

UK Marine Climate Change: Taking our community forward

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The UK Marine climate change impacts partnership (MCCIP) was initiated in 2006. Since then, we have worked directly with well over 300 researchers (including many MASTS members!) to provide a community view on the state of the science and consider how we can collectively address the many issues raised.

This inclusive approach has been critical to the ongoing success of MCCIP and to enable us to broaden the scope of our work into new areas.

This talk will focus on:

*Our recent publication on key challenges facing the UK marine climate change community from both research and end user perspectives. These outputs are intended to help the community plan and deliver cross-cutting work programmes, inform UK and devolved marine and climate change strategies, and support policy needs.

*Our move from printed periodic report cards to online 'rolling' evidence updates to accelerate science to policy knowledge exchange. Headlines from the first few topics to be published topics will be presented, including the 'Scottish' led aquaculture review.

*Progress on new adaptation work. Two projects are underway, one looking at fish, fisheries and aquaculture in the context of a rapidly changing policy context, and the other on coastal communities, and their health and wellbeing.

*The application of MCCIP principles and approaches to the wider world, including the UK overseas territories.

*Our efforts to engage more widely with evidence providers and users...and lessons learnt along the way!

Acknowledgements

The UK Marine climate change research community, including the MASTS community, who have contributed massively to the success of MCCIP.

References

Buckley, P; Stoker, B; Turrell, W.R.; Robinson, K.A; Howes, E.L; Harrod, O. and Matear, L. (2022). Key challenges and emerging issues from the UK Marine Climate Change Impacts Partnership (MCCIP) community, 22pp
<https://www.mccip.org.uk/sites/default/files/2022-02/MCCIP%20Key-Challenges-Overview-Paper.pdf>

The Importance of Collaborating with Multiple Stakeholders for Translating Science into Policy: A Success Story from Brazil

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Research produces new knowledge and often unexpected innovative solutions to existing challenges, but application is frequently hindered by a disconnect and/or lack of mutual trust between academia and decision-makers. Overcoming these frustrating barriers to make a positive change through science-informed policy changes can be facilitated by taking a strategic approach whilst (co)conducting the research.

Here we present a success story from Brazil, showcasing (i) why and how an initial blue-sky study on mangrove crabs was developed into a research initiative spanning 7000 km of the country's coastline; (ii) the strategic approach, i.e. connecting with multiple stakeholders early-on and (iii) the critical final step taken to achieve the targeted long-term change of the inadequate fisheries policy that had been in force for 17 years, unnecessarily causing environmental, social and economic problems.

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How MEDIN supports the marine community to address Scotland's Blue Economy Vision

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Scotland's Blue Economy Vision is that by 2045 the shared stewardship of our marine environment supports ecosystem health, improved livelihoods, economic prosperity, social inclusion and wellbeing. This vision is built around 3 key pillars: environment, social and economic, and will be operationalised based on a set of principles for partnership working. One of these principles is that evidence is paramount. This presentation will reflect how The Marine Environmental Data and Information Network (MEDIN) provides a comprehensive evidence base for the environmental pillar of Scotland's Blue Economy Vision. Moreover, it will demonstrate how marine environmental data contribute directly to the economic pillar of Scotland's Blue Economy Vision.

The Marine Environmental Data and Information Network (MEDIN) is the hub for UK marine data and have been working with UK organisations since 2008 to promote good data management practices. Providing marine data guidelines, tools and an online portal, MEDIN aims to make UK marine data Findable, Accessible, Interoperable and Re-usable (FAIR). The MEDIN portal contains over 17,000 marine environmental datasets available from around the UK. This plethora of marine data provides the evidence base that allows users to make better informed decisions during projects such as when assessing ecosystem health, carrying out offshore development, and conducting marine science research. The MEDIN portal has undergone over 50 improvements in 2021 to make it easier to search for UK marine data.

In recent years, MEDIN's focus has evolved to include consideration of the economic benefits of its services as well as the marine environmental data that we provide access to. Whilst perhaps not the main focus of the economic pillar of Scotland's Blue Economy Vision, it is nevertheless a significant area to consider.

A cost benefit analysis of MEDIN conducted in 2019, showed that the benefits of MEDIN far outweigh the costs of running MEDIN with a cost benefit ratio of 8.1. One of the largest monetary benefits (saving £27.2million over 10 years) for the marine community is by using MEDIN, users can manage their own data holdings efficiently and improve their organisational data management. MEDIN users spend less time carrying out expensive surveys of the marine environment because of the accessibility and availability of other people's data from the MEDIN portal and Data Archive Centres. This saves users about £13.7million over 10 years according to the cost benefit analysis study carried out by consultants eftec and ABPmer.

The Scotland's Blue Economy Vision aligns with MEDIN principles in that both strategies aim to enable innovation and raise awareness of marine resources. The MEDIN tools and services support the Blue Economy Vision in terms of marine data accessibility and monetary benefits to the economy via the re-use of existing marine data. MEDIN provides measurable benefits to the UK economy and will increase the efficiency of gathering marine data by providing better access to data, support better decision making by increasing the quality and volume of data available and finally, adding value to UK marine data by maximising interoperability and enabling the UK to contribute to, and benefit from, global best practices in this domain. MEDIN will soon be developing a new business plan and aspects of Scotland's Blue Economy Vision report will feed into it.

Analysis of greenhouse gas emissions from Scotland's fisheries by fleet and region

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Reducing greenhouse gas emissions from activities across the Blue Economy remains a critical priority in achieving Scotland's climate target to reach net zero greenhouse gas emissions by 2045. Emissions from fisheries are estimated globally to be responsible for 4% of emissions from food productions (Parker et al., 2018). In Scotland, the fishing sector is estimated to contribute 0.3 megatonnes CO₂-equivalent (MtCO₂e) of the total 40.0 MtCO₂e in 2020 (Scottish Government, 2021).

Based on an in depth analysis of Scotland's pelagic fishing fleet, vessel fuel consumption is the main activity contributing to these emissions (Sandison et al., 2020). Recent work by Marine Scotland and others to improve the estimation of greenhouse gas emissions for all the fleet segments of the Scottish fishing sector has shown the distribution of emissions is skewed to certain segments. This work has also highlighted that consideration of overall greenhouse gas emissions, as well as the emissions per kilogram landed should be considered carefully in decision making. These analyses have all so far focused on fuel consumption, and have not explicitly considered interaction with carbon stored in sea bed sediments and biota.

Here, we present an analysis of the greenhouse gas emissions from the entire Scottish fleet, both by fleet segment and by region. Greenhouse gas emissions for certain fleet segments are also associated with specific ports, based on the current fleet's distribution.

The results of this analysis will inform engagement between the fishing sector, ports & harbours and decision makers.

References

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