

COMPARISON OF THE SOCIOECONOMIC IMPACTS OF MEDITERRANEAN AND BLACK SEA MARINE PROTECTED AREAS: EVIDENCE, GAPS AND WAYS FORWARD.

Marta Pascual ^{1*}, Marisa Rossetto ², Paco Meliá ² and Elena Ojea ¹

¹ Basque Centre for Climate Change (BC3) - marta.pascual@bc3research.org

² Dipartimento di Elettronica, Informazione e Bioingegneria, Politecnico di Milano, Italy

Abstract

The increasing necessity of scientific evidence on the socioeconomic impacts of MPAs, as well as acknowledging them, is of relevance for marine policies. This is especially important at the regional level, such as for the Mediterranean and the Black Sea. However, since a previous work carried out in 2000, no study has analyzed the most recent findings, or performed a comparative review of the socioeconomic impacts of MPAs for the Mediterranean and the Black Sea. The present contribution aims to fill this gap by collecting evidences and analyzing MPAs' socioeconomic impacts, updating and expanding the analysis for the Black Sea. Preliminary results show that MPAs implications on tourism and fishing are important especially in the Mediterranean Sea, whereas in the Black Sea conflicts are likely to arise due to mineral extraction.

Keywords: *Marine parks, Economic valuation, Black Sea, North-Central Mediterranean, North-Eastern Mediterranean*

Marine Protected Areas (MPAs) have gained popularity worldwide as a management option for marine conservation, fisheries and other human uses of the oceans [1]. As a consequence, MPAs are increasingly common management tools for marine ecosystems and scientific evidence on the socioeconomic impacts of these reserves has gained relevance for marine policies, especially at the regional level, where common policies and regulations can be applied. It was in this line that current international targets, set by the Convention on Biological Diversity, promoted a network expansion of MPAs [2]. However, more research is needed in order to understand the socioeconomic impacts of each MPAs, as well as the impacts of scaling marine reserves to regional networks, where many conflicts have been already observed to arise [3]. A work in 2004 estimated the costs and benefits of meeting global MPA network targets [4], however, studies looking at the impacts at a regional level are scarce. Two regions with abundant MPAs are the Mediterranean and the Black Sea, which provide a number of important marine ecosystem services to the wide range of countries that these regions encompass. These countries have the particularities of being geographically constrained by huge regulatory, economic and, even sometimes, geopolitical differences, which conflict with a more sustainable use of the resources. Understanding the socioeconomic impacts of MPAs in these two regions is therefore essential. Already in 2000, a review on the socioeconomic impacts of MPAs in the Mediterranean Sea was conducted [5], and since then, many other studies have tried to understand the various mechanisms in which MPAs can have socioeconomic impacts. However, since the latter review, no other study has analyzed the most recent findings from the literature, or performed a comparative review of the socioeconomic impacts of MPAs for the Mediterranean and the Black Sea. Acknowledging this gap, the present contribution aims to collect and analyze evidences from the Mediterranean, that would allow to update previous reviews [5], as well as performing the same analysis for the Black Sea. The main objectives of the present work are: (i) to conduct an up-to-date review on the state-of-the-art of socio-economic impacts of MPAs in the Mediterranean and Black Sea regions; (ii) to identify the implications of MPAs to the main existing marine activities and uses in the region's countries; (iii) to derive implications, constraints, suggestions and conclusions for the creation of MPAs networks. In order to fulfill this aims, a review of the literature has been conducted by including studies on MPAs belonging to both EU and non-EU countries. The MPAs dataset was compiled based on the MEDPAN (www.medpan.org) and on the WDPA (World Database Protected Areas; <http://www.wdpa.org/>) databases and updated with scientific and management report that were found at the country level basis. An extensive bibliographic search was performed by reviewing peer-reviewed papers, gray literature, management plan reports, other scientific reports, books, book chapters, proceedings, policy briefings and personal and web communications that reported any information regarding socioeconomic impacts of MPAs, for each of the countries in the Mediterranean and the Black Sea regions. A set of 190 MPAs are included in the database, where special focus was placed on gathering information and analyzing the impacts per MPA on the different uses and economic activities performed in the area. Impacts of MPAs were identified for the following uses and activities: fisheries (commercial, artisanal, recreational); aquaculture/mariculture; maritime transport; military; extractive (oil and gas, sand, biological resources); renewables (wind, wave);

recreational (diving, sailing, tourism, beach, etc); cultural heritage (archaeology) and education and science. The information gathered per use or activity was related to: presence / absence of impact; type of impact; management measures; effectiveness of the management measures; level of social impact; information source and reliability of the information. Based also on an intense bibliographic research, a complete compilation and weighting among the existing marine activities at the Mediterranean and Black Sea was performed followed by the analysis, per country, of the cultural and socioeconomic impacts of MPAs over those activities. With the final updated database, the expected significant differences of the impacts of MPAs, depending on the country and region, were corroborated by preliminary results which show that main relevant socioeconomic impacts of MPAs in the Mediterranean are to be more relevant for fisheries and tourism, whilst impacts on resource extraction are important for the Black Sea region. These regional differences have been further explored by focusing on two case studies, one at the Mediterranean (highlighting impacts of MPAs onto fisheries) and another one at the Black Sea (highlighting impacts of MPAs onto mineral extraction), regional differences as regards to MPAs socioeconomic impacts onto activities are discussed and MPAs networking steps are suggested as a mean to minimize MPAs socioeconomic impacts. A diagram of the steps that have been followed is shown here below:



Fig. 1. Description of the methodological approach for MPA socioeconomic impacts.

References

- 1 - Halpern, B.S. 2003. The Impact of Marine Reserves: Do Reserves Work and Does Reserve Size Matter? *Ecological Applications*, 13(1), 117-137.
- 2 - Wood, L.J., Fish, L., Laughren, J., Pauly, D., 2008. Assessing progress towards global marine protection targets: shortfalls in information and action. *Oryx* 42(3), 340-351.
- 3 - De Santo, Elizabeth M. 2013. Missing marine protected area (MPA) targets: How the push for quantity over quality undermines sustainability and social justice. In Press, Corrected Proof. *Journal of Environmental Management*, doi: 10.1016/j.jenvman.2013.01.033.
- 4 - Balmford, Andrew, Gravestock, Pippa, Hockley, Neal, McClean, Colin J. and Roberts, Callum, M. 2004. The worldwide costs of marine protected areas, *PNAS* 101(26), 9694-9697.
- 5 - Badalamenti et al. 2000. Cultural and socio-economic impacts of Mediterranean marine protected areas. *Environmental Conservation* 27, 110-125.