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Marine Conservation: The Voice of the Fishers

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Abstract

This paper examines attitudes towards marine conservation among fishers from two villages in Kilifi District, Kenya. It focuses on how the views of fishers have contributed to their willingness to engage in marine conservation and considers how these attitudes developed. Uyombo is situated near the Watamu Marine National Park and Reserve and the fishers from this village have encountered formal methods of conservation in their daily fishing activities. There is no marine park in the vicinity of Takaungu but fishers in Takaungu have used informal methods of conservation in the past, unlike those employed in Uyombo). These traditional ways have, however, lost most of their effectiveness. Data were collected in 2000, 2001 and 2003 and the study shows how experiences have shaped fishers' attitudes towards conservation and their perceptions of how conservation efforts should, or should not, be carried out. The fishers from Uyombo, as a result of their experiences with the Marine National Park, have developed such a negative attitude towards marine conservation that it may be difficult to involve them in any meaningful activities in the future. The fishers in Takaungu, on the other hand, are willing to participate in marine conservation activities provided these do not endanger their livelihoods and are on an equal partnership basis.

Introduction

The marine resources along the Kenyan coast include mangroves, coral reefs, seaweed beds, seagrass beds, marine fish and crustaceans, and minerals. Many coastal inhabitants depend on these resources for their livelihoods, with coral reefs playing a particularly important role. Besides providing construction materials, ornamental objects and medicinal products, at least half of the fish caught off the Kenyan coast are reef-associated. Kenya's fringing reef is close to the shore and the fishers do not necessarily need boats to reach these fishing grounds. Coral reefs are the backbone of artisanal fisheries along this coast and provide feeding, spawning and breeding grounds for young fish, as well as shelter and refuge from predators. Due to their proximity to the shoreline, the reefs form important fishing grounds for many artisanal fishers. Over the last decade, many of the reefs have started to show signs of degradation as a result of overexploitation and pollution (UNEP 1998a, McClanahan & Obura 1996, Obura 2000, 2001, Aloo 2000).

There are an estimated 10,000-12,000 artisanal fishers on the Indian Ocean coast of Kenya with some 2,500-3,000 based along the Kilifi/Malindi coast (Hoorweg *et al.* 2008a: 90). Many of the near-shore areas along the Kenyan coast are heavily utilized and over-fished (with catches above the maximum sustainable yield). Some areas further offshore have the potential to increase their yields (McClanahan & Obura 1996) but this requires investments in vessels and equipment that are beyond the means of most fishers. Major increases in fish catches are unlikely in the near future. Artisanal fishers are

contributing to the degradation of marine resources because intensive fishing in a certain area can affect the ecological balance and result in a loss of fish stock. Destructive fishing practices, such as the use of explosives, seine nets and poison, can alter the terrain as well as the ecological balance of the reef and the sea floor. Fishers are aware that their increasing numbers are putting pressure on marine resources but do not know how to deal with the situation (Versleijen 2001, Versleijen & Hoorweg 2006).

Traditional gear includes traps, fences and poison. The portable fish traps (*malema*) are fairly light and are used on the reef. Fixed fences (*uzio*) are set up perpendicular to the shore and up onto it. Both the traps and fences are made of local materials and are generally considered to be more environmentally friendly than modern equipment, although they are on the decline and mainly used by older fishers. Traditional fish poison (*mkanga* or *mchupa*) is sometimes used too but it kills other marine organisms as well as the birds that eat the dead fish. Modern equipment includes nets and lines in almost equal proportions. Traditional nets and lines used to be made of cotton, bark and sisal that were organic and biodegradable (Glaesel 1997) but they have been replaced by stronger nylon nets and lines that are manufactured industrially. These give much higher catches than traditional ones but can cause damage and, if lost at sea, do not disintegrate naturally. The use of a gill net (*mpweke*) sometimes involves fishermen trampling on the reef crest and gill nets can snag on the reef and break off branching or plate corals. When used in grounds without corals, gill nets rarely cause environmental damage. Beach seines have very small mesh sizes (*juya*) and young and immature fish can become entangled as a by-catch. The net is dragged along the seabed and churns up the sea bottom, damaging underwater vegetation. Baited hooks and lines (*mishipi*) do not usually interfere with the marine environment. Spear fishermen use long metallic rods (*mkonjo*) to break the coral where the fish take refuge but these spears may damage the coral when fishermen miss their targets. Explosives (*baruti*) kill fish and other marine life indiscriminately and also damage the local habitat.

Traditional conservation methods generally aim to sustain harvests or catches in the medium and short term. The objectives of modern-day conservation are the protection of the local flora and fauna for its own sake and the sustainability of natural resources. Currently the most common method of conservation of marine resources is the establishment and management of Marine Protected Areas (MPAs). Marine Protected Areas include Marine National Parks and Marine National Reserves. Kenya has about 600 km of marine coastline and a number of Marine Protected Areas, which have been

instituted successively since the early 1960s. The first marine reserve (then called the Coral Garden Fish Reserve) was established in Watamu in 1962, followed by a reserve in Malindi in 1964 (Kenya 1964). They were officially designated as Marine Parks in 1968. A marine park is an area where neither fishing activities nor plant or animal collection are permitted. Flora and fauna are fully protected inside these parks and although fishing by artisanal fishers is allowed in the marine reserves, it is restricted by regulations stipulated in the Fisheries Act (Kenya 1991). Marine Protected Areas are managed by the KWS and wardens patrol regularly. Fishers are allowed to pass through the parks with their vessels to reach their fishing grounds in the reserves. Fishers living near a marine park, however, often face a struggle to gain access to sea resources. Collecting shells, fishing, harvesting forest products from mangrove swamps and leisure pursuits associated with water have been restricted or curtailed. In addition, ecological and socio-cultural considerations have not been taken into account in the construction of beach hotels at picturesque beach sites. It could be claimed that the construction of tourist hotels has foreclosed the sea ethic of the local people and has alienated them from tourism development (Sindiga 1999).

With the advent of community-based natural resource management, the ecological focus has shifted to the people who are bearing the costs of this conservation (Western & Wright 1994). Community resource management works on the principle that conservation will only flourish if it is embedded in local communities and is voluntary rather than enforced (Western 1994). In addition to knowing who the stakeholders are, it is important to understand their attitudes towards traditional conservation practices, modern conservation efforts – in particular, the MPAs and the advantages and disadvantages of these areas – and their relations with the environmental authorities. An attempt is being made to involve stakeholders in controlling access and entry with the introduction of the Beach Management Units (BMUs). Each BMU will have jurisdiction over a landing site and the Fisheries Department designates a co-management area where the BMU and the Fisheries Department join in management activities (Oluoch *et al.* 2006). In addition, fishers will have to seek permission from the local BMU to fish at a different landing site.

The present study examined the attitudes of fishers towards marine conservation in locations that differed regarding restrictions on fishing practices. The study explores the views of the fishers about traditional ways of conservation, present-day conservation, the benefits of marine parks, other marine resource users and relations with the KWS, and how conservation efforts should, or should not, be implemented.

Study Area

This study was carried out at two landing sites in Kilifi District on the Kenyan coast: Uyombo and Takaungu. Extra information was gathered in Watamu on the employment patterns associated with the local marine park. Takaungu is situated between Kilifi and Mombasa, while Uyombo is situated between Kilifi and Malindi and, as the crow flies, is not far from Watamu and the Watamu Marine National Park.

Takaungu was settled in the early 19th century by members and clients of the Mazrui family. Migrating fishers from the Bajun Islands to the north had probably founded a temporary fishing village there before the Mazrui arrived (as they are known to have done at many places along the coast). Certainly other Bajun migrated in numbers to the growing settlement (Koffsky 1977) and later Mijikenda also moved to the town. Takaungu has grown considerably in size and where once there were *shambas* (farming plots) today there are houses, and the *shambas* have moved to the outskirts of the present town.

Uyombo can be divided into two parts: Bandarini is situated on the shore side and Uyombo proper lies inland and has an agricultural area. The fishing activities are found in Bandarini, although fishers come from Bandarini as well as Uyombo proper. Bandarini has a relatively short history with the first settlement dating from only 70-75 years ago when a Bajun fisher from Lamu decided to build a house and move his family there. Most of the land in or near Bandarini is, or was, owned by this family. More people have settled in Bandarini but it has remained a small village. The people who have settled there usually originate from further away than Uyombo and many of the fishers living inland walk long distances, in some cases over an hour and a half, to reach the landing site. Other fishers have built temporary shelters at Bandarini where they spend the night when fishing before returning to their homesteads. Many of them are farmers who have turned to fishing and whose homesteads and *shambas* are more than an hour's walk away. In this paper, the name Uyombo is used to refer to Bandarini.

The differences between Takaungu and Uyombo are pronounced and evident. Takaungu is a small town of 1500 people (Wikipedia 2008) with many houses whereas Uyombo is a village with fewer than 30 houses. Uyombo can be reached on foot or by bicycle and although it is possible to reach the area by car, this involves negotiating a route through *shambas* and mangrove forests. From Takaungu there is a road connection with the Malindi-Mombasa trunk road and a choice of transport ranging from *matatus* (small vans – usually Nissans – operated as public transport on fixed routes) to private

cars, small trucks (supplying shops in Takaungu or carrying blocks from the quarry in Timboni) and bicycle taxis. Mombasa and Kilifi can be reached in less than an hour. Small boats operate as ferries across the Takaungu creek from where one can reach the staff quarters of the Kilifi Plantations. From Uyombo, however, one has to walk to the trunk road and wait for a *matatu* to Malindi, Watamu or Kilifi. To get to Watamu from Uyombo it is also possible to cross Mida creek by boat, depending on the tide, although there is no regular ferry service. Uyombo is located next to the Watamu Marine National Park and there is no marine park in the vicinity of Takaungu.

As a result of its modest size and poor accessibility, income-generating activities in Uyombo are related to either fishing or agriculture, such as fish mongering, palm-wine tapping and selling, cash-crop cultivation, plaiting *makuti* (roofing material from palm leaves) and farm labour. A more diverse scale of activities might have been expected, especially considering the nearby marine national park. Other groups of people have found employment in Watamu as Kenya Wildlife Service (KWS) rangers, hotel employees, safari guides, beach operators (curio sellers) and boat operators. In Takaungu there is a much wider range of income-generating possibilities such as furniture making, block cutting, building construction and teaching. In addition there are shops and small eating places. There are craftsmen and tailors resident in Takaungu but none in Uyombo so that people have to go to Matsangoni on the Malindi-Mombasa road.

The population in the study areas consists mostly of Swahili, Bajun and Mijikenda. In Takaungu, the Swahili and Bajun tend to live in the town centre (the oldest part) and the Mijikenda live mostly on the outskirts of the town. Similarly in Uyombo, the Bajun live at the landing site where few Mijikenda have built permanent houses. The main population group is the Mijikenda who traditionally were agriculturalists and lived mostly on the coastal uplands. Their main crops were sorghum, finger and pearl millet, and cowpeas and they also kept small livestock and a few cattle. In the course of the last century, they spread out along the coastal strip and came to sea fishing later (Waaijenbergh 1993, 1994, 2000). The Mijikenda, except for the Digo subgroup in the south mostly adhere to traditional African beliefs or Christianity.

The large majority of the Swahili and Bajun are Muslims. Swahili are generally considered the offspring of intermarriage between African and Arab groups over a long period of time and they have dominated the coastal strip for centuries. The Bajun are considered to be either Swahili or an ethnic group in their own right (see Prins 1972, Elliot 1925-1926, Middleton 2000). The Bajun are regarded as the traditional fishers on

the Kenyan coast, and as such they distinguish themselves from the Swahili.

Method

The study, which was conducted between 1999 and 2001, was part of a larger research project on income diversification and resource management among coastal fishers in Kenya.¹ The project comprised four surveys (referred to as companion surveys) and four support studies. The present study was one of the support studies undertaken in the course of 2000 in the two areas described above. In Uyombo, 23 informants, 13 fishers and 10 household members, were interviewed on a number of occasions using different techniques. In Takaungu, 21 informants, 11 fishers and 10 household members were interviewed. Fishers were contacted at the respective landing sites and accompanied to their homesteads in order to interview other household member(s) such as wives. Data techniques included semi-structured, unstructured and informal interviews, life and career histories, participant observation, time allocation studies and discussion groups (see Versleijen 2001 for full details). Households and informants were contacted more than once to verify or elaborate on earlier information. On the first visit, semi-structured interviews were conducted and during later visits, unstructured and informal interviews as well as life and career histories were compiled. Most of the fishers (65%) were followed for a whole day using a technique known as participant observation. The other fishers refused to participate in this because they did not want an extra person on their boat who could not contribute to their fishing efforts and was, moreover, a woman. Time allocation studies were done by visiting all the informants once an hour for a whole day. Discussion groups took on an organized form in Uyombo and were conducted informally in Takaungu.

Informal follow-up interviews were held in 2001 and 2003 with several fishers and others in Takaungu and with fishers from Uyombo. Most had been part of the earlier samples and wanted to add something or update their situation, while others had become involved in the general conversation and wanted to add their own views. Discussions focussed on questions such as their household's present income, the possibility of income

¹ This was a joint project involving Moi University (Kenya), Ben Gurion University (Israel) and the African Studies Centre (the Netherlands) between 1999 and 2001 that was funded by the Netherlands Israel Research Project (contract NIRP-97-145-7) and first reported in Hoorweg *et al.* (2003).

diversification and their views concerning marine conservation and the Marine National Park.

Table 1 summarizes the views of the fishermen on traditional ways of conservation, present-day conservation, the benefits of the marine park, other marine resource users and relations with the KWS.

Results & Discussion

Traditional methods of conservation

Traditional methods of conservation focused on access and fishing methods. In the two study locations, access regulation took the form of a regulating committee and a ceremony called *sadaka*. The ceremony used to exist in Takaungu but had not been performed in Uyombo in living memory. Most of the fishers from Takaungu are aware that there used to be something called *sadaka*, although descriptions of the purpose of the ceremony and the precise rituals are different according to the citations given below (see also McClanahan *et al.* 1997, Glaesel 1997, 2000 for descriptions of the *sadaka* among the Digo).

We used to bring offerings to the sea and then we would not fish in that area for at least a week. Some areas you would not go to at all. (Bajun fisher)

Some Mavumba (pounded fish which has a very strong smell, the smell is the important thing about it, it can be rotten fish as well) are taken to the sea and some words are said and celebrations are done. This can be anywhere in the sea, the place is chosen by all the fishers together. (Mijikenda fisher)

*The fishers go to the beach with rice. A few fishers go out fishing. When the fishers are back, the catch they have is prepared and taken together with rice. The fishers and some other villagers (especially young children) eat and celebrate together. After the *sadaka*, the leftover food and the fish are divided up and taken home. On the day of the *sadaka* only the fishers who go to collect the fish for the *sadaka* are supposed to go fishing. Before the *sadaka* is conducted, the gods have to be pleased. The elder fishers have to speak some words and then some rice and fish have to be given to the sea. (Bajun fisher)*

*There is a *sadaka* in which blood should be given to the sea. A goat is slaughtered and prepared and eaten. Some is given to the sea. Older fishers say some words to the gods of the sea to ask them for a higher catch. After the *sadaka* there should not be any fishing at the spot of the *sadaka* for a week. This *sadaka* is not done there anymore, there are too many fishers now and they are not cooperating anymore, the older fishers who were always arranging this died years ago. I think the last *sadaka* like this must have been 10 years ago. (Swahili fisher)*

In November 2000, some of the fishers decided to organize a *sadaka* once again. Only nine fishers, all of whom were Muslim and over forty, participated in the ceremony. The rest did not see the need for it. The reasons for conducting a *sadaka* were that it had been part of their tradition and they should continue with it; and the gods had to be pleased in order for the fishers to get higher catches. The *sadaka* itself consisted of eating on the beach, giving some food to the sea and not fishing in that spot on the day in question. However, this last rule only applied to the participants and did not include the people who were not involved in the *sadaka*.

Table 1 Views of fishermen on marine resource management, by landing site (%)

	Uyombo (N=13)	Takaungu (N=11)
Need for <i>Sadaka</i> and related rules and regulations	0	18.2
Need for marine conservation ¹	100	90.9
Willingness to participate in marine conservation but only on an equal partnership basis	30.8	81.8
MPA suitable way of marine conservation	0	0
MPA suitable way of employing marine conservation if managed differently from at present	30.8	9.1
Perceived park benefits	15.4	--
Other marine resource users contributing to declining fish catches	15.4	36.4
Poor relations with the KWS	100	--

1. Question asked regardless of the kind of marine conservation, most fishermen who answered positively to this question referred to declining fish catches.

In the past, the *sadaka* was a way of conserving marine resources since it prohibited fishing in certain periods and/or in certain areas. For the *sadaka* to have an impact on marine resources, the majority of the fishers would have to be prepared to participate and observe the rules. By now, the *sadaka* has lost its conservation value (Table 1) although it retains an emotional and ritual value for the few older Swahili and Bajun fishers (see also McClanahan *et al.* 1997).

In the past, our fathers had ways to make sure the fish had some time to grow and to multiply. However we lost those ways, we can't use them anymore as they did. You know how the sadaka went last year, there were too few of us, all the other fishers just went on like nothing was happening. Everybody has low catches; nobody wants to lose a day's fishing. And if most of us don't fish for one day or longer in one area, another fisher will come and have a good catch there. We are too few now. The only reason we do the sadaka is that it

is how we are used to talking to the sea, maybe we can still please the sea and it will help us and keep us safe. But for the fish, it won't make a difference. There are too many of us now and it won't work. We have to think of something else but it is a very difficult thing. (Swahili fisher)

One reason for the decline of the *sadaka* is that fishing has become a multi-ethnic activity. Fishing used to be dominated by the Bajun and Swahili and their beliefs and practices were strongly connected to the sea. When the agriculturalist Mijikenda started fishing they did not value the *sadaka* and it lost its importance. Religious convictions also played a role as Mijikenda fishers refused to participate in the ceremony because they considered it non-Christian.

The sadaka used to be conducted every year to please the gods, regardless of a high or a low catch. In those days most fishers were Muslims and they all agreed that the sadaka should be performed, nowadays however there are a lot of non-Muslim fishers. There is no cooperation between the fishers anymore and the non-Muslim fishers are afraid that if they conduct the sadaka, a few days afterwards a non-Muslim might drown. (Swahili fisher)

An additional reason is that there are more young people involved in fishing who do not adhere to or who even reject the customs of the older fishers, including the *sadaka*. Glaesel (1997, 2000) reported a loss of confidence in the *sadaka* among Digo fishers. Due to declining catches, the 'younger Kenyans' faith in their elders' ability to commune with sea spirits has waned and the elders' authority has been challenged leading to intergenerational conflicts' (Glaesel 2000: 35). According to Glaesel, these conflicts have fractured fishing communities and allowed the arrival of fishers with destructive fishing techniques.

The sadaka? What should I have to do with that, you are only wasting your time, that is something for the older fishers, it is something from the past, not for us! (Mijikenda fisher)

Another element regarding traditional conservation practices concerns fishing methods, especially the fishing gear used. Fishers used to be flexible in their choice of gear, although they usually had strong preferences that were influenced by their knowledge and experience as well as economic and environmental considerations (Tunje & Hoorweg 2003). One of the companion surveys to this study showed that many fishers reported two or more kinds of gear and only 30% of fishers limited themselves to one specific gear (Hoorweg *et al.* 2008a: 95). Gear differed greatly in their effects on the environment, some were potentially damaging, others less so. Roughly, there were three types of

destructive effects: (i) damage to the marine environment; (ii) the capture of non-targeted species; and (iii) the capture of immature fish among the targeted species. Not only the type of gear but also the area where the gear was used and the way it was used determined whether or not it caused damage. Traditional gear was generally less harmful than modern gear but use of the former was on the decline. Glaesel (1997) also mentioned that fishers were increasingly turning to less expensive and more harmful forms of fishing due to declining fish stocks and the loss of their elders' fishing knowledge. In one of the companion surveys, 15.6% of fishers reported using destructive gear, namely beach seines, small-mesh nets and spear guns (Hoorweg *et al.* 2008a: 98).

Some fishers in Takaungu pointed out that conservation could only be done in traditional ways if one was wealthy, i.e. if a person's catches were high throughout the year. Nowadays, it would immediately have a negative effect on their income and their household's standard of living. Households have to be fed every day and the indigenous ways of conservation are, therefore, no longer suitable.

I have to feed my family, if I don't fish for some days or so, then who will feed my family? It is already difficult enough to get money to send the children to school. (Swahili fisher)

Present-day conservation

Although fishers in Takaungu did not explicitly practice traditional conservation methods anymore, a large majority of fishers admitted the need for marine conservation (Table 1). Takaungu and Uyombo both had committees: in Takaungu it was a committee of fishers and in Uyombo there was a village committee. The chairman of the fishers' committee in Takaungu explained that anybody fishing with destructive fishing gear would have to account for his actions. However, he also stated that:

We don't have ways to enforce things, except that when we are all together we are strong. I mean that when we all agree that something should not be done, we can chase the people who do it. In the past, all fishers came to me to ask permission to fish here, but nowadays that is not the case. Not that that is a problem, it is okay as long as they don't fish with bad gear, like the nets with very small mesh sizes. (chairman of the fishers' committee in Takaungu)

Although the committee and its chairman had lost the power and position they used to have in the past, they were still there as a tool, and through them fishers could try to protect their interests as a fishing community. The chairman of the Uyombo village committee mentioned in particular that people using destructive gear were challenged

about the negative effects of their fishing. One example was that of fishers from Pemba Island who were chased away from Uyombo in a joint action by fishers, the KWS and the police. (The Pemba fishers were considered to be especially destructive because of the *juya* nets they used with a very small mesh size.)

The main restrictions enforced nowadays are those related to the MPAs. In the case of Uyombo, there was the nearby MPA that takes its name from the village of Watamu although there was no park or reserve in the vicinity of Takaungu. The Watamu Park is part of the complex of marine national parks and reserves at Malindi and Watamu. Fishers from Uyombo had to cross the Watamu Park to reach most of their fishing grounds. Although fishing in the marine park was prohibited, poaching did take place and the KWS had regular problems with artisanal fishers. However, as much as artisanal fishers constituted a concern for the KWS, the Watamu Park had become a severe problem for the fishers in return (see also Glaesel 1997 and 2000a on other marine parks in Kenya). The area at the entrance to the creek, for example, offers good fishing grounds but this is now a restricted park area. One positive effect that was expected from fishing restrictions was an increase in fish biomass (Cinner *et al.* 2005), and a spill-over of exploitable fish into the reserves (McClanahan & Mangi 2000) but the fishers claimed that since the gazettement of the Watamu Park, fish stocks had been declining just as quickly as before. They also claimed that fishers had been left with a smaller area, resulting in a higher density of fishers and lower catches.²

There is no spillover benefit from the marine national park. It is a lie, even before the marine national park was founded, there were more fish than nowadays, today fish are rare and the fish that are there, they escape to the park. (Bajun fisher)

Glaesel (1997) also reported that the fishers found the loss of fishing grounds hard to accept and that no spillover effect from the protected areas was making up for this loss. Others have also confirmed that fishers are often dissatisfied with the benefits of the marine parks (Ochiewo 2004, McClanahan *et al.* 2005). None of the fishers in the study regarded the establishment of a marine park as a suitable conservation method but 30.8% of the fishers in Uyombo said they would be more positive if the park was managed differently (Table 1). Most fishers claimed that the main goal of the marine park was the

² The catch and income per fisher in Uyombo and the surrounding area are considerably lower than in Takaungu with an average catch/trip of 4.7 kg vs. 18.8 kg and an average income/crew member/trip of Ksh 158 vs. Ksh 692 (Hoorweg *et al.* 2003).

promotion of tourism and that the tourists were the people who benefited the most from the marine park. 'Apparently, the government would prefer foreigners to benefit rather than the local people.' Others narrate similar concerns, namely that marine-protected areas were seen as a means for the wealthy to gain at the expense of the poor (Glaesel 1997) and as a means of attracting tourists and raising government revenue (Malleret-King 2000).

For me, I do not know why the marine national park is here. What was told to us was that the marine national park would be just outside the creek and not inside here. I do not know why the marine national park is here. During the colonial era when they started creating the marine national park they were just operating at the other side of Watamu, but later on they covered even the Uyombo areas. (Bajun fisher)

According to me, the reason why the government took that place to conserve it as a marine national park is that there are a lot of tourists around this area. And they formed the marine national park so they can get money from the tourists, from the entry fees they charge them. Before they took only a small area, later on they expanded it, with an area which is never visited by tourists and which is the area of main interest for the fishers. (Mijikenda fisher)

In fact, the fishers claimed that the area of the Watamu Park had expanded over time and was now larger than the 10km² which they were informed it would officially occupy. The fishers also complained that the KWS applied park regulations in the reserve areas, effectively making the area of the marine park even larger.

When they established the marine national park in 1968, they came to the fishers of Uyombo who were very few in number in those days and explained to them that they were going to preserve the area so that the others who would come later could benefit from what they were doing. But now the number of fishers is increasing, the reason for this is that most parents who are fishers cannot afford school fees for their children so they take them fishing too, so the number of fishers has increased and the area of fishing here at Uyombo is not large enough since the main part of the area has been taken by the KWS. What the KWS said to them before was that they were going to cover an area of 10 km² but later on they just extended the area, and this area is more than 10 km². They should reduce the size of this. (Mijikenda fisher)

The need for conservation was not denied by the fishers and most agreed that it was important in order to secure their future livelihoods. In one of the companion surveys, 91% of the fishers were pessimistic about current fishing trends and reported declining fish catches (Hoorweg *et al.* 2008a: 91). However, the fishers in Uyombo and Takaungu uniformly rejected the MPA as a suitable tool for marine conservation (Table 1) but had

slightly different views on marine parks. Fishers in Takaungu were more willing to participate in conservation efforts but were adamantly opposed to the enforced measures by government agencies and insisted on an equal partnership (Table 1). They had a dislike of marine parks and anything associated with them because they feared that the government or others would gain control over the area and place the fishers in a dependent position. Some of the fishers in Uyombo though, were still willing to give the marine park a try if the park was managed differently and only if they, the fishers, stood to benefit directly. Most fishers, especially those in Uyombo, were finding themselves in a situation that did not leave them room to consider the long term. They had to meet the short-term needs of their households. This made conservation something to consider 'later' and prevented the fishers from playing an active role in the conservation of marine resources. Furthermore, fishers are unlikely to alter their livelihood strategies when they are adverse to conservation measures. Even community-based management is then likely to fail, as it did for example in Tanga (see Verheij *et al.* 2004). The effective management of marine resources cannot ignore the short-term demands of fishers' households.

Park benefits

A few fishers mentioned benefits from the marine park (Table 1), although they emphasized that these would never outweigh the disadvantages, particularly the loss of their best fishing grounds. The benefits included improved security because of the presence of KWS rangers. Visits by tourists and resident foreigners gave local people the chance to sell fish at a higher price but the downside was that tourists like to look around the village and the villagers regarded their style of dress as highly improper. Fishers did tend to blame their contact with the 'other culture' for some of the problems they were facing with the younger generation. Disrespectful behaviour towards parents, AIDS, prostitution and drug use were increasing problems. Sindiga (2000) also felt that tourism caused all kinds of social problems at the coast.

It was mentioned that some nets had been donated by KWS. These were, by now, the property of the Uyombo youth group and were rented out but disagreements within the youth group about what to do with the money were making the group function less efficiently. The KWS or researchers occasionally tagged certain fish and if anyone caught one of these fish, he received some money.

Another possible spin-off concerns employment but none of the fishers was or had been employed by the marine park. This was not because the fishers did not want to be

but because they often did not have the necessary qualifications. However, they complained that they were not given jobs requiring a lower level of education either, as these jobs usually went to people from nearby villages and people from upcountry. Somebody from Uyombo would have to cross the creek every day or travel the whole distance by road.

Almost everybody would accept any job offered. There are people who tried but they were not accepted. They do not offer the jobs to us but to outsiders. (Mijikenda fisher)

Fishers suggested several ways they might benefit from the marine park. First of all, parts of the Watamu Park could be opened up to fishing during the low (*kusi*) season. Secondly, the fisher communities could receive a proportion of the KWS's gate collection. Thirdly, employment, or related employment such as in hotels, should be offered to the fishers in the Watamu Park. As it is, the benefits of the park were minimal for fishers, which had resulted in frustration with and anger directed towards the park. This was all the more so because, according to them, their voices were not being heard by officials or the KWS.

Everybody knows conservation is needed but how can you ask me to think about the distant future when I don't even know whether my children will eat tomorrow or whether they will be able to go to school. (Mijikenda fisher from Takaungu)

Everybody is talking about how we are to blame for the fact that there are fewer fish in the sea. But those people at the KWS are paid, they are sure that their families will eat, can't they understand that we are worried about our children more than about the fish and that we need the fish to feed our children? (Bajun fisher from Uyombo)

Everybody says we kill all the fish, but what else can we do? They should give us something else to live off if they want us to stop fishing. (Mijikenda fisher from Uyombo)

Views about other marine resource users

Some fishers expressed frustration that enforcement of marine conservation seemed to focus on them in particular and that little or no attention was being given to the activities of outsiders like the Pemba fishers and the commercial fleet (Table 1).

The KWS is only after the small and poor fisher, why are they not doing anything about these big and rich foreign fishers? (Bajun fisher from Uyombo)

Why should we talk about conservation, what can we do as long as the government does not do anything against the Wapemba and the trawlers?
(Mijikenda fisher from Takaungu)

Why is the government not helping us but only favouring these foreigners?
(Mijikenda fisher from Takaungu)

The Pemba are seasonal fishers from Pemba Island, Tanzania, who come to the Kenyan coast during the high season. They often acquire national identity cards and fishing licences from the government authorities and effectively become legitimate fishers in Kenyan waters. Their favourite equipment is the small-mesh seine net (*juya*), which is held responsible for the overexploitation of their native fishing grounds in Pemba (Glaesel 1997, Tunje 2000, Hoorweg *et al.* 2003, Mangi & McClanahan 2003). Local fishers considered the Pemba and their nets to be partially responsible for declining catches in their own areas too. In fact, there had been skirmishes with visiting Pemba who had been turned away at certain landing sites³ (Tunje & Hoorweg 2003).

In addition to the Pemba, fishers also pointed at the commercial fishing fleet – mostly trawlers – as being responsible for declining catches. In their opinion, these vessels frequently operated near the shore, although this is prohibited, catching large numbers of fish at a time and damaging the marine environment with their trawl nets in the process (see also Glaesel 1997). Incidents have been reported of trawlers damaging local fishers' gear. Tole (2000) also mentioned illegal trawling by ships from Japan and the former Soviet Union in Kenya's territorial waters.

Relations with the KWS

The relationship between fishers in Uyombo and the KWS can only be described as tense (Table 1). Nearly all fishers related occasions on which they were caught when passing through the marine national park returning from fishing outside the park. Their catches were taken or they were forced to give up part of the catch. Other complaints were about equipment and vessels that were not returned after being seized by the KWS.

They took our best fishing grounds and they are beating us and arresting us for no reason. The entrance to the creek is the best fishing area; they took it but don't make any use of it. It is like, putting a very fertile shamba in front of a farmer and telling him not to use it. (Mijikenda fisher)

³ On the other hand, at Mayungu, a nearby landing site, the local fishers teamed up with the visiting Pemba.

Sometimes you are caught by the KWS with your vessel and gear and they take you to court and you are fined or put in jail but after the court hearing you won't get your vessel or gear back. (Mijikenda fisher)

When you come back from fishing and you meet a KWS officer who wants to have something to eat for free but your catch is so low, you cannot give him anything, then you have problems, he will get you next time, and then you are in big trouble. (Mijikenda fisher)

Some of the older fishers recalled a different situation in the past. During the *kusi* season or at other times of low catches, the then-warden sometimes allowed them to fish in certain areas of the marine park. Since this was a gentlemen's agreement nobody violated the rules and fished in the areas of the park where they were not allowed to. It became the responsibility of the fishers themselves to ensure the rules were adhered to and they claimed that their relationship with the KWS was much better then.

The existing communication between the KWS and the local fishers did not succeed in making fishers understand the reasons behind the KWS regulations. This was aggravated by the fact that most fishers have little or no formal education and had to rely on others to inform them about the standing regulations.

We were not informed about the regulations, we just found them there, all of a sudden they told us that what we were doing was not allowed. We did not know anything, how should we know, they did not tell us and then they started to beat us for things we did not know were not allowed. (Mijikenda fisher)

We do not even know if they are following the right regulations, you know the regulations are there but we are unaware of them so how can we know if what we are doing is allowed or not. You have to learn it by experience, you know, first somebody has to be caught and then we know that it is not allowed, and we cannot even check if they are lying or telling the truth. (Mijikenda fisher)

A book was given to us concerning the management plan but what they state in it is not the truth, it is not how the situation really is. (Shop owner, vice-chairman of the committee)

To understand the attitude of the fishers of Uyombo towards conservation in general and the Watamu Park in particular, it is important to realize that the interests of the KWS and the fishers are contradictory. While the fishers want to make an income out of fishing, the KWS is out to control and limit fishing activities. The clearest example of the conflict situation between the KWS and the fishers occurred when someone was caught fishing illegally in the marine park and subsequently fined and deprived of his vessel and

equipment. Since the fishers associated all forms of conservation with the Watamu Park and the KWS, this did little good for the case of marine conservation and it may be difficult to involve them in any meaningful conservation activities in the future.

Conclusion

Local fishers in Uyombo believe that they are carrying most of the costs associated with marine conservation. They have lost large parts of their fishing grounds, had lower catches and are being blamed for the degradation of marine resources, while they depend on these very resources for their livelihoods. In the meantime, they have seen foreigners benefit from the areas they have lost as fishing grounds without any government restrictions being imposed on these outsiders. This perceived favouring of tourists, Pemba fishers and trawlers over local fishers gave the fishers – and especially those from Uyombo – little reason to trust the government. It has also made them suspicious of attempts at marine conservation. Kamukur *et al.* (2004) point out that there is a difference between evaluating MPAs as a protective measure in general terms and what the local needs are in a fishing village that depends on the adjacent reefs for food and income. Fishers felt that their livelihoods have been put last, after the fish, the coral, foreigners and so on.

The long-term success of the park-related conservation of natural resources depends on the actual and perceived benefits of parks and reserves by local subsistence-level populations (Mangi & McClanahan 2003). The basic tenet of community-based resource management is that if fishers become aware of the (indirect) benefits of marine parks, they will change their attitudes towards the parks. King (2000) states that there is a need to understand people's socio-economic predicaments prior to developing strategies aimed at managing resources. But what if the relationship between the national parks and the local population has already deteriorated to such a level that even the benefits from tourism are unlikely to change their attitude towards conservation? What if fishers feel that they have already considered all the ways they can benefit from the park but are still struggling to make ends meet?

Fishers in Uyombo had reached such a level of frustration at the time of the study that they were holding meetings in 2000 at which “catching all the fish in the marine park”, “stopping glass-bottom boats from operating in the marine parks, if no fisher's boat is allowed then no boats go at all” and “chasing any foreigners visiting Bandarini from the

village with force” were some of the ideas being discussed. Fishers in Uyombo had a negative attitude towards the park, the KWS, the government and, to some extent, foreigners, and this should not be ignored.

The solution to the problem probably lies in where things went wrong in the first place, communication between local fishers, on the one hand, and the KWS and other environmental organizations, on the other (McClanahan *et al.* 2005). Firstly, communication should focus on the benefits the fishers could achieve from conservation measures in the short term. And those benefits should be put in place as soon as possible. The fishers have received many promises, none of which had yet materialized. They have therefore adopted a see-then-believe attitude. Secondly, the fishers should be given a way to present their views, ideas and problems and these should be recognized as important and taken into consideration. The experiences of older fishers in Uyombo have shown that their attitude is highly influenced by the way they are dealt with.

Certainly fishers were not waiting for outsiders to tell or show them imaginary benefits. Before stakeholders are willing to participate, they first have to perceive the benefits of MPAs (Malleret-King 2003). Glaesel (1997) mentions ways that might improve fishers' views of marine parks, such as seasonal park openings, compensation for fishers and, perhaps, park-related employment. Many fishers consider alternative employment to be a good way to relieve the pressure on marine resources although the reality is not as simple (see Hoorweg *et al.* 2006). Various researchers have also suggested that smaller parks might improve fishers' attitudes towards marine parks (Glaesel 1997, McClanahan & Arthur 2001).

Fishers in Takaungu were more willing to participate in conservation efforts but were adamantly opposed to enforced measures and insisted on an equal partnership. The problem in Takaungu was that the fishers did not have any idea as to how to deal with declining fish stocks and the degradation of marine resources. They feared that when this issue was raised with the authorities, they were to face the same fate as their colleagues in Uyombo, namely the establishment of a marine park. The fishers in Takaungu are proud of their creek, their beaches and their reefs. They see them as better and more beautiful than those in Uyombo and feel they are lucky to have so far escaped the burden of having a marine park on their doorstep.

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Figure 1. Map of the Kenya Coast showing study locations

