

# Water on the brain

Professor Dr Carlo Heip presents a wide-ranging project, which combines cutting-edge poll research with a variety of media to study levels of public knowledge and concern in Europe regarding marine climate change



**Could you begin by outlining the overall aims and objectives of the Climate Change and European Marine Ecosystem Research (CLAMER) project?**

The project started with the observation that the results from many climate change research projects are often disseminated only to a select public. CLAMER aims to valorise European research efforts into the effects of climate change on marine ecosystems, and to close the gap between public perceptions and our expanding scientific knowledge.

**CLAMER is a highly collaborative initiative. Can you describe the background and expertise of the 19 marine institutes and universities involved in your research? How important is the collaborative aspect of your work?**

CLAMER relies on multidisciplinary expertise from many countries to analyse and synthesise European research. Some of the institutes involved have been active in coordinating EU Networks of Excellence (MarBEF), Euroceans and Marine Genomics Europe; others are drawn from large research projects in European marine

territories like the Arctic, the Atlantic, the North Sea, the Baltic and Black Seas, and the Mediterranean.

**Why is the scientific knowledge based on marine climate change impacts not reaching policy makers and the general public?**

In reviewing over 60 EU research projects, we found that public outreach is often considered only as an afterthought; it is therefore not surprising that public awareness is lacking. There is limited media interest in lower-profile marine climate change issues which don't involve melting ice caps or polar bears, and those issues that do get coverage tend to be associated with coastal impacts (such as sea-level rise, coastal flooding and erosion) rather than issues affecting the open ocean.

**How would you rate the current awareness and perception of the European population concerning the effects of climate change on marine environments?**

Until the results of the large-scale CLAMER poll are released this September (2011), it will be hard to rate the level of knowledge among the European populace, as the poll is the first of its kind anywhere in the world. Earlier studies have shown that, although most individuals in Western nations declare a high level of awareness and concern about anthropogenic climate change, there is lower understanding of the mechanisms driving it.

**Can you describe some of the methods you will be employing to disseminate marine climate change research?**

We will combine several dissemination actions with a series of three press releases this year. A contest is being held in which European citizens are invited to create video messages about their experience of climate change in their local marine environments. A 52-minute high-definition television documentary is being

made, and a project book will be released highlighting the main research results, the results of the poll on public perception and awareness, and also focusing on the conference and outreach activities. All this information will be compiled by the CLAMER web portal.

**Could you elaborate on the work you are conducting to create a research inventory database and report? Who will be able to access the database and what will it feature?**

It was clear from the start that we needed to begin with a good overview of recent and ongoing research. Therefore, we are developing an inventory report and searchable database with a web interface, providing an overview of significant marine climate change research projects dating back to 1998, including important non-EU funded regional, international and pan-European initiatives. The report and accompanying database will be made available to scientists, policy makers and advisors, industry stakeholders and the general public via the project website, and widely disseminated through our partner networks.

**What is the focus of the documentary that you will be producing? When will it be released and who is the target audience?**

Filmed in seven European countries, the CLAMER documentary focuses on public attitudes to scientific communication regarding climate change in Europe, its impact on our marine waters and wider socioeconomic consequences. The storyline is inspired by the CLAMER European poll and approaches issues such as rising sea levels, changes in ocean biodiversity, modifications of ocean currents and ocean acidification. It is made in the style of a television documentary and subtitled in English and French for international broadcast to as wide an audience as possible, and will be premiered in Brussels at the pre-event launch of the CLAMER conference in September.



# Testing the waters

Scientific knowledge concerning the impact of climate change has on marine environments continues to expand. **CLAMER** is probing attitudes of the European public to generate new pathways for the dissemination of research

**CLIMATE CHANGE IS** now known to be a serious global threat. Increasing concentrations of greenhouse gases are affecting the global climate by causing more heat to be retained in the troposphere, raising the average temperature of the planet and altering global atmospheric circulation and precipitation patterns. As the process unfolds, oceans and coasts are affected in various ways, for instance, changes in sea levels and temperatures affect ocean circulation, wave regimes and the incidence of storms, all of which in turn influence marine ecosystems and modify marine habitats. Changes occur at the level of nutrient availability, biological productivity, phenology (the timing of biological events such as spawning), population biogeography, migratory patterns, and predator-prey relationships at all levels of the food chain. In addition, global change-induced effects such as ocean acidification put greater pressure on increasingly fragile marine ecosystems.

Europe is warming at a faster rate than the global average, and the physical attributes of our seas are changing accordingly, with implications for the functioning of our regional climate and our marine environment. These changes will have a profound impact on the daily life of Europe's inhabitants, requiring much forward planning and preparation. In order to detect the main gaps in public awareness and identify issues that are considered important at a regional and Europe-wide level, it is therefore becoming increasingly important to assess what the European public knows and how they perceive climate change impacts in their seas, and also to highlight the findings of the many scientific experts based in Europe who are researching these issues.

Building upon the concept that there is a gap between what is known through research and what policy makers and the public know and understand about the effects of climate change on the oceans, the Climate Change and European Marine Ecosystem Research (CLAMER) project has carried out a pan-European poll investigating public awareness in various coastal regions, and aims to create a state-of-the-art overview of EU research results in the field, compiling and summarising all existing scientific material and outreach materials. The ultimate

goal is to bring together elements from their evaluations of research and public awareness to offer balanced information in the form of messages and recommendations, using different strategies to target different groups, that are understandable to the public at large, policy makers, NGOs, science communicators, teachers and the media.

## GAUGING AND ENGAGING THE PUBLIC

The public-orientated side of the CLAMER project attempts to gain a better understanding of what the public knows about climate change in the marine environment, and explore awareness of ongoing research initiatives funded by the EU and national governments. This general aim can be subdivided into three main goals:

- To evaluate the success and/or failure of previous attempts to disseminate EU research results among the general public, identifying projects that were successful in this regard and offering recommendations with respect to future dissemination efforts and outreach methodologies
- To assess public perception and knowledge of EU research on marine climate change by surveying a representative sample of 10,000 European

citizens from at least nine nation states, taking into account differences between coastal and inland areas

- To examine the social and economic consequences of marine climate change in Europe, building on existing studies that have set out to quantify and compare the costs of adapting versus the economic consequences of not adapting, and comparing such analyses with the survey of public awareness to see if citizens of the European Union have a realistic perception of risks and threats

The poll asks questions about how people get their information on marine climate change issues, and also how much they trust these sources of information. Professor Dr Carlo Heip, the project's coordinator, explains why the research is important: "We hope that by communicating through the most popular and trusted channels we can convey difficult scientific messages to as wide an audience as possible". To complement the polling work, CLAMER plans to run a series of intensive focus groups, bringing together members of the general public with scientists to try to provide a more personal insight into how European citizens perceive threats from marine climate change and how it could affect their daily lives.





The project hopes to foster further engagement with the public through a series of 'Marine Climate Change' side-events in conjunction with a host of over 30 European aquaria and marine institutes over the summer of 2011. European citizens will be challenged to create a video message illustrating their concern for the future of marine environments; a selection of the best video messages will be shown on the CLAMER website, and a winner will be selected and invited to the CLAMER conference, the culmination of the project, in Brussels on 15 September 2011.

### COMMUNICATION AND DISSEMINATION

The one day International pan-European CLAMER conference will bring together these complementary strands of the project, to discuss some of the future priorities for climate change research in European seas and, more specifically, how the output of this research can be better translated and communicated to those who can benefit from it, with particular focus on regional differences in the manner European citizens perceive the issues surrounding climate change in the marine environment and its socioeconomic implications. The conference will mainly target policy makers and NGOs, though the conference pre-event will see the launch of CLAMER's 52-minute HD documentary which is aimed squarely at the general public, touching upon a variety of marine climate change topics and giving the floor to people from various backgrounds.

By this time the CLAMER website and database of EU research will be fully

operational, acting as the main information bank for the project, the international conference and the results of the scientific inventory and public perception polls. The various partners in the CLAMER project will use the portal as the main depository of the information and tools they produce, and so the site will be a major hub for European research information, educational tools on the impacts and risks of climate change in the marine environment and associated consequences.

CLAMER is a short-term project, only 18 months in length, and is due to end in September 2011 – the project's planned deliverables are now all in a finishing phase and will become available during the following months in the run-up to the Brussels conference. However, the outcomes of the project will remain accessible on the portal at least until 2013, and in the longer term, the results will be used to open discussion on future climate change research and dissemination priorities. CLAMER's European poll to survey public perception and awareness is the first of its kind, allowing significant comparisons to be made between responses from different European regions. The project has also been highly successful in convincing a substantial number of European aquaria to join forces and actively cooperate with European marine scientists, providing a unique platform for informing thousands

of citizens about the effects of climate change on their marine environments.

## INTELLIGENCE

# CLAMER

### CLIMATE CHANGE AND MARINE ECOSYSTEM RESEARCH RESULTS

#### OBJECTIVES

To produce a state-of-the-art overview of European research results on the effects of climate change on marine environment.

#### PARTNERS

Océanopolis, France • Marine Board – ESF, Belgium • Flanders Marine Institute, Belgium • University of Tromsø, Norway • Spanish Council for Scientific Research, Spain • Hellenic Centre for Marine Research, Greece • Netherlands Institute of Ecology – KNAW, Netherlands • Danish Meteorological Institute, Denmark • Centre for Environment, Fisheries and Aquaculture Science – DEFRA, UK • Marche Polytechnic University, Italy • Sir Alister Hardy Foundation for Ocean Science, UK • University of Western Brittany, France • Plymouth Marine Laboratory, UK • National University of Ireland, Galway, Ireland • National Oceanography Centre – NERC, UK

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