The coral reefs of Andavadoaka, southwest Madagascar

Introduction

The terrestrial environment of Madagascar has for many years been the focus of national and international conservation efforts owing to the vulnerability of its abundant endemic flora and fauna. As a consequence, its extensive marine ecosystems - encompassing coral reefs, mangroves and seagrass beds - have been relatively ignored Despite this bias, an increasing amount of attention has been given to the marine and coastal environment as a principal focus of the third phase of Madagascar's environmental plan, following the country's commitment to create 6 million hectares of protected areas.

Aim

The aim of this first report is to give a detailed description of the current, baseline, status of the coral reefs of Andavadoaka

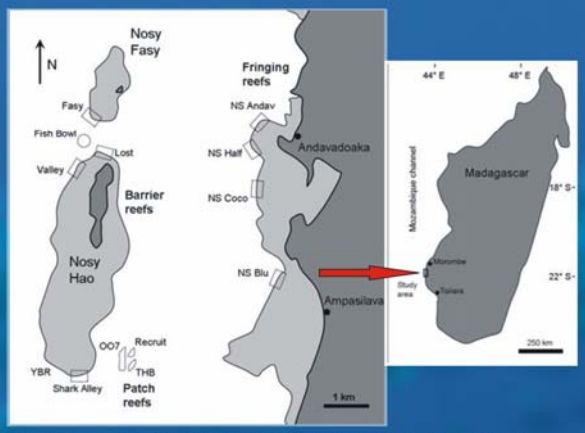

Figure 1 – The three reef systems of the Andavadoaka region with sampling sites (fringing, barrier and patch reefs)

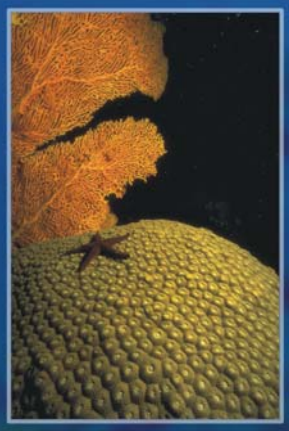

Figure 2 - Starfish and coral

Survey methods

Coral reef monitoring was carried out by SCUBA diving from September 2004 to June 2005 at 11 survey sites using a combination of marine biologists and trained, non specialist, volunteers. Certain zones of the extensive reef flat surrounding the island of Nosy Hao were also surveyed during this period.

Coral Reef Ecosystem

Of the main marine ecosystems present in southwest Madagascar, coral reefs are by far the richest and most diverse habitat with an estimated 6000 reef-associated species, including 752 fish species and 340 coral species (McKenna & Allen 2003). Unfortunately, they are also the most fragile and most at risk from anthropogenic impacts (McClanahan 2000).

Figure 3 - Angelfish in coral reef

Results

Composition of the benthos substrate types

Up to 200 species of hard coral have up to now been identified on the reefs surrounding Andavadoaka and specimens from 90 species are stored on site.

The threats

The three principal factors currently or potentially threatening Malagasy coral reefs are: bleaching from abnormally warm surface waters, excessive terrigenous sedimentation and over fishing.

Conservation

The three reef systems present in the Andavadoaka region are in mostly pristine conditions, but at risk from a rapidly increasing population of the still traditional but very skilled Vezo fishermen. These results are not entirely surprising: the low population density, lack of major rivers and general remoteness of these coral reefs are what attracted the attention of NGOs, research institutes and the Malagasy government in the first place.

Coral reef fish

We conducted 187 fish belts on the reefs around Andavadoaka. Of these, 92 were at the species level and the rest at the family level. Coral reef fishes formed three distinct species assemblages on fringing, barrier and patch reefs

Focal species sightings

Besides common invertebrates and coral reef fish, the following rare, protected or endangered species have also been sighted on reefs in the region for example the napoleon wrasse, the giant grouper and the white-tip reef shark

Marine Protected Areas

One of the proposed projects is the creation of a system of marine protected areas (MPAs) to manage and restrict fishing on certain reefs. The best location for a MPA network would be on both barrier and patch reefs.

Reference: Nadon, M.-O., Griffiths, D. and Doherty, E. (2005) The coral reefs of Andavadoaka, southwest Madagascar
Blue Ventures Conservation Report