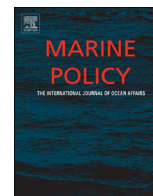




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The changing role of NGOs in Mexican small-scale fisheries: From environmental conservation to multi-scale governance



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ABSTRACT

Multi-scale governance has been widely recommended for effective marine resource management. This approach suggests collective decision-making, the devolution of some rights and responsibilities to various entities, co-production of knowledge, coupling governance and ecological scales, among other elements. Here, the elements of multi-scale governance of Mexican small-scale fisheries (SSF) and the contribution of non-governmental organizations (NGOs) to this approach are described. Three management processes were selected for the analysis: (1) the development of the Fisheries Management Plan (FMP) for the swimming crab fishery; (2) the establishment of fishing refugia in the Punta San Cosme to Punta Coyote Corridor; and (3) the implementation of catch shares in the Gulf corvina fishery. The results suggest that NGOs are contributing to most of the key attributes for multi-scale fisheries governance. Given the NGOs' agenda shift in the Gulf of California region, from advocacy for environmental conservation to participation in sustainable management, there has been a wider promotion and acceptance of NGOs within governance related processes in fisheries management. In order to clarify alignments with other stakeholder agendas, as well as to continue building trust, NGOs need to make their governance agenda explicit. This work provides insights on how NGOs can contribute to multi-scale governance and a framework for the evaluation of management processes and the contribution of different stakeholders to multi-scale governance, which can be applied to any management process.

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1. Introduction

Small-scale fisheries (SSF) are significant at the global scale, with an estimated 22 of the 50 million fishers worldwide working in this sector [1], and catching 50% of the total fish production [2]. They are critically important sources of income, food, and development opportunities in coastal regions, especially in developing countries [3]. In addition, SSF represent ways of living, traditions and cultures [2]. Due to the proliferation of coastal communities, the difficulty and cost to exclude others from exploiting the resource, and the ever-increasing growth in the number of fishers, SSF exhibit the same problems as other common pool resources [4–6]. Furthermore, the sustainable management of SSF to ensure the permanence of fishing culture, fisheries production, and local livelihoods is particularly complex due to the presence of multiple

users, multiple target species, and multiple types of fishing gear [7,8]. Also, SSF tend to be data-poor, lack monitoring and feature reduced compliance, due to their isolation and complexity. These challenges have led to sequential overexploitation of the resources that SSF depend on around the world [3].

Fisheries governance has been defined as a key element of sustainable fisheries management [3,9]. New forms of governance have emerged and have been proposed to improve the management of SSF. These emerging systems of governance include self-organized communities [6,10], co-management [11], polycentric management [12] and multi-scale governance [13]. Particularly with SSF, non-governmental organizations (NGOs) have contributed to new forms of governance by bridging communication between stakeholders, building local capacity for communities to self-organize, as well as participating in and promoting co-management [8,13,14]. Although NGOs have expanded their work into several facets of fisheries governance, their work to date remains poorly documented.

By comparing management processes in three Gulf of California fisheries, multi-scale governance in Mexican SSF and the role that

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NGOs have played in fortifying this approach are analyzed. This work focuses on multi-scale governance, which has been described as an essential element for effective fisheries management because it fortifies collaboration between users and managers, strengthens linkages across vertical and horizontal levels, and provides the framework for institutions to match ecological and social scales [13,15].

2. Background information

2.1. Overview of Mexican SSF

Mexico is one of the 17 world's top diversity-rich countries [16] with 11,122 km of coastline and an area of 231,813 km² of territorial waters [17], with 41% (47,344,698 people) of its population living in 150 coastal municipalities [18]. SSF provide direct employment to 350,000 fishers, which capture 40% of the total national catch [19], fluctuating around 1.2 million metric tons per year over the last 20 years, representing 1% of the world's fisheries production [2]. Around 65% of this catch is for domestic consumption [19] and a large percentage is non-reported or illegal [20]. Since the 1920s access to Mexican fisheries has been controlled through a permit and concessions system [21]. In the 1990s seasonal closures and official bylaws (Normas Oficiales Mexicanas, NOMs), which include specific regulations for each fishery, began to be broadly implemented. Despite these rules, as in other countries, most Mexican SSF are considered *de facto* open access fisheries [22].

2.2. Elements of multi-scale governance in Mexican SSF

Fisheries in Mexico are federally managed [22]; however, centralized management agencies do have attributes that are conducive to implementing multi-scale governance. The National Commission for Fisheries and Aquaculture (CONAPESCA) is the centralized agency in charge of administration, regulation, and enforcement of fisheries, and is currently part of the Ministry of Agriculture, Livestock, Rural Development and Fisheries (SAGARPA). Although its offices are centralized in one of the most important industrial fishing ports (Mazatlan, Sinaloa), CONAPESCA has 32 state offices with several local branches [22]. The National Fisheries Research Institute (INAPESCA), which is the scientific and technical arm of SAGARPA, also has centralized headquarters with 14 regional offices. There are legal mechanisms to devolve responsibility to states and to promote stakeholder participation in decision-making processes [23,26]. These mechanisms include formal institutional arrangements such as the (1) National and State Councils for Fisheries and Aquaculture – conformed by multiple stakeholders to provide advice and recommendations to INAPESCA and CONAPESCA on fisheries management plans, subsidies and research programs, permit and concession issuing and distribution [24]; (2) National Council Subgroup for Responsible Fishing – convened by different Ministries and representatives of industrial fisheries and SSF to revise and approve new regulations [25,27]; (3) National and State Committees of fishery stakeholders (fishers, buyers, distributors) focused on bolstering the value chain see [23,24]. In addition, most NOMs and seasonal closures developed by CONAPESCA are processes, which involve the participation of diverse stakeholders and to some degree are matched with the ecological scale of the fishery.

Mexican fishers have diverse, elaborated and scaled organizations that are also conducive to multi-scale governance. At the local level, fishing cooperatives are very common in Mexico; some of them are successful and well documented examples of self-organized SSF that manage their resources well [11,21,28]. Cooperatives are joined at the regional level into federations or unions

(the latter includes other stakeholders such as the individual permit holders). Finally, there are national confederations that integrate federations and represent small-scale fishing cooperatives. The largest confederation currently includes 32 federations representing 2,685 cooperatives and around 180,000 fishers and has gained political power and a place in the National Council of Fisheries and Aquaculture and the National Council Subgroup for Responsible Fishing. Finally, organized small-scale fishers (at local, regional and national levels) in Mexico have proved to be successful in implementing novel management instruments such as fishing refugia¹ (e.g., Baja California Sur) and quotas systems (e.g. abalone), as well as in fulfilling international standards for sustainable fishing established by the Marine Stewardship Council (MSC) (e.g., lobster fishery in the Baja California Peninsula and Mesoamerican Reef) and the Monterrey Bay Aquarium Seafood Watch program (e.g., Yellowtail Jack fishery in Baja California).

2.3. Role of NGOs in Mexico

NGOs have played a key role in the transition to new forms of fisheries governance in Mexico, especially in the Gulf of California. Given the critical importance of the Gulf of California for biodiversity, NGOs have had a powerful presence since the mid 1980s see [29]. Up until the 1990s, NGOs' work was mostly focused on environmental issues [22] such as endangered species (e.g., vaquita marina, sea turtles), habitat protection, and natural protected areas (e.g., Cabo Pulmo, Loreto, Upper Gulf of California) see [29]. However, over the last couple of decades, NGOs have shifted their objectives and now are playing a key role in working with users for the sustainable management of fisheries and ecosystems. Currently, NGOs' work include key efforts to promoting increased scientific information and the use of traditional knowledge [21,30,31], supporting the development of management plans [32], building local capacities, promoting information sharing across different levels, and fortifying fishers' organization and participatory processes [29,33]. Although NGOs started working in specific communities, their role has slowly gained importance for fisheries agencies and fishers' organizations, especially since their contribution to the MSC certification of the lobster fishery in Baja California in early 2000s (Cisneros-Mata *pers. comm.*).

3. Methods

To evaluate SSF management processes and the role of NGOs in multi-scale governance, a list of key attributes for effective multi-scale fisheries governance was compiled from a literature review [13,15,34–37]. Then, for each one of these attributes, a qualitative scoring system to evaluate management processes was developed (Table 1). Three existing SSF management processes in which NGOs have been participating were selected: (1) the development of the Fisheries Management Plan (FMP) for the swimming crab fishery; (2) the establishment of fishing refugia in the Punta San Cosme to Punta Coyote Corridor; and (3) the implementation of catch shares in the Gulf corvina fishery (described in this section). The three management processes were evaluated against the key multi-scale governance attributes and scored. In addition, the activities implemented by NGOs to contribute to each attribute of multi-scale governance were listed. To validate and ensure fairness in the evaluation of case studies and NGOs' role, impartial external reviewers – who are familiar with the management processes and

¹ Areas closed to fishing to protect target species reproduction, growth, recruitment or habitat [24].

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