Fact sheets on the impact of climate change effects in the Arctic marine environment

Co-chaired by Finland and USA

Idea and objective developed from UK Marine Climate Change Annual Reporting Cards

'short, comprehensive, quality assured, high level assimilation of knowledge set out in a visually impacting way that enables the results to be quickly and easily understood and used by policy advisors, decision makers, Ministers, Parliament and the devolved administrations.'

http://www.mccip.org.uk/media/1611/mccip_special_topic_report_card_-2015.pdf

Fact sheets: Optimal format to be developed

MCCIP Marine Climate Change Impacts Partnership

Marine climate change impacts

Implications for the implementation of marine biodiversity legislation

This Report Card looks at climate change and marine biodiversity legislation, with a focus on the legislation used to establish various types of marine protected areas.

Pink sea fan *Eunicella verrucosa* © Keith Hiscock

Key headlines

Climate change is rarely explicitly considered in marine biodiversity legislation, but mechanisms generally exist that could enable climate change issues to be addressed.

The potential impacts of climate change on marine protected areas include features being gained to or lost from sites and, in certain cases, the entire network.

Flexibility is required in responding to climate change impacts on marine protected areas so options such as designating new sites, abandoning old sites and revising management measures may all need to be considered.

With over 1,250 designated features in the UK marine protected area network, identifying where and how these habitats and species are likely to be affected by climate change will be a critical step in managing marine protected areas.

At the current stage of development for the Marine Strategy Framework Directive, further practical consideration of how climate change could affect targets for the achievement of Good Environmental Status is required.

2015

www.mccip.org.uk/mbl

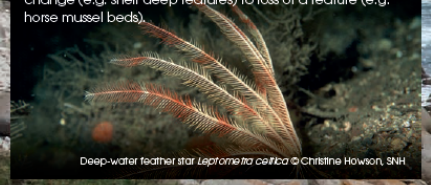
Management implications for marine protected areas in a changing climate

As the presence, quality or composition of features change, managers may want to consider the following options to ensure that legislation is being implemented in a way that is adaptive to climate change:

Where a marine protected area is designated for multiple features and one or more features are lost then the marine protected area designation may need to be revised.

Example: Small Isles NCMPA

The Small Isles Nature Conservation Marine Protected Area in Scotland is designated for burrowed mud, circalittoral sand and mud communities, horse mussel beds, northern sea fan and sponge communities, shelf deeps, black guillemot, fan mussel aggregations, northern feather star aggregations on mixed substrata and white cluster anemones. These features are likely to respond to climate change differently: from no change (e.g. shelf deep features) to loss of a feature (e.g. horse mussel beds).



Deep-water feather star *Leptometra celtica* © Christine Howson, SNH

If the quality of a feature changes (improves or deteriorates), then adaptive management measures may need to be considered.

Example: Seagrasses

Seagrass beds are expected to benefit from the increased availability of CO_2 for photosynthesis, stimulating growth. This could lead to an increased extent of the feature which may require different management strategies.

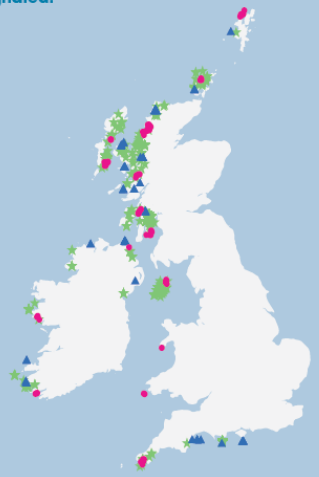
Eelgrass *Zostera marina* Orkney, Northern Isles Area © Sue Scott/SNH

Where a marine protected area is abandoned, but the feature still exists in UK waters, alternative marine protected areas may need to be designated.

Example: Maerl

Maerl beds are found off the southern and western coasts of Britain and Ireland, as far north as Shetland, and are particularly well developed around the Scottish islands and in sea loch narrows, around Orkney, and in the south in the Fal Estuary. Depending on both the species and the climate change driver (i.e. temperature, acidification) maerl beds could be lost from the north or south of the UK. To ensure network coherence and protection of maerl beds, additional marine protected areas in the UK may need to be designated for this habitat (see green stars on map) or the habitat could be added as a designated feature to existing marine protected areas (see blue triangles on map).

- Known maerl beds designated within marine protected areas
- Known maerl beds within marine protected areas, but not designated
- Known maerl beds outside marine protected areas



Information contained here has been derived from data that is made available under the European Marine Observation Data Network (EMODnet) Seabed Habitats project (www.emodnet-seabedhabitats.eu), funded by the European Commission's Directorate-General for Maritime Affairs and Fisheries (DG MARE).

- The fact sheets are based on up-to-date knowledge on climate change effects. They utilize published knowledge, but their added value is in their *focus on specific topics*, and on the *inclusion of Indigenous and local knowledge*.

- The first fact sheet aims at presenting the role of Arctic Marine Protected Areas (MPAs) in the adaptation to climate change.

- The second fact sheet is aimed at summarizing how living conditions of indigenous people are changing and will change.

- The concept may be applied to a series of fact sheets if deemed to be useful.

- Timetable:

Mo/Yr	6/2019 (9/2019)	9/2019	1-6/2020	7-12/2020	3/2021	1-6/2021	10/2021	12/2021
Milestone	National funding; project starts	PAME-2-2019	PAME-1-2020	PAME-2-2020		PAME-1-2021		
Deliverable		Details of project presented	1st draft of MPA fact sheet	1st fact sheet final; 2nd fact sheet draft	1st fact sheet published	2nd fact sheet final	2nd fact sheet published	Plans for 2022→

Project organization:

Steering group: PAME

Co-leads: Finland, USA

Main contact: Harri Kuosa, Finnish environment institute

Participants:

Ten practical steps for how to do the work on the MPA fact sheet

1. Planning the work/information and feedback→

2. How does the climate change in the Arctic region in the future (based on a literature survey/AMAP and CAFFs findings/Indigenous and local knowledge)?→

3. Assessment of the impact of climate change on the distribution of populations, species, and habitats in the Arctic Ocean (a literature survey, interviews of Indigenous and local peoples)→

4. Identification of MPA benefits for climate change mitigation→

5. Definition of MPA fact sheet elements (the facts it should present)→

Ten practical steps for how to do the work on the MPA fact sheet (cont.)

6. Design of the MPA fact sheet→

7. Publication of the MPA fact sheet in English→

8. Translation of the MPA fact sheet→

9. Print/publication of all planned language versions of the MPA fact sheet →

10. Based on the experience from steps 1-9 plan the fact sheet # 2

- What reports/papers are you aware of that should be consulted in developing these two Fact Sheets:
  (1) the role of MPAs in Climate Change Adaptation and
  (2) Climate Change and Indigenous Peoples?

- What experts (including indigenous peoples) should be consulted in developing an outline and content for the Fact Sheets?

- What is the best way to engage indigenous representatives early in the development of Fact Sheet 2, and get their thoughts on content?

- What is the best way to engage CAFF to get their input on content for Fact Sheet 1?

- Are there specific issues related to either Fact Sheet that are particularly important in your country and should be addressed in the outline?