

**Title/Name of the Area: BAZARUTO ARCHIPELAGO – VILANCULOS – GOVURO
(CENTRAL MOZAMBIQUE)**

Presented by: Salomão Bandeira^{1*}, Almeida Guissamulo² & Davide Samussone¹

¹ Department of Biological Sciences, Universidade Eduardo Mondlane, Maputo, Mozambique.

² Natural History Museum, Universidade Eduardo Mondlane, Maputo, Mozambique.

* sband@uem.mz

Abstract

This report documents the proposed Bazaruto Archipelago-Vilanculos-Govuro site, home of the most viable dugongs in eastern Africa. Megafauna such as dugongs, turtles, dolphins, marlins etc; seagrasses meadows and mangrove forests abound in this site. Challenges such as increased fisheries activity, extreme events such as cyclones and floods as well as prospection of oil and gas are some of the issues that makes this place vulnerable. However the Bazaruto archipelago national park as helped protection of this important EBSA area.

Introduction

The Bazaruto Archipelago-Vilanculos-Govuro region is a 120 km long stretch of the coast which encompasses two bays (Bazaruto and Govuro) and an archipelago with five islands. It is located in the Inhambane Province, south part of Mozambique coastline. It possesses diverse flora and fauna richness including the sea mammals. The archipelago and neighboring coastline has diverse terrestrial and marine habitats ranging from sand dunes, rocky and sand shores, coral reefs, seagrasses to mangrove forest. Oceanographically the region has an influence of fast flow current induced by wave action and tides, especially in the channels between the islands generated by the tidal ranges at spring tides that transport large amount of sand forming extensive flood and ebb-tidal deltas. The average tidal amplitude is about 3 m during normal spring tides (Everett et al., 2008) as also according to the National Institute of Hydrography and Navigation. There is some estuarine influence from the Save and Govuro Rivers in the north and from the lakes of Sao Sebastião Peninsula which drain into the Bazaruto Bay

Two different basins are found, one on the North of Santa Carolina Island with 33 meters of maximum depth and in the middle section of the bay with maximum depth of 24 meters. The northern basin is the main connection of the bay to the open sea and is the deepest area of the bay (Cockcroft et al., 2008).

As a shallow tropical bay, in the Bazaruto Archipelago is inhabited by seagrass beds associated with the sand tidal flats covering approximately 88 km² in shallow and subsidiary waters less than 5 m (Bandeira et al., 2008). These seagrass beds are important as nurseries areas for fish,

and provide grazing area for Dugongs. The extent and distribution knowledge of seagrass beds comprise the area between Inhassoro and Cabo Sao Sebastiao covering an area near 88 km² of the shallow intertidal and subtidal waters. The dominant species of seagrass include *Thalassodendron ciliatum*, *Cymodocea rotundata*, *Halodule uninervis* and *Zostera capensis* (Bandeira et al 2008; Cockcroft et al., 2008).

Fisheries activity both subsistence and commercial fishing is intensively and extensively practiced along the mainland by local people but with less extent in the Archipelago, because of conservation measures of the Bazaruto Archipelago National Park. Woman and Children are involved in collectiong mainly invertebrates on seagrasses beds and intertidal flats.

In 2001-2005 the WWF implemented two projects based on Bazaruto multiple resources uses and the Bazaruto community based natural resource management with main aim to ensure government commitment in the approval of proposal to extend the limits for the national marine park and continue to implement Bazaruto National Park Management Plan for the next five years (WWF, 2005). This file was used as additional document to describe this EBSA area in Mozambique.

Location

Bazaruto archipelago are located up to 20 km off the Mozambique coast within latitudes 21°30'-22° 10'S and longitudes 35°22'-35° 30'E. The climate in this region is moderately humid with annual rainfall dominated by two climate systems namely the Indian Ocean Subtropical Anticyclone System of the SE trade winds zone and the southern end of the East African Monsoonal system. The average annual temperature and precipitation on the archipelago is about 24°C and 978 mm respectively. Since 1971 the area has experienced some legal protection and further have been proposed to be the natural park by Tinley around Santa Carolina island to protect the vulnerable population of Dugong and sea Turtles. Figure 1 depicts this EBSA in central Mozambique.

Feature description of the proposed area

The Bazaruto Archipelado is made up by five islands. The Bazaruto island is the most extensive with about 12000 ha, Benguérua with 2 500 ha, Magaruque 600 ha, Santa Carolina (formerly called Paradise island) with 500 ha and the smallest island is Bangué covering 5 ha. The main

geomorphological features of Bazaruto are the unweathered yellow-white sand forms climbing dunes of Holocene and modern age along the ocean margin of the islands.

The islands comprise a core of Pleistocene dunes that are exposed at several localities on the western margin of the islands as a weathered and largely structureless sand with an orange-red colouration (Andrew et al., 2002).

Offshore submerged aeolianite ridges occur along the ocean margin of Bazaruto and mark former shoreline positions. In many instances these have been colonized by coral growth. Irregular and reversing transverse dunes develop where sand blown off the beach and pioneer vegetation has been stabilized above the level of spring high tide and storm surge swash (Andrew et al., 2002).

These islands are Important due the largest and considered the most viable dugong population along the east African coast with about 130 individuals in the Bazaruto bay (Cockcroft et al., 2008). Rocky areas are present in the Archipelago and provide habitats for coral to colonize and form small reefs with suitable conditions to support a typical reef-associated fauna and protecting the associated beaches zone and infrastructures (Cockcroft et al., 2008). Both soft and hard corals are more abundant and diverse on the Bazaruto reefs. Three types of reefs can be found in the archipelago namely submerged sandstone reefs, submerged fringing reefs and patch reefs.

The reefs in the archipelago are concentrated around Bazaruto island making it the major attraction for the ecotourism industry. Most of corals found in the Archipelago have a wide Indo-Pacific distribution although the new soft coral species (*Cladiella kashmani*) was found in the Bazaruto Archipelago appearing to be limited in its distribution to the east Africa.

Feature condition and future outlook of the proposed area

The area is vulnerable due the mineral exporation, although the benefits that it is giving to the development of the country, they could also threaten the environment because of the proximity of gas blocks to the Bazaruto islands and poor management could induce damage to the environment.

Another source of vulnerability is the increased pressure caused by fisheries within and around Bazaruto Archipelago by artisanal fisheries which in some places (Inhassoro and Vilanculos) has become unsustainable.

These regions, the archipelago and mainlands of Vilanculos, Inhassoro and Govuro are prone to extreme events such as cyclones (3 hit the region in the last 12 years leaving a track of destruction) and floods that occurs recurrently in the Save rivers impacting severely the mangroves and peoples livelihoods.

Assessment of the area against CBD EBSA Criteria

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>Explanation for ranking</i> -The most viable population of Dugongs in the western Indian ocean. Existence of the largest dugong population in eastern Africa -estimated 200 individuals. -Other mega fauna: green sea turtles, humpback whales, large fishes such as marlin, sailfish and spanish mackerel and sharks. -Extensive seagrass beds including the dugong palatable food (Halodule uninervis and halophila ovalis) -Extensive mangrove areas at Govuro and Save estuaries that extend non-stop northwards for at least 100 km. Mangrove area estimated being around 77,000 ha. However 25% were lost due to climate change (ongoing project, Macamo et al.) -Nesting area for loggerhead and leatherback turtles -Area visited by several species of oceanic dolphins and has few resident species of dolphins (humpback and bottlenose dolphins). -Occurrence of tropical coral reefs at the marginal area of their distribution, which has unique species diversity and resilient for climate change events.					
Special importance for life-history stages of species	Areas that are required for a population to survive and thrive (prosperar)				X
<i>Explanation for ranking</i> -Especially for Dugongs -Growing area for juvenile green turtles along the shallow meadows -Nesting area of Loggerhead and leatherback turtles -Resting area for mother calf pairs of humpback whales, when returning to the southern ocean -Breeding area for large pelagic fish -Extensive seagrass beds due to extensive shoals					
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
<i>Explanation for ranking</i> -Dugongs, turtles area highly threatened species yet occurring in relatively large number in this area. -Whale sharks and manta rays visit occasionally the area. The area may serve as a refuge for this species					

<p>due to the pressure caused by tourism further south.</p> <p>-Meadows of the seagrasses <i>Halodule uninervis</i> and <i>Halophila ovalis</i> guarantees food for the dugong</p>					
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	
<p><i>Explanation for ranking</i></p> <p>-Extensive areas of this site is part of the Bazruto Arquipenago National Park, yet in need of more management reinforcement</p> <p>-Gas and oil prospection under way on sections of this site</p> <p>-Drag nets for fishing is a still a common practice</p> <p>-quite extensive mangrove deforestation in Govuro and Save estuaries</p> <p>-Floods and Cyclones: this place is one of the most cyclones prone in Mozambique. Save rives gets usually flooded every year.</p>					
Biological productivity	Area containing species, populations or communities with comparatively higher natural biological productivity.				X
<p><i>Explanation for ranking</i></p> <p>-The area is important for nursing and growth of coastal species due to the combination of mangroves and seagrass meadows. Invertebrates thrive successfully in the area.</p> <p>-Statistics of Save river fish production: 20 tons of dried fish sold weekly by trader</p> <p>- high numbers of sand oyster (<i>Pictata capensis</i> and <i>P imbricata</i> "mapalo") epiphytic on the seagrass <i>Thalassodeondon ciliatum</i>. High numbers of blue crabs (<i>Portunus pelagicus</i>).</p>					
Biological diversity	Area contains comparatively higher diversity of ecosystems, habitats, communities, or species, or has higher genetic diversity.				X
<p><i>Explanation for ranking</i></p> <p><i>The area contains several species of turtles, dolphins, whales, sharks and fish species due to the combination of coastal and oceanic sea habitats</i></p> <p>-One of the few places with high diversity. This is ecologically rich tropical zone contribution to a high diversity of ictiofauna of 280 species (Van der Elst and Santana Afonso 2008)</p> <p>- High diversity of seacucumbers.</p> <p><i>Number in diversity to increase from new research to be undertaken.</i></p>					
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
<p><i>Explanation for ranking</i></p> <p>-The area retains some level of naturalness because of limited access and development that has occurred. In addition the establishment of a national park which has been operational since 1989 has contributed to maintain the naturalness of its habitats. However, few coastal regions located close to the main villages suffered great transformation (Vilanculo and Inhassoro).</p>					

-Extensive section of the mangroves in the Save and rivers estuaries are quite intact. Remoteness and low population densities helped maintenance of the wellbeing of the mangrove forests

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>					

Literature cited:

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Maps and Figures

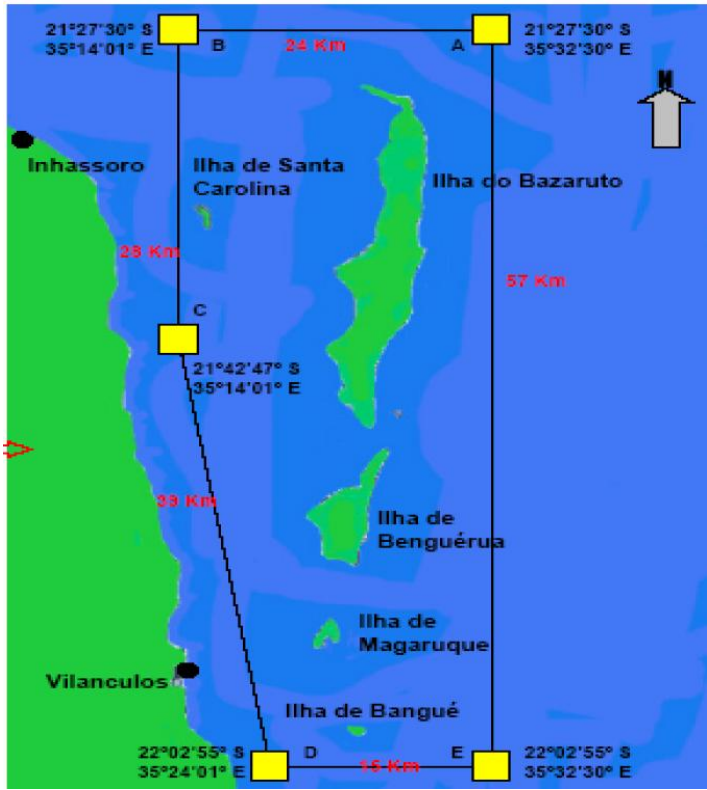


Figure 1. (a) Bazaruto Archipelago showing the 5 islands. (b) Saver river estuaries showing mangrove forests

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