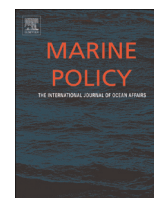




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From adoption to implementation? An academic perspective on Sustainable Fisheries Management in a developing country[☆]

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ABSTRACT

Despite the fact that Sustainable Fisheries Management (SFM) has long been proposed internationally, it remains controversial. Practical and successful applications are scarce, especially in developing countries with a recent history of massive overfishing, such as Mexico. Although SFM has been adopted at the highest level of the Mexican legal framework during the last two decades, its successful implementation still faces a series of complex challenges. At present, important changes in the Mexican political regime are at a breaking point, motivating the academic discussion about the national implications of adopting SFM approaches. Through the analysis of a series of deep interviews of key actors, combined with published material, the article illustrates how the fast-track adoption of SFM approaches has fared in a national fisheries context, the current situation being largely dysfunctional with regard to the challenges of SFM. A complicated mixture between unbeaten management and academic vestiges caused the present circumstances of an enhanced but limited fisheries system. The article proposes academic initiatives required to improve the implementation of SFM in Mexico based on an enhanced understanding of domestic historic conditions and challenges.

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1. Introduction

In the second part of the 20th century, governments and intergovernmental organizations introduced measures to improve the balance between conservation and use of fisheries resources to reverse the systematic depletion of key species and the habitat degradation occasioned by unplanned fisheries [2]. Thus, Sustainable Fisheries Management (SFM) has been promoted [3–5] out of recognition that marine ecosystems should be managed within their functional limits and that decision making should be decentralized to the lowest appropriate level [6]. The current SFM paradigm has been institutionalized through national environmental and development policies [7–9].

Nevertheless, SFM is still controversial and practical applications are not yet completely defined [10]. The decline of fisheries resources continues, and according to the United Nations Conference on Sustainable Development [11], SFM has been associated with issues such as weak governance systems, inadequate

[☆]“In Mexico, until recently, natural resource conservation has been led by intuition more than scientific knowledge” Gómez-Pompa and Dirzo (1995) [1].

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application of holistic approaches, and a lack of capacity building. These persistent difficulties for SFM are a concern for scientists [12–14] who seek to provide decision makers with trade-offs among alternative management goals and to highlight the outcomes of management policies in a transparent yet scientifically rigorous manner [15]. This conjectural role of scientific investigation is particularly high in developing countries (14 of the 20 countries that produce more than 1,000,000 metric tons annually) [16], where governments often adopt environmental policies in response to emergencies or changing external pressures, habitually without a profound and academic reflection on the contextual implications of those policies [17–19].

Mexico's case is particularly enlightening. The adoption of SFM concepts and approaches increased the role of research in fisheries management [20,21]. At the beginning of the 21st century, the federal government promoted strategic planning of natural resource use and escalated the scientific sector as a main actor to lead the discussion regarding the development of new national SFM strategies through a more holistic understanding of the domestic context [22–24]. However, Mexico is a large and culturally diverse country, and holistic approaches are so complex that focused efforts to manage fisheries effectively and to protect key species and ecosystems at the same time are still rare [25]. As a consequence, there is still no agreement about sustainable fisheries processes and measures for the conservation of marine

resources [26], and the academic and scientific sector faces a series of complex challenges.

Recent high-level political and administrative events (e.g., no severe crisis since the year 2000, the centrist political party that ruled the country for 71 years regained the presidency) have occasioned the beginning of a change in the national fisheries and research policies [27]. Therefore, these circumstances were considered important to revive existing research involving interviews of key experienced researchers and academic decision makers about governmental advances and challenges in SFM. Although obstacles that can be potentially problematic for researchers and practitioners working with SFM approaches in developing countries are well established (e.g., stakeholder conflict, lack of local capital assets and capacity, and weak institutional structures) [28,29], the need to understand the complex interactions between these concerns and their consequences in SFM applications remains. Thus, the aim of this paper is to analyze the interviews and the specialized literature in light of the new political era to recapitulate the lessons learned during SFM adoption in Mexico in the hope of guiding new fisheries scientists and decision makers toward an enhanced understanding of domestic conditions and challenges.

1.1. Mexican fisheries system: a short recent history

Fishing is the most extensive marine activity in Mexico, placing the country among the world's leaders in fisheries landings [16]. However, after 40 years of intensive use, most domestic fisheries have declined dramatically, as have fisheries worldwide [13,14]. This overexploitation has recently been documented [26] and is due to an intricate combination of issues such as overfishing, conflicts between fleets, illegal fishing (out of season, restricted areas, using restricted gears) and unreported fisheries information. In the Mexican coastal zone (Fig. 1), the source of 80% of the total catch, fisheries resources are also subject to threats such as habitat loss, alterations of coastal dynamics, and marine pollution from terrestrial sources [21].

Since the beginning of the 21st century, the governmental fisheries management strategy has involved two federal secretaries (Fig. 2). The Secretary of Agriculture, Livestock, Rural Development, Fisheries and Food is in charge of implementing production-related policies, whereas the Secretary for Environmental and Natural Resources, a more recent institution, addresses

environmental issues to promote sustainable development and the conservation of natural resources. Because the Mexican constitution establishes exclusive federal jurisdiction over the oceans and their fishing resources, state governments and municipalities have been mostly limited to administratively applying federal fisheries strategies at the local level. Fisheries administration is based on 'input control' tools such as closed season and fishing permits granted by the National Fisheries Institute to groups or individuals.

Mexican fisheries research has three types of funds: governmental, fiscal, and private. The governmental funds are administered through the National Council for Science and Technology (CONACYT), which created sectorial funds for every Federal Public Administration agency that defined its research demands and provided half of the funding. Mixed funds were created for state governments to fund research. Other funding sources are the fiscal resources (an institutional budget is assigned each year) and private resources coming from national and international foundations.

2. Research design and methodological approach

2.1. Interviews

In-depth interviews (Appendix A) were composed of an introductory part designed to gather information about fisheries management in Mexico. As a second part of the in-depth interview, 17 open-ended questions were included to ascertain the main results of the research projects and the expertise of the interviewees on marine integrated management and successful cases of marine management.

Between May and December 2008, twelve in-depth interviews concerning marine management in Mexico were conducted and recorded in person and by phone with stakeholders (S) and natural science (NR) and social science researchers (SR) who had been involved for at least the last ten years in Mexican fisheries (Table 1). The interviewed researchers were from academia and have considerable experience with research projects, intersectorial workshops, and congresses. All other interviewed stakeholders were academics in key positions in research institutes in charge of providing technical advice to the environmental and fisheries sectors. The interview questions were sent to the interviewees by email weeks in advance so that they could read and analyze the

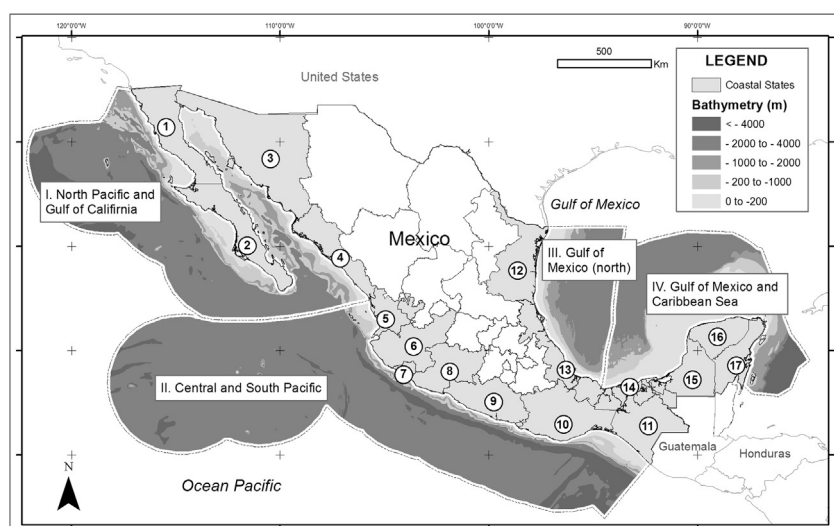


Fig. 1. Exclusive Economic Zone in Mexico, its governmental fisheries regionalization (four zones) and its 17 coastal states: 1=Baja California; 2=Baja California Sur; 3=Sonora; 4=Sinaloa; 5=Nayarit; 6=Jalisco; 7=Colima; 8=Michoacán; 9=Guerrero; 10=Oaxaca; 11=Chiapas; 12=Tamaulipas; 13=Campeche; 14=Veracruz; 15=Tabasco; 16=Yucatán; and 17=Quintana Roo.

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