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**The ocean has been regarded as a global commons whose resources are inexhaustible and therefore free for the taking. The need to manage and protect the few valuable resources left in the ocean is requiring an ever increasing financial participation from governments, businesses and the general public.**

Management doesn't come for free. In a report by the World Wildlife Foundation (WWF), it revealed that a survey of over 80 Marine Protected Areas (MPA) in 2003, found that a global MPA network covering 30 percent of the world's oceans might cost between US\$7 billion and US\$19 billion annually to run. Total government spending worldwide on protected areas has been estimated to be US\$3.2 billion per year, but there are no statistics available that show how much of these US\$ 3.2 billion were specifically allocated to marine and coastal protected areas.

This huge under funding of the park management around the world has created a map wadded with paper parks. Countries have committed themselves to establishing networks of Marine Protected Areas by 2012 under the Convention on Biological Diversity, but only 0.5 percent of the oceans currently protected is a poor start towards that very essential goal, said Christian Neumann, Conservation Officer for WWF International Centre for Marine Conservation.

# Pay & Play

JIM GERAL PE/MARINE PHOTOBANK

Siete Pecados Marine Park, was established in 2004. Area was subjected to blast and cyanide fishing in the late 90s. With the collaborative efforts of NGOs, FAPs, Local Government Units, and other volunteers, the reefs are recovering and fish recruitment is occurring. It is now one of the tourism destination areas in Coron, Palawan. Philippines





## Examples of daily and annual diver park user fees throughout the Caribbean:

Bonaire Marine Park	Pigeon Island Park
Netherlands Antilles: \$ 25	St Lucia: \$5 - \$15
Soufriere Marine Park	Half Moon Cay Belize: \$5
St Lucia: \$4 - \$12	Hoi Chan Belize: \$2
Saba Marine Park	SBWEMP Honduras: \$5
Netherlands Antilles: \$3 per dive	Isla Bastimentos Panama: \$10
Cozumel Marine Park Mexico: \$2	Utila Marine Park Honduras: \$3

## Pay & Play

Sea turtles, and other species can be seen around Menai Bay Conservation Area in Zanzibar, Tanzania

### Paper parks

If you look at maps, there are a lot of protected areas on the planet. Many more on land than at sea. However, only a very small percentage of these declared protected areas exist in actual

fact. Most are paper parks in which no management occurs. The motivation to establish protected areas is often based on the perception that such areas enhance a country's competitiveness in the tourism sector. The cost of protecting the designated areas are often insurmountable, especially for poorer countries.

I wrote about such an example in X-RAY MAG issue 22, where the local environment protection agency of São Paulo state (Secretario Meio Ambiental SP), Brazil, only received funds in 2005 to buy a boat to patrol the

state's marine parks. The state's marine parks were left virtually unprotected up to then, after the park was created in 1993.

There is a difference between rich and poor countries when it comes to financing of protected areas. Research does show that government resources are the dominant source of funding for MPAs in developed countries, whereas in developing countries, foreign assistance and park entry fees provide a relatively larger part of their revenues.

You can't really blame poorer countries that they choose to maybe spend their revenues on infrastructure or in aiding a struggling population, rather than forking out money on park rangers and patrol boats.

As the whole world is more and more linked together, especially concerning natural resources and the effects of global warming; the burden of environmental management must be shared by us all. Given the limited ability of most governments in the developing world to meet the costs of management, alternative sources of revenue must be explored.

### Natural resource

On the other hand, governments can in many cases be persuaded to increase their annual budget allocations for con-

LEFT: Schooling Pennantfish, Pyramid and Millettseed butterflyfish, *Chaetodon miliaris*, at Rapture Reef, French Frigate Shoals, of the Northwestern Hawaiian Island now known as part of the Papahānaumokuākea Marine Monument (inset). It was the world's largest marine protected area when it was established in 2006



# NATURAL AQUARIUM

## MNARANI NATURAL AQUARIUM

THIS AQUARIUM WAS STARTED IN 1993 IN LOCAL EFFORT TO CONSERVE SEA TURTLES

**SEA TURTLES NATURAL HISTORY**

- SEA TURTLES HAVE EXISTED FOR 170 MILLION YEARS
- OF THE 8 SPECIES OF SEA TURTLE, 4 ARE FOUND IN ZANZIBAR: GREEN LOGGERHEAD LEATHERBACK AND HAWKSBILL. ONLY THE HAWKSBILL AND GREEN NEST HERE.
- SEX OF HATCHLING IS DETERMINED BY THE TEMPERATURE OF THE SAND IN WHICH EGGS ARE LAID: ♀ - HIGHER ♂ - LOWER
- 1000 HATCHLINGS = 1-2 ADULTS DUE TO PREDATION.

**THE GREEN TURTLE**

- DIET: HERBIVOROUS; SEA GRASS AND ALGAE
- DESCRIPTION: SMOOTH BLACK TO YELLOW - BROWN SHELL, NON-OVERLAPPING SCALES
- HUNTED FOR ITS MEAT AND EGGS.

**THE HAWKSBILL TURTLE**

- DIET: SPONGES AND FISH
- DESCRIPTION: RED YELLOW AND BLACK SHELL WITH JAGGED EDGE
- 'TORTOISE-SHELL' PRODUCTS ARE ACTUALLY MADE FROM THE SHELL OF THE HAWKSBILL.

PLEASE SUPPORT OUR CONSERVATION  
ENTRANCE FEES 2 \$ OR 2500 T SHS

## SPECIES IN ZANZIBAR KASA WA ZANZIBAR

servation and sustainable management of marine ecosystems if they can be shown that marine resources generate substantial economic benefits in the short, medium, or long term.

Just a few decades ago, a natural resource was something you could dig out of the ground or pump up from the bottom of the ocean. In the last few years, many developing countries have seen that eco-tourism also taps into one kind of natural resource—clean and unspoiled oceans.

Existing revenues from fisheries and tourism can dramatically decline if coastal wetlands and coral reef ecosystems are not adequately protected. For a MPA, to succeed in reaching its goals regarding improved water quality, reduction in fishing pressure, and protection of habitat, suitable management methods must be adopted and enforced.

Sadly, this is not always the case; a report by the World Bank admits that only

30 percent of Caribbean and 10 percent of East Asian MPAs have achieved their management goals. A further report reviewing the success of marine parks found that only 9 percent achieved their management objectives. This means that of the world's 361 million km<sup>2</sup> of ocean, less than 1 percent is covered by MPAs, with 71 percent appearing to have no management scheme at all.

Economic indicators, such as a marine resource's contribution to a country's fiscal revenues or to foreign exchange earnings, can therefore be a great help in making a compelling case for marine conservation. Tourism is the world's largest industry employing 195 million people and contributing over 10 percent of world Gross Domestic Product (GDP) according to the World Travel and Tourism Council. Marine-based tourism cruises, scuba diving, yachting, whale watching, and sun-sand-sea tourism to destination beach resorts generates bil-





lions of tourist dollars. Often can combined efforts by governments and non-governmental organizations be a good match. The politicians have to put in place legislation and longterm policies. While the management of the parks can be handled by non-governmental agencies. The latter often also provide necessary education tools, which is essential to get the local communities to support the efforts.

**My ocean**

MPAs have the dual benefits of protecting both the coral reefs and fish populations that make the area more attractive for the user. There is a variety of financing mechanisms that include government subvention, international assistance, personal donations, commercial and bi-lateral debt swaps, trust funds and entrance fees.

The funds necessary to maintain and manage a park can be costly, as even a small park with few staff can have an annual budget exceeding US\$100,000. The most frequent way divers contribute to marine park management is by paying entry fees. This kind of revenue system has been set up in amongst other places, Bonaire, Egyptian Red Sea, Indonesia and Tanzania.

Scuba divers are getting used to this kind of “pay and play”, or user oriented, fees when diving in marine parks. Pay per use has been a great success for financing protected areas, and additionally, has had a very positive effect on other aspects of life in several countries. It's becoming as natural as paying to see a movie at the cinema. ■



Map of Bonaire and Klein Bonaire showing the marine reserve areas on the leeward side marked in red along the coast. In contrast to the marine park, the marine reserve permits no water entry for snorkelers and divers at all, and therefore could be considered the most pristine areas on the island. (Image courtesy of NOAA Bonaire 2008 expedition)

**Success Stories**

**Bonaire Marine Park**

Since its creation in 1979, the Bonaire Marine Park has firmly put the tiny Caribbean island on the scuba diving map. The marine park extends from the high water mark to a depth of 60 metres/200 feet. It encompasses the entire coast of Bonaire, including Klein Bonaire, occupying about 2,700 hectares. Bonaire Marine Park is managed by a nongovernmental organization through collaborative agreements with government. These extra governmental management arrangements allow greater flexibility in the establishment and administration of revenue generation systems within the framework of enabling government legislation and policy. The park maintains more than 100 public moorings and conducts extensive scientific research. The park has succeeded in becoming an integral part of the island's philosophy, including virtually all of the island's population

of about 12,000. The inclusive approach has paved the way for a healthy and sustainable tourism industry on the Caribbean island. The park has eliminated destructive fishing practises and discharge of polluted ballast water. The park is solely financed by admission fees. [www.bmp.org](http://www.bmp.org)

**Bunaken National Marine Park**

The Bunaken National Marine Park was formally established in 1991 and is among the first of Indonesia's growing system of marine parks. Some 20,000 people live on the natural resources of Bunaken National Marine Park. Although there are inevitable conflicts between resource protection and use by people, the Indonesian government is taking a fairly unusual and pragmatic approach to park management. Local communities, government officials, dive resort operators, local nature groups, tourists and scientists have played an active role in developing exclusive zones for diving, wood collection, fishing and other forms of utilization. In Bunaken National Park in Sulawesi, Indonesia, for example, employees in the park's important tourism sector earn US\$144 a month compared to fishermen at only US\$44 a month. Bunaken Marine Park has become an important example of how Sulawesi, and the rest of Indonesia, can work to protect its natural resources. The entrance fee system has been adapted from the



Bunaken Marine Park

well-known Bonaire Marine Park system, and the proceeds from the sales of the entrance tags are managed by the Bunaken National Park Management Advisory Board (BNPMAB), a multi-stakeholder board of which NSWA is a member. The system has been very successful in raising over \$250,000 for conservation programs in the Bunaken Marine Park since its inception in 2001. The funds are controlled by a multi-stakeholder management board comprised of the North Sulawesi Watersports Association, villagers from the 30 villages in the park, local tourism, fisheries and environmental government agencies, and the local university's marine sciences department. This setup ensures that the money collected is directed to the most important programs needed in the park. [www.sulawesi-info.com/bunaken.php](http://www.sulawesi-info.com/bunaken.php) ■



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Tailgating the lone dugong, KAT, on Cocos (Keeling) Islands. Photographed by Karen Willshaw ~ underwater.com.au member

Bunaken Marine Park