Title/Name of the area: Chwaka Bay, Zanzibar

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Abstract

Chwaka Bay is an intertidal water body on the east coast of Unguja Island, Zanzibar, Tanzania. The area contains all three critical marine habitats namely mangroves, seagrasses and coral reefs; its mangrove being the largest single mangrove forest in Unguja Island. The ecological importance of Chwaka Bay cannot be overestimated. The mangroves and sea grass beds are important nursery and breeding grounds for marine organisms, hence the health of this shallow bay has vast implications on the marine resources along the entire east coast of Unguja and beyond. However, this area is under considerable pressure since villagers from surrounding villages and even from villages further north obtain their livelihood from fishing in the Chwaka Bay. Besides, non-sustainable use of the mangroves for wood is clearly going on. The bay with its fringing mangroves, bird breeding small islands and strikingly beautiful sandy beaches is part of Jozani Forest Chwaka Bay National Park hence its potential as a CBD site cannot be overstated. The benefits of including this area in CBD will be the creation of a biodiversity corridor that will include not only the mangrove forest of Chwaka Bay, but also the whole of Chwaka Bay marine part to Jozani Forest.

Introduction

Chwaka Bay is a shallow system on the east coast of Unguja Island, Zanzibar, Tanzania. This embayment is an intertidal water body with an average depth of 3.2 m and an estimated area of 50 km^2 at high spring tide and 20 km^2 at low spring tide (Cederlöf et al. 1995). The area contains all three critical marine habitats namely mangroves, seagrasses and coral reefs, and is part of Jozani Chwaka Bay National Park. The mangrove forest of Chwaka Bay is the largest single area of mangrove in Zanzibar.

The region receives between 1000 and 1500 mm of rainfall per annum. Air temperatures are tropical and range from 27-30°C. Predominantly north-easterly winds occur between October and March, and mainly south-easterly winds from March to October. There are two rainy seasons in Zanzibar: the extended rainy season that occurs during the months of March, April and May, and the short rainy season which extend from October to December (McClanahan 1988).

The mangrove part of the bay is characterised by low water clarity and fluctuations in oxygen levels. On the seaward side, immediately adjacent to the forest, the embayment opens up onto large intertidal flats that are overgrown by mixed assemblages of algae and seagrasses, including scattered monospecific seagrass stands. The outer and middle parts of the embayment (about 4 m deep) are oceanic in character with salinities rarely below 35 ppt. Due to proximity of this part of the embayment to the open ocean, it is characterised by relatively high water clarity. Furthermore, salinity and oxygen levels in this part of the embayment are relatively constant, even during the rainy seasons (Lugendo, 2007).

Location:

Chwaka Bay is located within 6.13-6.25°S and 39.37-39.58°E on the east coast of Unguja Island, about 34 km east of Zanzibar town (Figure 1). The area is within national jurisdiction.

Feature description of the proposed area

Large intertidal flats partly covered with mixed assemblages of algae and seagrass beds characterize the bay. On the landward side of its mouth, the bay is fringed by a dense mangrove forest, the largest single area of mangrove forest in Zanzibar and includes other coastal habitats such as seagrass beds and mudflats (Lugendo, 2007). The mangrove forest is drained by a number of tidal creeks, the largest of which is Mapopwe Creek, which is the main water exchange route between the forest and the bay. A modest fragmented coral reef occurs at the entrance of the bay, which is part of the extensive reef that fringes the east of Unguja Island (Figure 1).

The importance of Chwaka Bay cannot be overestimated. The mangroves and sea grass beds are important breeding grounds for marine organisms, including open sea fish species, and hence the health of this shallow bay has vast implications on the marine resources along the entire east coast of Unguja and beyond (Revolutionary Government of Zanzibar, 2005). The Chwaka Bay mangrove forest also helps to stabilize the shoreline and decrease coastal erosion by reducing the energy of incoming waves and currents and stabilizing bottom sediments. The bay also provides an ideal environment for offshore reefs and seagrass beds that further produce and trap nutrients and stabilize bottom sediments. The coast has also important nesting beaches for endangered sea turtles (Revolutionary Government of Zanzibar, 2005).

Feature condition and future outlook of the proposed area:

The area is under considerable pressure although more studies are necessary to quantify the health of the system. Villagers from Chwaka, Michamvi, Ukongoroni and Charawe obtain their livelihood from fishing in the Chwaka Bay and adjacent seagrass beds and reefs, and even fishers from villages further north use the Bay (Revolutionary Government of Zanzibar, 2005). The most intensive fishing area is the south of the reef island, while shell collection takes place on the tidal flat that is mainly covered by sand and seagrasses. Non-sustainable use of the mangroves for wood is clearly going on. The people from Chwaka, Charawe, Ukongoroni and Michamvi have for generations depended on these mangroves (Revolutionary Government of Zanzibar, 2005). Seaweed is another key resource that the people in Chwaka Bay reply upon. The effect of seaweed farming should be studied, and the extraction of living marine organisms monitored and quantified. The bay with its fringing mangroves, bird breeding small islands and strikingly beautiful sandy beaches is part of Jozani Forest Chwaka Bay National Park hence its potential as a CBD site cannot be overstated. The benefits of including this area in CBD will be the creation of a biodiversity corridor that will include not only the mangrove forest of Chwaka Bay, but also the whole of Chwaka Bay marine part to Jozani Forest.

Assessment of the area against CBD EBSA Criteria (Chwaka Bay)
(Discuss the area in relation to each of the CBD criteria and relate the best available science. Note that a candidate EBSA may qualify on the basis of one or more of the criteria, and that the boundaries of the EBSA need not be defined with exact precision. And modeling may be used to estimate the presence of EBSA attributes. Please note where there are significant information gaps)

CBD EBSA Criteria (Annex I to decision IX/20)	**Description** (Annex I to decision IX/20)	**Ranking of criterion relevance** (please mark one column with an X)			
		Don't Know	**Low**	**Some**	**High**
Uniqueness or rarity	Area contains either (i) unique ("the only one of its kind"), rare (occurs only in few locations) or endemic species, populations or communities, and/or (ii) unique, rare or distinct, habitats or ecosystems; and/or (iii) unique or unusual geomorphological or oceanographic features.			**X**	
Explanation for ranking: Area contains a diversity of habitat types (mangroves, mudflats, channels, seagrass beds, algal beds, coral reefs) all within the Bay.					
Special importance for life-history stages of species	Areas that are required for a population to survive and thrive.				**X**
Explanation for ranking: Ecologically important habitats such as mangroves, seagrass beds and coral reef ecosystems are critical for the survival of economically and ecologically important marine species at various stages of their life cycles. Previous studies have demonstrated that the area is an important breeding and nursery grounds for many marine species and that human activities are threatening their survival.					
Importance for threatened, endangered or declining species and/or habitats	Area containing habitat for the survival and recovery of endangered, threatened, declining species or area with significant assemblages of such species.			**X**	
Explanation for ranking: The Bay contains together with other marine habitats, mangroves and coral reefs, habitats which are threatened globally.					
Vulnerability, fragility,	Areas that contain a relatively high proportion of sensitive habitats, biotopes			**X**	

sensitivity, or slow recovery	or species that are functionally fragile (highly susceptible to degradation or depletion by human activity or by natural events) or with slow recovery.				
Explanation for ranking: The area contains a high proportion of sensitive biotopes that are functionally fragile (i.e. coral reefs and mangroves) which are highly susceptible to degradation by human activity with slow recovery. Improper fishing activities threaten habitats within the area.					
Biological productivity	Area containing species, populations or communities with comparatively higher natural biological productivity.	**X**			
Explanation for ranking: Not enough information available					
Biological diversity	Area contains comparatively higher diversity of ecosystems, habitats, communities, or species, or has higher genetic diversity.				**X**
Explanation for ranking: The area contains all the three critical habitats namely Mangroves, seagrass beds and coral reefs, habitats which are typically characterized by high biological diversity.					
Naturalness	Area with a comparatively higher degree of naturalness as a result of the lack of or low level of human-induced disturbance or degradation.		X		
Explanation for ranking: The area is under considerable pressure although more studies are necessary to quantify the health of the system.					

Sharing experiences and information applying other criteria (Optional)

Other Criteria	**Description**	**Ranking of criterion relevance** (please mark one column with an X)			
		Don't Know	**Low**	**Some**	**High**
Add relevant criteria					
Explanation for ranking					

References

(e.g. relevant documents and publications, including URL where available; relevant data sets, including where these are located; information pertaining to relevant audio/visual material, video, models, etc.)

Cederlöf U, Rydberg L, Mgendi M, Mwaipopo O. 1995. Tidal exchange in a warm tropical lagoon: Chwaka Bay, Zanzibar. Ambio 24: 458-464.

Lugendo BR. 2007. Utilisation by fishes of shallow-water habitats including mangroves and seagrass beds along the Tanzanian coast.

McClanahan TR. 1988. Seasonality in East Africa's coastal waters. Mar. Ecol. Prog. Ser.; 44: 191-199.

Revolutionary Government of Zanzibar, 2005. Mnemba Island and Chwaka Bay Conservation Areas: A Preliminary Situational Assessment.

Maps and Figures

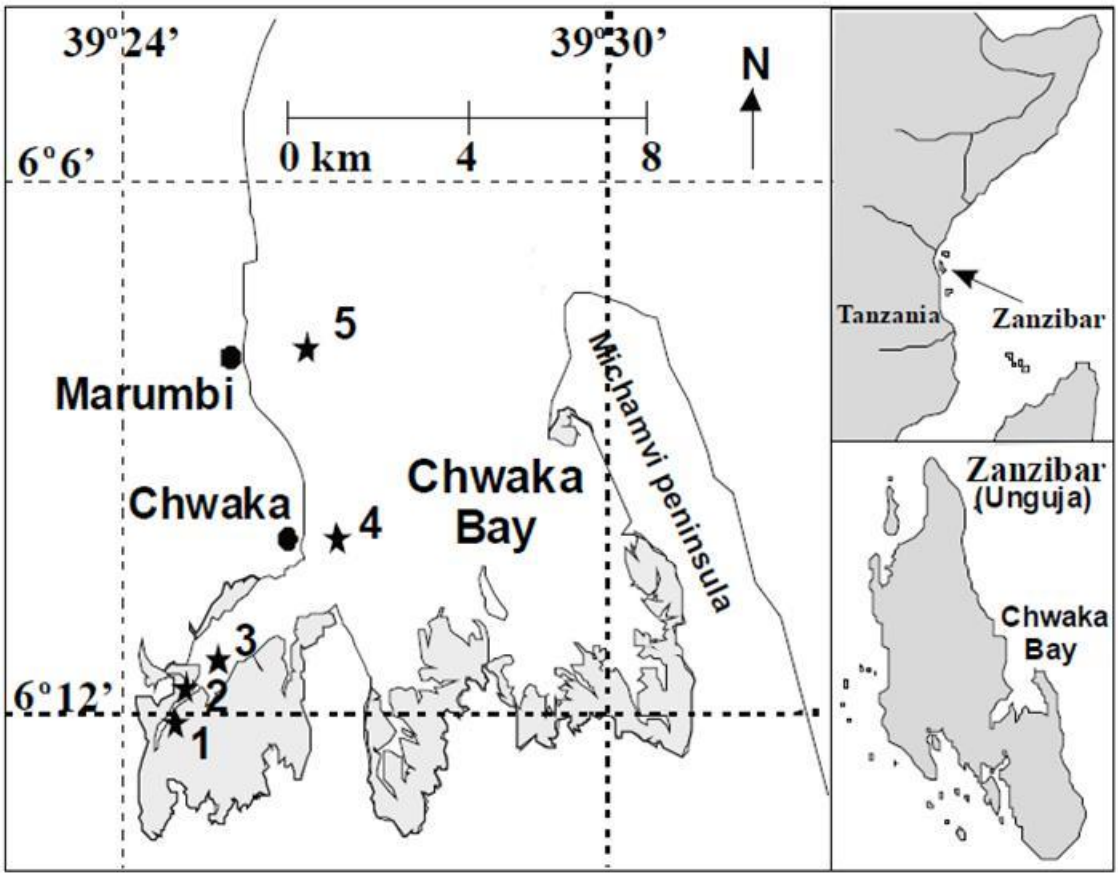

Figure 1. Map of Chwaka Bay showing location of 1 & 2 mangrove area, 2-mudflats 3 & 4 seagrass beds.

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