

Enhancing small-scale fisheries management through community engagement and multi-community partnerships: Comoros case study



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ABSTRACT

Management of small-scale fisheries in developing countries is a challenging endeavor with debates over which actors are most effective. This study identifies and describes the roles of community, government, and other actors in management of small-scale fisheries in the Comoros (Western Indian Ocean). Actor roles in management as well as social perceptions and ecological indicators of management performance were investigated through stakeholder interviews and ecological surveys at 20 sites, including sites within and outside a Marine Protected Area. The weak boundaries and memberships observed in the fisheries coincided with an open access situation at a few sites, but the majority of sites maintained fisher buy-in and effective management through community engagement, horizontal networks of multi-community partnerships, and state support. This study also found that third party actors such as non-governmental organizations initiated effective management by providing environmental education, building capacity, and facilitating communication among stakeholders and community members. Further investigation of how to facilitate adoption of appropriate actor roles and foster relationships among actors is recommended to ensure effective and enduring management.

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1. Introduction

Small-scale fisheries in developing countries are a significant and valuable component of global fisheries. Recent estimations place 97% (36 million) of the world's fishers in developing countries and 88% (107 million) of the world's fishery and fish trade workers employed in the small-scale sector in developing countries [40]. Small-scale fisheries are essential for food security in developing countries where 62% of fisheries production is used for local consumption and small-scale fisheries generate 55% of total fisheries catch [40]. Experts and managers familiar with fisheries in developing countries have long suspected the importance of small-scale fisheries (e.g., [35]), yet a lack of data has distorted views of the fisheries sector, undervaluing the economic, food security, and livelihood contribution of small-scale fisheries at national and regional scales [40].

While data for small-scale fisheries in developing countries remain sparse, the management of such fisheries is the subject of a growing body of literature (e.g., [20,33]). Despite the attention, finding appropriate methods for managing small-scale fisheries in

developing countries is challenging due to the heterogeneity and large number and diversity of threats faced. The variety of activities, use patterns, actors, organizational levels, and economic markets encompassed in the classification of small-scale fisheries leaves only the “labor intensive harvesting, processing, and distribution technologies” employed as their unifying feature [21]. Features of small-scale fisheries that make management difficult include: a diversity of participants, catch methods, and fish species targeted; complexity of social and ecological contexts; and scale [5,7]. Management arrangements can also be complex and a variety of actors may implement them. Actor complexity has been investigated through such studies as: the heterogeneity of “community” and “state” actors [14,8], the network nature of co-management actor relationships [37], the participation of additional (non-resource user and non-state) actors [12,20], and the nuances of organization and actor involvement in co-management [12,22].

Recognizing the challenges inherent in small-scale fisheries management, several studies apply the common pool resource (CPR) institutional design principles described by Ostrom [43] to investigate the essential features and design of effective management (e.g., [44,9,18]). One study examined the relationship between implementation of the principles and management outcomes [18]. However, the study did not investigate actor roles. Ostrom originally applied the principles to management cases involving a single group of actors (resource users). More recent

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studies have applied the principles to co-management arrangements that include multiple actor groups (e.g., [16,18,52]), but tend to ignore the heterogeneity of co-management actors, instead treating them as a single management entity. Only [16] begin to differentiate the actions (“roles”) of each management actor in implementing the principles. More study is needed to understand the interactions among multiple actors and the resulting implementation of CPR institutional design principles.

This study investigates the contributions of diverse management actors to CPR institutional design principle practice and management performance in the context of small-scale fisheries in developing countries. Actor groups studied include community, state, multi-community partnership, and third party (such as Non-Governmental Organizations; NGOs). Observed actor diversity within each of these groups is also described. While this study builds upon previous work, it also addresses new questions, for example: what role, if any, can a non-local third party actor play in effective management? And, how can communities co-operate to enhance management performance? The goals of the study were to identify effective combinations of community, government, and other actors in management and to determine whether, and how, a Marine Protected Area influences actor roles and performance of small-scale fishery management.

2. Methods

2.1. Study area

The small-scale fisheries of the Comoros are spread across three islands in the Mozambique Channel (Fig. 1a.) and are managed through a variety of arrangements, allowing for evaluation of actor roles and management within a similar social and ecological context.

The Comoros is a developing country, ranked 206 out of 229 countries in Gross Domestic Product and highly dependent upon foreign aid and international trade, receiving income mainly through export of vanilla, cloves, and essential oil of ylang-ylang [15]. The country is made up of three islands, N'gazidja (Grande Comore), Ndzuwani (Anjouan), and Mwali (Mohéli), with a total of 430 km² of coral reefs [2]. The majority of the population lives along the coast and fishing provides income, food security, and an important source of protein. Much of the population relies on fishing for subsistence [1], with fish trade occurring intra-island and to a lesser extent, inter-island.

The Comoros is a predominantly Sunni Muslim country and a former colony of France, gaining independence in 1975. It is currently governed as a republic with a mixed legal system of Islamic

religious law, French civil code of 1975, and customary law [15]. Administrative functions are conducted in one major city on each island (two on Ndzuwani, the most populous island). Soon after independence, the state assumed a clearly defined role in fishery management including technical and fundraising support for self-organized community fishing associations and island-based unions of fishing associations [19]. The state focused efforts on facilitating organization of fishers' credit cooperatives to enable purchase of fishing vessels and equipment [19]. Since the initial investment, state support has been inconsistent. A recent study outlining the interactions among state government, fishing syndicates, and community fishing associations on the island of N'gazidja found that management was carried out primarily by the community fisher associations [29]. Varying degrees of participation of state and community organizations with differing norms, practices, and levels of stability, contributes to diverse management arrangements observed in small-scale fisheries of the Comoros.

The presence of a single Marine Protected Area (MPA), Mohéli Marine Park (Parc Marin de Mohéli; PMM, Fig. 1b), adds to the diversity of small-scale fisheries management. PMM was established in 2000 through an effort funded primarily by the World Bank's Global Environment Facility (GEF) with participation of local communities and a team of experts from the Comoran government, the International Union for the Conservation of Nature (IUCN), and other international organizations [26]. PMM's development included local recruitment of a park manager and community input on the location and delineation of 10 no-take areas, the types of fishing permitted within PMM boundaries, and the selection of community representatives to serve as trained 'ecoguards'. When GEF support for PMM ended, a lapse in funding and deterioration of the park's formal administration occurred from 2006–2009. Although some discontent and justifiable concerns from community members regarding the leadership and effectiveness of PMM arose [45], the situation provided the opportunity to strengthen community-based action. Local leaders, ecoguards, and communities carried on with management in an adapted form, observing gear restrictions but not enforcing the no-take areas. In 2009, PMM gained short-term (two year) funding, allowing resumption of formal management and a search for continuing funding. At the time of this study, community members from the study sites were largely supportive of PMM (personal observation). The sparse allocation of insufficient state resources and inconsistent external support available to PMM reflects the reality faced by many MPAs in developing nations. However, these challenges do not always impede achievement of ecological and social outcomes and can provide valuable insight into MPA effectiveness in a context typical of developing nations (see [28]).

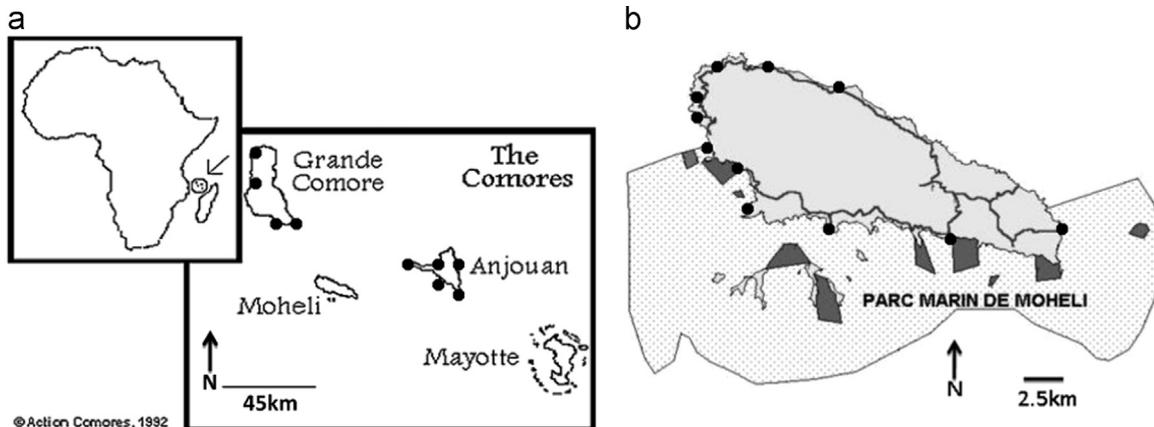


Fig. 1. Map of (a) the Comoros and (b) Moheli with delineation of Moheli Marine Park (Parc Marin de Moheli). Study sites indicated by black dots.

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