

THE IMPORTANCE OF ESTABLISHING MARINE PARKS IN THE WESTERN INDIAN OCEAN

par

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I come to you with a real problem — a problem that must be solved because it concerns one of the most important ecosystems of tropical seas. An yet the obstacles seem unsurmountable, especially where the western Indian Ocean is concerned.

The coral reefs in tropical seas represent the oases in the clear blue water-deserts of the oceans : Coral is, as you know, an animal colony living symbiotically with minute algae. This system — almost a closed system of animal — plant symbiosis — leads to a rich and luxuriant growth, the one supplying the needs of the other. But the essential presence of the algae means that coral cannot grow where light does not penetrate, and thus is restricted to the shallow parts of the sea.

In recent years, since the last world war, man has been taking a greater and greater interest in the sea. The disappearance of hunting areas on land, the need for excitement, the population explosion and above all the development of diving gear have led to increasing hordes of humans entering the sea. As is usual with humans, they must take all they can see. Anything beautiful is doomed.

Increased communications, preventative medicines and a higher standard of living have brought swarms of visitors to tropical seas. Coral and shells are the first to suffer. Coral is collected (and often thrown away when the animal putrefies) for its own sake : later on it is dragged up and smashed to get at the shells it harbours. Shell collecting becomes a mania for thousands of people. Exhorbitant prices are offered for rare shells and many commoner species like *Cassius rufa* or *Cypraea leopardus* are collected by the ton, to be turned into ornaments by craftsmen.

The demand for these creatures is terrific. Along the African coast exploitation of shells brings in much desired revenue. The natives are encouraged to strip the reefs — in some cases are given diving gear to collect better and bigger and more specimens. The export of these shells brings in more revenue each year, and the reefs are being systematically and devastatingly stripped.

It may be argued that a natural catastrophe like a flood or a cyclone can wipe out all the marine life in a particular confined area — can devastate an area in a short time more thoroughly than man can do it over a long period. However, a natural devastation is generally followed by a tremendous upsurge of growth. All animals and plants start again from scratch as it were.

Man's depredations on the other hand are selective. He upsets the balance attained by nature over the centuries, and this may cause the undisturbed animals to increase to such an extent that they can be a menace to the ecosystem.

Many scientists feel that this is what has happened with the crown-of-thorns starfish, *Acanthaster*. This animal that has always been present in the Indo-Pacific has suddenly, in Australian waters, increased its numbers alarmingly, and huge hordes grazing on the coral there have devastated hundreds of square miles of coral. The starfishes eat and completely kill the coral as they move over it. Algae grow on the ruins and this in turn is advantageous for the breeding of these echinoderms.

One suggestion is that animals like the large *Triton* shell feeding on the young of *Acanthaster* have been removed by man. Others dispute this, but whatever the reason we know too little about the delicately balanced ecosystems of the coral reefs to permit the uncontrolled stripping of these areas.

I realise I am talking to the converted. We all agree that marine parks and reserves are essential for the protection and procreation of marine creatures. As on land with the various game parks, marine parks can be a great tourist attraction. Coral reefs in particular are specially attractive. Bathed in clear warm water, the beautiful corals of all shapes, sizes and colours, harbour invertebrates of exquisite beauty, while in protected areas the highly coloured fishes swim quite unafraid in and out of the fronds, or peep shyly out from under plates or lumps of coral.

The necessity for marine parks is not queried. Not only marine biologists but even governments are beginning to realise the importance of protecting areas of the sea. In the western Indian Ocean, apart from the Tsitsikama Park in South Africa, marine parks have been established in Kenya and Tanzania. These tropical parks are reported to be attracting increasing numbers of tourists. But I have also been told that poaching by the natives to sell shells and coral to the tourists is increasing at an alarming rate.

I have just come from studying the coral reefs in northern Mozambique, with a view to establishing parks and reserves to protect areas from overexploitation and to develop some of them as tourist attractions.

Let us first consider the needs and demands of the inhabitants and visitors. Fish are wanted as food. Free ranging pelagic fish are in no danger of extinction. However, a reef can be cleared of its normal inhabitants by excessive killing — especially by the underwater spear fisherman. A case in point is the reef system round the Island of Mozambique, where there is hardly a fish to be seen.

Recently refrigeration plants have been erected on some of the islands, and while previously native indolence induced the blacks to catch fish only when they were hungry, today the reefs are being fished daily. No fish is too small to be used. The nets are such that pipefishes and shrimpfishes are brought in daily and even seahorses sometimes appear in the catch.

One concern has fitted out twelve husky blacks with the latest masks and spearguns.

Further south increasing numbers of tourists kill and shoot enough fish to pay for their holidays and take extra cash home. The result is that reefs are being denuded and the predaceous humans are spreading northwards.

Then comes shell collecting. Who does not wish to own a beautiful cowry ? Here in Réunion you can get one or more — for a price ! Large quantities of shells are being sold in Mauritius, in Mozambique, in Kenya and Tanzania. Before exploitation, the natives of Mozambique collected molluscs to eat. Now they are being induced to collect them for sale. Masks enable them to dive deeper and the reefs are being stripped. How can one protect the reefs from this exploitation, and still permit the natives to follow their age-old custom of collecting shellfish for food ?

It is difficult enough to control the so-called more advanced races. In Africa the problem is far more intricate. A complete ban on the collection of molluscs would not be understood.

What is to be done about spearfishing ? Should it be completely banned as in the Seychelles ? Should certain areas be available for this type of hunting ? Can it be sufficiently controlled so that only free swimming fishes may be killed ?

Then there are the aquarists. And here I must confess that I feel they should be encouraged but controlled. Like a gardener who grows rare plants, the aquarist is the most constructive of all the marine "sportsmen". I have seen rare marine fishes actually *breeding* in tanks in Johannesburg.

One of the greatest difficulties facing a tropical marine park in eastern Africa is the effective policing of the area. Are visitors to be allowed to use their own boats, or should official boats only be used ? Should line fishing be permitted in some parks, or should they all have total protection ? Should an entrance fee be charged, not only to control the visitors, but to help finance the policing of the park ?