

WWF International Corals Initiative

## Western Indian Ocean marine ecoregion

Geographic location: Madagascar, Réunion (France), Mauritius, Comoros, the Seychelles, and small island dependencies

### Background

The marine and coastal ecosystems of the Western Indian Ocean islands are rich, diverse and distinctive. The Seychelles are among the few granitic oceanic islands that support coral reefs, as well as small stands of mangroves. Large river estuaries in Madagascar support extensive mangrove areas, while on other islands intact mangrove forests remain only in a few bays. Around these one finds a variety of other coastal habitats, including spectacular reefs, sea grass beds, lagoons, beaches, rocky coasts, cliffs, and limestone caves.

Five species of turtle cruise the ecoregion's waters and cetaceans are abundant. Dugong still survives around Madagascar although they are rare throughout the other island states. One of the most remarkable species of the region is the coelacanth, which has survived virtually unchanged for 400 million years. High levels of endemism occur in the region's reef fish, including a number of endemic molluscs, such as the double harp and the violet spider conch.

The oceanographic conditions and biodiversity of the Western Indian Ocean islands are strongly influenced by a number of major ocean currents in the Mozambique Channel. These play a critical role both in transporting and ensuring recruitment of living organisms, and in the productivity of different ecosystems. Marine biodiversity here is thus intimately linked with that of Eastern Africa. Together, the two ecoregions are recognised as a centre of diversity with distinctive species that set them apart from the Central Indian Ocean reefs.

### People

Regional fisheries are an important source of foreign exchange and a key revenue base for economic and social development, in a region otherwise characterized

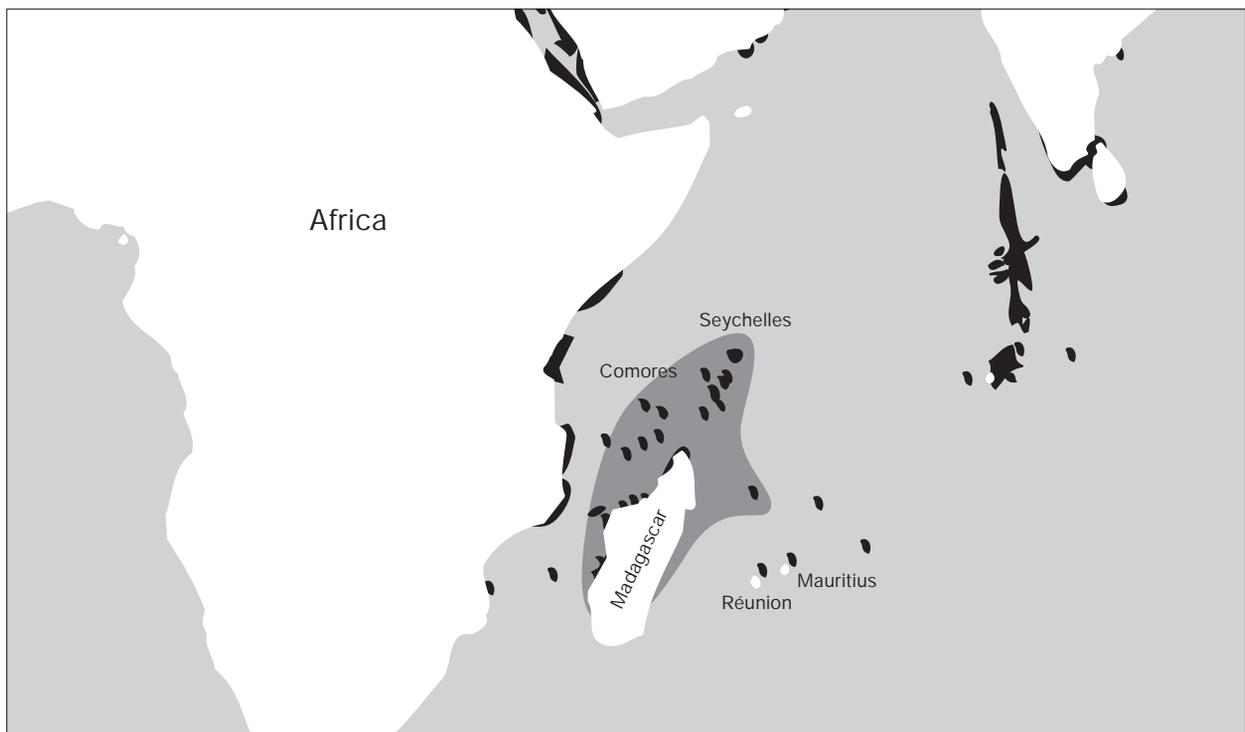
by some of the highest poverty levels in the world. Many households depend directly on fishing and fisheries related industries. In addition to domestic industrial and artisanal fishing fleets, a variety foreign countries have negotiated fisheries agreements to allow their boats access to the region's waters.

As the Western Indian Ocean governments seek to attract new investment, an expanding tourism industry shows particular promise. The lush marine biodiversity provides a significant draw for travellers. Mauritius, Rodriguez and Seychelles have been the key destinations to date, but the economic benefits of tourism are also felt on other islands (such as Madagascar and the Comoros), and are expected to grow.

### Threats endanger fragile economies

Natural resources are in demand by local people as sources of food, for building materials, and to generate income. As human populations grow, the strain on the natural resource base is increasing. For example, although fishing activities bring much needed income, if not managed effectively, they may also put unsustainable pressures on limited stocks. This is further exacerbated by recent improvements in fishing gear that increase both fishing efficiency and damage to the marine environment. The result is a vicious cycle of environmental decline and poverty, now common to coastal communities around the world.

Local impacts are compounded by foreign pressures as marine resources are heavily exploited for export to Asia, especially Japan and China. Commercial fishing fleets heavily exploit the region's pelagic fisheries, targeting sharks and tuna in particular. This fishing also impacts other marine life such as dolphins, turtles, and birds which are caught in the nets or hooked on long lines and drown.



The Western Indian Ocean reefs were particularly hard hit by the coral bleaching event of 1998, caused by elevated marine temperatures. There has been some recovery since that date, but many areas remain dead or severely damaged. Well managed coastal and marine protected areas (MPAs) have served an important role in monitoring recovery and helping build resistance.

### Marine protected areas

MPAs stand out as an important tool to tackle threats to key marine and coastal resources in the Western Indian Ocean. MPAs protect the habitats and processes that are essential to maintaining the web of life. They can act as genetic sanctuaries in light of the unpredictable consequences of global warming. And from the human perspective, experience shows that MPAs can also help to maintain the stability of traditional cultures and societies. The intimate understanding that people have of their environment can be both essential for local resource management, and can open the door to other opportunities for culture, research, education, and ecotourism. MPAs which are realised with local participation can help manage tourism to benefit local communities, minimize negative social and ecological impacts, and provide an enriching experience for visitors. In this way, MPAs are central to the bigger picture of balancing human needs with those of other species, within the framework of economic development.

A number of MPAs are already gazetted in the ecoregion, and several more areas are proposed. Most, if not all, will need assistance to become fully operational. It is likely that the current network of ecoregional MPAs does not represent of the region's full range of coastal and marine

habitats. If so, further effort needs to be put into some form of protection for habitats which are not yet represented.

### WWF's West Indian Ocean marine program

WWF has been most active in Madagascar, although some activities occur in the Mascarenes and there have been past projects in the Seychelles. WWF's approach involves collaborations with a number of other partners involved in marine conservation work. These include important partnerships with the UNEP Regional Seas Programme, the Indian Ocean Commission and WIOMSA, as well as relevant national government departments and other concerned organisations.

The focus of these programs is the creation and management of MPAs, including the establishment of new areas and managing those that currently exist. WWF is also developing a detailed conservation plan for the ecoregion, promoting sustainable fisheries, and influencing marine policy to reduce the damaging effects of trade in marine species with countries in the Far East.

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