

# Coral Reefs of the Abrolhos Bank, Brazil

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## The Region of Abrolhos

The Abrolhos Bank harbours the most biologically diverse coral reefs in Brazil, and the entire South Atlantic, and it is the only place where all species of the Brazilian coral reef fauna occur. Although low in diversity, the coral reefs of Abrolhos are exceedingly high in endemism, including 50% of its reef corals and many other unique reef invertebrates. One of the main reef-building species is an ancient genus, *Mussismilia*, itself endemic to Brazil.

### Case Studies: Protected Areas

Located off of the south-east coast of Bahia State, the Abrolhos reefs arise from a shallow sea floor (depth ranging from 15 to 25 metres) as straight columns, enlarging as they near the surface and forming structures resembling large mushrooms. These structures are referred to as 'chapeirões', and can measure as large as 50 metres in diameter at their uppermost surface.

Apart from these reefs, the Abrolhos region supports extensive mangroves, sparsely vegetated sandbanks (*restingas*) and tropical coastal forests. The human communities that exploit the natural resources found within these ecosystems live within the coastal zone. Shrimp, coral reef fish and mangrove crabs are the main marine resources harvested.

The reefs are partially protected by the Abrolhos National Marine Park (91 300 hectares) established in 1983. The area of the Park comprises the 'Parcel dos Abrolhos' reefs (found in the clearest waters of the region), the five islands of the Abrolhos Archipelago, and the Timbebas reefs, which are located nearer to the mainland.

The Bahia State Government created a protected area (350 000 hectares) in 1993 which includes reefs and mangrove areas adjacent to the Abrolhos National Marine Park, but it still requires implementation. During 1999 Conservation International will be helping the State Government develop a management plan for the area.

## Main Threats

The Abrolhos region is threatened by three important anthropogenic impacts.

1. **Sedimentation** – Scientific evidence suggests that the deforestation along river basins is degrading large coral reef areas in the Region.
2. **Fishing activities** – Fishing techniques developed in the 1970s are unsustainable, causing a sharp decrease in finfish, shrimp and crab stocks.
3. **Tourism** – This industry has witnessed rapid growth, especially in the Abrolhos Marine Park (where currently 15 000 tourists visit per year), and is becoming increasingly important to the regional economy. The fast growth of tourism has affected and continues to threaten the most intensively used areas of the Abrolhos islands. The Abrolhos coastal cities are also expanding as a result of tourism development, impacting nearby mangrove and *restinga* ecosystems.

## The Abrolhos 2000 Project

Removing these threats and promoting environmentally sound development are the objectives of Abrolhos 2000, a project initiated by a partnership between Conservation International and the Brazilian Government's Environmental Agency (IBAMA), with support from several donors, including primarily the Inter-American Development Bank.

The project's first step was to develop a Conservation Action Plan for the Region, which was produced through workshops involving local coastal community representatives and many other stakeholders. The main goal of this plan is to conserve the coastal and marine biodiversity of the Abrolhos region.

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One key component outlined in the Action Plan is the creation of economic development options (that are environmentally sustainable), as alternatives to damaging fishing and tourism practices. Another key component involves pursuing coral reef conservation in the broader context of coastal management, particularly by establishing linkages with coastal and Atlantic forest conservation programs.

#### TOURISM IN ABROLHOS

One priority area for project intervention was the tourism industry, especially in the Marine Park which receives more than 90% of visitors to the Region.

One immediate need was to mitigate the environmental impacts resulting from visitors to the Park. Although visitor guidelines had been developed back in 1987 as part of a park management plan, they were never implemented. As stated in this Management Plan, the carrying capacity for visitors to the park was determined to be 15 vessels/day, each holding a maximum of 15 people. Most of the time, there are nowhere near enough visitors to attain this maximum capacity, but during peak holiday times the number of vessels often exceeds the maximum allowed under the Management Plan. In order to keep the number of visitors within the maximum allowable limit, IBAMA and the tour operators' association met to come up with a solution. The result was that tour operators have agreed to not overbook their excursions, and they understand that offenders will be faced with cumulative fines. Also, as a result of discussions between these two groups, there are now special areas designated for anchorage that will reduce further coral reef destruction.

To remove the additional threats posed by tourists and tour operators, such as the disposal of garbage into the sea and snorkelling and diving outside of designated areas, the Abrolhos 2000 Project developed an educational training program for tour operators. The education program focused on key themes in biology and oceanography, including information on the biodiversity features that make Abrolhos so globally important, and also instructed operators on the laws and correct codes of conduct in the Marine Park. As a result of this educational program, there are far fewer visitor infractions, and fewer conflicts between the Park staff and the tour operators.

Every visitor to the park is received by a trained team of IBAMA staff which gives an orientation speech and hands out folders that describe the importance of the Abrolhos region as well as what visitors can do to help protect it. A walking trip is then offered on one of the islands accompanied by a person from the Park's educational team. While the real purpose of accompanying visitors is to provide additional information about the Park, it also allows Park staff to keep an eye on tourists and make sure they do not harm wildlife or ecosystems. Similarly boat operators help in Park surveillance especially by keeping tabs on snorkellers and scuba divers.

It is important to stress that the funds for the education team come from the tour operators' association. Park enforcement was therefore improved with no added cost to its budget.

The Park has also established an internship program for university students. These interns help the education team in their activities and offer new viewpoints that enhance the daily lives and perspectives of regular Park personnel. Using the skills of unpaid interns also helps to reduce the cost of operating the Park.

Conservation International and its partners have been working on several fronts to integrate the Park into a broader coastal management program. One of the main activities was the production of a Conservation Action Plan for the Abrolhos region. This plan was produced by a diverse array of stakeholders, and defines a strategy for park protection that is in line with the economic and environmental context of the Region. In addition, this project was instrumental in the Government of Bahia's decision to expand the focus of its protected area out from the coastline to include the waters of the Abrolhos Bank. Finally, we are working with the Bahia State Government to develop an ecologically sound tourism plan for the Region.

Conservation International began working directly with the private sector by convening an ecotourism workshop for tour operators from five coastal municipalities. Workshop participants were introduced to important concepts and ways to develop ecologically sound tourism products, and were able to come up with several marketable eco-tours. Conservation International will continue to work with this industry through maintaining and coordinating an association of ecotourism operators.

## Lessons and Recommendations

- **Community and stakeholder participation in workshops from the beginning of the process.** The first lesson we learned in implementing this project was that coastal communities and other stakeholders must take part in project design. Direct participation increased their sense of ownership in the project, which in turn provided them with a greater incentive to deliver results.
- **Investment in education and training for tour operators and Park staff in visitor orientation.** Another important lesson, and a recommendation, is that an investment in education and training for tour operators and Park staff in visitor orientation can be a more cost-effective way of enforcement than expensive surveillance. In addition, it promotes better relations between park managers and park users, and helps avoid conflicts.
- **Employment of local people in the Park and for the education team.** In the case of Abrolhos, where Park staff must live on a small island for an entire month, it is especially important to employ local people who feel comfortable in a restricted social environment. Employing people from other parts of Brazil was less successful and these individuals tended to be the ones who had the most conflicts with tour operators.
- **Maintenance of an internship program bringing diversification and reducing costs.** The internship program was also found to be important for improving the management and working atmosphere of Abrolhos Park, especially by bringing new knowledge and diversifying the social environment on the islands.

### NEXT STEPS

The goal for the next few years is, with respect to tourism, to maintain working solutions and develop 'best practices' for the tourism industry. Creating environmentally, economically and socially viable standards for the developing tourism industry in Abrolhos will be done by involving tour operators in workshops to define a management plan for the State Park, and soliciting their ideas as to how tourism can be developed and implemented without serious environmental consequences.

We will also expand the local environmental education program to the children of fishermen in all of the coastal towns and cities of the Abrolhos region, starting with Caravelas. The main goal of this program will be to make children aware of the environmental issues faced by their communities and help them propose ways to solve them.

Next year we will be developing the Management Plan for the Bahia State Park and collecting data about the impacts of fishing activities based on information from local fishermen and scientists. These data will be used to propose zoning maps for discussion with all local fishing communities, which can then help define a sustainable fishing program for themselves.

In the year 2000, the Abrolhos Project will be publicly launched at the inauguration of a new research base. During this same year, we will begin implementing ecologically sustainable alternatives for local fishing communities and a monitoring program for the Region. A national communication campaign will also be directed at the general public, and will feature the importance of protecting the Abrolhos region.

Our strategy in Abrolhos is to invest in local capacity building until the local communities are prepared to continue the process themselves. The project's strategy therefore relies on working jointly with key local agencies to implement activities, and gradually building their capacity to manage components of the project.