanisms for ecosystem-based approaches, building synergies across ocean and non-ocean actions, increasing the level of transparency, and safeguarding the most vulnerable communities in order to achieve the declaration goals. Moreover, the declaration points out that industries must boost its ambitions to decarbonise ocean-based economic activities, particularly in the sectors of Ocean Renewable Energy, Marine Transport and Aquatic Food Production. It sets specific goals for each of these sectors from a global-level perspective.

In essence, COP26 represents the beginning of a new era for the ocean in the preamble of international climate agreements. As such, with the ocean anchored in the Glasgow Climate Pact and with the strengthening of coalitions among institutions and states, it is expected that there will be more incentives for climate change adaptation and mitigation measures in marine ecosystems. In other words, it is expected that there will be more investments in actions



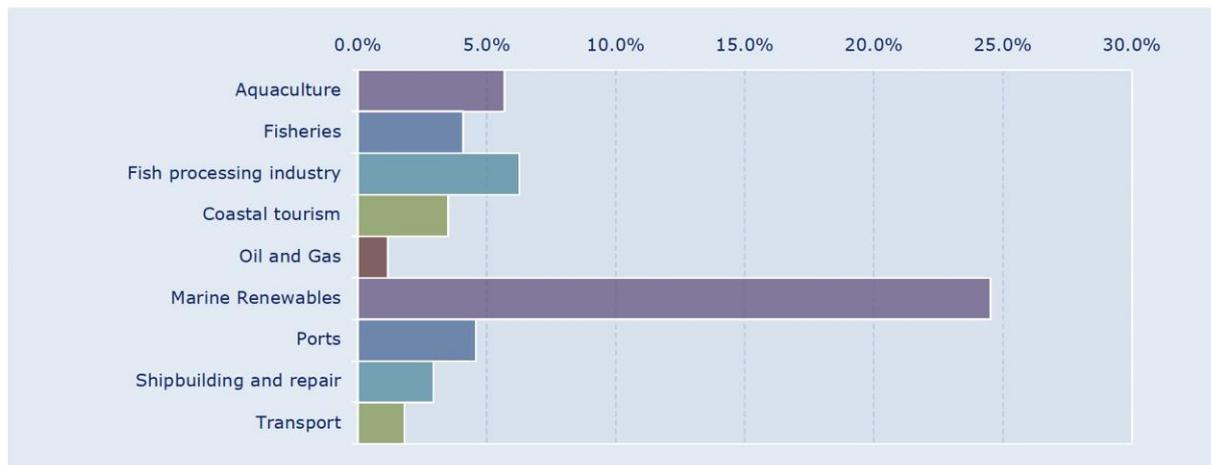
that enhance knowledge production and sharing, aiming at facilitating the development and adoption of new technologies and innovative governance mechanisms in marine ecosystems.

1.3 THE SCOTTISH BLUE ECONOMY & COP26?

Scotland is at the forefront of the development of new technologies to decarbonise the Blue Economy (BE). Indeed, according to the Scottish Development International, in terms of the development of low-carbon energy technologies, "Scotland is home to the world's first tidal array, world's first floating offshore wind farm, and one of Europe's largest hydrogen bus fleets". Moreover, Scotland is also innovating in carbon capture. A new power plant at Peterhead "is the world's first gas-fired power station equipped with carbon capture storage technology to capture up to 1.5 million tonnes of CO₂ every year" (Scottish Government, 2022).

In fact, Aquatera's report released in 2019 for the Blue Economy Cluster Builder project, entitled "Analysis of the Global Ocean (Blue) Economy and Scotland/UK's current share", highlights that apart from the oil and gas sector, all the other sectors operating in BE are projected to grow significantly by 2030. The marine renewables sector has the highest growth projection rate, with an estimated rate of 20-25% (Aquatera Ltd, 2019)

Figure 1 - Global Blue Economy GVA forecast growth to 2030



Source: Blue Economy Cluster Builder report Analysis of the Global Ocean (Blue) Economy and Scotland/UK's current share, Aquatera Ltd (2019).

The Highlands and Islands, in particular, is a hub of innovation for designing, developing and testing marine renewables technologies such as wave, tidal and offshore wind. As such, the environment for cross-sectoral collaboration between universities, private sector and government bodies is already established, harnessing the emergence of innovative technologies in Blue Economy.

Indeed, the island of Orkney counts with the Orkney Research and Innovation Campus (ORIC), created to be a joint venture between Highlands and Islands Enterprise (HIE) and Orkney Islands Council (OIC) to accelerate the development and adoption of marine renewables in energy systems in and out of the Scottish territories. In order to prepare Scottish businesses to enter and grow in the market, industrial clusters funded by HIE and Scottish Enterprise were created to incentivise collaboration among sectors operating in marine renewables.

For instance, the DeepWind Cluster¹, funded by HIE, has emerged to support collaboration among stakeholders operating specifically in offshore wind, aiming at expanding business opportunities for Scottish businesses in the UK and internationally. With almost 700 members, the DeepWind Cluster supports the development of offshore wind supply chain under four main strains: 1) collaborating for growth, 2) increasing the competitiveness of Scottish businesses, 3) building new capacities and 4) supporting innovation for the future².

With its advanced level of development in innovative solutions for low carbon energy systems, Scotland has also advanced with other integrating areas that are necessary to support the growth of the BE, such as: smart energy systems, energy storage technologies, green and blue hydrogen and low-carbon marine transport. In summary, the Scottish Blue Economy has a great level of maturity to support the world with the adoption of climate measures for the ocean. Scotland has a robust body of lessons learned accumulated during its initial stages of development of ocean-based energy renewables and the blue economy in general. It has already learned the power of collaboration and the importance of enhancing participation to increase the acceptance and adoption of new alternatives.

Within the ocean being anchored in the Glasgow Climate Pact, Scotland must take the front-end leadership in accelerating the global decarbonisation of ocean-based activities as the countries has a lot to learn, to teach and to collaborate with the global Blue Economy network.

1.4 HOW CAN THE BLUE ECONOMY CLUSTER BUILDER PROJECT CONTRIBUTE TO ADDRESS CLIMATE COMMITMENTS WITH THE OCEAN?

Gaps in information, fragmented governance and working in silo in climate actions are key drivers of degradation of marine ecosystems. As such, the Glasgow Climate Pact emphasises that collaboration among stakeholders, sharing of information and knowledge production are key actions to achieve the protection of marine ecosystems. These measures must be adopted at any level of power, governance and in all sectors. In other words, even in local-level actions and in clustered economic activities, high levels of transparency and multi-sectoral collaboration must be present to achieve efficiency in climate, social, environmental and economic outcomes (Borgese et al., n.d.)

The core objective of the Blue Economy Cluster Builder (BECB) project is to enhance collaboration across small and medium enterprises (SMEs) operating in BE in Scotland to support their business growth. Thereby, although the project aims to leverage economic and commercial results of Scottish BE SMEs, it also enhances climate and environmental outcome as climate and environmental issues are the main drivers of innovation in almost all sectors operating in BE. As such, the growth of BE businesses in Scotland can also result in positive outcomes for climate-related actions for the ocean.

Moreover, by building bridges and enhancing synergies across BE sectors, the project expects to achieve a higher level of knowledge sharing and collaboration between cluster members, universities, government bodies and the broader global ocean community. As such, the BECB project has the potential of going beyond its objective in supporting Scottish SMEs to grow in commercial results, i.e., by leveraging cross-sectoral collaboration in innovation for decarbonising BE, it has the capacity to strengthen climate-related coalitions in ocean-based activities, contributing to the achievement of local, national and global climate goals.

¹ <https://www.offshorewindscotland.org.uk/deepwind-cluster/>

² <https://www.offshorewindscotland.org.uk/deepwind-cluster/supply-chain-development/>



1.5 NEXT STEPS

Further engagement actions are planned for 2022.

- 1-2-1 sessions with SMEs will take place in 2022 to engage the organisations with the project and understand their challenges to grow
- Events are planned to take place in different thematic areas. The topics of the events aims to meet the needs of the cluster members
- Virtual engagement actions are planned to take place in the BECB social media, by sharing relevant information for the Scottish BE
- Knowledge production and share will continue in 2022 through our reports and bulletins, available in the BECB [website](#).



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