

Title/Name of the area:

Bazaruto-Tofo (part of the Mozambique Channel)

Presented by (names, affiliations, title, contact details)

David Obura
CORDIO East Africa
#9 Kibaki Flats, Kenyatta Beach, Bamburi Beach
P.O.BOX 10135 Mombasa 80101, Kenya
www.cordioea.org // www.iucn.org/cccr
Mobile: +254-715 067417
Email: dobura@cordioea.org; davidobura@gmail.com
Skype dobura

Jeff Ardron, Director High Seas Program
Marine Conservation Institute
600 Pennsylvania Ave SE, Suite 210
Washington DC 20003 USA
+1 202 546 5346 (office)
+1 202 460 4960 (mobile)
Jeff.Ardron@Marine-Conservation.org

Abstract (in less than 150 words)

Bazaruto has a wide range of terrestrial and marine habitats including coastal sand dunes, rocky and sandy shores, coral reefs, mangrove forests and seagrass meadows. These habitats provide refuge for a great variety of plant and animal species. Over 180 species of birds, 45 species of reptiles, the dugong, four turtle species, five dolphin species, three whale species, four shark species and 2000 species of fish have been recorded here. Bazaruto also has the largest and possibly last viable dugong population in the WIO, dependent on the abundant seagrass meadows between the islands and the coast. The area has populations of six species of bird that exceed 1% of the global population for the species. It is also known for its complex of coral communities with six endemic gastropod mollusc species.

Location

The site is located in Inhambane Province in the southern part of Mozambique, stretching from the Bazaruto archipelago in the north, to the Tofo peninsula in the south.

The Bazaruto barrier island archipelago comprises a chain of five islands extending ~70 km north of the mainland peninsula of Cabo São Sebastião, and up to 20 km off the coast. The islands are separated by tidal inlets linking the 10-26 km wide back barrier lagoon with the Indian Ocean. The largest Island is Bazaruto (12,000 ha), followed by Benguéria (2,500 ha), Magaruque (600 ha), Santa Carolina (500 ha, previously called Paradise Island) and the minuscule Bangué (5 ha). The archipelago was formed from the present Cabo Sebastião Peninsula about 7000 years ago, forming the Bazaruto-Sao Sebastiao complex of very high sand dunes and coastal barrier lakes found only in southern Mozambique in the Parabolic Dune subregion.

Jurisdiction : Mozambique

Feature description of the proposed area

The dominant ocean currents show a clear influence on the coastal morphology, the north-trending headlands a result of northward transport of sediment poured into the sea by rivers, to form headlands (Tofo, Cabo São Sebastião) and the string of islands forming the Bazaruto archipelago. While the dominant flow of water in the southern Mozambique channel is southwards, inshore processes result in northward flow.

Geology: the coastline has some of the largest parabolic sand dunes on the coast, in Bazaruto forming a unique mosaic with coastal lakes, coral reefs and seagrass beds that support a unique combination of terrestrial and marine fauna.

Oceanography: the region receives variable eddies from the north in the Mozambique Channel, and from the south from the East Madagascar Current-Agulhas Current region, resulting in high mixing and productivity attracting large aggregations of megafauna.

Ecology: Wide range of ecosystems from terrestrial and marine habitats including coastal sand dunes, rocky and sandy shores, mangrove forests, seagrass beds, coral reefs and open ocean.

Diversity: There are over 2000 species of fish, over 500 species of mollusks.

Coral reefs: There are three main coral reef types: submerged sandstone reefs, submerged fringing reefs and patch reefs. There are also some sedimented rocky shelves and isolated rocky massifs. The over 30 species of soft corals (Alcyonacea) and 70 species of hard corals (Scleractinia) represent a transition between northern and southern regions.

Seagrasses: A critical habitat in the archipelago, supporting the large turtle and dugong populations.

Mangroves and salinas (salt marshes): Three of the five islands (Bazaruto, Benguérua and Santa Carolina) support mangrove communities and Salinas.

Dugong: the most significant and well known population of dugong (300 - 350 individuals) in the WIO, with possibly the last remaining viable population in the region.

Turtles: Five species known to nest and feed in Bazaruto, including the green, hawksbill, loggerhead, olive ridley and leatherback

Birds: More than 180 species have been recorded in the Archipelago and 6 species exceed 1% of the global population for the species.

*Sharks and Rays: major manta ray (*M. alfredi*) aggregations estimates range from 150 to 450 individuals in Bazaruto and the largest aggregation of 800 individuals at Tofo.*

Whale sharks : Tofo represents one of the largest aggregations of whalesharks in the WIO.

Humpback whales : new discoveries suggest Bazaruto may have one of the largest wintering populations of humpback whales.

Feature condition and future outlook of the proposed area

Threats: The continental shelf off Mozambique holds considerable mineral resources such as oil, gas and heavy metals, posing significant threats to biodiversity when extraction occurs. Overexploitation occurs of many marine resources, including fish, holothurians, and molluscs, as well as sea turtles, dugongs, sharks and birds eggs. A significant net fishery is based on the mainland coastline, targeting the extensive shallow waters that also host the main seagrass beds and dugong habitat. Of particular concern is that a large proportion of the dugong population occurs outside of protected areas, where they face a high risk of net entanglement. Habitat destruction, particularly of seagrass beds is a huge concern for the dugong population. Tourism developments, if not well managed could be a serious threat to the ecosystems and

habitats, particularly the sensitive sand dune and Salinas terrestrial habitats. Natural events such as storms and cyclones, and climate change, have also had negative impacts on habitats.

Management status: Bazaruto Archipelago was first formally gazette as a Marine Protected Area (MPA) in 1971, by the colonial government, with the aim of protecting species of high conservation value, such as dugongs, dolphins, and sea turtles. The three southern islands of Bangué, Magaruque and Benguérua were proclaimed National Parks, including waters to 100 m deep east of the islands and 5 km to the west. Bazaruto and Santa Carolina islands were defined as areas designated for “special monitoring activities” (Zonas de Vigilância). In 2001, a much larger Bazaruto Archipelago National Park was proclaimed, including more extensive marine areas and adjusting the boundaries to include all the islands to promote an integrated management approach. Two years later, the Cabo de São Sebastião peninsula was given statutory protection that now protects the natural resources of the nearby peninsula and adjacent waters.

Around Tofo, efforts are underway to establish protected areas following participatory models, involving the dive and local tourism industry and local authorities, to protect the charismatic species and habitats that sustain the local economy.

Assessment of the area against CBD EBSA Criteria

(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
<i>Unusual geomorphology of dune coasts and habitats, experiencing a mixing of tropical and temperate waters.</i>					
Special importance for life-history stages of species	Areas that are required for a population to survive and thrive.				X
<i>Their isolation makes them important for various species - spawning, feeding, calving, etc. See above.</i>					
Importance for threatened,	Area containing habitat for the survival and recovery of endangered, threatened, declining species or area with significant assemblages of				X

endangered or declining species and/or habitats	such species.				
<i>Many threatened and endangered species (turtles, mammals, birds), largest dugong population in the WIO. See above.</i>					
Vulnerability, fragility, sensitivity, or slow recovery	Areas that contain a relatively high proportion of sensitive habitats, biotopes or species that are functionally fragile (highly susceptible to degradation or depletion by human activity or by natural events) or with slow recovery.				X
<i>Vulnerable marine and island habitats. Coral reefs are highly susceptible and fragile to global warming.</i>					
Biological productivity	Area containing species, populations or communities with comparatively higher natural biological productivity.				X
<i>Part of the eddy / upwelling systems of the Mozambique Channel.</i>					
Biological diversity	Area contains comparatively higher diversity of ecosystems, habitats, communities, or species, or has higher genetic diversity.			X	
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
<i>Danger of encroachment very high.</i>					

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
<i>Add relevant criteria</i>					
<i>Explanation for ranking</i>					

References

Bandeira, S. and Gell, F. 2003. The Seagrasses of Mozambique and South Eastern Africa. World Atlas of Seagrasses. UNEO/WCMC. University of California Press, Berkeley, USA.293pp

Bandeira, S.O. 1995. Marine botanical communities in southern Mozambique: Seagrasses and seaweed diversity and conservation. *Ambio* 24: 506-509.

Den Hartog, C (1970). The seagrasses of the world. North-Holland Publishing Company, Amsterdam, 273pp.

Dias, V. 2005. Diversidade, Distribuição e Biomassa de Ervas Marinhas na Baía de Bazaruto. Tese de licenciatura. Universidade Eduardo Mondlane. Maputo.57pp

Dutton, P. and Zolho, R. 1990. Plano Director de Conservação para o Desenvolvimento a Longo Prazo do Arquipélago de Bazaruto. 3pp.

Ministério de Agricultura. Maputo, Mocambique. Dutton, T.P. & Zolho, R. 1990. Conservation master plan for the sustained development of the Bazaruto Archipelago, People's Republic of Moçambique.

Everett B.I., van der Elst R.P. and Schleyer M.H. 1980 A natural history of the Bazaruto Archipelago. Sp Pub no 8. South African Association for Marine Biological Research

Hughes, G.R. 1974a. The sea turtles of south-east Africa. Vol 1. Investigational Reports 35, Oceanographic Research Institute.

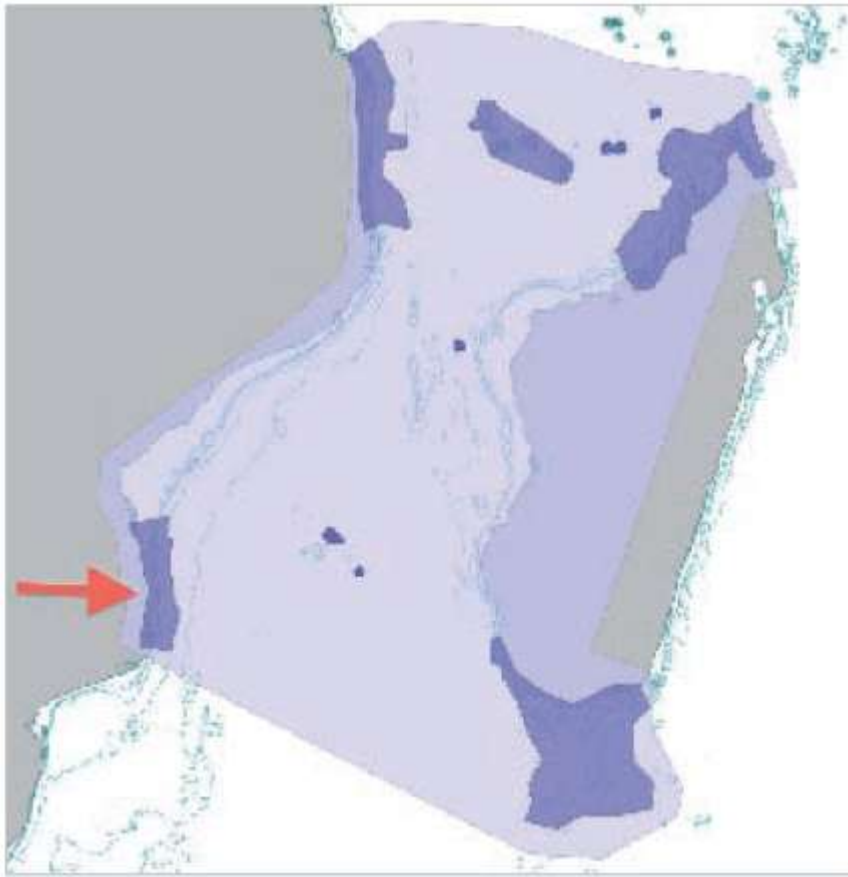
Hughes, G.R. 1974b. The sea turtles of south-east Africa. Vol 2. Investigational Reports 36, Oceanographic Research Institute.

IUCN 2003. World Parks Congress. Beyond benefits beyond boundaries. Recommendations. IUCN, Gland. 85pp.

WWF 2004. The Eastern African Marine Ecoregion Vision. A large scale approach to the management of biodiversity. WWF. Dar es Salaam. 53pp.

Maps and Figures

Figures below can be provided in higher resolution.



Locator map. ©David Obura

Rights and permissions

Text is from a soon-to-be published UNESCO World Heritage report: Assessing Marine World Heritage from an Ecosystem Perspective: The Western Indian Ocean, by David Obura, Julie Church, Catherine Gabri  .