

**Critical Habitats Outlook - Chapter 18**  
**Small islands and atolls**

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## 1. Description and characteristics

Globally, islands only make up about 5 per cent of the Earth landmass and yet they are home to over 20 per cent of the world's biodiversity. Given their high levels of endemism, 41 per cent of the world's critically endangered and endangered species are found on islands (Spatz et al., 2017). They are important roosting and nesting sites for seabirds and migrant birds and are essential nesting sites for turtles. Their surrounding waters are vital nursery areas for many fish species and particularly sharks and rays. In tropical waters, almost all have well-established coral reef systems with a high diversity of associated species. Around the more isolated of these islands and atolls, some corals have also shown resilience against bleaching from warming events thus making them critically important as seeding areas to allow re-establishment.

Because of their small size and low height above sea level, islands and atolls are amongst the first systems that will suffer the consequences of accelerating sea level rise as a result of climate change. Despite their often remoteness, they are being plagued by an increasing accumulation of waste pollution and they have been invaded with alien invasive species with hugely destructive impacts to their fragile biodiversity.

As the focus is on critical habitats and associated species, this chapter provides descriptions and analysis of small islands (in terms of area, which should in most cases not exceed 100 km<sup>2</sup>) that are essentially oceanic and isolated. A few exceptions may exist for those small islands that are distinct even though they might be considered coastal islands, not too distant from major land masses. These small islands are hotspots for biodiversity and essential for the reproduction and migratory routes of many charismatic fauna.

The small islands of the Western Indian Ocean (WIO) fall under a full suite of country designations and vary in size from relatively large landmasses to small isolated coral atolls that are widely scattered across the ocean. Together they have been identified as one of the world's biodiversity hotspots (Myers et al., 2000). Formal protection has already been afforded to some of the islands and two sites have been listed for UNESCO World Heritage status. However, far more conservation effort is needed to ensure the preservation of these biodiversity hotspots through additional proclamation of marine protected areas (MPAs) and through ensuring that those currently under formal protection are effectively managed.

The islands of the WIO can be distinguished into three groups, namely the granitic islands, the low coralline islands and the raised coralline islands. The granitic islands are mostly built of ancient continental granite that is at least 650 million years old, but others are more recent, comprising volcanic syenite rock that is about 60 million years old. The low coralline islands and sand cays are all formed relatively recently from marine coral and shell sand sediments. Most of these are less than 3 m above sea level, last emerging around 5000 years ago and are prone to periodic inundation. Reef-building corals that were then uplifted also formed the raised coralline islands, such as Aldabra. These islands have been submerged and have emerged again above sea level several times with the most recent emergence being about 125 000 years ago (Hill and Curry, 2007). There are more than 40 main island and atoll groups within the WIO with brief descriptions of each listed below.

In addition, there are many smaller rocky outcrops that occur, but these are too small to be of major conservation significance and have therefore not been listed.

### **African Banks**

**Jurisdiction:** Seychelles

**Area:** 8.27 km<sup>2</sup>

**Geography:** Pseudo atoll with two islands

**Description:** Comprises two small sandstone islands. The underwater bank extends 4 km north/south and 3 km east/west. It has a shallow coral ring around it that extends to 20 – 36 m depth.

**Socio-economic/Geopolitical status:** Charter yachts occasionally visit North island.

**Biodiversity:** It is a significant nesting site for terns, the colonies of which are subject to frequent exploitation and disturbance by poachers. It has important populations of black-naped and sooty terns and brown noddies. Green and Hawksbill turtles nest there. The surrounding waters are important for large pelagic fish and sharks.

**Conservation status:** Listed as a protected area and also forms a 750 ha Important Bird (IBA) Area (Birdlife International, 2018a).

### **Agaléga Islands**

**Jurisdiction:** Mauritius

**Area:** 70 km<sup>2</sup> (North island – 2.25 km<sup>2</sup>, South Island – 31.5 km<sup>2</sup>)

**Geography:** Coralline islands separated by a sand bank that can be crossed at low tide.

**Description:** Comprises of two islands with an airstrip being present on North Island.

**Socio-economic /Geopolitical status:** The island is leased to the Indian Military for development of strategic assets. There are two villages on North Island and one small village on South Island. The economics is based on coconut oil with plantations covering a vast portion of the islands.

**Biodiversity:** The endemic Agalega day gecko (*Phelsuma borbonica agalegae*) occurs on the islands. Green and Hawksbill turtles regularly breed on the islands but evidence of poaching still exists (Webster et al., 2016).

**Conservation status:** Managed by the Outer Island Development Corporation with no formal conservation status.

### **Aldabra Island Group**

**Jurisdiction:** Seychelles

**Area:** 210 000 km<sup>2</sup>

**Geography:** Atolls and raised reef.

**Description:** Comprises of Aldabra Atoll (four main atolls and 40 smaller islets), Assumption Island (raised reef), Cosmoledo (two main atolls and 18 smaller islets) and Astove Island (a raised atoll with one island).

**Socio-economic/Geopolitical status:** Three of the islands are inhabited and one is uninhabited. Assumption Island is the main settlement where a military base is in the process of being constructed. Aldabra has a well-established research station and Astove has a population of only a few people.

**Biodiversity:** Harbours some of the least impacted coral reefs in the region. Green and Hawksbill turtles breed on the islands. Aldabra is the second largest atoll in the world, supporting a wide range of species. It is an important breeding and roosting area for many seabirds and has high levels of endemism associated with it (Friedlander et al., 2015).

**Conservation status:** Special nature reserve, world heritage site, Ramsar wetland and IBA.

### **Alphonse Island Group**

**Jurisdiction:** Seychelles

**Area:** 1.71 km<sup>2</sup>

**Geography:** Atoll.

**Description:** Comprises Alphonse Island, Bijoutier and St Francois.

**Socio-economic/Geopolitical status:** Small resident population on the island with luxury accommodation and game fishing tourism.

**Biodiversity:** Various seabirds breed on the islands despite the presence of rats and cats. Coral reefs have been negatively impacted by sea temperature warming events. Green and Hawksbill turtles nest on the islands.

**Conservation status:** Managed by the Island Conservation Society with the Alphonse Foundation to fund conservation efforts. No formal conservation status.

### **Aride Island**

**Jurisdiction:** Seychelles

**Area:** 0.683 km<sup>2</sup>

**Geography:** Granitic island.

**Description:** The site also includes 105 ha of coastal marine habitat.

**Socio-economic/Geopolitical status:** Human activities are limited to research and day visitor tourism that stay on designated paths.

**Biodiversity:** Former coconut plantations are being progressively eliminated. Approximately one million breeding seabirds of ten species make this one of the most important seabird colonies in the Indian Ocean. Green and Hawksbill turtles nest on the beaches.

**Conservation status:** Aride Island Special Nature Reserve and IBA (Birdlife International 2018b).

### **Bajuni Islands**

**Jurisdiction:** Somalia

**Area:** 40 km<sup>2</sup>

**Geography:** Low coral formations covered by scrub and a few trees. Forms a barrier reef protecting the mainland.

**Description:** Nine low-lying islands with only one significant village on Chula. There are six main islands, Chandra (2.95 km<sup>2</sup>), Chovaye (5.46 km<sup>2</sup>), Chula (1.99 km<sup>2</sup>), Koyama (6.38 km<sup>2</sup>), Darakasi (1.99 km<sup>2</sup>) and Ngumi (2.56 km<sup>2</sup>).

**Socio-economic/Geopolitical status:** Artisanal fishing within the reef. The growing population is causing widespread degradation and pollution.

**Biodiversity:** Coral reef systems.

**Conservation status:** Falls within a larger EBSA submission.

### **Banc du Geyser**

**Jurisdiction:** French Territories in the Western Indian Ocean

**Area:** 40 km<sup>2</sup>

**Geography:** Mostly submerged reef that is exposed at low tide.

**Description:** Some rock formations remain exposed at the southern end of the reef and there are some sandy cays covered with grass and small bushes.

**Socio-economic/Geopolitical status:** France, Madagascar and the Comoros claim the Banc du Geysier. There is a possibility of oil fields being present.

**Biodiversity:** There is an abundance of seabirds that cover the cays in tonnes of guano.

**Conservation status:** France included the reef as a marine protected area in 2012.

### **Bassas da India**

**Jurisdiction:** French Territories in the Western Indian Ocean

**Area:** 80 km<sup>2</sup>

**Geography:** Atoll consisting of ten barren rocky islets.

**Description:** 12 km in diameter with a shallow sandy lagoon surrounded by a reef slope that drops quickly to 3000 m.

**Socio-economic/Geopolitical status:** Jurisdiction is contested by Madagascar. It is a site of numerous shipwrecks.

**Biodiversity:** Aggregations of juvenile sharks (*Carcharhinus galapagensis*).

**Conservation status:** Declared a nature reserve in 1975. Part of the Iles Eparses potential World Heritage Site (Obura et al., 2012).

### **Bazaruto Archipelago**

**Jurisdiction:** Mozambique

**Area:** 1.583 km<sup>2</sup>

**Geography:** Sandy Archipelago, apart from Santa Carolina, which is a rock island.

**Description:** Six islands (Bazaruto, Benguerra, Magarugue, Banque, Santa Carolina and Shell).

**Socio-economic/Geopolitical status:** The area is a popular tourism destination with opportunities for diving, fishing and surfing. Seventy percent of the resident population of about 4000 people are directly dependant on fishing as a primary livelihood.

**Biodiversity:** Home to the largest population of dugongs along the eastern coastline of Africa, south of the Red Sea. The population comprises an estimated 250 individuals. The protected area is also home to coral reefs, whale sharks, manta rays and cetaceans. Five species of turtles breed on the beaches (IUCN, 2015).

**Conservation status:** The archipelago became a National Park in 1971. African Parks took over the conservation management of the National Park in December 2017.

### **Bird Island - Seychelles**

**Jurisdiction:** Seychelles

**Area:** 0.94 km<sup>2</sup>

**Geography:** Coralline island.

**Description:** Vegetated interior (including coconut plantations) with 5 km of sandy beaches.

**Socio-economic/Geopolitical status:** Small resident population and high-end luxury tourism facilities.

**Biodiversity:** Known for its large breeding colonies of Sooty terns and Common noddies. Hawksbill and Green turtles nest on the beaches.

**Conservation status:** Private conservation measures include the eradication of rats and rabbits. No formal conservation status.

### **Booby Island**

**Jurisdiction:** Seychelles

**Area:** 0.023 km<sup>2</sup>

**Geography:** Granitic island.

**Description:** Granitic island topped with tropical vegetation.

**Socio-economic/Geopolitical status:** Uninhabited but visited for snorkelling and diving.

**Biodiversity:** No significance.

**Conservation status:** None.

### **Boudeuse Island**

**Jurisdiction:** Seychelles

**Area:** 0.03 km<sup>2</sup>

**Geography:** Sandstone platform.

**Description:** 4.6 m above sea level with a small sandy beach. Heavy swells make landing difficult.

**Socio-economic/Geopolitical status:** Uninhabited.

**Biodiversity:** No introduced vegetation, making it one of the most pristine cays in the area. Supports a population of 4000 Masked boobies and a small colony of Brown boobies. Green and Hawksbill turtles nest on the beaches.

**Conservation status:** IBA (Birdlife International 2018c).

### **Saint Brandon (also known as the Cargados Carajos Shoals)**

**Jurisdiction:** Mauritius

**Area:** 250 km<sup>2</sup> with a 190 km<sup>2</sup> reef surrounding it.

**Geography:** Coral ridges and sand flats on an extended reef system.

**Description:** A group of 50 islands. Considered as part of the Mascarene Island group.

**Socio-economic/Geopolitical status:** There is a small transient population of Creole fishermen. Tourism operators offer fishing and diving trips.

**Biodiversity:** The endangered Green turtle and the critically endangered Hawksbill turtle breed on the beaches and seabird breeding colonies of various species are present. Introduced rats are considered one of the most significant causes of species loss on the islands. Mice, chickens, geckos and rabbits also infest the islands.

**Conservation status:** Recognized as an IBA with an estimate of 100 000 – 500 000 birds occurring there (Evans et al., 2016).

### **Chagos Archipelago**

**Jurisdiction:** British Indian Ocean Territory (BIOT)

**Area:** Land area is 56.13 km<sup>2</sup>. Total area including lagoons and atolls is 15 000 km<sup>2</sup>.

**Geography:** Coralline rock structures that top a submarine ridge.

**Description:** Seven atolls comprising 60 individual islands and nine reefs and banks.

**Socio-economic/Geopolitical status:** Chagos is constituted as a BIOT and has the USA Diego Garcia military base on it. The islands are contested between the UK and Mauritius.

**Biodiversity:** The Great Chagos Bank is the largest acknowledged atoll structure in the world and it supports half the total of good quality reefs in the Indian Ocean.

Ecosystems have thus far proven resilient to climate change. Seventy-six species that occur within the Chagos are listed in the IUCN Red List of Threatened Species.

**Conservation status:** In 2010, the UK government designated the area around the Chagos as the world's largest no-take reserve covering 544 000 km<sup>2</sup> (Marine Protection Atlas, 2017).

### **Chumbe Island**

**Jurisdiction:** Zanzibar, United Republic of Tanzania

**Area:** The coral reef sanctuary is 0.55 km<sup>2</sup> and a forest reserve of 0.17 km<sup>2</sup>.

**Geography:** Coral reef and coral rag island.

**Description:** Comprises of a coral rag island approximately 1.1 kms long and 300m at its widest point. There is a shallow fringing reef running north-west to south-west.

**Socio-economic/Geopolitical status:** The island is managed by a not-for-profit company (CHICOP ltd) that reports to the Zanzibar Investment Promotion Agency and MANRLF.

**Biodiversity:** Over 500 species of fish and 59 genera of reef-building corals have been identified. There are populations of coconut crab, Adlers duiker and the rare rosette tern (*Sterna dougalli*) that breed on the island.

**Conservation status:** Designated as a no-take area.

### **Coëtivy Island**

**Jurisdiction:** Seychelles

**Area:** 9.33 km<sup>2</sup>

**Geography:** Coralline island.

**Description:** Low lying and heavily wooded.

**Socio-economic/Geopolitical status:** Coëtivy Island is used as an active prison and recently the government of the Seychelles and the government of the People's Republic of China have come to an agreement regarding a Chinese military base placed at the Northern end of Coëtivy Island (Global Powers, 2017).

**Biodiversity:** No information.

**Conservation status:** None.

### **Cousin Island**

**Jurisdiction:** Seychelles

**Area:** 0.34 km<sup>2</sup> with a 1.05 km<sup>2</sup> coastal marine habitat.

**Geography:** Granitic island.

**Description:** A plateau covered with woodlands and with a granitic central hill 69 m above sea level

**Socio-economic/Geopolitical status:** Research station that allows day visitors that stay on designated trails during weekdays.

**Biodiversity:** Small areas of mangroves occur with three freshwater swamps. Important for endemic land birds as well as extensive seabird breeding populations of seven species. Green and Hawksbill turtles nest on the beaches. Coral restoration project underway. An extensive restoration project is underway that is removing the relict coconut plantations.

**Conservation status:** Managed by Nature Seychelles. Cousin Island Special Reserve and identified as one of the most important IBAs in the Seychelles (Birdlife International, 2018d).

### **Cousine Island**

**Jurisdiction:** Seychelles

**Area:** 0.3 km<sup>2</sup>

**Geography:** Granitic island.

**Description:** An ancient granitic ridge overlooking a small coastal plateau and fringed by a long sandy beach on the eastern side.

**Socio-economic/Geopolitical status:** A small exclusive resort exists on the island.

**Biodiversity:** Considered one of the most important nesting sites for Hawksbill and Green turtles in the WIO. Important populations of endemic land birds and substantial populations of several seabird species occur on the island. A vegetation rehabilitation plan is underway to remove coconut trees.

**Conservation status:** Cousine Special Reserve and recognized as an IBA (Birdlife International, 2018e).

### **Curieuse Island**

**Jurisdiction:** Seychelles

**Area:** 2.93 km<sup>2</sup>

**Geography:** Granitic island.

**Description:** Bare red earth and coco-de-mer palms.

**Socio-economic/Geopolitical status:** An old leper colony that now hosts a satellite camp for conservation volunteers who undertake monitoring projects.

**Biodiversity:** Endemic land bird, coco-de-mer palms and nesting Hawksbill turtles.

**Conservation status:** Curieuse Marine National Park.

### **D'Arros Island and St Joseph Atoll**

**Jurisdiction:** Seychelles

**Area:** D'Arros is 1.71 km<sup>2</sup> and St Josephs Atoll is 1.63 km<sup>2</sup>.

**Geography:** Coralline island and atoll.

**Description:** A low lying vegetated coralline island that is separated from St Josephs Atoll by a deep-water channel.

**Socio-economic/Geopolitical status:** Privately owned with a small resident population. Save Our Seas foundation runs a flourishing research centre on the island. Save Our Seas are keen to see the area fully designated as an MPA and various negotiations have been made with the Seychelles government to implement this.

**Biodiversity:** The atoll is an important nursery area for several shark and ray species and an important feeding ground for turtles. Several seabird species roost and nest on the island and atoll. Extensive intact coral reef systems occur.

**Conservation status:** None. Managed by Save Our Seas Foundation.

### **Denis Island**

**Jurisdiction:** Seychelles

**Area:** 1.4 km<sup>2</sup>

**Geography:** Coralline island.

**Description:** The second northernmost island in the Seychelles.

**Socio-economic/Geopolitical status:** There is a small resident population with a small resort on site that offers diving, snorkelling and fishing.

**Biodiversity:** There is an abundance of coconut palms and other alien invasive tree species, but restoration projects are underway. There are several endemic land bird species and a fledging seabird colony. Green and Hawksbill turtles nest on the island.

**Conservation status:** The Green Islands Foundation, an NGO with a decade-long track record of conservation success in Seychelles, has a permanent outpost on the island and oversees a variety of programmes.

No formal conservation status.

### **Desnoeufs Island**

**Jurisdiction:** Seychelles

**Area:** 0.457 km<sup>2</sup>



**Geography:** Exposed sandstone island.

**Description:** Circular island with a high rim surrounding a central depression. The island has a fringing reef

**Socio-economic/Geopolitical status:** The island is a base for the commercial exploitation of seabirds, especially the eggs of sooty tern (*Sterna fuscata*). There is no permanent human population, but buildings have been constructed. Poaching of turtles and their eggs may be taking place.

**Biodiversity:** Hawksbill and Green turtles nest on the island. Breeding seabird populations have declined.

**Conservation status:** IBA (Birdlife International, 2018f).

### **Desroches Island**

**Jurisdiction:** Seychelles

**Area:** 4027 km<sup>2</sup>

**Geography:** Coralline and fringed by reef of atoll character.

**Description:** 5.5 km long with a 13 km beach circumference.

**Socio-economic/Geopolitical status:** There is a permanent population of around 100 people and a hotel is also found on the island.

**Biodiversity:** Green and Hawksbill turtles nest on the beaches. Small numbers of Wedge-tailed shearwaters breed despite the presence of rats.

**Conservation status:** Managed by the Island Conservation Society. No formal conservation status.

### **Étoile Cay**

**Jurisdiction:** Seychelles

**Area:** 0.05 km<sup>2</sup>

**Geography:** Coral cay.

**Description:** Circular cay lying in the Amirantes outer islands of the Seychelles.

**Socio-economic/Geopolitical status:** Uninhabited.

**Biodiversity:** One of only three known nesting locations in the Seychelles for Roseate terns. Sooty terns and Common noddies also nest. Green and Hawksbill turtles nest on the beaches.

**Conservation status:** IBA.

### **Europa Island**

**Jurisdiction:**

French Territories in the Western Indian Ocean

**Area:** 28 km<sup>2</sup>

**Geography:** Low sand cay.

**Description:** It is surrounded by coral beaches and a fringing reef and encloses a shallow mangrove lagoon of around 9 km<sup>2</sup> and open to the sea on one side.

**Socio-economic/Geopolitical status:** There is a small French military garrison on the island.

**Biodiversity:** One of the worlds' largest nesting sites for Green turtles (8000 – 15 000 females). It supports a large and diverse population of breeding seabirds. It is the only known breeding site outside Aldabra and Madagascar for Malagasy pond herons. Seabirds include the second largest colony in the WIO of Great frigate birds and Audubon's shearwaters. It has the most diverse seabird fauna of the scattered islands in the WIO. Blacktip reef sharks (*Carcharinus melanopterus*), Lemon sharks (*Negarprion acutidens*) and hammerhead sharks occur in healthy numbers.

**Conservation status:** Listed as an IBA. Part of the Iles Eparses potential World Heritage Site (Obura et al., 2012).

### **Farquhar Group**

**Jurisdiction:** Seychelles

**Area:** 13.567 km<sup>2</sup> with 370 km<sup>2</sup> of atolls.

**Geography:** Atolls and submerged reefs

**Description:** Lying in the outer islands of the Seychelles. The island group comprises Farquhar Atoll, Providence Atoll, St Pierre Island, Wizard Reef, Umzinto bank (submerged), Bulldog Bank (submerged) and McLeod Bank (submerged).

**Socio-economic/Geopolitical status:** There is only one settlement on Ile du Nord of Farquhar Atoll. The atolls are a favourite fly-fishing and game fishing destination and SCUBA diving and snorkelling also takes place.

**Biodiversity:** Fossil coral cliffs on St Pierre Atoll. The site is an important nursery area for juvenile sharks. The island hosts significant numbers of breeding seabird species.

**Conservation status:** IBA (Birdlife International, 2018g).

### **Fregate Island**

**Jurisdiction:** Seychelles

**Area:** 2.07 km<sup>2</sup>

**Geography:** Granitic island.

**Description:** The easternmost of the granitic islands in the Seychelles, it comprises two hills with low-lying coastal plateaus.

**Socio-economic/Geopolitical status:** A privately owned island with a luxury resort.

**Biodiversity:** Hawksbill turtles nest on the island. The island historically held large seabird colonies, but these have mostly become extinct, with now only small numbers of terns still breeding.

**Conservation status:** IBA for its endemic land birds (Birdlife International, 2018h).

### **Glorieuses or Glorioso Islands**

**Jurisdiction:**

French Territories in the Western Indian Ocean

**Area:** 165 km<sup>2</sup>

**Geography:** Sandy cay and coral bank.

**Description:** 17 km long with two main islands, Grand Glorieuse (7 km<sup>2</sup>) and Lys Island (600 m long)

**Socio-economic/Geopolitical status:** Grande Glorieuse has an airstrip. It is thickly vegetated with the remnants of a coconut plantation and casuarina trees.

**Biodiversity:** The island has the second largest population of breeding Sooty terns in the Indian Ocean with 760 000 pairs. Turtles nest on the sandy beaches.

**Conservation status:** Declared a nature reserve in 1975.

### **Inhaca Archipelago**

**Jurisdiction:** Mozambique

**Area:** 52km<sup>2</sup>

**Geography:** Sandy archipelago.

**Description:** The Inhaca Archipelago comprises of the Inhaca and Portuguese Islands and separates the Maputo Bay from the Indian Ocean. It lies approximately 32 km east from the city of Maputo

**Socio-economic/Geopolitical status:** There is a population of about 6000 people living on the Archipelago that subsist on fishing and agriculture and the area is also a popular destination for South African tourists.

**Biodiversity:** Several species of corals are recorded in the surrounding waters and the islands provide nesting sites for four endangered sea turtle species. Mangroves and seagrass are also found on and around the islands

**Conservation status:** The Archipelago is part of a conservation area since 1965, and has recently been incorporated into the Ponta do Ouro Partial Marine Reserve.

### **Juan de Nova Island**

**Jurisdiction:**

French Territories in the Western Indian Ocean

**Area:** The island is 4.4 km<sup>2</sup> and the coral reef platform is 250 km<sup>2</sup>.

**Geography:** Beachrock and sand dunes surrounded by a coral reef platform.

**Description:** The coral structures extend 12 km north and 2 km south of the island. The tilting structure of the island results in differing reef morphologies that vary between 3 m and 20 m before dropping to 2000 m.

**Socio-economic/Geopolitical status:** There is a French garrison of troops on the island with an airstrip.

**Biodiversity:** Over two million breeding pairs of Sooty terns nest on the island make it the most important nesting site for this species in the Indian Ocean. It is an important nesting site for Hawksbill turtles and the surrounding waters are an important nursery area for Grey reef sharks.

**Conservation status:** Designated as a nature reserve and also an IBA. It forms part of the Iles Eparses potential UNESCO World Heritage Site (Obura et al., 2012).

### **Marianne Island**

**Jurisdiction:** Seychelles

**Area:** 0.96 km<sup>2</sup>

**Geography:** Granitic island.

**Description:** A long beach occurs on the western side of the island.

**Socio-economic/Geopolitical status:** Uninhabited but visited by tourists and boaters for its diving locations.

**Biodiversity:** No information.

**Conservation status:** None.

### **Marie Louise Island**

**Jurisdiction:** Seychelles

**Area:** 0.556 km<sup>2</sup>

**Geography:** Coralline island.

**Description:** The island is located at the southern end of the Amirantes. A low-lying coral sandy cay that is oval in shape.

**Socio-economic/Geopolitical status:** In 2012, the Seychelles government established a new prison on the island.

**Biodiversity:** Coconut palms and casuarina trees dominate the vegetation. It is used as a support base for the harvesting of Sooty tern eggs. It has breeding colonies of various tern species and Hawksbill turtles nest on the beaches.

**Conservation status:** None.

### **Misali Island**

**Jurisdiction:** Zanzibar, United Republic of Tanzania

**Area:** 0.9 km<sup>2</sup>

**Geography:** Coralline Island

**Description:** The coralline island is covered with thick vegetated scrub

**Socio-economic/Geopolitical status:** The waters around the island support key fishing grounds

**Biodiversity:** There is a high diversity of over 350 reef fish species and 40 coral species around the island. Dugong have also been reported on occasion and turtles have bred on the island.

**Conservation status:** Listed under the Misali Forest Order as a protected forest and multiple use zone.

### **Mnemba**

**Jurisdiction:** United Republic of Tanzania

**Area:** 28 km<sup>2</sup>

**Geography:** Coralline island

**Description:** Mnemba Island is a small single island located 3 km offshore from the Tanzania Mainland and is the largest island of the Zanzibar Archipelago. It is surrounded by an oval coral reef system.

**Socio-economic/Geopolitical status:** Mnemba is a private island that has a luxury lodge on it that is managed by &Beyond. There is a 200 m exclusion zone around the island which may only be used by guests visiting the lodge.

**Biodiversity:** Green turtles nest on the beaches and the island is a refuge for the introduced Adder's duiker.

**Conservation status:** It has been designated as the Mnemba Island Marine Conservation Area.

### **North Island - Seychelles**

**Jurisdiction:** Seychelles

**Area:** 2.01 km<sup>2</sup>

**Geography:** Granitic island.

**Description:** One of the Seychelles inner islands situated 27 km north of Mahe.

**Socio-economic/Geopolitical status:** Privately owned with a private resort.

**Biodiversity:** Endemic land birds. Vegetation restoration projects are being undertaken. Hawksbill and Green turtles nest on the beaches. There are small numbers of nesting seabirds.

**Conservation status:** None.

### **Ile Platte**

**Jurisdiction:** Seychelles

**Area:** 0.578 km<sup>2</sup>

**Geography:** Sandy cay.

**Description:** The island is a low and wooded sandy cay about 1300 m long and 250 m wide. Barrier reefs extend 5 km north and about 2 km south of the island. There is also a submerged coral reef rim that extends 12 km west and 18 km south of the island.

**Socio-economic/Geopolitical status:** There is a small settlement on the western shore with a few guest cottages on the northwest corner.

**Biodiversity:** A small population of Hawksbill turtles nest on the island and White-tailed tropicbirds and tern species breed on the island. The island is known for its rich fish life.

**Conservation status:** Managed by the Island Development Company. No formal conservation status.

### **Poivre Atoll**

**Jurisdiction:** Seychelles

**Area:** 20.24 km<sup>2</sup>

**Geography:** Atoll.

**Description:** Poivre Atoll is on the eastern edge of the Amirantes Bank and comprises of the atoll and four islands. Poivre North and Poivre South are joined by a 750 m causeway crossing the reef flats. There is a large, elongated lagoon between the four islands that dries out during low tide.

**Socio-economic/Geopolitical status:** There is a 30-room hotel on the Florentine Island.

**Biodiversity:** The Island is known for its rich fish life. Hawksbill turtles nest on the beaches and there are a few species of breeding seabird on the island.

**Conservation status:** No formal conservation status.

### **Primeiras and Segundas Archipelagos**

**Jurisdiction:** Mozambique

**Area:** The area extends for more than 10 000 km<sup>2</sup> and over 205 km of coastline.

**Geography:** Archipelago

**Description:** The Primeiras and Segundas Archipelago is a chain of ten sparsely inhabited barrier islands and two coral reef complexes off the coast of central Mozambique, near the coastal town of Angoche. The islands lie in two groups along the western side of the Mozambique Channel. The five Segundas islands are in the north and separated by a stretch of open water and reefs from the five islands of the Primeiras chain to the south.

**Socio-economic/Geopolitical status:** Due to the lack of reliable sources of fresh water, habitation on the islands is sparse and is mainly in support of fishing.

**Biodiversity:** The eastern sides of the islands are fringed with coral reefs, comprised mainly of soft corals with hard corals at the southern edge. Beds of seagrass are situated between the islands and mainland which are important habitat for sea turtles and dugongs. The southern islands support Mozambique's largest nesting grounds for Green sea turtles and Hawksbill sea turtles. The archipelago also hosts an important dugong population.

**Conservation status:** No formal conservation status though it has been identified as an area of high priority.

### **Quirimbas Islands**

**Jurisdiction:** Mozambique

**Area:** 31 islands stretching across approximately 350 km.

**Geography:** Archipelago.

**Description:** Low lying islands covered with patches of dense woodland through to grasslands. The main islands of the Quirimbas include Ibo, Quirimba, Matemo, Vamizi, Quilalia, das Rolas and Medjumbi. While the southern Quirimbas are under formal protection, there is a need to prioritise protection for the northern islands from Metundo Vamizi, Rongi and Tecomaji.

**Socio-economic/Geopolitical status:** Many of the islands are now inhabited with historical settlements also occurring on a number of the islands. The area is popular as a diving destination.

**Biodiversity:** The Quirimbas are important in terms of its input of larvae into the south equatorial current. There has been limited evidence of bleaching mortality, which indicates some resilience to bleaching events. Mangroves occur along the more sheltered shorelines. The coral reef systems within the northern Quirimbas are among the world's most biologically diverse, having the highest recorded diversity of corals outside the Coral Triangle. Three species of turtle breed on the islands but are threatened by poaching for meat and eggs. The Quirimbas Islands would provide suitable habitat for dugongs if proper conservation management effort was put in place. (Hill et al., 2010).

**Conservation status:** Linked to the terrestrial Quirimbas National Park in northern Mozambique (1185 km<sup>2</sup> are marine and island habitats). Submitted for World Heritage Status in 2008.

### **Remire Island**

**Jurisdiction:** Seychelles

**Area:** 0.3 km<sup>2</sup>

**Geography:** Coralline island surrounded by coral reef.

**Description:** It is located 2.5 km south of the southern extremity of Remire Reef.

**Socio-economic/Geopolitical status:** There is a small settlement on the western shores of the island.

**Biodiversity:** The Island is known for its rich fish life. Hawksbill turtles nest on the beaches and there are a few species of breeding seabird on the island but numbers are declining.

**Conservation status:** Managed by the Island Development Company. No formal conservation status.

### **Sainte Anne Archipelago**

**Jurisdiction:** Seychelles

**Area:** 3.87 km<sup>2</sup> with a marine national park of 14.43 km<sup>2</sup>.

**Geography:** Granitic islands.

**Description:** Comprise eight islands.

**Socio-economic/Geopolitical status:** Ste. Anne, Round and Long Islands have luxury resorts on them, while Cerf Island has a small resident population of around 100 persons. The islands are a popular snorkelling and diving spot.

**Biodiversity:** Cachee Island is a nesting site for seabirds. The area contains one of the largest seagrass meadows in the granitic islands of the Seychelles and is therefore an important feeding ground for turtles.

**Conservation status:** Sainte Anne Marine National Park.

### **Silhouette Island**

**Jurisdiction:** Seychelles.

**Area:** 20.1 km<sup>2</sup>.

**Geography:** It is the third largest granitic island in the Seychelles

**Description:** The Island is mountainous with five peaks over 500 m above sea level.

**Socio-economic/Geopolitical status:** The population of around 200 persons live in three villages on the west coast of the island. There is a luxury hotel on the island.

**Biodiversity:** Numerous endemic land-based species occur on the island. Coastal reef flats surround the island.

**Conservation status:** Silhouette National Park and IBA. The Island Conservation Society manages it. Not significant for seabird or turtle nesting.

### **Songo Songo Archipelago**

**Jurisdiction:** Tanzania

**Area:** 40 km<sup>2</sup>

**Geography:** Coralline islands

**Description:** The Songo Songo Archipelago is made up of a collection of five tiny islands surrounded by reefs that are located to the southwest of Mafia Island. The islands stretch for approximately 40 km.

**Socio-economic/Geopolitical status:** Fanjove Private Island contains a small eco-friendly lodge that can accommodate 12 persons, and Songo Songo Island support a population of some 3500 people, while the other smaller islands house temporary fishing camps

**Biodiversity:** A band of fringe reef with high coral diversity protects the islands from the open sea. The islands are important feeding and nesting grounds for Hawksbill turtles. Nesting. They are also important for coconut crabs and nesting seabirds including the Fairy tern (*Gygis alba*).

**Conservation status:** No formal conservation status, but included in the Mafia-Rufiji-Kilwa Ramsar Site.

### **Tromelin Island**

**Jurisdiction:**

French Territories in the Western Indian Ocean

**Area:** 1.77 km<sup>2</sup>

**Geography:** Atoll.

**Description:** A low flat island not reaching more than 7 m above sea level and fringed by coral reef.

**Socio-economic/Geopolitical status:** Contested between France and Mauritius. There is a short airstrip on the island.

**Biodiversity:** Masked and Red-footed boobies nest on the island. It is a key site for nesting Green turtles (Derville et al., 2015).

**Conservation status:** It has been identified as an IBA due to its significance as a seabird-breeding site.

## **2. Key Species**

### Seabirds

The WIO islands are globally important roosting and breeding grounds for several seabird species. For example, Juan de Nova hosts over two million breeding pairs of Sooty terns and the Glorieuses has the second largest colony of Sooty terns with 760 000 pairs. Europa Island has the most diverse seabird fauna of the scattered islands of the WIO and also has the second largest breeding colonies of Frigate birds and Audubon's shearwaters. Aldabra with its high endemism, hosts the world's second largest colony of nesting Frigate birds and Aride Island has over one million breeding

seabirds of ten different species. Masked and Red-footed boobies both have limited breeding populations with colonies occurring on Tromelin and Bordeuse islands, while St Joseph's Atoll is an important roosting site for Red-footed boobies and hosts over 1000 Greater (*Fregata minor*) and Lesser frigate birds. Sooty tern eggs are still being legally harvested in large numbers on Desnoeuvs Island with Marie Louise Island acting as a secondary base for this harvesting and it has been noted that the populations of these terns are declining on the islands.

Unchecked development on small islands can have major negative consequences for seabird populations and rising sea levels will also result in the flooding of low-lying areas necessary for breeding terns, tropicbird and shearwater species. Invasive rats have historically been one of the leading causes of seabird extinctions and they continue to threaten island bird species by preying on eggs, chicks and adult birds. According to Graham et al. (2018), seabird droppings that are rich in nutrients, leach into and benefit surrounding reef systems and the fish on the reefs adjacent to islands with seabirds were larger for their age than fish on the reefs next to rat-infested islands. Increasing levels of tourism are adding to their vulnerability through disturbance, trampling and habitat destruction and over-utilization of resources. In addition to seabird colonies, islands within the WIO are important stop over, resting and feeding points for numerous migrating birds.

#### Turtles

Five species of turtle occur within the WIO with two of these, the Hawksbill (*Eretmochelys imbricata*) and Green (*Chelonia mydas*) turtles breeding regularly on many of the islands. They have traditionally been exploited for their meat, shells and eggs and are particularly vulnerable when they return to land to lay their eggs. As a result of past exploitation they are now listed as threatened. Most WIO countries have agreed upon and have implemented conservation measures to protect turtles with extensive monitoring and research being undertaken on an ongoing basis. The islands are important as feeding, nursery and nesting grounds. Europa Island is considered as one of the most important nesting sites for Green turtles in the world with between 8000 and 15 000 females nesting on the island each year. Cousin Island Special Reserve is considered as the most important nesting site for Hawksbill turtles in the WIO and has one of the longest running monitoring programs for this species in the world (Allen et al., 2010). The shallow reef systems surrounding islands and the lagoons within atoll systems, where seagrass beds occur, are critically important feeding grounds for the turtles.

#### Sharks

With 230 shark and ray species having been identified in the WIO, it is one of only a handful of global shark and ray hotspots. At the same time, with over 70 million people living within 100 km of the coastline, there is tremendous pressure on marine resources and shark populations have faced massive declines. Sharks are slow growing, late to mature and produce few young and therefore struggle to recover from over-exploitation. Additionally, destruction of habitats, such as mangroves (Save our Sharks, 2017) and coral reefs that are important nursery areas for sharks, are also impacting negatively on their populations. Several of the islands in the WIO are important nursery areas for shark species with Bassas da India holding aggregations of juvenile Galapagos sharks



(*Carcharhinus galapagensis*) (Hammerschalg, 2005). D'Arros and St Joseph's Atoll are an important nursery area for several shark and ray species, particularly juvenile Lemon sharks (*Negarprion brevirostris*) (Filmlalter, 2013) and Europa Island is important for Blacktip reef sharks (*Carcharhinus melanopterus*), Lemon sharks (*Negarprion acutidens*) and Greater hammerhead sharks (*Sphyrna mokarran*). Further research is required to determine the importance of other island systems for shark species.

## Dugongs

Dugong populations have declined rapidly across the WIO region largely due to deliberate and accidental capture in fishing nets. Dugongs are now listed as threatened, though several hundred may still occur along the eastern African coast, with the Bazaruto Archipelago being one of the most important of these. According to Findlay et al. (2011), Bazaruto holds a population of between 247 – 359 dugongs.

**Table 1:** Importance of key animal groups in small islands of the Western Indian Ocean.

Island	Seabirds	Turtles	Sharks	Other
African Banks	X	X	X	
Agaléga Islands		X		
Aldabra Island Group	X	X	X	
Alphonse Island Group	X	X		
Aride Island	X	X		
Bajuni Islands				
Banc du Geysier	X			
Bassas da India			X	
Bazaruto Archipelago		X	X	X (Dugong)
Bird Island - Seychelles	X	X		
Booby Island				
Boudeuse Island	X	X		
Cargados Carajos	X	X		
Chagos Archipelago				
Coetivy Island				
Cousin Island	X	X		
Cousine Island	X	X		
Curieuse Island		X		
D'Arros Island and St Joseph Atoll	X	X	X	
Denis Island		X		
Desnoeuvs Island	X	X		
Desroches Island		X		
Étoile Cay	X	X		
Europa Island	X	X	X	
Farquhar Group	X		X	
Fregate Island	X	X		
Glorieuses	X	X		
Inhaca Archipelago		X		
Juan de Nova Island	X	X		
Marianne Island				
Marie Louise Island	X			
Mnemba Island		X		
North Island - Seychelles		X		
Ile Platte	X	X		
Poivre Atoll	X	X		
Primeiras and Segundas Archipelagos	X	X		X (Dugong)
Quirimbas Islands		X		
Remire Island		X		

Sainte Anne Marine National Park	X			
Silhouette Island				
Songo Songo Archipelago		X		
Tromelin Island	X	X		

### 3. Socio-economic and geopolitical importance

Throughout history, the islands of the WIO have played both an important socio-economic role and a maritime strategic role. These islands span the ocean and their strategic importance is highlighted by their location along key sea lines of communication (Baruah, 2018). In addition, given the enormous energy and natural resources of the region, islands will become increasingly important for the economy of emerging countries to grow. These islands are vital to facilitating the abilities of naval forces to al continueto protect the key shipping lanes, with military bases located on a number of these islands. Diego Garcia is the biggest island of the Chagos Archipelago and the US military use this as a base for all of their Indian Ocean operations, while Juan de Nova and Europa Islands have garrisons of French troops stationed there. Agaléga Island is leased to the Indian Military for development of strategic assets and in 2015, the Seychelles and India signed an agreement for constructing and operating a joint military facility on Assumption Island. However, the Seychelles opposition party recently nullified this agreement (Eurasian Times, 2018). India and China have been making recent efforts to garner power and influence across the region and this military base would have given a strong strategic advantage. The Chinese have built a military base on the northern end of Coetivy Islands in the Seychelles (Global Powers, 2017).

Given the strategic importance of these islands, it is understandable that countries are contesting their claim of ownership. Banc du Geyser is contested between France, Madagascar and the Comoros, Bassas da India’s jurisdiction is contested by France and Madagascar, the Chargos are contested between the UK and Mauritius, Tromelin island is contested between France and Mauritius and Mayotte Island is contested between France and Comoros.

With the decline of agricultural activities in the 1970s and 1980s, tourism activities have become the focus for many of the small islands, particularly those in the Seychelles, and tourism now makes a substantial contribution to the gross domestic product (GDP) and foreign exchange of island states. Facilities vary from small fishing guesthouses to luxury high-end lodges. These venues then become the base point for numerous water-based activities that include snorkelling, diving, boating, fly-fishing and deep-sea game fishing (UNDP, 2013). These activities all rely on maintaining the healthy functioning of marine and island ecosystems and development needs to be carefully planned and impacts must be mitigated. Coral reefs and mangroves are deteriorating from the impacts of local use and important fish stocks are declining die to overfishing and mismanagement (Obura et al., 2017). With island states recognising the importance of healthy island ecosystems, most of the islands now have small but highly efficient research and monitoring stations based on them. These stations are undertaking long-term projects with a particular focus on turtles, seabirds, coral reef systems and climate change.

Oil and gas development is becoming a potentially significant economic activity with numerous companies now conducting exploratory drilling. This activity will need careful monitoring in terms of its alignment with conservation priorities.

#### **4. Threat level**

As countries within the WIO intensify their efforts for a sustainable oceans economy, this places an increasing burden on the diverse ecosystems and biodiversity of the region's islands and atolls. Mounting resource utilisation, habitat degradation, tourism and development, alien invasive species, pollution and climate change all impact negatively on these already fragile systems. For the blue economy to reach its full potential, the region's governments will need to ensure that risk mitigation is maximized and that careful management and conservation of the islands and atolls is ensured to safeguard sustainability and the on-going delivery of ecosystem services (Chevallier, 2017).

##### **Climate Change:**

Given the limited land area, low level above the sea and high exposure to unpredictable marine weather, it can be expected that islands and atolls will have a high vulnerability to climate change. Although sea level rise is considered as one of the most widely recognized threats of climate change to small islands and atolls, tropical cyclones, increasing air and sea surface temperatures and changing rainfall patterns are additional negative impacts that can be expected (Nurse et al., 2014). Low lying areas can expect storm surges and swell waves to increase, as sea levels rise and this will increase the rates of erosion and also impact on fresh groundwater resources as over-wash of seawater occurs. Increases in sea temperature are already resulting in coral bleaching and reef degradation that in turn will reduce their benefits of providing coastal protection from storms and will negatively impact on island community livelihoods as tourism and subsistence fishery opportunities are reduced.

To clearly understand the impacts of climate change, the difference between observed and projected impacts of these changes into the future will need to be carefully recorded through increased baseline monitoring that in turn can heighten confidence in prediction models. Increased assistance from the international community will also be required to assist with adaptation and mitigation measures.

##### **Pollution:**

In spite of international policies and conventions, countries are still dumping millions of tonnes of waste per year into the ocean (Galgani et al., 2010). Despite small islands and atolls being isolated, they are not immune from these debris. Morishige et al. (2007) and Bouwman et al. (2016) both refer to the potential of isolated islands acting as traps or sinks for marine rubbish due to the nature of currents and gyres around these islands. The spatial distribution of this waste is also not homogenous and factors such as the size, shape, density and distance from source all play a role in determining debris deposition. In the case of the WIO islands, most waste has been found to emanate from the mainland of Southeast Asia and Africa, as a result of inadequate waste management practices (Duhec et al., 2015). Plastics in particular have become problematic and given their low density, they float on the sea surface and can be transported over large

distances by wind and currents. It is also well known that these plastic debris can accumulate chemical pollutants with a resultant increased concentration of harmful chemicals and heavy metals being found along island shorelines.

Seabirds that roost and breed on small islands and atolls have also recently been found to be a source of accumulating micro-plastics and debris (Provencher et al., 2018). The seabirds take in the plastic particles when they are mistaken for food items and are then later excreted or vomited out back at their colonies. This can then create concentrated areas of pollution and chemical pollutants such as DDT and PCB's that can have a negative impact on the wider ecosystem.

#### Invasive Alien Species:

Islands are prone to invasion by alien species because of the lack of natural competitors and predators that control populations in their native ecosystems. In addition, islands often have ecological niches that have not been filled because of the distance from colonizing populations, also increasing the probability of successful invasions. These invasions pose a severe risk to small island developing states by threatening the ecosystems, livelihoods and local economies. Mammals have invaded all island groups within the WIO and cats and rats in particular have had an extremely negative impact on seabird populations (Russel et al., 2016). These mammals have been introduced since at least the second half of the last millennium and new introductions still continue unintentionally with, for example, shrews arriving on the island of Rodrigues in 1998. The impacts of these introductions are clear with huge losses of land birds, seabirds and reptiles from predators. Habitat degradation is also occurring from herbivores such as deer, goats and pigs. (Russell and Le Corre, 2009). The granitic Seychelles and the Mascarene Islands hold globally important species of plants with high levels of endemism that are currently threatened by past habitat destruction and the current impact of alien invasive species such as the coconut and *Canavalia cathartica*. Mammal eradications have been attempted on 45 islands in the WIO region and where they have been successful, they have resulted in a spectacular recovery of species and ecosystems. Overall, the tasks of removing these invasive species will require government commitment with the provision of financial and human resources.

#### Tourism and Development:

According to Kumar (2002), marine tourism within the island states of the WIO has the risk of causing irreversible degradation from excess development, over-utilization of water and energy resources, trampling of sensitive systems, overfishing and mangrove clearing. In addition, increased trade and tourism are significant vectors for the introduction of invasive alien species as listed above. These invasive species arrive via the ships ballast, cargo and unprocessed commodities. Given that this tourism is often the largest source of foreign exchange for many of the small island states it is therefore imperative to ensure that the pressures of this industry are carefully monitored, mitigated and managed.

#### Illegal extractive use and poaching:

The poaching of seabird eggs, turtle eggs, turtles and numerous fish species and sharks is occurring across WIO islands but the full impacts of this is not quantifiable or clearly

understood. Destruction of mangroves, is similarly having detrimental impacts on healthy island functioning, increasing erosion from storm surges, reducing nursery areas for sharks and fish species and reducing available nesting habitat for many seabirds.

## 5. Protection level

Currently only seventeen of the listed small islands have some form of legal protected area status. Of these, only 14 of the sites have marine areas also included under legal protection. While some of the other islands and atolls have indeed been recognized for their biodiversity and ecological value, IBA and ecologically or biologically significant marine areas (EBSAs) carry no formal protection status. In 2014, it was announced that D’Aross Island was to be made a protected nature reserve under the Seychelles Nature Park and Conservancy Act but to date this has not been formally designated (Nature Seychelles Blue Economy, 2016). From these results, it is explicitly clear that much work still needs to be done to ensure better legal protection status for these critical biodiversity areas and particular focus must be given to ensuring protection status for the marine areas surrounding these islands.

**Table 2:** Small islands of the Western Indian Ocean protection status. Note: XX indicates marine area also protected.

Island	Protected Area Status	Important Bird Area	EBSA	Other	No protection status
African Banks	XX	X			
Agaléga Islands					X
Aldabra Island Group	XX	X		Rmsar wetland & UNESCO World Heritage Status	
Alphonse Island Group			X		X
Aride Island	X	X			
Bajuni Islands			X		
Banc du Geysier	XX				
Bassas da India	XX			UNESCO World Heritage Site application	
Bazaruto Archipelago	XX				
Bird Island - Seychelles					X
Booby Island					X
Boudeuse Island		X			
Cargados Carajos		X			
Chagos Archipelago	XX				
Coetivy Island					X
Cousin Island	XX	X			
Cousine Island	X	X			
Curieuse Island	XX				
D’Arros Island and St Joseph Atoll					X
Denis Island					X
Desnoeuifs Island		X			
Desroches Island					X

Étoile Cay		X			
Europa Island		X		Ramsar Site, and UNESCO World Heritage Site application	
Farquhar Group		X			
Fregate Island		X			
Glorieuses	XX				
Inhaca Archipelago				Inclusion into the Ponto do Ouro Partial Marine Reserve	
Juan de Nova Island	X	X		UNESCO World Heritage Site application	
Marianne Island					X
Marie Louise Island					X
Mnemba				Marine Conservation Area	
North Island - Seychelles					X
Ile Platte					X
Poivre Atoll					X
Primeiras and Segundas Archipelagos					X
Quirimbas Islands	X X (partial area)			UNESCO World Heritage Site application	
Remire Island					X
Sainte Anne Marine National Park	XX				
Silhouette Island					X
Songo Songo Archipelago				Ramsar	X
Tromelin Island		X	X		

## 6. Priority areas for conservation

For island states to fully maximise the socio-economic opportunities of the blue economy, it will be imperative to ensure adequate protection of the biodiversity and ecosystems of the region's islands and their surrounding waters. Focussed effort will be required to expand the area under legal conservation status and this will need both local and global support and funding. Adequate understanding of the biodiversity and ecology of many of the islands is still deficient and this lack of information makes it difficult to ensure appropriate decision-making to protect these systems. Those areas already under formal proclamation will need to be effectively managed with regular review of management effectiveness taking place. The threats of alien invasive species, over-exploitation of resources, pollution and irresponsible development will also need to be addressed.

Opportunities for increasing protection status lie in concentrating on the islands where the terrestrial component is already proclaimed and on those islands that have already been identified as important bird areas, falling within EBSAs or those areas being identified for UNESCO World Heritage Status. Islands that already have surrounding waters proclaimed need to be assessed further to determine if protection of the marine

components is adequate. The delineation of marine priorities for conservation may further be refined with information on seabird, turtle and marine mammal foraging ranges (Ronconi et al., 2012) and current information on coral reef systems. Formalized conservation planning processes will need to be initiated to determine the full extent of new protected area boundaries but immediate opportunities should be focussed on the following;

- The Northern Quirimbas Archipelago is one of the most diverse, productive and intact ecosystems in the WIO due to the unique blend of environmental, social and historical drivers. The coral reef systems within the northern Quirimbas are among the world's most biologically diverse, having the highest recorded diversity of corals outside the Coral Triangle. The Archipelago comprises Rongui, Vamizi and Metendo Islands.
- The Primeiras and Segundas Archipelagos host Mozambique's largest nesting grounds for Green and Hawksbill sea turtles and the most important dugong populations in the WIO. Extensive beds of seagrass are situated between the islands and mainland which are important habitat for sea turtles and dugongs.
- Juan de Nova Island already has protection status for the terrestrial area, has been identified as an IBA and is included in a UNESCO World Heritage Site application. It is important to both seabirds and turtles.
- Europa Island has been identified as an IBA and Ramsar Site and is included in a UNESCO World Heritage Site application. It is important to seabirds, turtles and sharks.
- Aride and Cousine Islands already have the terrestrial areas under protection status and now require marine area expansion. They are important to both seabirds and turtles.
- Tromelin Island is listed as an IBA and falls within an EBSA. It is important to both seabirds and turtles.
- Boudeuse Island, Cargados Carajos, Desnoeufs Island, Étoile Cay, the Farquhar Group and Fregate Island are all listed as IBAs and have the potential for formal proclamation.
- The process to proclaim D'Arros Island and St Joseph's Atoll as a special nature reserve needs to be finalized.

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