# MB0149: Developing the evidence-base to support 'climate smart' decision-making in the marine environment: a focus on MPAs

## What's the problem?

There is a strong political desire to promote the UK as a global leader in climate change. This was originally demonstrated through the Climate Change Act (2008) and further supported by the UK signing the Paris Agreement in 2015 and subsequently Government commitments to net zero emissions by 2050. The importance of improving the evidence base to inform climate smart decision-making is well documented in relevant UK and international policy. Marine biodiversity can play a key role in climate change mitigation and therefore protection measures such as Marine Protected Areas (MPAs) can enhance the contribution of these habitats to climate regulation and mitigation. Understanding the sensitivity of MPA features to climate change impacts and how MPA features themselves may act to mitigate the impacts of climate change is important to support climate-smart decision-making in the marine environment.

## What are the aims of the project?

This project aims to improve the evidence-base to support 'climate smart' decision making in the marine environment, and has four main objectives:

1. Identify MPA protected features, and their associated biotopes, in Secretary of State waters which are "at risk" from climate change pressures;
2. Develop an inventory and high-level statistics on MPA protected features in Secretary of State waters with a role in climate regulation or mitigation of climate change impacts;
3. Define pressure definitions and benchmarks for climate change pressures andndertake sensitivity assessments, following the Marine Evidence-based Sensitivity Assessment (MarESA) method, for biotopes associated with "at risk" protected features of MPAs in Secretary of State waters. This work will be delivered under the MarLIN project through a sub-contract with the Marine Biological Association;
4. Develop MPA climate profiles for two MPAs as a visual communications tool to illustrate the impacts of climate change and the role of MPAs in mitigating against climate change.

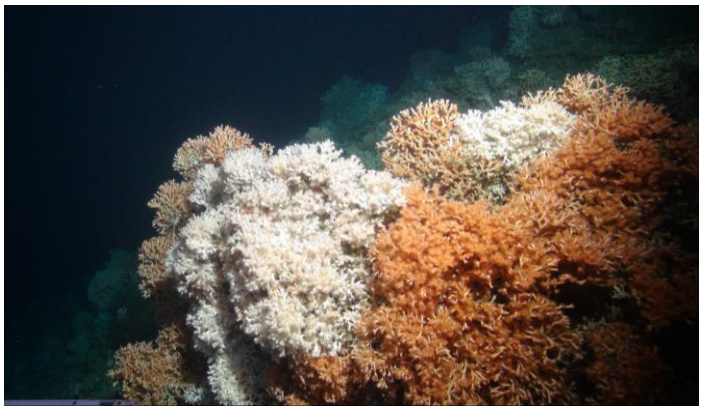

Figure 1: Cold-water Coral Reef Framework (Lophelia pertusa) in the Canyons Marine Conservation Zone © NOC

## Which policy areas will the research inform?

Improved management of UK seas is a key theme of the 25 Year Environment Plan commitments. It highlights the need for an improved evidence base to inform progress towards a 'whole-sites approach to protect sites of greatest biodiversity interest.' The UK Climate Change Risk Assessment 2017 report supports the need for further research into approaches for managing natural capital based on sustainable underlying evidence. Outputs from the project will support UK events at the UNFCCC COP25 in December, showcasing the UK's work on the designation of MPAs and their role in climate change mitigation.

JNCC

MarLIN

Department for Environment Food & Rural Affairs

# MB0149: Developing the evidence base to support 'Climate Smart' decision making in the marine environment: a focus on MPAs

## What are the results from the project and how will they be used?

The project will produce the following outputs:

- High level statistics on the number of MPAs contributing to climate regulation and/or playing a role in climate change mitigation.
- An update to the list of MarESA pressure definitions and benchmarks to include climate change pressures: https://www.marlin.ac.uk/sensitivity/SNCB-benchmarks.
- Sensitivity assessments for a prioritised list of "at risk" biotopes, assessed against climate change pressure benchmarks and with the supporting evidence base, published on the MarLIN website and made available as open data.
- Climate profiles for two case-study MPAs, written in an accessible manner and published on the JNCC website. The profiles will be produced for The Canyons, an offshore MPA located in the far south-west corner of the UK continental shelf. The second profile will be produced for Studland Bay MPA, which is an inshore site located on the south coast of Dorset in the eastern English Channel.
  The climate profiles will contain the following information:
  - Summary of site i.e. location, protected features, oceanographic information;
  - List of features protected in the site, noting any ecosystem services and benefits linked to climate regulation or climate change impact mitigation;
  - Information on protected feature sensitivities to climate change pressures;
  - Map of biotope sensitivity to climate change pressures;
  - List of potential management actions to increase resilience to climate change;
  - Links to literature reviews behind sensitivity mapping; and
  - Knowledge gaps and further work.

The information generated by this project could also be used to support development of future policies and inform wider priorities such as marine spatial planning, implementation of a whole-sites approach to MPA management (a commitment within Defra's 25 Year Environment Plan), or areas to be considered for elevated levels of protection such as those being considered under Highly Protected Marine Areas (HPMAs).

Figure 2: Seagrass in Studland Bay Marine Conservation Zone. © Natural England

## Where can I find further information about this and related research?

Further details about JNCC's work is available at: https://jncc.gov.uk/evaluating/oceans-climate-change/ or contact Beth Flavell Beth.Flavell@jncc.gov.uk

Alternatively, please contact Defra's Marine and Fisheries Science Unit: marine&fisheriesscience@defra.gov.uk

## Defra Science – did you know?

At any one time Defra manages over 2000 research projects covering a wide range of topics. For more information on current research see **http://randd.defra.gov.uk/**