

WESTERN INDIAN OCEAN

MARINE PROTECTED AREAS OUTLOOK

Towards achievement of the Sustainable Development Goals



COUNTRY CHAPTER: **KENYA**



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FOREWORD

It is indeed an honour to launch the *Western Indian Ocean (WIO) Marine Protected Areas (MPA) Outlook* in my capacity as the Minister for Agriculture, Climate Change & Environment in the government of Seychelles. I commend the Contracting Parties to the Convention for this excellent example of regional collaboration in documenting the progress made towards the attainment of the SDG 14.5 Target of 10 percent protected area of each country's EEZ.

The WIO region has a coastline stretching for more than 15 000km, a continental shelf area of some 450 000km² from Somalia in the north to South Africa in the south and covers ten countries (Comoros, France, Kenya, Madagascar, Republic of Mauritius, Mozambique, Seychelles, Somalia, South Africa and the United Republic of Tanzania) five of which are island States. The combined population for the WIO region is 244 million, and the ten countries in the region are Contracting Parties to the Nairobi Convention for the protection, management and development of the coastal and marine environment of the WIO region.

The combined economic value of the WIO ecosystems goods and services is estimated at over USD 20 billion Gross Marine Product per annum and a total asset base of over USD 333.8 billion. With over 30 percent of the WIO population (about 60 million people) living within 100km of the coastline, the coastal and marine ecosystems provide essential sources of livelihoods and income to coastal communities and significantly contribute to national economies.

However, the WIO is threatened by ecosystem degradation from rapid urbanization, increased population growth, coastal development, land reclamation and conversion. Impacts of climate change and variability have led to coral bleaching, sea-level rise, flooding and other effects. In response to the emerging natural and anthropogenic challenges, Contracting Parties to the Nairobi Convention are adopting an integrated approach in the management of ocean resources to maintain a balance between conservation and development. The approach aligns with the 2030 Global Agenda for Sustainable Development with Sustainable Development Goal (SDG) 14 focusing on the need to mobilize global effort to conserve and sustainably use the oceans, seas and marine resources for sustainable development.

The *MPA Outlook* outlines the significant strides made in the region in promoting the protection of critical coastal

and marine resources. The *MPA Outlook* prepared by the Contracting Parties to the Convention documents the progress made in the WIO region towards achieving MPA targets based on the Convention of Biological Diversity (CBD)'s Aichi Target 11/SDG 14.5 and provides a baseline for the post 2020 Global Biodiversity Framework.

The region has established 143 MPAs (or equivalent), covering a total of 555 436.68km², representing 7 percent of the total combined exclusive economic zone (EEZ) of the nine countries covered in the *MPA Outlook*. Most of the MPAs predominantly protect coastal habitats. Notably, a few MPAs have been proclaimed over very large areas of deep-sea habitats contributing to a larger proportion of the 7 percent.

By March 2020, Seychelles had designated 30 percent of its EEZ as protected marine areas, tripling the UN CBD Target 11 for 10 percent marine protection by 2020, and the UN SDG-14.5 for 10 percent coastal and marine protection. Seychelles with an EEZ of 1 374 000km² and a land mass area of 455km² achieved this milestone through the debt for nature swap spearheaded by The Nature Conservancy (TNC). Promising initiatives on trans-boundary MPAs are being developed between Kenya and Tanzania and between Mozambique and South Africa.

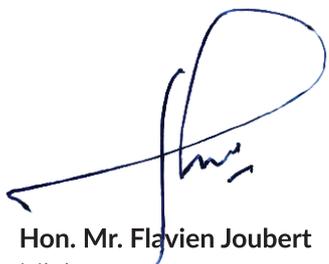
The establishment of MPAs has a long history in the region. South Africa declared the first MPA in 1964, the Tsitsikamma MPA, which was the first MPA in the region and since then South Africa has steadily increased the number and coverage of its marine conservation estate. By 2019, South Africa had 42 MPAs raising the total MPAs cover from <0.5 percent to 5.4 percent of the EEZ.

The *MPA Outlook* comes at a time when the region has embarked on large-scale socio-economic developments that are equally exerting pressure on MPAs. The *MPA Outlook* thus provides some answers and innovative approaches to minimize the scale of negative impacts on MPAs.

The *MPA Outlook* is the best form of experience sharing, and documenting best practices in MPA management across the WIO.

On behalf of the Contracting Parties, I wish to acknowledge and thank the Nairobi Convention Secretariat for the overall coordination of the process; the Western Indian Ocean Marine Sciences Association (WIOMSA) for technical and financial support through the Marine Science for Management (MASMA) Programme and the Global Environment Facility for funding the preparation and production of the *MPA Outlook* under the GEF funded

Project on the Implementation of the Strategic Action Programme for the protection of the Western Indian Ocean from land-based sources and activities (WIO-SAP) executed by the Secretariat.

A handwritten signature in blue ink, consisting of a large, stylized loop at the top and a series of smaller, connected strokes below it.

Hon. Mr. Flavien Joubert

Minister

Ministry of Agriculture, Climate Change & Environment

Republic of Seychelles

EXECUTIVE SUMMARY

The Western Indian Ocean (WIO) is renowned for the richness of its marine biodiversity, especially that associated with the region's widespread coral reef systems. The mangroves, seagrasses, rocky and sandy shorelines with associated dune systems and coastal forests, and the deep-sea features such as seamounts, ridges and abyssal plains also contribute substantially to the biodiversity of the region. The innumerable islets and atolls scattered across the WIO also support extraordinary biodiversity, including vast numbers of often rare, endemic and endangered marine species.

This rich marine biodiversity supports burgeoning coastal populations both directly, through the provision of a variety of marine resources and vital ecosystem services such as coastal protection, and indirectly, through the opportunities it provides for economic growth through sectors such as fisheries, tourism, infrastructure development and others. However, the marine resources are coming under increasing pressure in the coastal areas through the escalating needs of the local populations, exacerbated by the use of illegal fishing techniques, such as "blast" or dynamite fishing and the use of poisons, and in deeper waters from the legal and illegal harvesting of vast quantities of resources by international commercial fishing fleets. The tourism sector that brings benefits to coastal communities is in many places damaging the very resources the tourists wish to enjoy. In addition, interest in mineral resources including oil and gas reserves, found under the seabed, is exacerbating pressure on coastal ecosystems. Developing coastal nations in the WIO region, particularly those faced with financial constraints, are keen to exploit mineral resources for the benefit of their populations, leading to an exponential increase in the issuing of prospecting and extraction rights.

To these pressures are added increased levels of land and sea-based pollution, sedimentation from silt-laden rivers, and extensive coastal development; together with the increasingly evident impacts of climate change including sea-level rise, ocean warming and acidification, and increased frequency and intensity of storm events. If the twin threat from coastal development and climate-related pressure, is left unmitigated, with no protection afforded to the marine and coastal systems, there is every likelihood that the marine biodiversity of the WIO region would be irreversibly compromised. The consequential impacts on the livelihoods of coastal communities, and the well-being of the populations across the region, are likely to have long-term and negative ramifications on the national economies of the coastal states.

Aware of the global threat from both human-caused and climate change-related stressors, the global community in 2015 committed to achieving the United Nations Sustainable Development Goals (SDG). With particular relevance for the marine environment is SDG 14, "Life below Water".

The SDG 14 has several targets including Targets 14.2 on sustainable management and protection of marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening their resilience, and take action for their restoration, to achieve healthy and productive oceans by 2020; and 14.5 that aimed at all countries conserving at least 10 percent of coastal and marine areas, essentially their exclusive economic zones (EEZs), consistent with national and international law and based on the best available scientific information by 2020. Target 14.5 was aligned to the Convention on Biological Diversity (CBD) Strategic Plan for Biodiversity 2011–2020 Aichi Target 11, which encouraged all signatory nations to ensure that:

"By 2020, at least 17 percent of terrestrial and inland waters, and 10 percent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscape and seascapes." (Secretariat of the Convention on Biological Diversity, 2010).

This *MPA Outlook* reviews the commitment by governments to achieve 10 percent protection of important marine and coastal areas through effectively and equitably managed MPAs and other effective area-based management measures (Aichi Target 11 and SDG 14). The review takes into account the formulation of the CBD's post 2020 biodiversity framework, that proposes, among other goals a zero net biodiversity loss by 2030, as well as providing a baseline for the post 2020 framework.

The declaration of marine protected areas (MPAs), has long been considered a key tool in the fight to conserve the world's marine biodiversity, and the WIO countries have played their part, by identifying and declaring MPAs; from Tsitsikamma, the first MPA in Africa, proclaimed by the Government of the Republic of South Africa in 1964, to the MPAs proclaimed in 2019 by the Governments of Seychelles and the Republic of South Africa, and those proposed for imminent declaration by the government of Comoros. It is also evidently clear that the mere proclamation of an MPA is no guarantee of effective protection. An assessment on MPA management effectiveness showed

that many MPAs in the region lack human resources, skills, equipment, and institutional commitment to fulfil their functions adequately. The assessment also revealed serious declines in conservation funding. The COVID-19 pandemic led many countries to adopt lockdown measures, affecting tourism revenues on which many MPAs in the WIO depend to finance MPA operations. Marine conservation in the WIO region needs a post-COVID recovery plan and marine conservation efforts must now be funded not only at the level that they were at before the pandemic but at an even higher amount that reflects the severity of the unprecedented threats to biodiversity and associated economic sectors.

Madagascar has pioneered an interesting approach to protecting marine areas through a rapid increase in the number of Locally Managed Marine Areas (LMMAs), where coastal communities work in collaboration with government and other stakeholders to protect their coastal resources. A similar approach has been recorded under a variety of names in different countries, across the region. Over three hundred LMMAs have been established across the region in the last ten years. While most of these do not, as yet, provide the levels of protection afforded by the more established formal and effectively managed MPAs, they have great potential to increase the coastal areas under conservation management in the region quite substantially.



Prime targets (prawns and fish) from inshore beach seining off Malindi, Kenya. © Peter Chadwick

At a transnational scale, the moves to initiate trans-boundary MPAs, such as between Kenya and mainland Tanzania, and Mozambique and South Africa, must be lauded and supported. Coastal states are also taking a large-scale approach to marine conservation, often within “Blue Economy” initiatives such as the Blue Economy Roadmap developed by the Government of Seychelles and Operation Phakisa in South Africa. In both cases, these initiatives have involved thorough and complex marine spatial planning processes, identifying areas suitable for different uses and activities, including for conservation.

In Seychelles, two new MPAs covering an area of 208 365km² were declared as a result of this process. In South Africa, 20, mostly offshore MPAs covering an area of 54 214km², have been proclaimed under Operation Phakisa following an intense consultation process with all stakeholders. The Seychelles and South African experiences provide excellent models for other WIO countries for the planning, identification and declaration of offshore MPAs. These two experiences were underpinned by strong policy support, evidence-based decision making and requisite financing. These are key lessons in any successful MPA establishment and eventual operationalization and management programmes.

The Republic of Mauritius, Kenya, Tanzania, and other countries have embarked on Blue Economy initiatives and adopted the application of area-based planning tools such as marine spatial planning processes, underpinned by scientific information and understanding of the marine environment. The WIO region is fortunate to be home to some highly productive and effective marine science institutions and scientists, all linked to the Western Indian Ocean Marine Science Association (WIOMSA), which has partnered with the Nairobi Convention Secretariat in the production of this *MPA Outlook*. It is the science emanating from these institutions which provides the evidence required firstly to identify and assess the threats to marine ecosystems and species, and then secondly to identify the areas and habitats most in need of protection and the forms of protection most appropriate to them. However, while the scientific understanding of the coastal and inshore environments is solid, this is not necessarily the case with the offshore deep-sea environments, which have only recently been the focus of concerted scientific attention and research. The value of such research is shown in the proclamation of the South African offshore MPAs.

To achieve its prime purpose of assessing progress towards meeting the SDG and Aichi targets, this *MPA Outlook* set out to document and celebrate the

achievements up to 2020 in the establishment of MPAs, or equivalent levels of protection, across the WIO region. It also documents the exciting move towards more community-based coastal conservation initiatives as represented by the LMMAs and other sites managed collaboratively with coastal communities. In addition to this documentation, there are elements of assessment and analysis to guide the expansion and strengthening of marine conservation in the region, particularly towards the achievement of the post-2020 Global Biodiversity Framework (GBF).

More specifically, the body of the *MPA Outlook* is structured as follows:

Part I

Outlines the purposes for the development of the publication, the key methodologies employed in gathering and documenting the information, and some of the challenges faced in compiling the *MPA Outlook*. The specific purpose of the *MPA Outlook* was to provide a baseline assessment of existing coastal and marine conservation efforts in the region. This involved not only a quantitative assessment of the areas and habitats under protection, but also a qualitative assessment. In addition to the primary technical purposes of this *MPA Outlook*, it was intended to document and celebrate the achievements of governments in furthering the conservation of their marine and coastal environments. It also provides the opportunity to encourage and motivate governments, supported by the scientific community, in increasing efforts towards long-term conservation of vital marine resources, species and ecosystems, including those in the deep-sea.

Part II

Describes the international and regional marine conservation contexts in which the *MPA Outlook* is located. This *MPA Outlook* was not developed in isolation; rather it is embedded in, and is intended to contribute significantly to, the increasing momentum of initiatives aimed at securing the biodiversity and productivity of coastal and marine areas. These initiatives operate from the global to the local levels, with increasing emphasis on the synergies between them as exemplified by the “think globally act locally” environmental mantra.

Part III

Provides detailed descriptions of the MPAs (and equivalents) in each WIO country, together with information on proposed MPAs and areas such as LMMAs under less formal forms of protection. The

data revealed that there are 143 MPAs (or equivalents) in the WIO region, covering a total of 555 436.68km², representing 7 percent of the total combined EEZ of the nine countries included in this analysis. The numerical majority of MPAs in the region protect predominantly coastal habitats. However, the few MPAs proclaimed over large areas of deep-sea habitats (by France, Seychelles and South Africa) contribute by far the largest proportion of the total area under protection, and make the greatest quantitative contribution (6.2 percent of the 7 percent) to the percentage of total EEZ protected. To strengthen the emerging LMMAs as an approach to community level protection, an enabling policy environment and capacity building of both communities and their supporting agencies will be key for the effective establishment and management of these community managed areas.

Part IV

Provides an assessment of the management effectiveness of MPAs across the region, and makes initial recommendations for improving levels of management effectiveness. The key finding was that legislative and institutional frameworks that support the establishment and management of MPAs exist in every country, suggesting that there is the political will to meet the global and regional marine conservation objectives and targets. However, widespread failure to implement legislation, and in many countries, the ineffective functioning of mandated institutions was observed. Among the challenges identified, those that are cross-cutting throughout the region include shortfalls in financial and personnel capacity, insufficient clarity on MPA boundaries, leading to compliance challenges, and management decision support systems that are only weakly guided by science.

Part V

Draws on the information provided to analyse the current situation regarding marine conservation in the WIO region, in particular in relation to the achievement of the SDG and Aichi targets. Part V also makes initial recommendations on where future marine conservation efforts, particularly the siting of MPAs, might be concentrated as countries work towards the Targets in the post-2020 GBF.

The key findings of this *MPA Outlook* indicate that there are 143 sites across the WIO region that are considered as MPAs or as having equivalent legal status and levels of protection. The vast majority of these are coastal and/or inshore, however the largest, covering by far the greatest extents of the ocean are the few MPAs with considerable offshore deep-sea elements. These include the MPAs

declared in Seychelles and South Africa's 20 MPAs, of which 14 are offshore sites, proclaimed in 2019. Since it is not practically feasible for the SDG or GBF target to be achieved through the declaration of only coastal and inshore MPAs, as this would require the protection of entire national coastlines extending 37km offshore, or equivalent (i.e. half the coastline extending 74km offshore), identification, declaration and management of offshore MPAs by regional countries remains the most viable option of achieving this target.

A further finding is that the majority of existing MPAs across the region are not managed as effectively as they could and should be, due primarily to lack of funding for essential staff, equipment and capacity development, and weak institutional support and commitment. The question is raised whether the immediate priority should be for governments to firstly ensure effective management of their existing MPA estate, before embarking on expansion of this estate. A balance between establishment of new MPAs and effective management of existing sites is a critical decision, which each country will need to continuously consider.

A very positive finding is that there is every indication of the willingness and commitment of the Nairobi Convention contracting parties to strengthen marine conservation in areas within their jurisdiction. This is evidenced by improvements in legislation, including the development of new MPA-specific legislation, such

as in Comoros, and the declaration of new MPAs in Mozambique, Seychelles, Comoros and South Africa.

There is also a good reason to be optimistic about the potential for coastal communities, with the support of governments and other stakeholders in LMMAs (or equivalents) to take on the mantle of coastal and inshore conservation, while the governments themselves focus on the offshore areas. Ongoing efforts on the development of the post-2020 GBF provide a basis for the WIO region to work towards a no-net loss of biodiversity by 2030. This may include exploring the immense opportunities for better recognizing and supporting conservation by local communities and private actors and adopting new models for Ocean Stewardship that reward sustainable actions by stakeholders.

The expansion of the MPA estate by 2030 and by 2050 is also among the goals of the post-2020 Framework. From a regional perspective, configuring an effective post-2020 regional network of effectively managed MPAs would require concerted efforts towards implementing the proposed theory of change that assumes transformative actions are taken to (a) put in place tools and solutions for implementation and mainstreaming, (b) reduce the threats to biodiversity and (c) ensure that biodiversity is used sustainably to meet people's needs and that these actions are supported by (i) enabling conditions, and (ii) adequate means of implementation, including financial resources, capacity and technology.

Lawrence Sisitka

Co-editor

MARINE & COASTAL AREAS
UNDER PROTECTION

KENYA

Arthur O. Tuda and Pascal Thoya



COUNTRY OVERVIEW

Kenya is a coastal State in East Africa bound by latitudes 5°40'N and 4°40'S and longitudes 33°50'E and 41°45'E. It is bordered by Ethiopia to the north, Somalia to the northeast, Tanzania to the south, Uganda to the west, and Sudan to the northwest. The coastline of Kenya extends approximately 536km in a southwesterly direction commencing from the border with Somalia in the north at 1°41'S, to the border with Tanzania in the south at 4°40'S (GoK, 2009). The coastal climate of Kenya is influenced mainly by the large-scale pressure systems of the Western Indian Ocean (WIO) and monsoon winds. There are four oceanic currents influencing Kenya's coastal waters, namely the East African Coastal Current (EACC), the Somali Current (SC), the Southern Equatorial Current (SEC) and the Equatorial Counter Current (ECC) (UNEP, 1998).

The coastal region is dominated by coral reefs, seagrass beds and mangroves with large expanses of sandy substrates and river inputs from Kenya's two largest rivers, the Tana and Athi, which flow into the Indian Ocean (Obura, 2001). Coral reefs, seagrass beds and mangroves in Kenya support a wide range of marine species including fish, birds, marine turtles, dugongs, dolphins, and whales (EAME, 2004). Some of these species, including turtles and dugongs, are listed as protected species under the Wildlife Conservation and Management Act 2013, Laws of Kenya. Coral reefs form the dominant ecosystem along most of the Kenya coast, with more than 209 species of corals already documented (Obura, 2012). Other important reef-building organisms, including soft corals, coralline red algae and calcareous algae, exist but are not well documented. In general, the reef communities are similar to those in other parts of the WIO. They are dominated by *Porites* spp. assemblages in calm waters and *Acropora* spp. assemblages in high energy environments. Seagrass beds are usually associated with reef systems, growing in shallow lagoons, creeks and bays, however, in most areas their coverage has not been estimated.

All the nine mangrove tree species recorded in the WIO region occur in Kenya. The forests are, however, dominated by *Rhizophora mucronata* ("mkoko") and *Ceriops tagal* ("mkandaa") that occupy more than 70 percent of the coverage. Mangrove coverage in Kenya is estimated to be 61 271ha, representing about 3 percent of the national forest area. The largest coverage of mangrove forests occurs in Lamu County (61 percent) with Mombasa and Tana River counties supporting the least (GoK, 2017). Mangrove forests in Kenya face a number of threats arising from both anthropogenic as well as natural causes.

Between 1985 and 2009, the country lost about 20 percent of its mangrove cover or about 4.5km² per year, and at least 40 percent of mangrove forests are degraded. Loss of mangroves is disproportionately higher close to urban centres than in rural areas (Bosire *et al.*, 2014). More recently, climate change factors have impacted on mangroves in Kenya (Kebede *et al.*, 2010). During the 1997/98 El Niño event, massive sedimentation due to erosion of terrigenous sediments caused mangrove die-back in many areas along the Kenyan coast. Sea level rise is likely to influence mangroves along Kenya's entire coastline although local impacts are likely to be more varied.

Increasing exploitation of fisheries and observed declines in sharks, turtles and reef fish led to the establishment of a series of Marine Protected Areas (MPAs) along the Kenyan coast beginning in 1968 (McClanahan *et al.*, 2005). The first policy paper that was adopted to move forward the idea of protected areas in Kenya, including MPAs, was the Sessional Paper No. 3 of 1975, the "Statement of Future Wildlife Management in Kenya," through which the Kenyan government recognized the need to manage and conserve the country's natural resources. Following this sessional paper were the enactment of the Fish Industry Act (1968) and the Wildlife (Conservation and Management) Act (1976). These regulations have undergone several amendments and reviews. Currently, the new Wildlife (Conservation and Management) Act of 2013 makes provision for the establishment of MPAs (Section 31) in order to protect the marine fauna and flora and the physical features on which they depend, and to facilitate fishery management and other resource uses (GoK, 2013).

In addition to the national laws that support the establishment and management of MPAs, Kenya has also declared its commitment to reaching various marine protection targets, including the 2020 target for representative MPAs under the Convention on Biological Diversity (CBD) (UN CBD, 2010). Kenya has already established a fairly unified network of MPAs (Figure 1) that show evidence of ecological connectivity. For example, fish tagged in Malindi were found as far south as Diani (Kaunda-Arara and Rose, 2004).

All six existing MPAs in Kenya were established between 1968 and 1993, and currently protect ecosystems, habitats, and fauna and flora that transcend international borders. Within each MPA, there is typically a small (< 30km²) no-take marine area (called a Marine National Park) which is encompassed in a wider multiple-use area (Marine Reserve). The Kenya Wildlife Service (KWS), a state parastatal body, established in 1990, is responsible for the management of these MPAs, governed by the

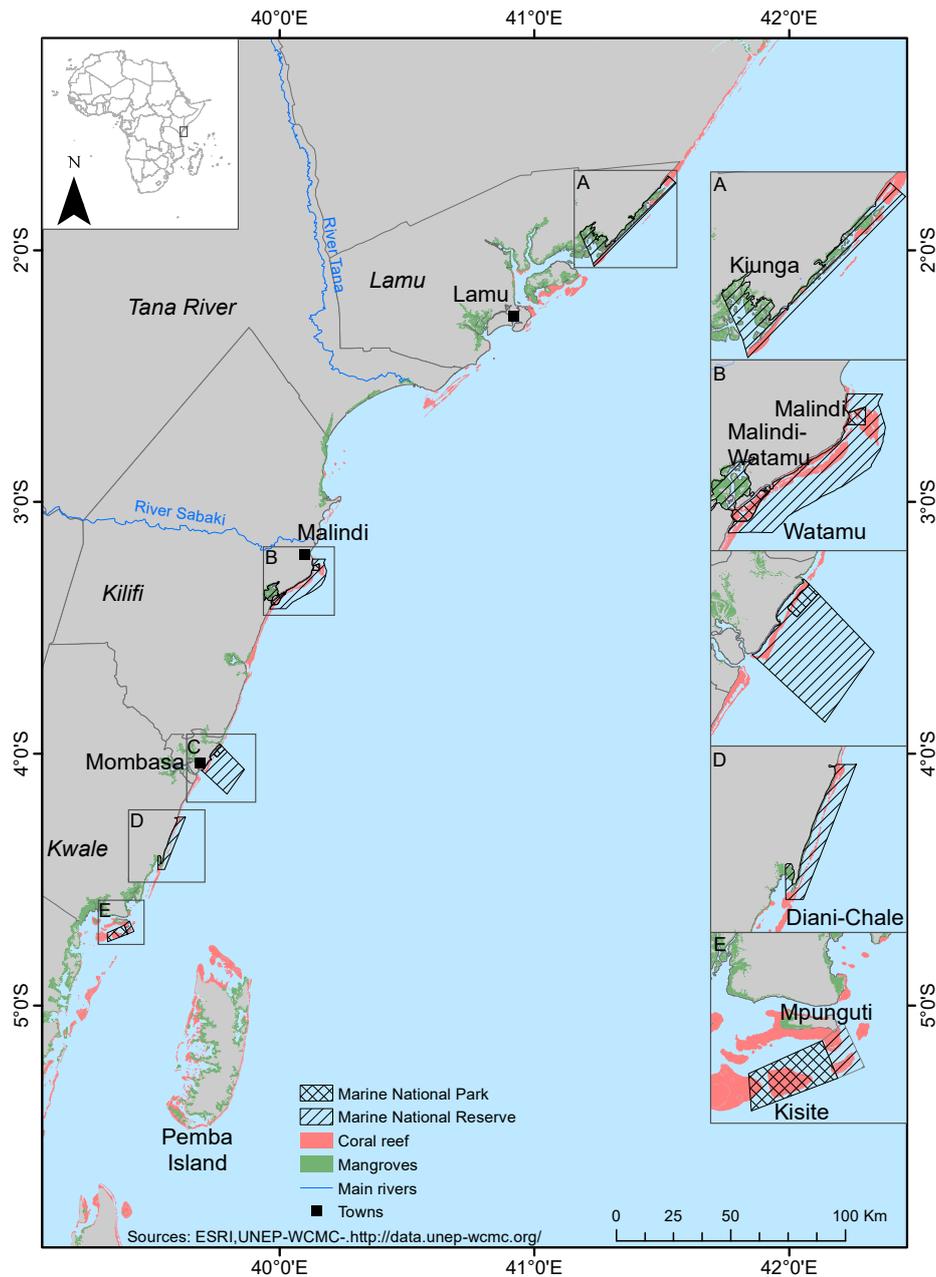


Figure 1: Kenya's coastline, Marine Protected Areas and critical habitats.

Wildlife (Conservation and Management) Act of 2013. There are also other government agencies with roles at certain levels in the management of MPAs in Kenya. For example, the Kenya Forest Service (KFS) is responsible for the mangrove management in the MPAs, since all mangrove forests in Kenya have been declared government forest reserves. Thus where mangrove forests occur in MPAs, KFS and KWS have co-management arrangements. The State Department of Fisheries is also responsible for the licencing of fishers who operate in marine reserves.

MPA OVERVIEW

The first MPAs in Kenya, the Malindi and Watamu MPAs, were established in 1968. To date four more MPAs have been established bringing the total to six, covering an area of 941.093km² (Figure 1, Table 1), approximately 0.67 percent of Kenya's exclusive economic zone (EEZ) and 9.9 percent of Kenya's territorial waters. Kenya has an EEZ extent of 200nm (encompassing 142 000km²) and territorial waters of 12nm (encompassing 9500km²). The maritime space over which Kenya exercises sovereignty, sovereign rights and jurisdiction has been determined on the basis of the United Nations Convention on the

Table 1: Kenya's Marine Protected Areas.

MPA	DESIGNATION	AREA (km ²)	IUCN CATEGORY	YEAR ESTABLISHED	STATUS
Malindi Marine Park	NP & MAB	6	II	1968	Operational
Watamu Marine Park	NP & MAB	10	II	1968	Operational
Malindi Marine Reserve	NR & MAB	213	VI	1968	Operational
Watamu Marine Reserve	NR & MAB	32	VI	1968	Operational
Kisite-Mpunguti Marine Park	NP	28	II	1978	Operational
Kisite-Mpunguti Marine Reserve	NR	11	VI	1978	Operational
Kiunga Marine Reserve	NR & MAB	250	VI	1979	Operational
Mombasa Marine Park	NP	26.093	II	1986	Operational
Mombasa Marine Reserve	NR	200	VI	1986	Operational
Diani-Chale Marine Reserve	NR	165	VI	1993	Not operational

DESIGNATION: NP – National Park; NR – National Reserve, MAB – Man and Biosphere Reserve.

Source: Wildlife Conservation and Management Act, 2013 (GoK 2013).

Law of the Sea, as implemented following legislation and proclamations: the Territorial Waters Act, 1972; the Maritime Zones Act, 1989, Cap. 371; and, the Presidential Proclamation of 9 June 2005 published in the Kenya Gazette Notice No. 55 of 22 July 2005 in respect of Kenya's territorial sea and exclusive economic zone (Legal Notice No. 82 [Legislative Supplement No. 34]) (GoK, 2009).

The values of Kenya's MPAs, as described by Weru (2001) are broadly defined as:

- **Natural values** – habitats, species and ecological communities within the MPAs, and the processes that support their connectivity, productivity and function.
- **Cultural values** – living and cultural (indigenous) heritage; recognising local beliefs, places of cultural significance and cultural heritage sites.
- **Heritage values** – non-indigenous heritage that has aesthetic, historic, scientific or social significance.
- **Socio-economic values** – the benefits of MPAs for people, businesses and the economy.

Kenya's MPAs fall under two IUCN categories (IUCN, 1994), which incorporate a range of types of management areas or zones. Marine parks are classified under IUCN category II, while the marine reserves fall under IUCN category VI. The Wildlife Conservation and Management Act (2013) defines a "marine park" as a protected marine area where no fishing, construction work or any disturbance is allowed unless with permission while a "marine reserve" is a marine protected area where subsistence fishing is permitted.

MPA designation in Kenya also includes four sites that are also declared Man and Biosphere Reserves (MAB) (Table 1).

Marine parks are designed to protect areas considered of high ecological importance. Within the marine parks, removal or harm to plants or animals is prohibited. However, marine parks are open to recreation activities such as snorkelling and diving. Kenya's marine parks are arguably some of the most effective MPAs in the WIO and have well-documented ecological and economic benefits, such as high reef fish biomass (McClanahan *et al.*, 2009), revenues and income for local tour operators and fishermen (McClanahan, 2010).

The marine reserves are areas set aside for the purpose of maintaining and sustaining controlled sustainable artisanal fishing activities, which take precedence over any other use in this zone. The reserves are also open to recreation activities that are compatible with artisanal fishing practices. However, reserves are generally not as effectively managed as parks (Muthiga, 2009). Activities not permitted in the marine reserves (although not illegal in other Kenyan waters) include any form of commercial fishing such as bottom trawling. Destructive fishing methods such as beach seining are also prohibited in the marine reserves. An overview of the governance of Kenya's MPAs is provided in the Case Study opposite.

CASE STUDY

MPA Governance in Kenya

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Formal MPAs in Kenya are primarily managed by the government (management is government-led) guided by the Wildlife Conservation and Management Act 2013. The Act sets out restrictions on different uses, the jurisdictions and responsibilities of the managing authority (Kenya Wildlife Service), and the rights and obligations of the public. Legal incentives are the key drivers in most MPA-related processes, ensuring that the statutory conservation objectives are fulfilled in MPA decision-making. However, the Wildlife Act also provides a basis for community participation, which is guided by specific legal provisions as a means of promoting transparency, equity and compliance in achieving statutory MPA objectives. Present MPA governance challenges include the lack of regulations specific to MPAs, and some shortfalls in the Act in respect of provision for management interventions that address emerging challenges such as the impacts of climate change. Barriers to adaptive governance also exist including low adaptive management capacity among MPA staff.

Despite some weaknesses in governance, MPAs in Kenya generally meet their main objectives of biodiversity conservation, in particular in the marine parks. Some of the oldest marine parks e.g. the Malindi and Kisite-Mpunguti Marine National Parks, have productive coral reef fish communities with reported fish biomass ranging from 700–1600kg/ha (Cinner *et al.*, 2013). Fishers income have over the years improved from stable fisheries yields in marine parks e.g. in Mombasa (McClanahan 2010; McClanahan *et al.*, 2008). However weak fisheries governance in the marine reserves still hinders the ability of MPAs to meet the objective of sustaining fishers' livelihoods adequately.

Informal MPAs, in Kenya called Locally Managed Marine Areas (LMMAs), are characterized by local communities taking a lead in the conservation and sustainable use of marine resources, which is essential for the long-term social and economic well-being of communities. The governance system of LMMAs is based on the devolution of regulatory powers concerning resource access and use to traditional institutions. The Beach Management Units (BMUs), the community institutions established to co-manage stretches of coastline in Kenya, are granted a significant level of autonomy by the Fisheries Act to decide the rules governing LMMA management collectively. External organisations, including government departments and conservation NGOs, play an important role in enabling and reinforcing such community initiatives, and ensuring that such community efforts are consistent with existing legal and policy frameworks, including the fulfilment of fisheries and biodiversity conservation objectives and obligations.

As the concept of LMMAs is still relatively new in Kenya, weak governance remains a challenge to their effectiveness. Reported compliance with LMMAs by-laws in most BMUs is relatively low. More than half of the LMMAs have not defined their resource limitations, they don't have clearly delineated boundaries of management and some BMUs are clearly still open access. The capacity to address conflicts remains low in all BMUs and like the formal MPAs the capacity to manage LMMAs for resilience in the face of emerging challenges remains low. Some LMMAs e.g. Kuruwitu, have however recorded marked progress in adaptive co-management that has enhanced social learning and response to environmental change (Kawaka *et al.*, 2017).



Illegal beach seine catch, Malindi Marine Park, Kenya. © Peter Chadwick

MARINE AREAS UNDER PROTECTION

The following sections describe the principle MPAs in Kenya, including details on the institutional frameworks in place, status of the management plans, management goals and objectives, and the current risks and opportunities that exist for each site.

Kiunga Marine National Reserve

Kiunga Marine National Reserve (KMNR) was gazetted as an MPA in June 1979. The reserve covers 250km² south of the Kenya/Somali border, in Lamu County (Figure 1). The terrestrial boundaries are defined by a line 30 metres above high water mark. Approximately 51 islands occur within the reserve boundaries. The reserve was established as a large area to protect coral reefs, seagrass beds and mangroves and the designation as a reserve was to allow traditional resource use.

Mangroves are the main coastal habitat in the reserve while dugongs and turtles are the key mega-fauna protected in the reserve. As previously mentioned, mangroves in KMNR, as with all MPAs, are managed under a co-management arrangement between KWS and the KFS.

According to the KWS (2013), the resource use zones in the reserve include:

- a high use zone which accommodates a broad range of opportunities for recreation and related facilities for visitors' enjoyment;
- a low use zone for tourism but only allowing a low number of visitors;
- a wilderness zone which provides high quality experience in a pristine environment;
- a restricted use zone which is designed to protect and conserve biologically significant habitats; and
- an influence zone which supports multiple uses of resources for community livelihood.

The KMNR zonation scheme provides a dual framework aimed at supporting both the decentralized management and promotion of various resource uses across the MPA.

Institutional framework

KMNR is legally gazetted and managed by the KWS. A co-management approach has been adopted where multiple stakeholders work together in planning, implementation and monitoring has been adopted.

Management partners include government agencies, NGOs, local communities and the private sector.

Management plan

Co-management is guided by the Kiunga-Boni-Dodori Conservation Area management plan (2013–2023).

Management objectives

The management plan outlines the following four management programmes with a set of objectives under each:

- Ecological Management
- Tourism Development and Management
- Community Partnership and Conservation Education
- Protected Area Operations and Security

Risks and threats

These include illegal logging, turtle poaching, fishing pressure, insecurity, multiple land uses bordering the MPA, tourism development pressure and climate change. Port and oil pipeline developments may result in increased population and hence increased pressure on the natural resources within the KMNR. There is also increased risk from oil spills.

Management opportunities

The introduction of adaptive co-management as a management approach to improve the resilience of KMNR.

Malindi and Watamu Marine Protected Areas

The first marine protected areas established in Kenya were in Malindi and Watamu in 1968. The Malindi and Watamu MPAs are situated 120km north of Mombasa in Kilifi County (Figure 1). They consist of a contiguous complex starting with the Malindi Marine National Park (MMNP) to the north, the Malindi–Watamu National Reserve (MWNR) in the middle and the Watamu Marine National Park (WMNP) and Mida Creek Reserve to the south.

The purpose of creating Malindi and Watamu MPAs was to protect biodiversity, manage resources in a sustainable way to protect the livelihoods of coastal communities, and manage tourism. The MMNP covers an area of 6km², while the WMNP covers 10km². Enclosing the two parks is the MWNR that covers a total area of 245km². The MWNR was recognized and designated as a Biosphere Reserve in 1979. The Watamu MPA has an extensive area of mangroves and the MWNR also includes Mida Creek which is a tidal inlet that extends across an area of 32km² (KWS, 2017). The Malindi and Watamu Marine Parks have over the years improved and maintained coral

reef fish communities with fish biomass up to 1600kg/ha (Cinner *et al.*, 2013).

Institutional framework

The Malindi and Watamu MPAs are under the jurisdiction of the KWS who are responsible for planning and management decisions. Within the Malindi and Watamu MPAs there are also a number of non-governmental organizations (NGOs) that support the management of the MPAs. These include the Watamu Marine Association (WMA), a local NGO whose members are drawn from the community, tourism and environment sectors. WMA supports the MPA through different activities including education and awareness programmes, waste management and advocacy. The Local Ocean Trust and Watamu Turtle Watch support the MPA in activities related to the protection of turtles and turtle nesting areas. Community groups including community boat operators, also undertake tourism and visitor management activities in the MPA.

Management plan

Although Malindi and Watamu were established and designated as one MPA in 1968, administratively they are managed as two separate entities. This separation was meant to improve administrative efficiency and effectiveness in addressing challenges that are unique to the each MPA. Each MPA currently has a 10-year management plan from 2016 to 2026.

Management objectives

The management plans outline four broad management goals / programmes:

- Ecological Management
- Tourism Development and Management
- Community Partnership and Conservation Education
- Protected Area Operations and Security

However, each MPA has specific management objectives with specified targets for each objective. These objectives focus mainly on enhancing or maintaining coral reefs, seagrass beds, sandy beaches, mangroves, sea turtles, shorebirds (particularly waders) and marine mammals (dolphins and whales).

Risks and threats

These include threats to coral reefs such as sedimentation and destructive fishing, beach erosion from increasing developments on the beach, turtle poaching and increased mangrove logging.

Management opportunities

Support from a wide range of partners conducting research on mangroves, coral reefs, birds and turtles.



Local residents operating evening canoe trips for visitors in Watamu MPA. © Arthur O. Tuda

Mombasa Marine National Park and Reserve

Mombasa Marine National Park and Reserve (MMNPR) is located in Mombasa and gazetted in 1986. Prior to the gazettelement the area currently covered by the MPA had faced considerable over-exploitation, especially through uncontrolled fishing, shell and coral collection and general degradation of the environment. The park is 10km² in area and the reserve is 200km², encompassing the MPA.

The MPA is endowed with a variety of both hard and soft coral species and other highly productive systems such as seagrass beds (UNEP/FAO/PAP/CDA, 2000; Dahdouh-Guebas *et al.*, 1999) that attract and support many marine organisms including crustaceans, molluscs, coelenterates, sponges, reef fishes and sea turtles. Part of the fringing reef, which extends along almost the entire Kenyan coast, protects the MPA from severe wave action by dissipating wave energy. The Mombasa MPA supports a wide range of socio-economic activities with over 200 local resource users, including fishermen, boat operators, kiosk operators and curio sellers, depending directly or indirectly on the MPA (Tuda *et al.*, 2014).

Institutional framework

The Mombasa MPA is under the jurisdiction of the KWS, responsible for planning and management decisions.

Management plan

There is no current management plan.

Management objectives

The previous management plan outlines the key management goals as aiming to:

- protect a representative sample of the coral reef and seagrass ecosystems;

- restore and rehabilitate the damaged marine ecosystems;
- provide for ecological sustainable use of the marine resources for cultural and economic benefits;
- ensure that activities within the marine protected areas are controlled and conform to the management regulations for ecological sustainability;
- enable the stakeholders to participate in a wide range of eco-friendly recreational activities;
- implement zonation as a management tool in the marine protected area in order to eliminate conflicts between user groups; and
- promote applied research, educational awareness programmes, for community participation, and for capacity building.

Risks and threats

Threats to the coral reefs include from destructive fishing (mainly beach seining), beach erosion from increasing developments on the beach and climate change. The single most significant impact on the MPA, and one most well-documented, was the El-Niño linked mass-bleaching and mortality of coral in 1998. Since 1998 there have been at least two minor bleaching events (in 2005 and 2013) and with increasing ocean temperatures the future of corals in MPPA and elsewhere is under threat (Obura, 2005; McClanahan *et al.*, 2007).

Management opportunities

There are a wide range of partners who support the MPA in terms of resources and research, and there are increased opportunities for managing the marine reserve using co-management as an alternative approach to address current threats from destructive fishing.



Mangrove crab for sale at a street market. © Peter Chadwick

Diani-Chale Marine National Park and Reserve

Diani-Chale Marine National Park and Reserve is located in Diani, 26km south of Mombasa (Figure 1), 165km² in extent. The reserve was legally designated in 1995, but active management of the MPA failed because of intense conflict between the KWS and local communities over benefit sharing (IUCN, 2003). The reserve was established to safeguard coral reefs and improve local fisheries and as a tourist attraction. Although Diani-Chale is gazetted as a marine reserve, no tangible conservation work has been done in the area. Currently no personnel, infrastructure or equipment are assigned to this site. Mistrust between communities and KWS still persists. Different options are being pursued to find ways of making the reserve operational. For example, KWS undertook a number of community-targeted resource management programmes and training sessions through the KWS/Netherlands Wetland Conservation and Training Programme (McClanahan *et al.*, 2000). There have also been several conservation initiatives and activities under the integrated coastal area management (ICAM) programme, being conducted jointly by a number of stakeholders and institutions. The County Government of Kwale has also expressed their desire to see the marine reserve brought into active management but under a co-management systems that offers direct benefits to local communities. The proposed trans-boundary marine conservation area between Kenya and Tanzania also provides an opportunity to revitalize conservation activities in the reserve (MPRU/KWS, 2015).

Kisite-Mpunguti Marine Park and Reserve

The Kisite-Mpunguti Marine Park and Reserve (or MPA, thus KMMPA in short) is located near the Tanzanian border on the southernmost part of the Kenyan coastline (Figure 1). Both park and reserve were gazetted in 1978. The park covers an area of 28km² while the reserve covers 11km². The KMMPA and adjacent areas have exceptional resource values in terms of biodiversity such as sea turtles, whales, dolphins, dugongs, coral reefs, coconut crabs and the mangrove ecosystem. Features including sandy beaches and the islands provide important scenic areas for tourism. The cultural values of KMMPA include the Shimoni Slave Caves, and the Wasini historical ruins and war graves (KWS, 2015c).

Institutional framework

The KMMPA is under the jurisdiction of the KWS, responsible for planning and management decisions.

Management plan

The MPA has a current management plan that provides guidance for management for the period 2016–2025.

Management objectives

The sets goals and objectives of the MPA include: enhancing biodiversity conservation through participatory approaches; providing suitable breeding and feeding habitats for marine organisms; and promoting sustainable nature tourism. A set of specific objectives with targets has also been defined to operationalize the goals. The specific objectives are:

- maintaining coral cover above 40 percent during the period of the plan;
- maintaining seagrass density above 600 plants/m²;
- maintaining fish biomass above 1000kg/ha total (snappers, triggerfish, parrotfish, surgeonfish, butterflyfish and rabbitfish);
- reducing violations in the MPA; and
- improving participation of local fishers in conservation and the benefits they draw from the MPA.

Risks and threats

These include threats to coral reefs including from bleaching, overfishing in the marine reserve and destructive fishing (beach seines and use of small mesh-sized nets), mainly from migrant fishers.

Management opportunities

The increasing number of locally managed marine areas (LMMAs) adjacent to KMPMA can potentially improve connectivity between this MPA and other MPAs. A proposed transboundary marine conservation areas between Kenya and Tanzania offers the opportunity to implement the concept of MPA networks.

PROPOSED MPAs

Kenya and Tanzania have proposed a Transboundary Marine Conservation Area (TBCA) as a management strategy to address marine environmental problems across the Kenya-Tanzania border. The proposed TBCA is situated at the southernmost part of Kenya's coast bordering Tanzania and the northernmost part of the coast of mainland Tanzania bordering Kenya (Tanga Region) (Figure 2). It is proposed that the TBCA extend from the northern boundary of the Diani-Chale Marine Reserve in Kenya to the southern boundary of Mkinga District in Tanzania between Ulenge and Kwale Islands Marine Reserves. The landward boundary would be the inland jurisdiction limits of the coastal wards in both countries while the seaward



Tourists and dolphins, Watamu MPA. © Arthur O. Tuda / Watamu Marine Association

boundary would correspond with the 200m depth contour. The latter roughly equates to a distance of 5 nautical miles offshore (MPRU/KWS, 2015).

The area between Diani in Kenya and Pangani in Tanzania was earlier identified as a seascape of eco-regional importance and identified as the Msambweni-Tanga ecoregion (WWF-EAME, 2004). The coastline between Diani and Tanzania includes important biodiversity sites such as the mangrove stands and seagrass beds of Gazi and Funzi Bay, and the Ramisi River Estuary and is an important tourist destination with many sandy beaches, providing good revenues since the 1970s. The proposed TBCA encompasses existing MPAs and several LMMAs. Under the proposed transboundary conservation initiative, it is envisioned that systems of co-management will play an important role in adaptive governance of the transboundary-marine ecosystem.

Other initiatives aimed at increasing the marine area under effective conservation include a Wildlife Conservation Society (WCS) initiative supported by KWS and the State Department of Fisheries to establish a large marine conservation area in Kenya under a marine spatial planning (MSP) framework. The target area is the coastal and marine waters of Malindi-Watamu, stretching from north of the Sabaki River to south of Mida Creek. The area was selected because it supports high coastal and marine biodiversity and has productive fisheries, and hence will benefit from protection and improved management with associated economic and livelihood benefits. The project has the potential to increase Kenya's area of MPA coverage from 941km² to 1758km². MSP is a relatively new concept and its application in marine conservation planning in Kenya will also offer an important learning platform for a future proposed National Maritime Spatial Plan and for generating experiences to support the concept of a "Blue Economy". In Lamu County, KWS and the County Government of Lamu are exploring ways to operationalize the proposed Ras Tenewi MPA.

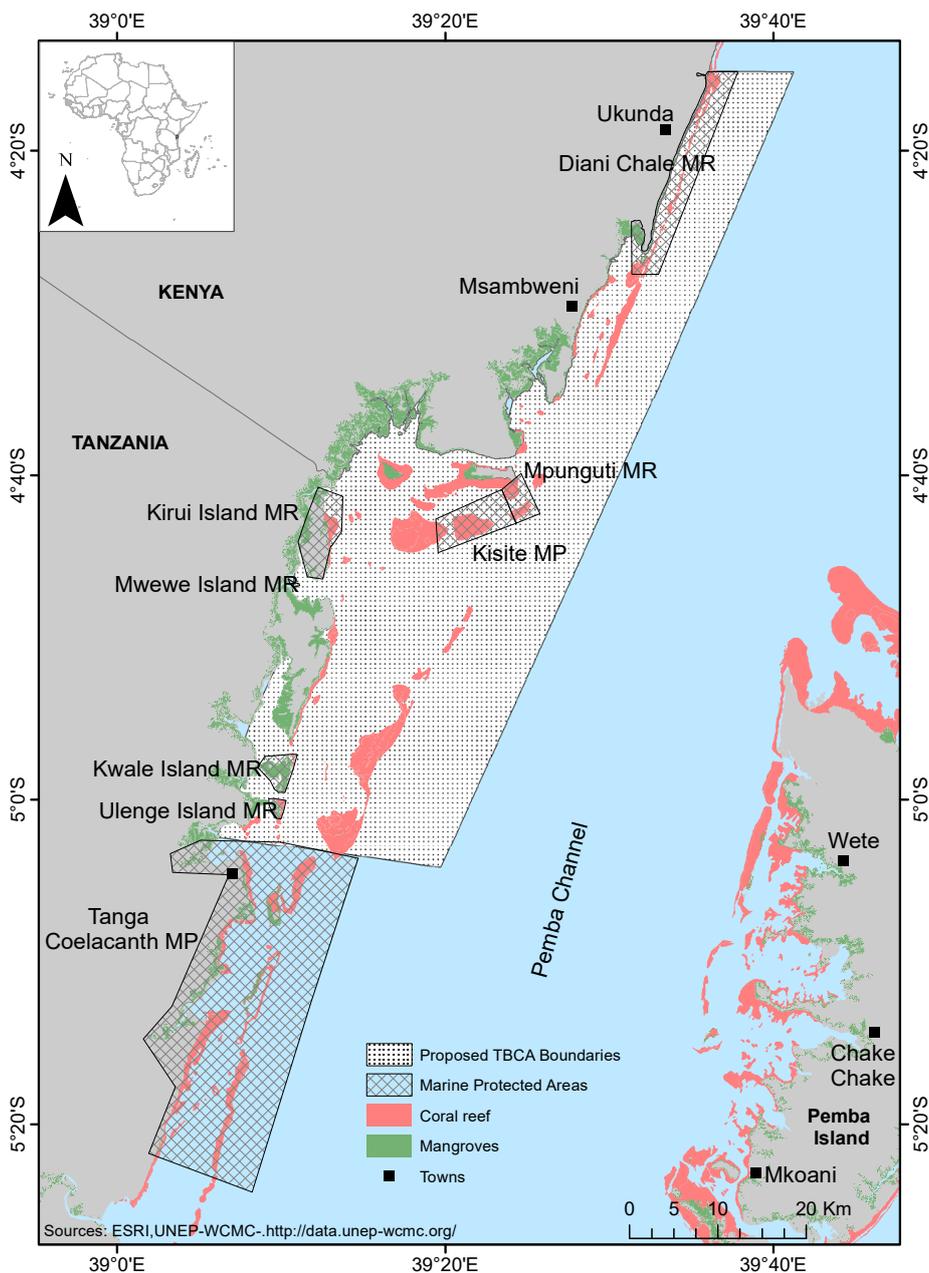


Figure 2: Proposed Kenya-Tanzania transboundary marine conservation area.

Summary of existing MPA and proposed MPA coverage

Table 2 summarises the areas covered by both existing MPAs and proposed MPAs, and indicates the proportion of EEZ that these represent. There is currently no certainty about the extent of the proposed MPAs.

Table 2. Summary of existing and proposed Kenyan MPAs.

Kenya's Exclusive Economic Zone (EEZ)	142 000km ²
EXISTING MPAs	
No. of MPAs (combine Parks and Reserves)	6
MPA area	941.093km ²
% EEZ	0.67
PROPOSED MPAs	
No. of proposed MPAs	3
Proposed MPA area	Unknown
Potential % EEZ	Unknown

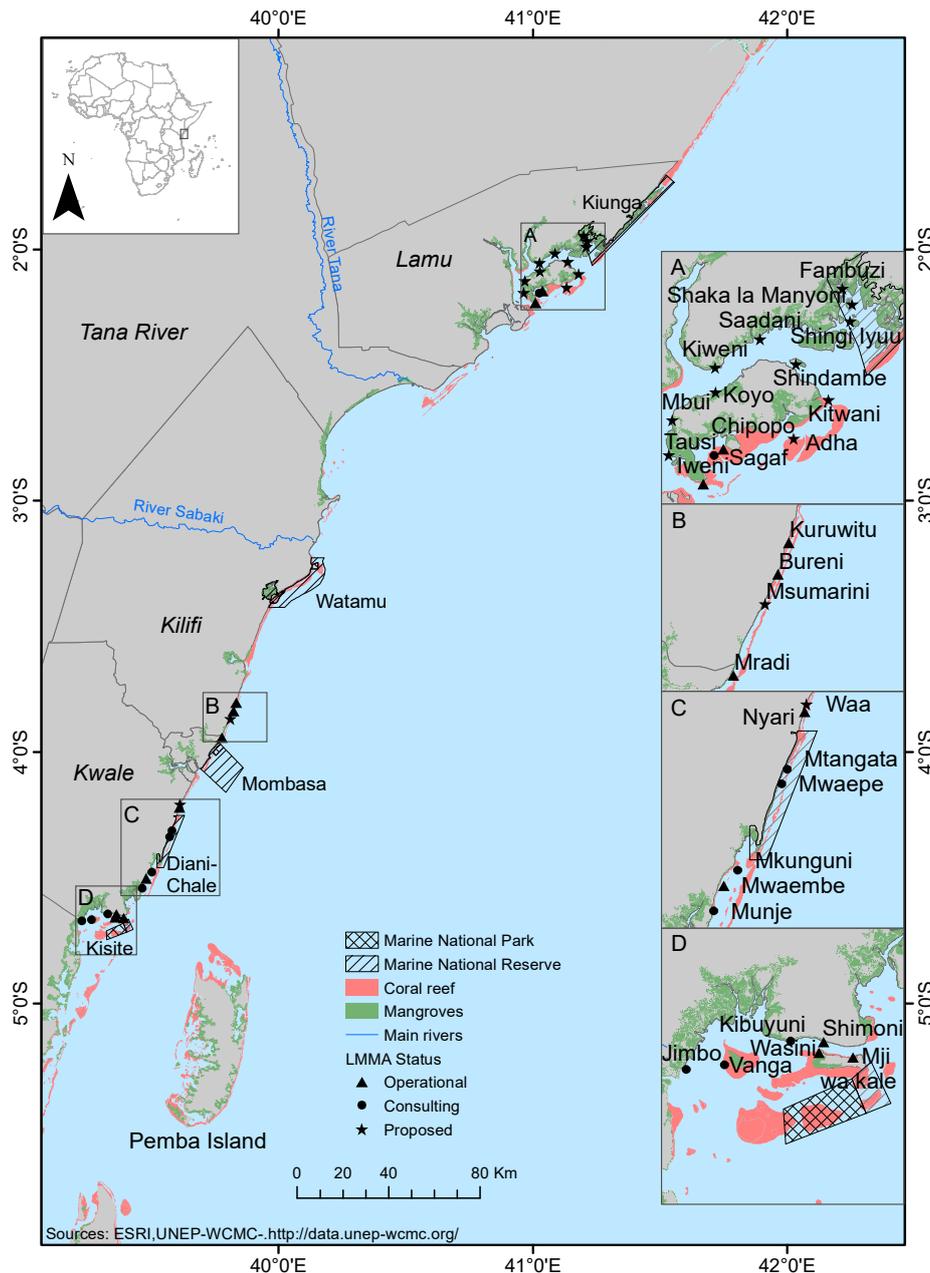


Figure 3: Kenya's Marine Protected Areas and informal conservation areas.

INFORMAL PROTECTED AREAS

Kenya also applies other effective area-based conservation measures (OECMs) for marine conservation that have been integrated into the wider seascapes. It has been suggested that definition of “OECMs” should refer only to those sites that meet the intent of the IUCN definition of a protected area, but are not currently listed on the World Database on Protected Areas (WDPA). Such areas include some private protected areas, company reserves and indigenous and community conserved areas (Woodley *et al.*, 2012). In Kenya, OECMs could include community conservation areas (CCAs), community

fisheries closures (tengefu) or LMMAs – the nomenclature is not standardized.

The concept of informal community managed areas is a relatively recent initiative in Kenya and has been evolving over the last six years (Rocliffe *et al.*, 2014; McClanahan *et al.*, 2016; Kawaka *et al.*, 2017). There have also been a number of legislative reviews that aim to give such efforts legal backing and promoting their enforcement e.g. the Fisheries Act, and the Wildlife Conservation and Management Act, 2013. Several LMMAs have been established by coastal fishing communities along the coast as tools for protecting coral reefs and its resources while increasing the social and

ecological benefits. Kenya has seen a rapid rise in the number of LMMAs since 2010 (Kawaka *et al.*, 2017). Coastal communities in Kenya are increasingly adopting LMMAs and by 2015, 24 had been established (Figure 2). Coastal communities perceive the objectives of these are to primarily conserve fisheries and marine resources and secure alternative sources of income (*ibid.*). The establishment of LMMAs, commonly known as “*Tengefus*” in Kenya, which include both no-take areas and areas of specific use (McClanahan *et al.*, 2016) is intended to strengthen ecosystem management of resources within a co-management framework, the Fisheries Management and Development Act No.35 of 2016, as well as the Fisheries (Beach Management Unit Regulations, 2007 allow BMUs to establish management areas for protection of habitats and species. BMUs are the primary organs for the implementation of co-

management processes and they usually comprise fishers, fish traders, boat owners, fish processors and other beach stakeholders who traditionally depend on fisheries activities for their livelihoods (GoK, 2016). Between 2006 and 2018 a total of 42 LMMAs have been documented each being at different stages of establishment: Proposed, Consulting, Planning, Operational (McClanahan *et al.*, 2016) (Figure 3 and Table 3).

Although the informal community managed areas are currently not “legal” there is a legal process through the BMU regulations. BMUs with *tengefus* within their fishing grounds can undertake a co-management planning process, draft management plans that upon formal approval by the State Department of Fisheries can become legally co-managed areas hence entrenching them as OECMs e.g. Kuruwitu in Kilifi County.

Table 3: Informal community managed areas in Kenya.

NAME	STATUS	DESIGNATION	YEAR ESTABLISHED	COUNTY	AREA (km ²)	CO-MANAGEMENT AREA
Kuruwitu	Operational	NT	2006	Kilifi	0.29	Kuruwitu
Nyari-Kikadini	Consulting	NT	2006	Kwale	0.13	Nyari
Wasini	Operational	NT	2008	Kwale	0.5	Shimoni-Vanga
Tradewinds/Mkwakwani	Consulting	NT	2009	Kwale	0.12	Tradewinds
Jimbo	Consulting	GR	2009	Kwale	0.1	Shimoni-Vanga
Vanga	Consulting	GR	2010	Kwale	0.34	Shimoni-Vanga
Shimoni	Consulting	GR	2010	Kwale	0.11	Shimoni-Vanga
Majoreni	Consulting	GR	2010	Kwale	Unknown	Shimoni-Vanga
Kibuyuni	Operational	NT	2010	Kwale	0.28	Shimoni-Vanga
Kanamai-Mradi	Operational	NT	2011	Kilifi	0.22	Kanamai
Bureni	Operational	NT	2013	Kilifi	0.52	Kuruwitu
Mkwiro/Mji wa kale	Operational	GR	2014	Kwale	0.16	Shimoni-Vanga
Mwaembe	Proposed	NT	2014	Kwale	0.46	Mwaembe
Munje	Consulting	Unknown	2015	Kwale	0.7	Munje
Mkunguni	Consulting	NT	2015	Kwale	0.27	Mkunguni
Majunguni*	Proposed	Unknown	2015	Lamu	10.7	Majunguni
Chipopo	Operational	NT	2015	Lamu	17.3	Chipopo
Rewa & Kivonga *	Proposed	GR	2015	Lamu	2.37	Chundwa
Iweni	Operational	NT	2017	Lamu	3.64	Joint Pate-Rubu-Ishakani
Mwaepe	Consulting	NT	Proposed	Kwale	0.87	Mwaepe
Mayungu*	Planning	Unknown	Proposed	Kilifi	Unknown	Mayungu
Marereni*	Planning	Unknown	Proposed	Kilifi	Unknown	Marereni
Kivuko-Chambani*	Planning	No-take lobster	Proposed	Lamu	2.21	Kizingitini
Kitwani *	Proposed	Seasonal closure	Proposed	Lamu	1.34	Kizingitini

NAME	STATUS	DESIGNATION	YEAR ESTABLISHED	COUNTY	AREA (km ²)	CO-MANAGEMENT AREA
Adha *	Proposed	GR	Proposed	Lamu	1.13	Chundwa
Kadhikia-Fawachu *	Proposed	GR	Proposed	Lamu	2.0	Chundwa
Kijiwe cha Nyuni *	Proposed	GR	Proposed	Lamu	2.05	Chundwa
Mtanga wa Bandari *	Proposed	Seasonal closure	Proposed	Lamu	1.33	Joint Pate-Rubu-Ishakani
Tausi*	Proposed	NT	Proposed	Lamu	2.61	Mtangawanda
Mbui*	Proposed	NT	Proposed	Lamu	0.39	Mtangawanda
Koyo*	Proposed	GR	Proposed	Lamu	8.48	Joint Faza-Siyu-Mbwajumwali
Upulu wa Punda*	Proposed	GR	Proposed	Lamu	4.02	Joint Faza-Siyu-Mbwajumwali
Kiweni*	Proposed	GR	Proposed	Lamu	3.11	Joint Faza-Siyu-Mbwajumwali
Saadani*	Proposed	GR	Proposed	Lamu	3.77	Joint Faza-Siyu-Mbwajumwali
Mfunda Wamba*	Proposed	NT	Proposed	Lamu	0.45	Joint Faza-Siyu-Mbwajumwali
Shindambe*	Proposed	NT	Proposed	Lamu	3.62	Joint Faza-Siyu-Mbwajumwali
Shingi Iyuu*	Proposed	GR	Proposed	Lamu	1.81	Ndau
Shaka la Manyoni*	Proposed	GR	Proposed	Lamu	2.23	Ndau
Fambuzi*	Proposed	GR	Proposed	Lamu	0.68	Ndau
Msumarini*	Proposed	NT	Proposed	Kilifi	0.92	Msumarini
Waa*	Proposed	NT	Proposed	Kwale	0.10	Waa

DESIGNATION: NT – no-take; GR – gear restriction.

* – denotes "Tengefus" that are not currently operational.

Modified from McClanahan *et al.*, 2016; Kawaka *et al.*, 2017. The Nature Conservancy (TNC) provided data for Pate Island fisheries Beach Management Units (BMU) fisheries co-management areas use zones / LMMAs (Maina *et al.*, 2017).

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This *MPA Outlook for the Western Indian Ocean (WIO)* is the first comprehensive regional analysis that provides a detailed update on the efforts by the Nairobi Convention countries to meet globally agreed marine conservation targets especially SDG14.5, which states that by 2020, to conserve at least 10 percent of coastal and marine areas, consistent with national and international law and based on the best available scientific information. This is also aligned to the Convention on Biological Diversity Strategic Plan for Biodiversity 2011–2020, Aichi Target 11. In 2019, the region had 143 proclaimed MPAs with several proposed across different countries.

A key purpose of this *MPA Outlook* was to establish baselines using appropriate indicators to assess the progress of the Contracting Parties to the Nairobi Convention in meeting these targets. Thirty authors contributed to the nine country chapters, the various case studies and other parts of this volume. Included are detailed descriptions of the MPAs in the countries of the region, the legal mandates under which they exist, the challenges they face and estimates of their management effectiveness. The main findings indicate that the vast majority of the sites across the WIO region, that are considered as MPAs or as having equivalent legal status and levels of protection, are coastal and/or inshore, however the largest, covering by far the greatest extents of the ocean, are those with considerable offshore elements. The assessment also established that the majority of existing MPAs across the region are not managed as effectively as they could and should be, due primarily to lack of funding for essential staff, equipment and capacity development, and commitment from relevant authorities. Recommendations are provided to support improved management of current MPAs and strengthen proposals from different countries for the establishment of further areas under protection, so as to reach conservation goals, including those being developed under the post-2020 Global Biodiversity Framework, while safeguarding coastal livelihoods and economies over the coming decades.

