Biological Conservation 225 (2018) 187–196

Contents lists available at ScienceDirect

Biological Conservation

journal homepage: www.elsevier.com/locate/biocon

Perspective

A critical evaluation of the Aichi Biodiversity Target 11 and the Mediterranean MPA network, two years ahead of its deadline

J. Amengual[a,*], D. Alvarez-Berastegui[b]

[a] Organismo Autónomo Parques Nacionales, Ministerio para la Transición Ecológica, C/ Hernani 59, 28020 Madrid, Spain
[b] Balearic Islands Coastal Observing and Forecasting System (SOCIB), Parc Bit, Naorte, Bloc A 2p. Pta. 3, 07121 Palma de Mallorca, Balearic Islands, Spain

ARTICLE INFO

Keywords:
Marine protected areas
Mediterranean Sea
Nagoya Protocol
Convention on biological diversity
Marine conservation
Marine policy

ABSTRACT

The marine conservation strategy focused on the establishment of marine protected areas (MPAs) has been adopted widely in the Mediterranean, in line with the main international conservation conventions and agreements. Of particular relevance is the Aichi Biodiversity Target 11 of the Convention on Biological Diversity, where signature countries agreed to protect and effectively manage 10% of coastal and marine areas by 2020. The convention also specifies a number of qualitative elements that MPAs should encompass in order to be effective. But as 2020 approaches, this objective is far from being achieved and the deadline is necessitating a pace of planning, declaration, management and evaluation of the Mediterranean network of MPAs that is unattainable for most of the Southeast Mediterranean riparian states. The Aichi target 11 objectives encompass countries with remarkably different economical, historical and cultural backgrounds and varying degrees of technical capacity and political stability. Here we explore how the area-based conservation policy at both the national and international level is evolving in the Mediterranean in relation to the Aichi target 11 objectives. We evidence strong shortcomings in the Mediterranean MPAs highlight potential risks derived from conservation policy failure, and propose alternatives towards effective conservation. We suggest that the prevailing area-based strategy in the Mediterranean should be substituted by a procedure that is not time-limited and that is based on environmental and social sciences, supported by marine spatial planning and balancing the scientific and socioeconomic drivers of change in a specific national or sub-regional context.

1. Introduction

The Mediterranean, one of the world's richest marine biodiversity hotspots, is a semi-enclosed sea with a complex hydrographical system acting like a small-scale ocean (Bianchi et al., 2012; Malanotte-Rizzoli et al., 2014). The intricacy and complexity of its oceanography and the full inventory of its biodiversity is far from being fully understood, and broad swathes of Mediterranean coastal and pelagic waters remain without any kind of protection (Portman et al., 2013).

In and around the Mediterranean coasts, a densely populated basin is divided into dozens of political entities as the result of a long and complex socio-political history (Abulafia, 2011). Twenty-two countries have coastal areas bordering the Mediterranean where more than a third of the population lives (UNEP/MAP, 2012). The resulting anthropogenic activity amounts to one of the highest cumulative impacts on the earth's oceans (Halpern et al., 2008). As a consequence, Mediterranean biodiversity is under siege (Coll et al., 2012). Today, about 85% of the fish stocks assessed in Mediterranean waters are overexploited (GFCM-FAO, 2016). Apart from professional fisheries, all sectors of the maritime economy in the region, such as recreational fisheries, tourism, shipping, wind energy and offshore oil and gas, are expected to keep growing over the coming 15 years under the provisions of specific European developmental programs, such as the Blue Growth framework and marine spatial planning policies (Morales-Nin et al., 2005; Piante and Ody, 2015; Agardy, 2016).

One of the strategies currently at the forefront of marine conservation is the establishment of marine protected areas (MPAs). Numerous reviews have built the case for increased use of MPAs and promote a general opinion of their efficacy as a marine conservation strategy (Roberts et al., 2002; Claudet, 2011; Bennett, 2015; Sala and Giakoumi, 2017a). The documented empirical corroboration of the MPA scheme has stimulated an explosive declaration of new sites at a global scale (Roberts et al., 2005; Lester et al., 2009; Jones and De Santo, 2016) and has also set new priorities in environmental agendas worldwide. The United Nations Strategic Plan for Biodiversity 2011–2020 (www.cbd.int/sp), The World Parks Congress (IUCN, 2014)

* Corresponding author.
E-mail address: pamengual@oapn.es (J. Amengual).

https://doi.org/10.1016/j.biocon.2018.06.032
Received 18 October 2017; Received in revised form 29 May 2018; Accepted 27 June 2018

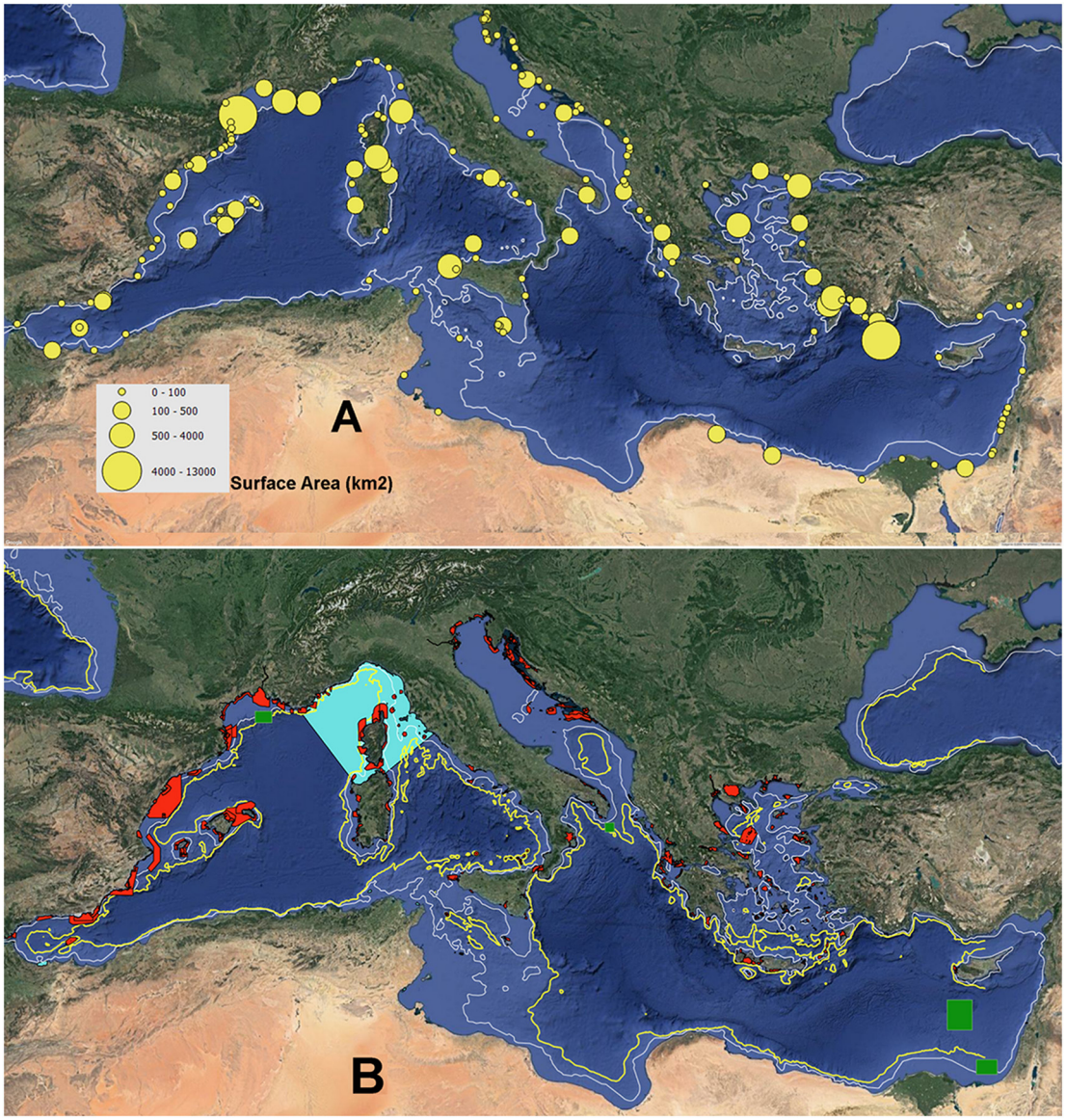

Fig. 1. Mediterranean MPAs. A: Location and surface area (km^2) of National Marine Protected Areas. B: Natura 2000 sites (in red), International Fisheries Reserve Areas (in green) and the Pelagos Sanctuary for Marine Mammals (blue); The white line indicate the 200 m depth isoline, the yellow line indicate the 1000 m depth isoline. (For interpretation of the references to color in this figure legend, the reader is referred to the web version of this article.)
Data source MEDPAN-MAPAMED, 2016.

and the European biodiversity strategy to 2020 (European Commission, 2011) proposed conservation strategies which include MPAs and temporal deadlines to reach specific targets of total area protected as a fundamental tool to achieve their objectives.

The first attempt for establishing a global system of MPAs was formally quantified by the Convention on Biological Diversity (CBD) in 1992, with the target to have at least 10% of each of the world's ecological regions protected by 2012. Even though the CBD was positive in increasing pressure towards the creation of new protected areas and the development of new conservation strategies, the conservation target area was not achieved, nor was the halting of biodiversity loss (Butchart et al., 2010; CBD, 2010). In 2010 the parties pushed back the deadline to 2020 and adopted Aichi Biodiversity Target 11 whereby the CBD's signatory countries agreed to the 10% area threshold objective for effective area-based conservation measures. This area threshold was defined as Aichi's *quantitative target*, and being effective was coupled with five additional *qualitative elements* by virtue of which MPAs should be: (Q1) ecologically representative, (Q2) effectively managed, (Q3) well connected, (Q4) integrated into the surrounding landscapes and seascapes, and (Q5) embrace areas of particular importance for biodiversity and ecosystem services (Rees et al., 2018).

However, there are opposing views to strategies based on the establishment of area targets and deadlines (Agardy et al., 2003; De Santo, 2013; Wood, 2011). The mere increase in surface area included in MPAs is not an indicator of conservation success by itself (Boonzaier and Pauly, 2015; Singleton and Roberts, 2014). Furthermore, conservation strategies led by area-based targets alone have been found to be inadequate in preserving marine ecosystems, and can be counterproductive by undermining the social and scientific interfaces necessary for adequate decision making in MPA declaration and management, favoring political inferences on that process (De Santo, 2013; Spalding et al., 2016).

As 2020 approaches, reaching the Aichi quantitative target of 10% is urgent. In the Mediterranean, a strategy focused on MPAs, including targets of total area protected and deadlines for these targets, has been widely acclaimed and adopted (De Montbrison et al., 2012), but