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The MarClim Project
Key messages for decision makers and policy advisors, and recommendations for future administrative arrangements and management measures

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Introduction

In the last 60 years climate change has altered the distribution and abundance of many seashore species. The MarClim project was a four year multi-partner project created to investigate the effects of climatic warming on marine biodiversity. This was achieved by using intertidal rocky shore biota and assessing the resultant implications for the conservation, management and protection of the marine environment in Britain and Ireland. The consortium project was led by the Marine Biological Association in partnership with Plymouth Marine Laboratory, Scottish Association for Marine Science, University of Plymouth and University College Cork, but funded by a much wider consortium of organisations under the umbrella of the UK Climate Impacts Programme (UKCIP). UKCIP itself is part of a wider programme of research into climate change being undertaken by the Department for Environment, Food & Rural Affairs (Defra). This report examines the policy implications of the projects scientific findings.

What was done

The ethos of MarClim is that in the marine environment, as on land, climate change may influence patterns of biodiversity. Climate shifts, including temperature changes, more frequent storms and other extreme events, as well as variation in intensity and temporal variance of upwelling events, are likely to exert strong impacts at different levels of biological organisation, from genes to ecosystems. How rapid changes in climatic conditions will affect the marine environment is of major concern to a wide range of stakeholders and interested parties including scientists, commercial enterprises, policy makers and the general public, but until now little attention has been focused on the possible effects for marine biodiversity.

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The project aimed to use intertidal species, whose abundances had been shown to fluctuate with climatic change, as indicator species of likely responses of species not only on rocky shores, but also those found offshore. The project used historical time series data, from in some cases the 1950s onwards, and contemporary data collected as part of the MarClim project (2001 - 2005) to provide evidence of changes in the abundance, range and population structure of intertidal species and relate these changes to recent climatic warming.

Results and conclusions

The MarClim project provides strong evidence that recent rapid climatic change has resulted in changes in the abundance, population structure and biogeograpic ranges of a number of intertidal indicator species, mirroring changes offshore. MarClim has already generated increased awareness of marine climate change issues. Key policy messages from the MarClim work fall under the following headings:

- The role British & Ireland can play in assessing the impacts of climate change.
- The fact that the impacts of climate change on marine ecosystems are real, measurable and growing in extent
- The provision through MarClim data of a robust baseline of information.
- The value and necessity of long-term data sets.
- The benefits of a consortium approach with a broad geographic coverage.
- The role climate indicators should play in the broader development of indicators for marine and coastal biodiversity.
- The need to act now to factor marine climate change impacts into day-to-day business.
- The national priority for developing an integrated marine climate impacts monitoring programme.
- The need to develop rapid and streamlined reporting to Government on marine climate change impacts.

English Nature's viewpoint

The MarClim work exceeded its original objectives and continues to play a pivotal role in stimulating the development of new approaches to studying and understanding the impacts of climate change in the marine environment. The project leaves a lasting legacy as a number of the policy implications set out above and in the report are already being implemented, such as the production of climate change scenarios for the marine environment, the Marine Climate Change Impacts Partnership officially launched by Elliot Morley in early 2005, and the development of the Annual Report card approach for thematic reporting through to Government.

Selected references

For all products from the MarClim project, including this Research Information Note and the pdf version of the English Nature Research Report please see http://www.mba.ac.uk/marclim/

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