

## International Year of the Reef 2008

**Learn more about the world's oceanic resources with the International Year of the Reef campaign.**

*By Mary Luna*

This year the international community turns its attention to the status of coral reefs worldwide. Reefs are ecosystems vital to numerous industries, from tourism to fisheries, acting as both a recreational playground for ocean enthusiasts and as the basis for the livelihood of 350 million people. Reefs are also home to more than a quarter of the world's fish biodiversity. This integral part of commerce and the food web is under increased pressure globally, and more than half the world's reefs have been deemed threatened. 2008 marks the second International Year of the Reef, an international awareness campaign motivating people to take action in their daily lives to positively impact coral reefs and protect this vibrant, diverse and fragile ecosystem for generations to come.

This group of purple tube sponges is part of the matrix of this reef, located in the waters off Bonaire, N.A. In recent years, Caribbean reefs have suffered greatly and are some of the world's most imperiled.

Photo courtesy of George Cathcart

### What Corals Do for You

Coral reefs are a vital and valuable part of the world's ecosystems and play a role in the daily lives of millions of people. They provide food, protection, entertainment and are the source of livelihood for many. Reefs — known as the rain forests of the ocean — have contributed to advancements in medical science and new pharmaceutical options for cancer and AIDS patients. Reefs, stalwart and fragile simultaneously, also act as timelines and sentinels of environmental change, reacting to even subtle shifts in climate and water quality.

Coral reefs are essential spawning, nursery, breeding and feeding grounds for numerous organisms. They are the richest shallow-water marine ecosystems, supporting at least 1 million known species, including more than 800 hard coral species and more than 25 percent of the world's fish biodiversity. Between nine to 12 percent of the total world's fisheries are associated with coral reefs, an amazing figure given that these ecosystems cover less than 1 percent of the Earth's surface. Coral reefs are also home to the majority of the tropical marine organisms in the aquarium trade.

Substances with potential anticancer, AIDS-inhibiting, antimicrobial, anti-inflammatory and anticoagulating properties have been derived from coral reefs. Pharmaceutical companies and patients alike continue to benefit directly from such discoveries.

Reef-building corals provide structural protection for coastal communities. This valuable service, sadly, becomes more easily measured in economic terms when it has to be replaced by human structures. In the Maldives, for example, an artificial breakwater cost around US\$12 million to build as a replacement for a naturally occurring reef. Coastal protection is becoming increasingly important as sea levels rise and the severity of storms increase.

Coral skeletons provide us with information about recent changes in the oceans and anthropogenic disturbances, from metals in seawater to the reconstruction of sea surface temperature and salinity.

### How You Affect Corals

A fascination with the marine world is to be encouraged, but along with the appreciation should come respect for the life residing in it. Humans enjoy collecting shells, coral and other marine souvenirs, but they're often unaware of the large quantity of animals being removed from reefs for curios. Extensive curio collecting can affect the delicate balance of a reef ecosystem and when combined with other stressors can result in loss of productivity and resilience.

### Get involved in IYOR 2008.

Below are some things you can do. Educate yourself about coral reefs and the creatures they support. Support organizations that protect coral reefs. Don't use chemically enhanced pesticides and fertilizers. Volunteer for a reef cleanup. Be an informed consumer. Visit your local aquarium or zoo. If you dive, don't touch. Support reef-friendly businesses. Reduce, reuse and recycle. Conserve water. Become a volunteer monitor. Report dumping or other illegal activities. Hire and respect local guides when visiting coral reef ecosystems. Don't anchor on the reef. Spread the word.

Reefs are often harvested for jewelry. Red or pink coral, the most valuable of the precious corals, has an average growth rate of less than 2 centimeters per year. The increasing demand for corals and limited consumer awareness and global

regulation continue to affect reef ecosystems.

The marine aquarium trade provides an alternative livelihood for many in rural coastal communities, yet its sustainability is disputed in some areas. Irresponsible and damaging practices are still being employed like the overexploitation of rare and endemic species, the use of cyanide as a fishing method, the collection of species that do not live well in aquaria and improper handling and transport that lead to high post-harvest mortality rates of collected marine animals.

In addition, recreational tourism and fishing practices can harm reefs. Damage to coral reefs caused by boats and ships, and their discharges, is a significant problem in some areas. The consequences of diving, snorkeling and reef walking by a large number of tourists can contribute to the demise of corals, negatively impacting the very same ecosystems these visitors come to see.

Corals thrive in clear waters with low nutrients, but chemicals and sediment that travel to waterways can suffocate reefs. Discharge pipes and rainwater runoff from roads and farms bring petroleum products, heavy metals, pesticides, fertilizers and heated wastewater to reefs. These forms of pollution can potentially kill corals and other reef organisms. When phosphorous and nitrogen levels increase, because of deforestation, ill-planned development and agricultural runoff, the balance is disturbed. While siltation is a natural erosion process, rates increase with the level of human development. Coral reefs are often referred to as "the rain forests of the ocean." This thicket of staghorn coral provides ample food and protection for large numbers of fish and invertebrates.

Photo courtesy of George Cathcart

Pollution sources also contain disease- or infection-causing viruses, bacteria or other microorganisms that are often associated with human and livestock waste that pose a health risk to humans and reef organisms alike.

#### History of IYOR

The scientific community inaugurated the first International Year of the Reef (IYOR) in 1997 with the intention of raising awareness of the coral reef crisis. During this year-long campaign, governments and some 225 organizations in 50 countries and territories hosted events and initiatives; more than 700 articles were published, hundreds of scientific surveys were carried out and several new marine protected areas were established. The International Coral Reef Initiative and the IYOR 1997 raised support and laid the foundation for future actions by the United States, including the establishment of the U.S. Coral Reef Task Force in 1998 by President Clinton and the enactment of the Coral Reef Conservation Act in 2000.

The 1997 IYOR activities included reef cleanups, the creation of coral reef guides, teacher workshops, television and radio shows, scientific workshops, public art projects, stamps, traveling theaters and libraries. More specifically, a mooring system improvement program was established in Kenya, Bonaire hosted the IYOR Dive Festival and the South Pacific Environmental Programme organized the successful "Coral Reefs – Their Health, Our Future" campaign.

Ten years after the first IYOR, scientists and policymakers, troubled by the steady decline of the health of coral reefs around the world, agreed it was time to once again unite efforts and send out a global call to action through a second International Year of the Reef.

#### What's in Store for 2008?

The International Coral Reef Initiative has declared 2008 the second IYOR. The IYOR 2008 will work with local global partners to broaden the impact of events and initiatives to reach new audiences for conservation. Special efforts are being made to collaborate with the private sector to engage in and continue best business practices and support awareness among employees and customers. The IYOR 2008 effort specifically seeks to:

- Strengthen awareness about the ecological, economic, social and cultural value of coral reef ecosystems.
- Improve the understanding of the critical threats to coral reefs and generate both practical and innovative solutions to reduce these threats.
- Generate urgent action at all levels to develop and implement effective management strategies for conservation and sustainable use of these ecosystems.

In addition to events worldwide, the public is invited to sign the "Declaration of Reef Rights" and join four presidents and thousands of citizens from around the world who have already added their support to pledge to protect reefs. Many species of animals, such as this shrimp and anemone, depend on coral reefs for survival. While only constituting less than 1 percent of the total oceanic environment, coral reefs hold a disproportionate 25 percent of all marine fish species. Photo courtesy of George Cathcart

#### You Can Make a Difference

Most of the damage to coral reef ecosystems is the result of human activities; we draw tremendous benefits from reefs, and it is our responsibility to restore and protect them. The choices we make are essential in the recovery process, and many of them are readily available to us.

Aquarium professionals and hobbyists can use their special knowledge for the benefit of reefs, and IYOR is an excellent opportunity to get involved. It is important for all employees and customers in the marine aquarium trade to understand that they are keeping truly exotic and often rare animals that require very special care.

Experienced aquarists and retail owners can help new hobbyists to learn what animals are suitable for a “starter” aquarium. Personal actions can include continuing education about the survival requirements of the organisms that live in your tanks, as well as their standing in the wild, and how your purchase can affect the ecosystems of origin.

The U.S. IYOR campaign has a list of five simple actions people can take to benefit reefs; pledge to take action and share what you are doing at [www.care2.com](http://www.care2.com). For more information on IYOR, please visit [www.iyor.org](http://www.iyor.org).

In addition to serving as U.S. facilitator for the International Year of the Reef 2008, Mary Luna is currently working on Reef Check projects in Loreto and Isla Natividad, Baja California, Mexico.