



Legal protection of ecosystem services provided by Marine Protected Areas in Mexico



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ABSTRACT

The overarching goal of Ecosystem Based Management (EBM) is to sustain the long-term capacity of marine ecosystems to deliver a range of ecosystem services (ES). Marine Protected Areas (MPAs) can be considered as a part of the efforts made towards EBM focusing in area planning. The implementation of MPAs with the objective of assuring the flow of ES and its benefits towards society is currently in its initial stages due to lack of specific information about the operation and value of the ES offered by MPAs. In Mexico, MPAs represent one of the main conservation and management tools of the territory and its resources. In order to identify the level of legal protection of ES provided by the federal decrees that create MPAs, in this article we present as a case study the analysis of the specific protection of ES in MPAs in this country. We compiled the creation decrees of the 66 Mexican MPAs. Our analysis adopted three perspectives: ES explicitly mentioned in the decrees, ES indirectly mentioned in the decrees, and ES actually present in each MPA. The analyzed MPA decrees recognize that these areas provide four types of ecosystem functions (provision services, regulation services, support services, and cultural services). Of all existing Mexican MPAs, more than half of them (54.5%) have decrees of creation in which an ES is directly mentioned as a cause of their creation. 39.3% of the MPAs decrees contain paragraphs or words describing an ES. All the MPA categories actually provide a larger number of ES than those mentioned or alluded to in official decrees. We conclude that although there are legal frameworks for the protection of specific elements of marine and coastal ecosystems, MPAs represent the legal tool allowing for their integration under the ecosystem approach. In the Mexican case, there are voids to be filled in order for MPAs to fulfill the function assigned to them by Mexican laws.

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1. Introduction

The concept of environmental services (ES) coined in the late 1990s and defined as the set of ecosystem functions that are useful to humans (MEA, 2005) has currently attained global relevance both for conservation actions as for exploitation of natural resources. In that context, the International Union for the Conservation of Nature (IUCN, FAO, 2009) incorporated ES in its description of Marine Protected Areas (MPAs) as: “a clearly defined geographical space, recognized, dedicated and managed, through legal or other effective means, to achieve the long term conservation of nature with associated ecosystem services and cultural values.”

Although the figure of MPAs is appropriate for management of natural resources, the emergence of the Ecosystem Based Management (EBM) approach opens the possibility of conceiving MPAs as a relevant element for generating specific actions leading to the achievement of their ultimate objective: “The overarching goal of EBM is to sustain the long-term capacity of marine ecosystems to deliver a range of ecosystem services with a focus on both ecosystem health and human well-being” (Halpern et al., 2010). In that perspective, MPAs can be considered as a part of the efforts made towards ecosystem-based management (Angulo-Valdés and Hatcher, 2010) focusing in area planning (Egoh et al., 2007), in which such protected areas contribute to reduce cumulative impacts to the ocean (Halpern et al., 2010).

However, the implementation of MPAs with the objective of assuring the flow of ES and its benefits towards society is currently in its initial stages, mainly, due to the lack of specific information

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about the operation and value of the environmental services offered by MPAs (Potts et al., 2014).

In countries like Mexico, MPAs represent one of the main conservation and management tools of the territory and its resources (Ortiz-Lozano et al., 2009). By concurrence of federal fishing, wildlife and forestry laws, the Mexican government protects and manages those environmental elements that are directly or indirectly providing environmental services to the human population. The MPAs in Mexico are not meant as being confined or untouchable spaces, but rather as areas in which resources are managed in a “sustainable” way in concordance with other instruments specific to the fishing sector such as closures and no-take zones. Some MPAs have been successful as in the case of Cabo Pulmo (Aburto-Oropeza et al., 2011) where commercial fish stocks have recovered, but other MPAs have been definite failures as in the cases of the Upper Gulf of California and the Colorado River Delta MPAs, in which management has failed to protect endangered species from fishing nets (Rojas-Bracho and Reeves, 2013).

In 2013, the National Commission for Natural Protected Areas of Mexico (CONANP in its Spanish acronym) –which is the institution responsible for administrating federal protected areas in Mexico– together with the *Deutsche Gesellschaft für Internationale Zusammenarbeit* (German Development Cooperation or GIZ in its German acronym) initiated the project “Evaluation of ecosystem services in Mexico’s Natural Protected Areas: An innovative tool for financing biodiversity and climate change.” This collaborative project aimed at identifying economic instruments for “recognizing” the ES provided by protected areas, its final goal being incorporation of ES assessment into public policies related to protected areas (CONANP, 2015).

While this type of initiatives emphasize the value of the flow of ES to society, little is known about the extent ES have been considered in the establishment of Mexican MPAs. Having information on ES could help in the establishment of new MPAs and might strengthen the current scheme of protected areas. Considering those elements and functions of the environment that are

responsible for providing ES in protected areas and, above all, guaranteeing the legal frameworks for their protection, are precautionary measures focused in the management of marine ecosystems (McCay and Jones, 2011).

Under this scope, it must be considered that during the creation of MPAs, an agreement must be reached between society and the local and national governments by means of which commitments are made to modify the management of natural resources within MPAs. Laws, acts, and executive orders formalize such agreements either allowing or forbidding the use of natural resources within the MPA. Therefore, legal regulations become the main tool for ensuring compliance with the objectives for which the MPA was created. Because the objective basis of decision-making regarding the use or not of natural resources will be proportional to the specificity of creation decrees of MPAs, it is of the greatest importance to mention in the legal documents all the resources to be protected.

While the term ES is used in numerous studies about the benefits of MPAs, little is known about their specific legal protection. In order to identify the level of protection of ES provided by the federal decrees that create MPAs, in this article we present as a case study the analysis of the specific protection of ES in MPAs in Mexico.

2. Methodology

To analyze the level of protection given to ES in Mexican marine environments we compiled the creation decrees of the 66 MPAs in Mexico (Figs. 1–3). Information was obtained from CONANP.

Our analysis adopted the following three perspectives:

- 1) *ES explicitly mentioned in the decrees.* Documental analysis was performed by reading the decrees for finding explicit mentions of the ES that motivated the creation of the MPA.
- 2) *ES indirectly mentioned in the decrees.* In the analyzed decrees that do not directly mention an ES as the incentive for creating

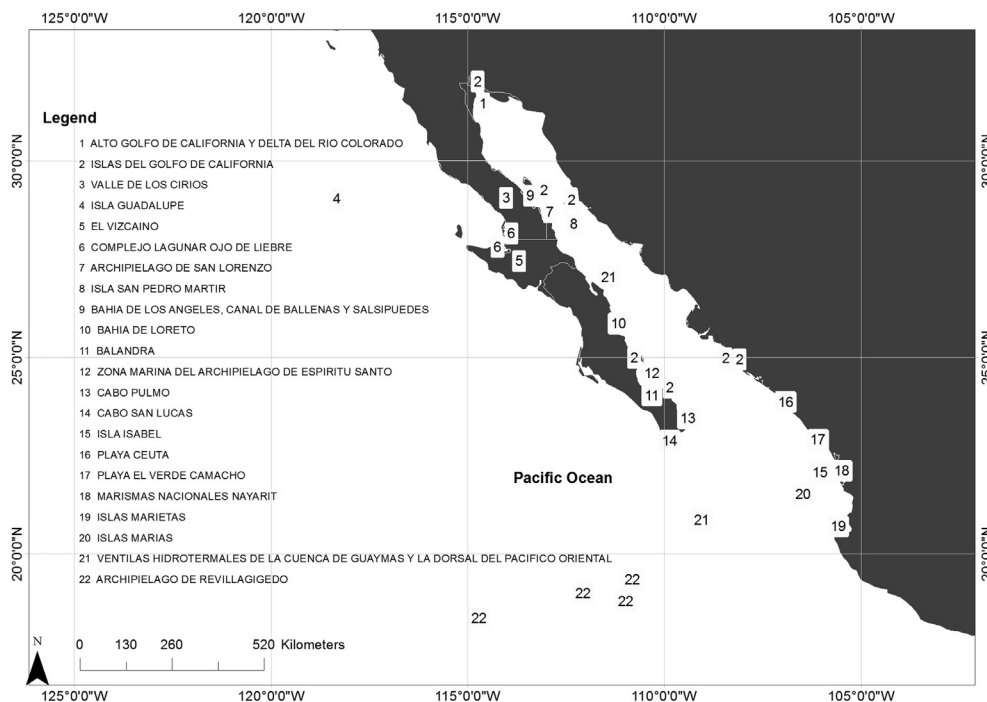


Fig. 1. Marine protected areas in the Mexican North Pacific Ocean.

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