



Integrated coastal management in Campeche, Mexico; a review after the Mexican marine and coastal national policy

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ABSTRACT

The coastal zone of the State of Campeche provides a space where converge, in a complex interaction, numerous economic activities on which the state depends. Despite its environmental, social and economic importance in the State development, its management had been made in a sectorial and unintegrated way. In 2007, a Mexican Inter-ministerial Commission for Oceans and Coasts was created. Its aim was to attend the different activities that take place in the coastal zone. In 2006 the “National Environmental Policy for the Sustainable Development of Oceans and Coasts of Mexico” (NPOCM) was presented; and it was approved in 2011. After three years of its approval, it is important to identify the progress of Integrated Coastal Zone Management (ICZM) in the State. A combination of two methodologies were used: (i) the Drivers, Pressures, State, Impacts and Responses (DEPSIR) framework, broadly used in the Global Environmental Outlook reports; and ii) the Decalogue methodology to analyze government responses as the key issues in the State Public Administration. We identified that the ICZM in the State's administration is in an initial stage of execution. It was observed a change in the perception in relation of the coastal zone importance. The development and the government approval of the Campeche Bay Sanitation Zone Integrated Management Program (PMIZC-BaCam) triggered the creation and implementation of responses that are strategic to attend the coastal problematic.

1. Introduction

The coastal zone is a complex space where the atmosphere, the ocean and the continents interact; giving rise to unique and dynamic ecosystems with great ecological importance. In this area are carried out different economic activities, and it provides the space and resources indispensable for the development of human activities. They are strategic spaces for the economic development, food security and subsistence of coastal countries and populations; nevertheless its management has been made in a sectorial and fragmented approach (UN, 1992; UNEP/GPA, 2006; SEMARNAT, 2010).

Economical activities have an impact in coastal environments and generate changes in the human well-being of coastal populations. These impacts have been identified as the result of the economic activities pressures and the demand of areas for urban settlements and tourism developments. Also, coastal landscape homogenization had led to a cultural heritage loss and an inequality in the income distribution (Arenas-Granados, 2012).

Also, it is a space in which the land and marine systems converge, so there are involved a wide range of institutions that manage and

regulates different activities. These include institutions from different sectors and, in the case of Mexico, from the three administrative levels, so their participation in the Integrated Coastal Zone Management (ICZM) process is indispensable for the articulation and implementation of the defined strategies (Kay and Alder, 1999; Rivera-Arriaga, 2004).

Mexico is divided in three administrative levels, the Federal, State and Municipal government. The 44th Article of the Mexican United States Political Constitution of 1917 establishes that the municipality is considered the basis of its territorial division and its political-administrative organization (DOF, 2017). Municipalities have the autonomy to regulate, collect and administrate the resources from its territory. However, they should be governed by the provisions from the Federal and State laws and policies without limiting its legal powers; except for national assets with a public domain, such as coastal zones and its resources (DOF, 2017). In this context, and due to the jurisdiction of the different governmental levels, the coastal zone management is competence of the federal administration but with state and municipal actions and programs.

The coastal zone of the State of Campeche has a length of 412,62 km (Rivera-Arriaga and Villalobos-Zapata, 2008). It provides a space where

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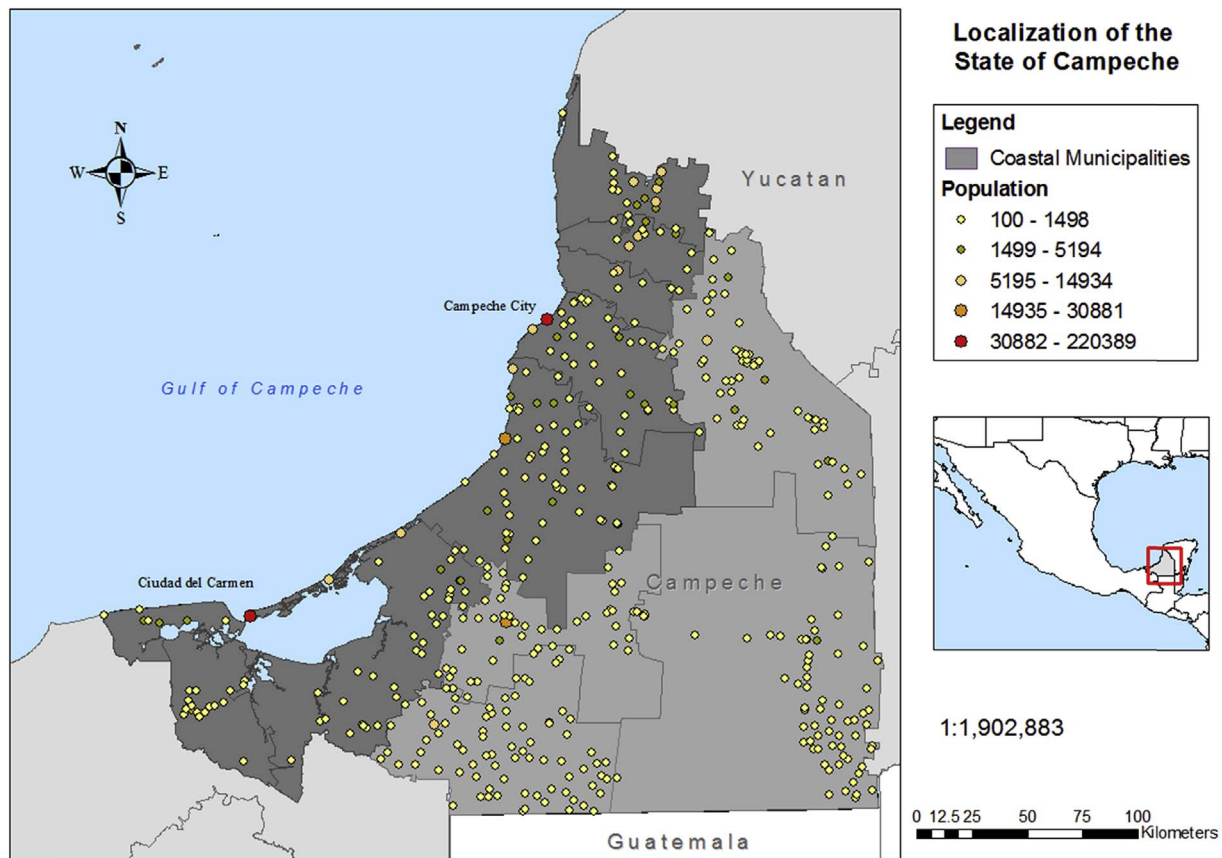


Fig. 1. Distribution of the coastal population in the State of Campeche.

b) Production and consumption patterns

converge in a complex connection, numerous economic activities on which the state depends. In 2012 it was obtained the 5,5% of the total value of the national fishing and the 21,3% of the Gulf of Mexico ports (CONAPESCA, 2012). In 2012 it was extracted the 10,4% of the national production of crude oil and the 8,2% of natural gas (INEGI, 2014). The service sector accounts for the 21,4%, of the state GDP, being tourism one of the main components (INEGI, 2016).

Seven of its eleven municipalities have a coastal front and despite the environmental, social and economic importance its management had been made in a sectorial and unintegrated way (INEGI, 2010a). In 2007, during the presentation of the “National Strategy for Ecological and Territorial Planning of Oceans and Coasts” that the then President, Felipe Calderon Hinojosa, demanded the creation of an Inter-ministerial Commission for oceans and coasts to attend the different activities that take place in this important zone.

At the same time it was presented the first coastal policy draft named “National environmental policy for the sustainable development of oceans and coasts of Mexico”; which after five years of revisions and public consultation it was approved for its publication in 2012, with the official name of “National Policy of oceans and coasts of Mexico” (NPOCM; CIMARES, 2012).

After three years of its publication it is important to analyze the progress of ICZM in the State agenda, identify the gaps that should be reduced and propose some actions needed to be taken to achieve its improvement, considering the coastal of the State of Campeche as the study object.

2. Materials and methods

This study was divided in three sections regarding the aim of the

final objective. In the first part we made a diagnosis of the coastal zone of the Campeche State. We used a hypothetical-deductive methodology with an 18 years' time horizon from 1995 to 2012 (4 administrations were included). This time horizon is related to a previous research in which the national level was analyzed and included three national president administrations (Nava-Fuentes et al., 2017).

We used the Drivers - Pressures - State - Impacts - Responses (DPSIR) framework for a better understanding of the coastal areas resource management and has been driven by the Global Environmental Outlook “GEO” reports (UNEP, 2007). We recognized the driving forces (scientific and technological innovation; political, institutional and social models; demography and economic development patterns; and distribution processes within and between generations); pressures in coastal zones (generally by human intervention: resource exploitation, pollution and human activities; and pressures with nature origin: extreme events like hurricanes and floods).

With these two elements (drivers and pressures) and based on actual studies we established the state and trends of the coastal zones ecosystems; next we used the Millennium Ecosystem Assessment (Millennium Ecosystems Assessment, 2003) and the Marine and coastal ecosystems and human well-being approach (UNEP, 2006) to identify the associated impacts of the environmental state in coastal communities and human wellbeing.

For this we analyzed relevant literature from environmental, economic and social studies published by State government institutions, non-governmental organizations and research institutions.

In the last stage of the DPSIR framework (Responses) we complemented it with the Decalogue methodology which has been broadly used in the IBERMAR network (Barragán, 1997). It analyzes the implementation of the ICZM from the perspective of the State Public

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