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CO-MANAGEMENT OF FISHERIES IN A MARINE PROTECTED AREA:

The Case of the Quirimbas National Park in Mozambique

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ABSTRACT

Marine Protected Areas (MPAs) are an important tool for biodiversity conservation. Under certain conditions, they can also benefit fisheries. However, these fishery benefits are usually experienced only in the long run, and often imply an immediate reduction in the area available to fisheries. This makes MPA acceptance quite difficult by those who depend on fish resources within MPAs.

In the Quirimbas National Park, created in Mozambique in 2002, a few no-take areas were implemented in coral reef areas as a way to protect marine biodiversity and help rebuild fish stocks. Many fishers contested the creation of no-take areas, and fisheries management authorities supported them. Given the conflicts between fishers and fisheries management authorities on one side, and the QNP on the other side, the latter took the initiative to collaborate with all parties in implementing fisheries co-management.

I will briefly show what are the threats to coral reefs inside the QNP, what was the criticism of fishers and fisheries management authorities to sanctuaries, what motivated the QNP to change its strategy, and what results fisheries co-management has already produced in the conservation of coral reefs and in the promotion of fisheries.

1. Introduction

Marine Protected Areas (MPAs) are an important tool for biodiversity conservation that has gained wide support in the last decades. Under certain conditions, they can also benefit fisheries by providing protection

to adults and juveniles that eventually migrate beyond the MPA boundary – a phenomenon known as the “spill-over effect”. However, these fishery benefits of MPAs are restricted to certain fish species, not all of commercial importance; and they take some years to be observed, though fishers are immediately affected by the reduction in their fishing area. These are some of the key reasons for MPA acceptance to be quite difficult by those who depend on fish resources within MPAs. These difficulties are more evident in developing countries, where often local communities rely on local fish as their only source of animal protein.

Unavoidably, MPAs have to incorporate some fisheries management measures, in order to reduce the impacts of fishing on the marine environment they are protecting. One way of approaching fisheries management in the context of MPAs is through co-management. Co-management implies sharing of responsibilities and/or authority between the State or other organization and resource users, i.e. fishers [1]. Usually it also includes other stakeholders such as non-governmental organisations, researchers, various governmental agencies, and civil society at large. Sharing responsibilities

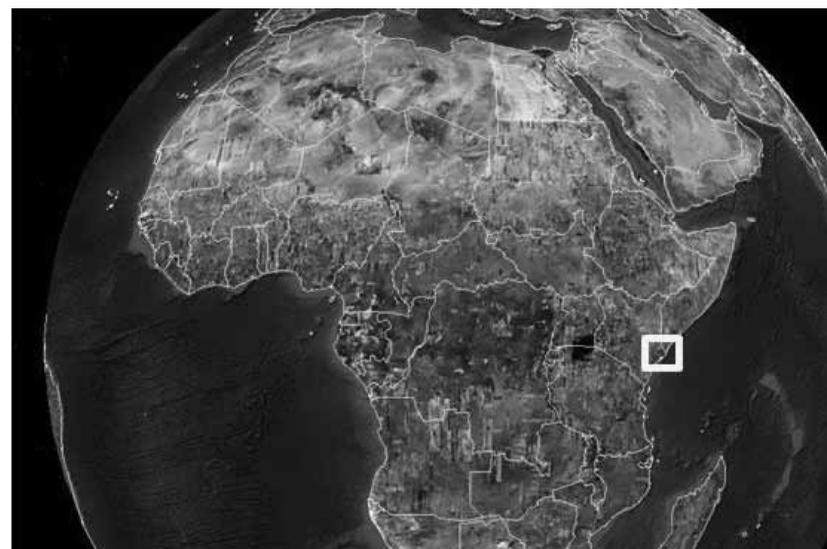


Figure 1. Location of Quirimbas National Park.

and/or authority is expected to improve transparency in decision-making and the rights of fishers, promote their potential to protect the environment, improve compliance and reduce the need for enforcement.

In this paper, I will explore fisheries co-management measures in the context of the Quirimbas National Park (QNP), a protected area in Mozambique (Figures 1 and 2) that has a marine component. The remaining of the paper is organized as follows: in the next section, the context for fisheries co-management in Mozambique is described; then, a brief history of QNP is given; the subsequent section explains the emergence of fisheries co-management in QNP; in the final section, conclusions are drawn on the possible future impacts of fisheries co-management in this MPA.



Figure 2. Detailed location of Quirimbas National Park.

2. Fisheries co-management in Mozambique

Fisheries management in Mozambique has until recently been based on command-and-control measures. The State would collect data on fisheries through research, define fisheries management measures through legislation, and promote compliance with fisheries regulations through law enforcement. However, in recent years, it became evident that the State does not have the resources that proper fisheries management require.

One of the reasons for this concerns the multi-species, multi-gear aspects of Mozambican fisheries. In other words, most of Mozambican fisheries are small-scale and artisanal, with small boats that use a variety of fishing gears to catch many different fish species. Studying all these species and the great number of small boats is very expensive. Also, the country's coastline has numerous landing sites that are very hard to control, making catch data collection extremely difficult.

Another aspect further complicating fisheries management in Mozambique is the existence of various institutions with a fisheries mandate. In each province, one can find in its capital the following: a local office of the National Fisheries Institute (IIP); a local office of the National Institute for Development of Small-Scale Fisheries¹ (IDPPE); and the office of the Fisheries Provincial Services², which are under the authority of the provincial governor.

For all these reasons, in 2003 the Mozambican government enacted new legislation enabling fisheries co-management³. This move came out of the generalized perception that the State is not able on its own to ensure adequate fisheries management in a country with a coastline of almost 3000km. Instead, it requires the collaboration of stakeholders, most prominently fishers themselves and particularly small-scale fishers because of their important role in local economies and in supplying animal protein to coastal communities.

¹ In Portuguese: *Instituto para o Desenvolvimento da Pesca de Pequena Escala*.

² In Portuguese: *Serviços Provinciais de Pesca*.

³ Maritime Fisheries General Regulations (Decree n.º 43/2003).

Through the new legislation, Mozambican authorities have to assist groups of small-scale fishers in setting-up their fisheries co-management institutions – Community Fisheries Councils, or CCPs⁴. CCPs are co-management institutions that aim at promoting the involvement of local communities in the management of marine and coastal resources, both inside and outside of existing MPAs. CCPs are created with direct support from IDPPE and from Provincial Fisheries Services, though other organizations (such as development NGOs) can also take a lead role in the process. These institutions identify and facilitate the organization of a small number of fishers into a CCP.

Fishers that belong to a CCP are allocated a small marine area for them to control (decide how fishing can be done there, by who, with what gears, etc.). This means that rule setting and enforcement – until recently functions of the State – are now ensured by fishers themselves (within their CCP allocated area). This relieves the State from the burden of these tasks, but it also has advantages for fishers. First, giving them some power to determine fisheries rules within limited spatial areas empowers fisheries and their communities to address their marine-related problems. Second, by involving fishers in problem resolution, fisheries management gains automatically a focus on sustainable use, an important aspect in a context where the availability of marine protein is limited. Third, with additional power come additional responsibilities for fishers. In other words, if something goes wrong with the management of the area allocated to a CCP, there is no one else to blame but themselves. Inevitably, fishers will concentrate on the sustainable use of their area than on conservation *per se*.

3. Quirimbas National Park

The Quirimbas National Park was created in Mozambique in 2002, with the support of WWF-Mozambique and of the provincial government. It covers an area of approximately 7500 km², of which about 20% are coastal and marine, and it is home to an estimated 130.000 people.

As part of the measures implemented to face the threats to coral reefs, several no-take areas were created. These no-take areas, called “sanctuaries” locally, were mostly placed in areas with coral reefs, and no fishing was allowed. The exception was about 2-3 days each year when fishers could fish as much fish as they wanted. The purpose of these 2-3 “open” days was to show fishers how protection was increasing fish stocks, and thus increase their support of no-take areas.

Fisheries in QNP is an important activity: the park is home to 4700 fishers, representing about 30% of the province’s fishers (2007); it harbours 4350 fishing vessels (2007); and about 850 tons of fish were caught inside the park in 2008, which is about 24% of the province’s catch. Fishers inside the park, and in the whole province too, use a wide variety of fishing gears, including beach seine, harpoon, “surface” gillnet, bottom gillnet, hand lines and traps. Preferred fishing grounds include coral reefs and seagrass beds.



Figure 3. Pile of coral rock.

⁴ In Portuguese: *Conselhos Comunitários de Pescas*.

Fishing is the main threat to coral reefs in the Quirimbas National Park, and these are considered to be overfished in areas closer to human settlements [2]. Overfishing in coral reefs is driven by population growth, initially as people from the hinterland moved to the safer coastal areas during the independence and civil wars, and later as they settled definitely after peace was reached in 1992. This human settlement dynamics has been further complicated by the phenomenon of migrant fishers, which has existed in Eastern Africa for centuries [3, 4]. However, in recent years it is believed that migrant fishers, particularly from southern Tanzania, have been responsible for the introduction of destructive fishing methods in northern Mozambique, most notably dynamite fishing in coral reefs.

Coral reefs are also mined as their rocks make good building materials and are used as raw material for lime production (Figure 3).

4. Fisheries co-management in the Quirimbas National Park

Marine sanctuaries were created in the Quirimbas National Park as a combination of habitat conservation and fisheries management measure. However, though their ecological effectiveness was significant, and some empirical results suggested they were producing spill-over to adjacent areas, social acceptance by fishers was rather low from the beginning. Fishers often complained that their opinion had not been heard when creating the sanctuaries, particularly regarding their location. Park staff held public meetings to consult local communities regarding such decisions, but still fishers felt these did not represent their opinions. In fact, there was some anecdotal evidence suggesting that sanctuaries were established in front of high-end tourism resorts to avoid fishers bothering tourists. Additionally, and likely most significantly, fishers complained about the disproportionate sanctions whenever they were caught fishing inside the sanctuaries.

Fishers were supported by IDPPE and Provincial Fisheries Services in their opposition to marine sanctuaries in particular and to the park's handling of fishers inside QNP in general. This led inevitably to a tense relationship between QNP on one hand, and IDPPE and Provincial Fisheries Services on the other hand. This tension lies at the contradiction between QNP's

approach to fisheries management being based on marine sanctuaries, and fisheries authorities' approach being based on promoting fisheries co-management with fishers.

In 2009, QNP's recently arrived new manager, faced with this situation, proposed a MoU⁵ between QNP and fisheries authorities. This MoU established how the three institutions would coordinate their activities related to fisheries data collection (establishing data collection protocols, sharing data, etc.), and cooperate regarding CCP creation. CCPs were then to be created inside QNP to deal with overfishing, the use of destructive fishing gear, and migrant fishers. Other organizations are also participating in the effort to create and support CCPs, such as development NGOs operating in this part of the country.

One of the responsibilities of CCP members is to regulate access to their designated areas by outsiders, particularly migrant fishermen. However, CCPs, like other marine resource-related policies in the region, do not adequately address the issue of migrant fishermen [5]. This is because it is culturally difficult for CCP members to deal with outsiders, especially when these are migrant fishers who have created friendship and familiar ties with local communities. Fishers also face difficulties in organizing themselves to ensure adequate enforcement of their area on their own. For this, they require long-term encouragement and support. As a development NGO worker put it: "it make take 20 years before they can do this on their own". Despite these difficulties, some CCPs have been able to tackle these issues quite successfully. However, it remains unclear why some CCPs perform better than others.

5. Conclusions

In the Quirimbas National Park, and despite their weaknesses, fisheries co-management institutions such as CCPs may provide an adequate arrangement to deal with threats to coral reefs arising from fishing practices.

⁵ Memorandum of Understanding.

First, CCPs in Mozambique are co-management approaches that can empower local communities to address their problems. Second, CCPs have a focus on sustainable use in a context where marine protein is essential for local communities, increased fishing pressure resulting from fishing effort displacement is believed to occur, and protection from outsiders is more important than conservation *per se*. Third, CCPs rely greatly on local capacity in a very populated region, hence overburdening MPA officials with enforcement actions, which is further complicated by the remoteness of the region. Finally, local communities have shown great ambivalence regarding MPAs [4].

Taken altogether, this suggests that fisheries co-management institutions could have an important role to play in the protection of coral reefs in the Quirimbas National Park, and eventually elsewhere.

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