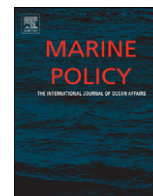




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The effectiveness of community-based governance of small-scale fisheries, Ngazidja island, Comoros

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ABSTRACT

Conventional top-down, exogenous approaches to fisheries management have been ineffective in more traditional and small-scale fisheries. Yet, there remains little understanding of the effectiveness of alternative approaches. This case-study of small-scale fisheries in the Comoros examines how effective local fishing associations are at managing common fisheries resources, and provides some understanding of the underlying characteristics of effectiveness. Emphasis is placed on assessing governance effectiveness according to characteristics appropriate within the local context, and on suggesting ways to enhance local institutional strength and capacity to manage resources. Qualitative methods were used to collect data on local governance structures and management tools, fishers' knowledge and beliefs, and perceptions of the status of fisheries resources in four major fishing villages on the island of Ngazidja. Results show that fisheries management in the Comoros is informally shared between the State fisheries department, a national fishing syndicate, and village fishing associations. Village fishing associations play an active role in fisheries management by collectively designing, monitoring, and enforcing local regulations. Compliance with local regulations is high, primarily due to participatory decision-making, community-monitoring, and strong feelings of solidarity among fishers. Perceptions of the benefits of these regulations are also high. This suggests that by working within these pre-established informal management systems, collective governance of common pool resources can be achieved within communities, and feelings of empowerment and shared responsibility among resource users can lead to effective management practices.

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Introduction

Tropical small-scale fisheries constitute the main livelihood and protein source for a substantial portion of the global population. Many fishing communities, however, are experiencing declining catches and increased environmental degradation, and improved management is necessary to promote future sustainability [1–3]. Effective governance institutions are a key component of improved management. This paper examines existing traditional management approaches in a tropical island fishery and suggests how they might be augmented to enhance future sustainability.

In natural resource management, institutions were traditionally devised to deal with two underlying problems inherent to all common-property resources: controlling access to the resource and establishing rules which regulate users' ability to potentially

extract more than their 'fair share' [4]. Such institutions are often characterized by the formal (e.g., laws, statutes, regulations) and informal (e.g., social and cultural norms) rules used to govern user behaviour [5,6]. In traditional and small-scale fisheries, customary forms of informal management are common and may involve practices such as territorial user rights (TURF's), temporary closures, gear restrictions, religious taboos, and community catch quotas [7]. Such approaches show many similarities with conventional fisheries management as they both use "limits on effort, time, space, species, size, and gear" [8, p. 305] though in many customary management systems, emphasis tends to be placed on *how* fishing is done, rather than *how much* is being caught [9]. As such, fisheries institutions play a significant role in shaping user behaviour, and can be paramount to the success or failure of a fishery system. As noted by Charles [10], "no amount of attention to management tools is likely to make them effective within a dysfunctional institutional environment" (p. 317).

To date, much of the research on small-scale fisheries management has taken a prescriptive approach to fisheries challenges, yet few publications have offered management solutions appropriate for small-scale resource managers [1]. For example,

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Chuenpagdee and Jentoft [11] note that the assessment of governing institutions seems to have centered on achieving the ideal, rather than what is realistic—resulting too often in the failure to reach unattainable objectives. In reality, they argue, “most organizations do whatever they can do, given the circumstances that they find themselves in” (p. 110). Externally elaborated criteria for effectiveness, in other words, may or may not be achievable in context, but this does not mean that governance institutions are completely ineffective. Ostrom [6,12] and Charles [10], for example, have described different sets of characteristics that tend to be associated with successful institutions. This case-study of small-scale fisheries in the Comoros examines how effective local fishing institutions are at managing common fisheries resources, and provides some understanding of the underlying characteristics of effectiveness. Emphasis is placed on assessing governance effectiveness according to characteristics appropriate within the local context, and on suggesting ways to enhance local institutional strength and capacity to manage resources more effectively.

The main focus of this paper is on governance structures and processes, although some discussion of fishers' observations of resource conditions is included to provide insight into the ecological sustainability of fishing and management practices. Understanding fishers' perceptions is important as perceptions can strongly influence behaviour and decision-making, thereby shaping the type of management strategies employed. The paper begins with a background on the fisheries sector in the Comoros and provides an overview of the study design and methodology. The results are then presented and discussed in reference to some of the key concepts on governance institutions found in the common-property literature [6,10,12]. Recommendations are provided based on practical, low-cost solutions to the core governance challenges facing fisheries on Ngazidja.

Background

This study took place on the island of Ngazidja in the Union of the Comoros (Fig. 1). The country comprises the three volcanic islands of Ngazidja, Ndzuani, and Mwali, each of which is surrounded by patch and fringing reefs supporting a rich marine biodiversity. The Comoros is classified as a small island developing state and one of the poorest nations in the world [13]. Coastal communities in the Comoros rely heavily on marine resources for both economic and subsistence livelihoods. However, the country is currently facing considerable demographic growth and with 88% of the population living on the coast [14,15], there will likely be a serious increase in environmental degradation and poverty unless effective fisheries management strategies are employed.

Study area

Four large fishing communities on Ngazidja were the primary study sites: Chindini, Bangoua, Hantsambou, and Hantsindzi (Fig. 1). Selection was based on geographical distribution, the importance of fishing within the community, recommendations made during interviews, and community interest in participation.

There are approximately 44 landing sites on Ngazidja, though many of these are quite small (e.g., 1–10 fishers/village), particularly on the central east coast. Each of the study sites is the main fishing village within its region and fishing is the main livelihood (economic and subsistence) activity within the community (Table 1).

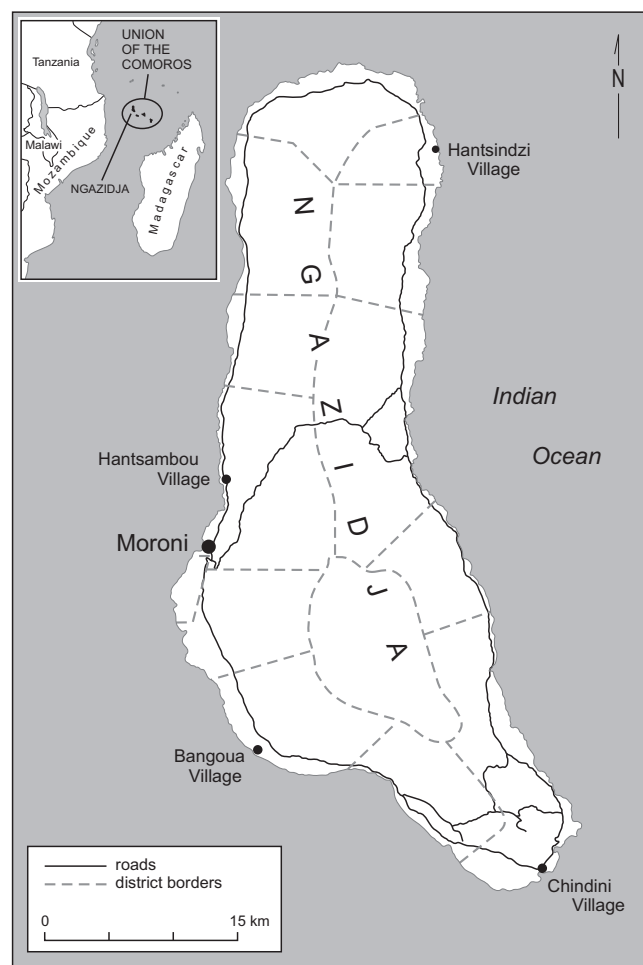


Fig. 1. Ngazidja island, Comoros.

Table 1
Estimated fisher and boat numbers in the study sites.

	Hantsindzi	Hantsambou	Bangoua	Chindini
# of male fishers	150	260	600	1700
# of traditional canoes	55	160	90	70
# of powerboats	13	50	60	100
(%) of traditional canoe fishers	50	35	15	20
(%) of powerboat fishers	50	65	85	80
(%) of fishers in village	80	85–90	90	90

Fisheries sector of the Comoros

The fisheries sector in the Comoros is entirely small-scale and catches are used for household subsistence or sold at local markets. Until 1985 fishing in the Comoros was comprised of dugout canoes and handcrafted traditional gear. Since then, the sector has modernized through international aid from development projects. This led to the provision of small (5–7 m) fiberglass boats with outboard motors (15–40 HP) and more modern gear (e.g., metal hooks, plastic bait and fishing lines) [14]. Nevertheless, fishing gears remain simple and low cost (Table 2).

The national government's outlook for the fishing sector is one of growth, expansion, and modernization. The government's 2009 targets were to increase fisheries production by more than 50%, to

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