
MARINE AND COASTAL ECOSYSTEMS AND CLIMATE CHANGE: A PUBLIC AWARENESS SURVEY

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Dr. Catarina Fonseca¹, **Dr. Mialy Andriamahefazafy**², **Dr. Gema Casal**³, **Dr. Tomas Chaigneau**⁴, **Dr. Cindy C. Cornet**⁵, **Ms. A. Karima Degia**⁶, **Prof. Pierre Failler**⁵, **Dr. Gianluca Ferraro**⁵, **Dr. Elisa Furlan**⁷, **Dr. Julie Hawkins**⁴, **Dr. Silvia de Juan**⁸, **Dr. Torsten Krause**⁹, **Dr. Geraldine Perez**¹⁰, **Prof. Callum Roberts**⁴, **Mr. Ewan Trégarot**¹¹, **Dr. Louisa Wood**⁵, **Dr. Bethan O'Leary**¹²

1. cE3c – Centre for Ecology, Evolution and Environmental Changes & ABG - Azorean Biodiversity; CICS.NOVA - Interdisciplinary Center of Social Sciences, Faculty of Social Sciences and Humanities (FCSH/NOVA), 2. Centre for Blue Governance, Portsmouth Business School, Richmond Building, Portland Street, University of Portsmouth, 3. National Centre for Geocomputation, Maynooth University, 4. Centre for Ecology & Conservation, College of Life and Environmental Sciences, University of Exeter, Penryn Campus, Penryn, UK, 5. Centre for Blue Governance, Portsmouth Business School, University of Portsmouth, 6. Centre for Resource Management and Environmental Studies, University of the West Indies, 7. Centro Euro-Mediterraneo sui Cambiamenti Climatici and Università Ca' Foscari Venezia, 8. Instituto Mediterraneo de Estudios Avanzados, IMEDEA (CSIC-UIB), 9. Lund University Centre for Sustainability Studies, 10. Institut océanographique Paul Ricard, 11. Centre for Blue Governance, Portsmouth Business School, University of Portsmouth, 12. Centre for Ecology & Conservation, College of Life and Environmental Sciences, University of Exeter; Department of Environment and Geography, University of York

1. INTRODUCTION

Hundreds of millions of people worldwide directly rely on marine and coastal ecosystems for their food, livelihoods and ways of life, yet these ecosystems are subject to a variety of pressures (UNEP, 2006; Hoegh-Guldberg et al., 2015; Korpinen et al., 2019). These pressures include climate change - one of the most urgent challenges societies are currently facing, with “long-lasting or irreversible” adverse consequences predicted as a result (IPCC 2018). Healthy marine and coastal ecosystems are a pre-requisite for the continuing delivery of ecosystem services, such as the provision of food, climate regulation and carbon storage. Therefore, it is critical to achieve a more sustainable management and effective protection of such valuable ecosystems. Policy makers are increasingly aware of the adverse effects of climate change and environmental degradation on our coasts and oceans. As public opinion influence decision-making on the actions to take and contribute to the success of their implementation (Rasmussen et al., 2017), it is important to understand how well informed the public is about climate change impacts and solutions in marine and coastal systems. In recent years, significant efforts have been made by the scientific community to raise public awareness of climate change and the links between healthy marine and coastal ecosystems and ecosystem service provision, including their role in mitigating and adapting to climate change (Barracosa et al., 2019). However, there has been little consideration of how the public perceives the interlinkages between climate change and its effects on marine and coastal ecosystems. Instead, most efforts have addressed climate change perceptions (van Valkengoed et al., 2022) Mildenerger et al., 2019) and marine threats perceptions (Ankamah-Yeboah et al., 2020; Lotze et al., 2018), separately. In the scope of the research project on “Marine Coastal ecosystems Biodiversity and Services in a changing world” (MaCoBioS) funded by the European Commission, people’s views on climate change, the value of marine and coastal ecosystems and the threats facing they face, as well as potential management options were investigated.

2. METHODS

An online questionnaire was developed to consult with a broad range of representatives from key stakeholder groups, interacting with marine and coastal ecosystems in one of the following ways: (1) Fishing and/or seafood production; (2) Tourism and/or recreation; and (3) Conservation, management and/or scientific advice. The questionnaire was composed of 20 questions across four sections, which aimed to assess: 1) perceptions on

climate change; 2) perceptions about the value of, and threats to, coasts, oceans and their wildlife; 3) perceptions about climate change response, and; 4) respondents characteristics. It was made available online for 12 weeks (between November 2021 and February 2022) in four languages (English, French, Italian and Spanish). Dissemination was done by e-mail and social media networks, targeting relevant stakeholder groups directly and aiming for a ‘snowball’ effect. Though the dissemination efforts were concentrated within the regions investigated in the framework of the MaCoBioS project (i.e. Northern Europe, the Western Mediterranean and the Lesser Antilles), answers were also collected from other regions. The survey received 709 respondents from 42 countries.

3. RESULTS & DISCUSSION

While there are clear advantages to conducting an online survey, such as access to larger overall sample sizes from a wide range of countries, this technique of data collection also presents challenges like establishing a sampling frame and self-selection bias. For example, while a broad representation of gender identity (51% female: 47% male) was achieved, most (57%) respondents are aged 18-40 and 60% are university educated. Moreover, there is an unbalanced stakeholder group representation (most are tourists/recreational users [53%] or actively involved in conservation/management/scientific advice [33%]).

These challenges prevent generalisations about study findings; however, this study seems to indicate a widespread acknowledgement of the reality of climate change. It was found that 93% of the respondents think the world’s climate is changing, and 90% believe human activity is the main cause of climate change. Two-thirds feel well or very well informed about climate change. And while 72% of the respondents are very concerned about climate change, 96% think society should be doing more about it.

Regarding marine and coastal ecosystems, 97% of the respondents perceive them as critical for human well-being, and most consider them essential for reducing or slowing climate change and supporting global and local economies. However, 75% of the respondents do not think marine and coastal ecosystems are in excellent health in their country. Globally, the top three threats selected were plastic pollution, climate change and fishing or harvesting, concurring with results from previous surveys on marine threats (Lotze et al., 2018).

Most respondents (94%) support that enhancing and preserving marine and coastal ecosystems should be a key focus of policies addressing climate change, nature conservation and sustainable development. One option to do that is through the implementation of Nature-Based Solutions (NBS), which are systemic actions that work with and enhance nature to help society address multiple societal challenges simultaneously by providing environmental, social, and economic benefits (Gómez Martín et al., 2020; Seddon et al., 2020). The majority of respondents have either heard of (42%), or feel they know a lot about (18%) NBS, which suggests that this concept is becoming recognised in wider society.

While these results are interpreted with caution, this study seems to indicate a widespread acceptance of and concern regarding climate change and a strong demand for action. Other studies have already shown that perceptions of greater threats from climate change are consistently associated with stronger support for adaptation policy (van Valkengoed et al., 2022). Supporting and enhancing nature to address climate change mitigation and adaptation is now widely accepted as an important component of the overall response to societal challenges, including climate and conservation policies. However, the approach is still perceived as novel compared to traditional grey measures, and public acceptance of NBS still has to be earned (Anderson and Renaud, 2021). Promoting awareness about NBS, their benefits, and effectiveness is critical to improve acceptance.

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