

Tanzania

MAP 7b

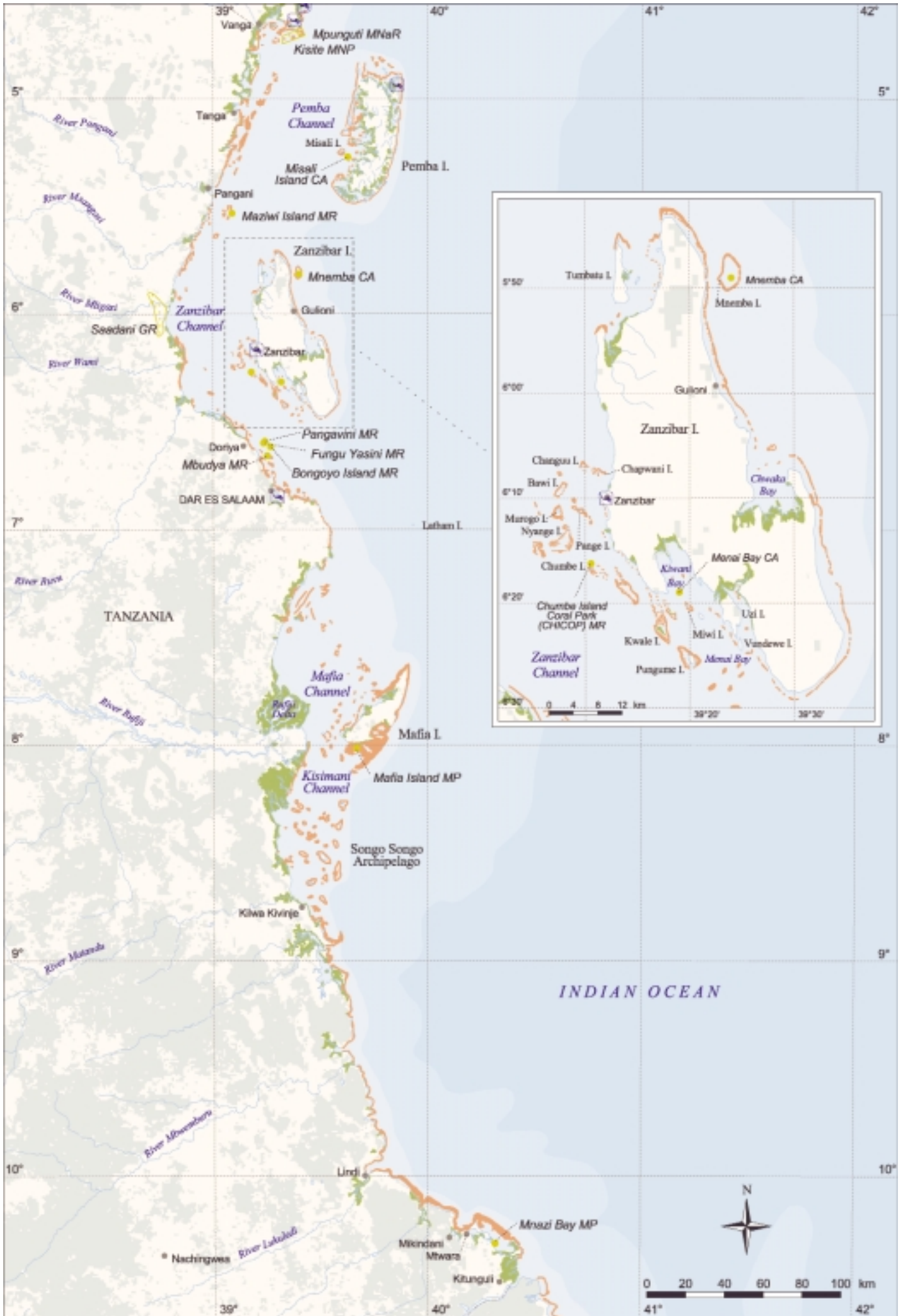


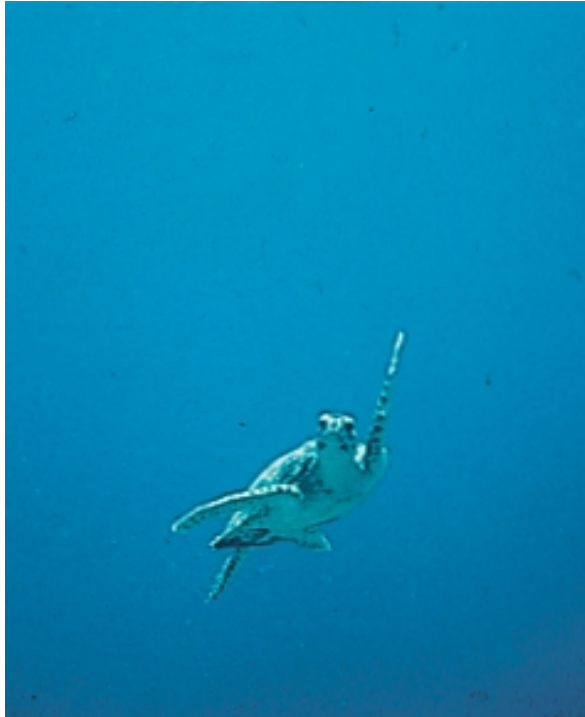
The Tanzanian coastline runs approximately north-south and is dominated by three large offshore islands, those of Pemba, Zanzibar¹ and Mafia. Of these, Zanzibar and Mafia, together with most of the mainland coast and numerous smaller islands and islets, are largely formed by raised Pleistocene reef platforms, providing a low-lying coastal plain occasionally broken by alluvial deposits associated with the major rivers. The continental shelf is relatively narrow, typically 8-10 kilometers wide, but extending to a little over 40 kilometers around Zanzibar and Mafia. Pemba Island is also limestone, but dates back to the Miocene. Pemba is separated from the mainland continental shelf by the Pemba Channel which reaches over 800 meters in depth. There are fringing reef systems along much of the mainland coast and the offshore islands, although these are broken around some of the bays and estuaries, most notably around the Rufiji Delta and northwards where there are considerable inputs of riverine sediments. The coastline is swept by the northwards flowing East African Coastal Current throughout the year, though this is at its most powerful during the Southeast Monsoon (April-October), and is reduced by northeasterly winds during the Northeast Monsoon (December-March).

Coral reefs are well developed in many places. Close to the mainland there are fringing and patch reefs along much of the coast to the north of the Pangani River, with a wide lagoon with only occasional patch reefs further south around Dar es Salaam. Coral cover is highly varied, with estimates on different patch reefs varying between 1 and 80 percent. Clearly in some areas reefs are not actively developing, and represent little more than occasional coral growth on Pleistocene reef deposits. Coral diversity increases with distance from the coast, and up to 39 genera of coral have been reported from individual patch reefs off the Tanga coast. Fringing reefs begin again off the mainland coast south of the Rufiji Delta and are very well developed, with deep spur and groove formations on outer slopes. These are particularly well represented in the areas around and to the south of Mtwara where undamaged reefs, especially those further offshore, often show over 50 percent live coral cover.

Offshore reefs are highly developed around the main three islands, their associated islets, and the Songo Songo Archipelago in the south. Reefs around parts of Pemba are prolific, with corals recorded to 64 meters, and cover on western reef slopes at 21-60 percent. Cover tends to be low (rarely above 15 percent) on eastern shores of all the

Left: A fishing dhow just beyond the reef, with an uplifted coralline shore of Chumbe Island, Zanzibar. Right: The Zanzibar Channel in Tanzania, with numerous important patch reefs (STS026-42-85, 1988).





larger islands, probably due to the very high wave energies which impact these coasts. Misali Island, just west of Pemba, has been singled out for having some of the highest recorded coral cover, and high species diversity with 40 genera of coral and 350 fish species. Chumbe and Mnemba islands off Zanzibar have been similarly singled out as offshore islands with diverse and well protected reefs. It is possible that similar diversity may be recorded from other reefs, many of which have yet to receive detailed scientific attention. Mafia Island has extensive reefs, particularly in the south, many of which remain in good condition. Some 380 fish species and 45 coral genera have been recorded from this area. Likewise there are many important reefs around the Songo Songo Archipelago, with the slightly deeper reefs, and those furthest from the mainland, remaining in good condition. Finally, Latham Island (Fungu Kisimkasi) is a tiny island with an associated fringing reef system lying off the continental shelf some 80-100 kilometers east of the mainland south of Dar es Salaam. There are no detailed descriptions of the reefs but the island has some very important bird colonies.

Mangroves are well developed in most river mouths, and seagrass ecosystems are widespread, particularly in the shallow waters around the Mafia and Songo Songo Archipelagos. The 1998 coral bleaching event had a significant impact on most reefs, although this was far from uniform. Around Mafia Island reefs dominated by *Acropora* suffered 70-90 percent mortality, but those with less *Acropora* were far less affected. Similar local



variation in the degree of impact between reefs was noted in Zanzibar.

The coastal population in Tanzania is very large, mostly concentrated in Tanga, Zanzibar, Dar es Salaam and Mtwara. Rapid population growth along the coasts, combined with poverty and poor management and understanding of coastal resources, has led to the rapid and

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GENERAL DATA

Population (thousands)	35 306
GDP (million US\$)	na
Land area (km ²)	944 983
Marine area (thousand km ²)	241
Per capita fish consumption (kg/year)	10

STATUS AND THREATS

Reefs at risk (%)	99
Recorded coral diseases	0

BIODIVERSITY

Reef area (km ²)	3 580
Coral diversity*	na / 314
Mangrove area (km ²)	1 155
No. of mangrove species	10
No. of seagrass species	10

* The higher coral diversity figure is an estimate for Mozambique and Tanzania combined

Left: A hawksbill turtle *Eretmochelys imbricata*. Right: The Rufiji Delta, showing the large inputs of sediments, but also the important areas of mangrove forest (STS026-42-87, 1988).

Protected areas with coral reefs

Site name	Designation	Abbreviation	IUCN cat.	Size (km ²)	Year
Tanzania					
Bongoyo Island	Marine Reserve	MR	II	na	1975
Chumbe Island Coral Park	Marine Sanctuary	MS	II	0.30	1994
Fungu Yasini	Marine Reserve	MR	II	na	1975
Mafia Island	Marine Park	MP	VI	822.00	1995
Maziwi Island	Marine Reserve	MR	II	na	1981
Mbudya	Marine Reserve	MR	II	na	1975
Menai Bay	Conservation Area	CA	VI	470.00	1997
Misali Island	Conservation Area	CA	VI	21.58	1998
Mnazi Bay	Marine Park	MP	VI	650.00	2000
Mnemba	Conservation Area	CA	VI	0.15	1997
Pangavini	Marine Reserve	MR	II	na	1975

extreme degradation of coral reefs and other coastal communities along large sectors of the coast. Fishing is a critical activity, providing a major protein source for much of the coastal population. Overfishing is a problem on most reefs, and has been exacerbated by destructive fishing practices. Most notable among these are various seine-net fishing techniques in which a small mesh (2-8 centimeters) net with a weighted foot rope is dragged through the benthos, either onto the beach or directly into a boat. Some techniques additionally involve beating the substrate with poles to frighten fish into the net and/or use of a very small mesh scoop to haul fish from the water. Dynamite fishing was also once widespread, but its use has been reduced drastically throughout the country following a nationwide campaign in 1996-97. This involved major community-driven action which included naming culprits, but also an amnesty for all those who surrendered their dynamite and made a public statement not to re-offend. Coral mining is another highly destructive activity which is also widespread along the entire coast. In 2000 it was estimated that 1 500 tons of coral were being mined every year from the Mikindani Bay area in southern Tanzania alone. Some 12 percent of Tanga's reefs are believed to be totally destroyed, largely through destructive fishing, and a further 64 percent are in poor to moderate condition.

There is only primary sewage treatment in Zanzibar Town, and little or no treatment on any of the mainland coast. Tourism is a growing and important sector of the economy, but there are few environmental controls and there may be increasing impacts on the reefs. Nonetheless, tourism is also providing impetus for further reef pro-

tection measures in a number of areas. The Chumbe Island Coral Park provides the best example of "low impact" tourism in the region, and tourism here provides support not only for reef management, but also for an important education program with schools and local communities in Zanzibar. One further coastal activity that has grown rapidly since 1989 is commercial seaweed farming, now practiced along the majority of the coastline of Zanzibar and increasing on Mafia, Pemba and the mainland coast. This activity is low technology and hence is being taken up at the community and individual family level and may be reducing pressure on fish resources.

Although a number of marine reserves were designated in 1975 none of these was fully implemented. Subsequent legislation under the Marine Parks and Reserves Act in 1994 has rectified this situation and there are now five marine reserves and two marine parks designated under this act. The latter are large areas, incorporating reefs and other ecosystems, with zoning systems and focussing towards sustainable use. Protected areas are declared under separate legislation in Zanzibar and Pemba. The Menai Bay Conservation Area off the south coast of Zanzibar was established in 1997 and is one of a number of new marine protected areas being operated at the local level, with local government and community involvement in park utilization and management.

1. Officially this island is known as Unguja, while the term Zanzibar refers to the administrative state which includes both this island and Pemba. Despite this, the term Zanzibar is most commonly used in relation to the single island, and this is the usage applied here.