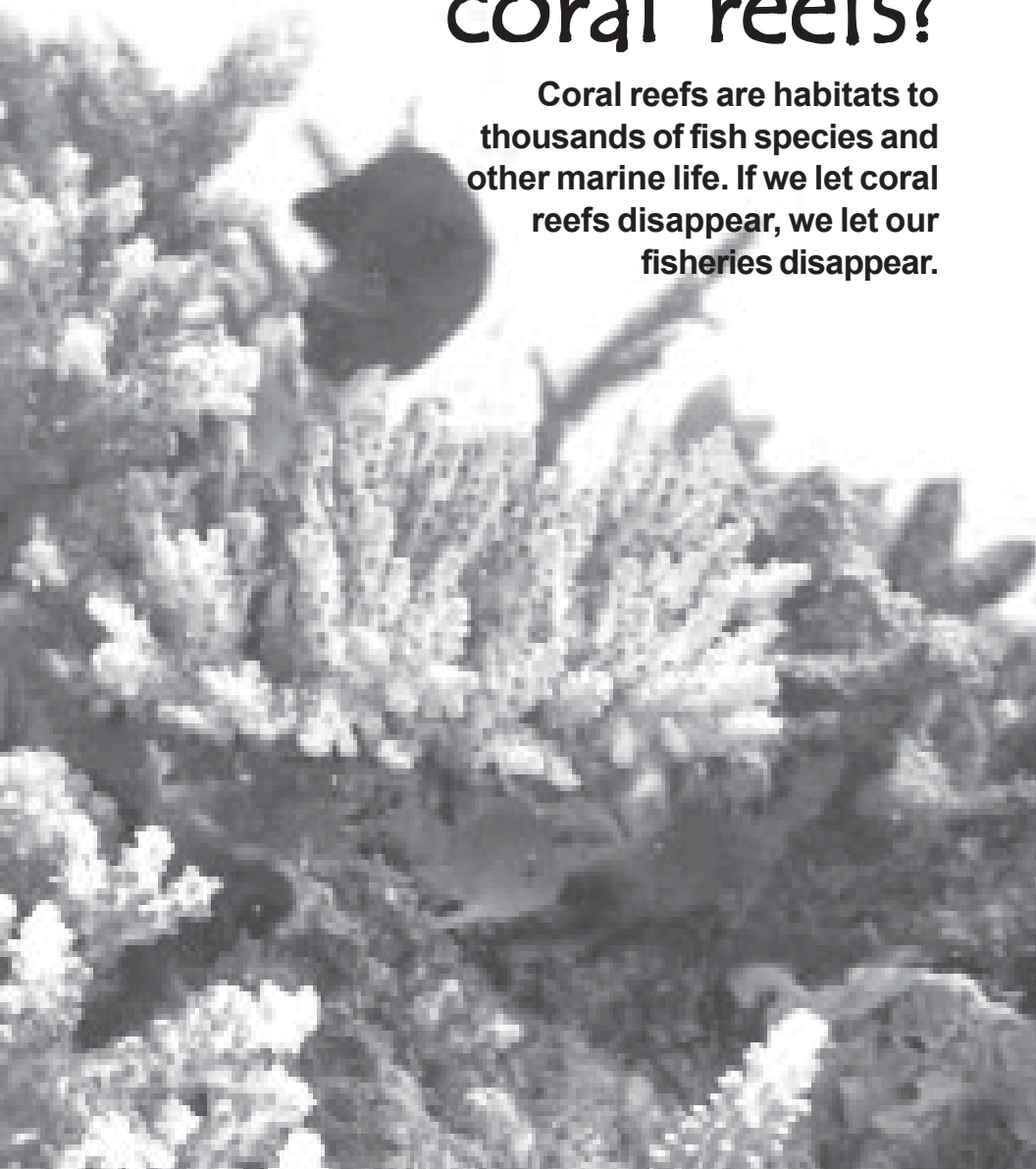


Why protect our coral reefs?

Coral reefs are habitats to thousands of fish species and other marine life. If we let coral reefs disappear, we let our fisheries disappear.



USAID
FROM THE AMERICAN PEOPLE

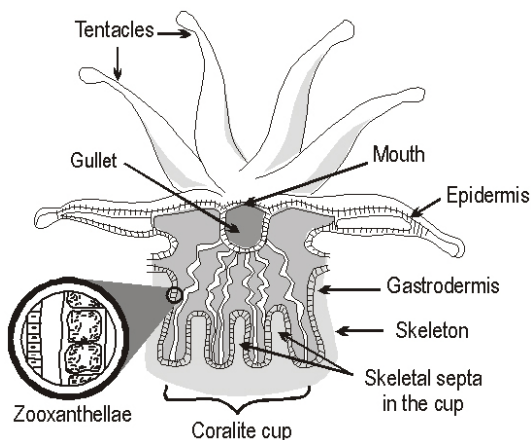


The USAID/DA-BFAR Fisheries Improved for Sustainable Harvest (FISH) Project

All living things need habitats to sustain and nurture them. Just like any living organism, fish require “homes” or habitats that serve as the necessary support systems that enable them to feed, take shelter in, spawn and reproduce. Habitats like coral reefs are essential to food production.

Coral Reefs.

Contrary to the general belief that corals are plants or even rocks, corals are actually tiny animals called polyps that live in colonies underwater, either in patches or in extensive reefs.

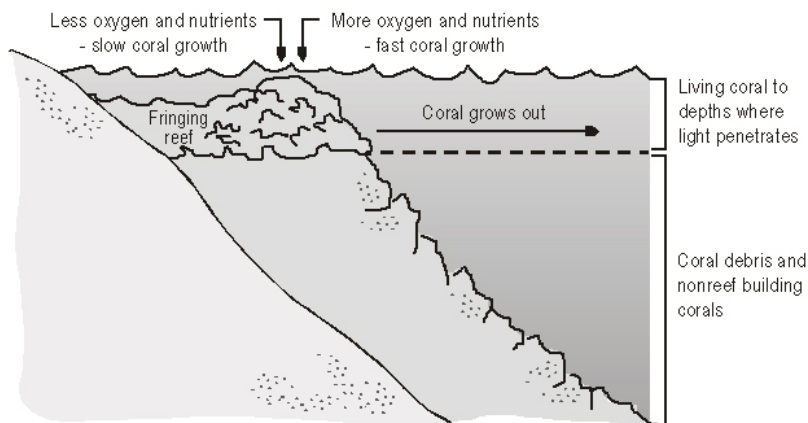


Parts of a coral polyp. (White 1987)

Each colony is composed of thousands of tiny polyps. Polyps secrete salivary calcium carbonate material that hardens to form the rigid structural mass or skeletons of the reefs. Inside the polyps are many single-celled algae called zooxanthellae, which are capable of photosynthesis, thus providing an energy source for both the algae and the coral. It is the algae that give corals their varied colors.

The coral colony grows as one polyp buds off another polyp. The polyps build a united skeleton which gives the colony the strength to withstand waves and storms. Coral reefs occur along shallow, tropical coastlines where the marine waters are oxygenated, clear, warm, and free from sediments and pollutants.

The actual reef consists of large and rigid structural mass of calcium carbonate formed by the cemented skeletal remains resulting from the successive growth and development of reef-building corals. As the colony grows, it provides structure and niches that serve as homes for many different organisms including fish, sea snakes, mollusks, marine worms, crustaceans, algae and sponges. It is this ability to provide diverse structure that supports the vast biodiversity associated with reefs.



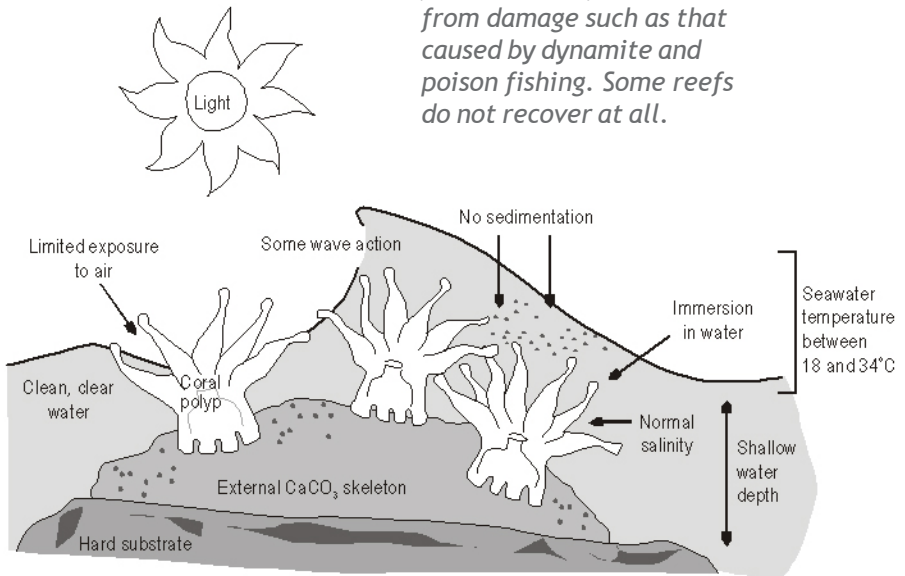
Formation of a typical fringing coral reef. (White 1987)

Considered as the “rainforests of the sea”, coral reefs are among nature’s most spectacular and beautiful creations and rank as one of the most complex and diverse ecosystems in the world. They are home to a dazzling array of marine life consisting of nearly a million species. Up to 3,000 species may co-exist on a single reef, where the density of fishes can be 100 times the ocean average. Coral reefs are extremely efficient in capturing nutrients and sunlight and then cycling them for use by many different organisms. They are also an essential protein source for fish and other marine food products.

It is estimated that 1 km² of healthy coral reefs can produce up to 20 tons of fish per year. Destroyed reefs on the other hand only produce less than 4 tons of fish per square kilometer per year.



Coral reefs grow slowly, from a few millimeters to several centimeters per year depending on the species. Once destroyed, it may take 10 - 50 years for a coral reef to recover from damage such as that caused by dynamite and poison fishing. Some reefs do not recover at all.

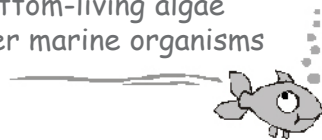


Requirements for healthy coral reef growth. (White 1987)



Philippine coral reefs host:

- more than 2,000 species of fish
- 5,000 species of clams, snails and other mollusks
- 488 species of corals
- 981 species of bottom-living algae
- thousands of other marine organisms



Facts and Figures



The Philippines is estimated to have about 27,000 km² of coral reefs. In 1991 about 70 percent of these reefs were considered to be in poor or fair condition, and only 5 percent were in excellent condition

Good to excellent coral reefs can produce 20 tons or more of fish and other edible products per km² per year; once destroyed, they produce less than 4 tons per km² per year. The sustainable catch from a good reef over 10 years is about 200 tons of fish while that from a destroyed reef is only 72 tons



Sedimentation, overfishing, and destructive fishing are the three most common factors significantly affecting coral reefs

A small but well-managed marine reserve with an above average quality coral reef of at least 1 km² can accrue significant economic benefits in terms of increased fish yield (US\$8,000 a year); island-based tourism (US\$22,000 a year); off-island tourism (more than US\$50,000 a year)



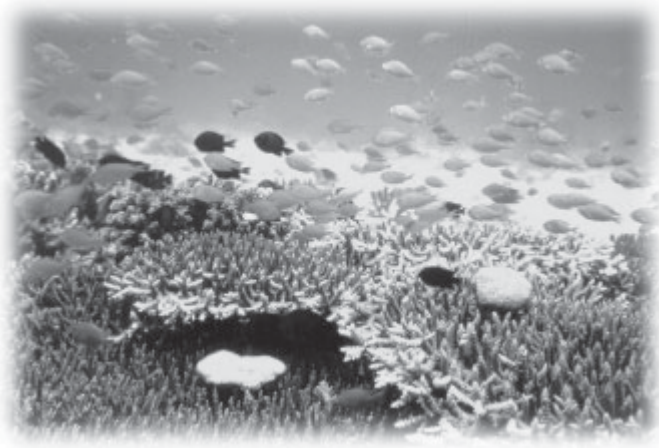
The net present value over 25 years (at 10 percent discount rate) of benefits from blast fishing to individuals is only US\$14,600. The loss of tourism potential, on the other hand, can amount to more than US\$400,000, while that of shoreline protection is about US\$190,000. Foregone fishery income can be as much as US\$108,000

Overfishing of small pelagic and demersal fishes is resulting in loss in catch of more than US\$400 million per year; fishing effort 2 to 3 times that required for optimal effort to produce a "sustainable yield" is the primary cause of this loss



These large losses will become more obvious as coral reefs become increasingly degraded and we begin to pay to make the reparations required to recover the health and quality of these precious resources. The unfortunate reality is that reparation and recovery operations are extremely expensive, and they may not bring back the original resource lost in its natural and most productive form.





Reefs at Risk.

Around the world, coral reefs are under assault from a multitude of sources — coral mining, fishing with dynamite and cyanide, coastal development, pollution or overfishing in general. It is reported that globally, 58 percent of the world's reefs are at risk from human activities, with percent of its reefs are high or very high risk.

The state of coral reefs in the Philippines is particular grim. A report released in 2002 called "Reefs at Risk" Southeast Asia by the World Resources Institute and the United Nations Environmental Program stated that major reef nations in Southeast Asia showed 85 - 90 percent of its reefs are at risk. It also declared that Indonesia and the Philippines which contain 77 percent of the region's coral reef systems are in deep trouble. While 86 percent of Indonesia's reefs are seriously threatened by human activities, the figure is whopping 98 percent in the Philippines. It is also reported that less than 5 percent of Philippine reefs can be categorized as in excellent condition.

Reef degradation is caused by a variety of factors. Resource use on coral reefs is intensive and mostly extractive such as fishing, shell gleaning, collection of ornamental fish or other reef products and coral mining. Highly destructive fishing methods such as trawling, blast/dynamite fishing, cyanide or poison fishing, destroy the structure and marine life in the reefs. When uncontrolled or unregulated, drive-in nets, push-nets, beach seines and other similar methods that tend to scour the sea bottom can physically destroy the nooks and crannies that serve as "homes" to marine life.

What you can do to help protect our coral reefs:

1. **Practice responsible fishing.** Do not in any way engage in illegal or destructive fishing methods that destroy coral reefs, other fish habitats and decimate fish populations. Stop others from engaging in these activities.
2. **Support the establishment of marine protected areas (MPAs) or marine sanctuaries.** MPAs are designated areas in the sea where fishing and other forms of human activities are restricted to protect the area's ecosystem and natural resources. Because fishing and other extractive activities are regulated if not allowed, MPAs help promote habitat recovery and restore fish productivity.
3. **Support the enforcement and implementation of fishery laws.** Fishery laws are clear against the use of dynamite, poison and other substances harmful to coral reefs as well as against coral gathering, extraction and selling. Report any violation of fishery laws to the police or the local government unit in your area.
4. **Advocate for and support the establishment of a coastal resource and fisheries management program in your local government.** Local government units are mandated to protect and manage coastal waters (15 km outward from the shoreline).
5. **Advocate for and support coastal zoning initiatives.** Mapping and identification of where coral reefs and other coastal habitats are located allow for rationalization of fishing gear and other resource use.
6. **Support conservation organizations.** Many of them have coral reef programs and your much-needed financial or voluntary support to their activities will make a big difference.
7. **Learn more about our marine ecosystems – coral reefs, mangroves, seagrass, beaches, and estuaries and their importance to life on this planet.** Participate in training or educational programs that focus on marine ecology. When you further your own education, you can help others understand the fragility and value of the world's coral reefs.
8. **Spread the word and advocate for responsible and sustainable use of our natural resources.** Encourage your friends to "love and respect the ocean".
9. **Don't pollute. And stop others from polluting our coastal areas.** Don't leave trash on the beach or on the water. Make it a habit of picking up your own trash. Participate in organized coastal clean-ups.
10. **If you dive, be a responsible diver. Don't anchor on the reef or do any extractive activities. Don't touch or disturb the underwater scenery.** Take only pictures, and keep your hands and fins away from the coral as contact can hurt you and harm these animals and their structures. Don't stir up sediment or sand as these can settle on the corals and smother these.
11. **Volunteer.** Volunteer to be a sea guardian, a coastal law enforcer, a researcher, educator or advocate. The cause for sustainable seas and responsible fisheries need all the help it can get.
12. **Inform yourself.** Find out about existing and proposed laws that affect or protect the coastal and marine environment. Advocate for the passage or implementation of these conservation laws.

TURN BACK THE TIDE



MANILA OFFICE

18/F OMM-CITRA Bldg., San Miguel Ave.,
Ortigas Center, 1605 Pasig City, Metro Manila
Tel. nos: (02) 634-1617 to 21
Fax: (02) 634-1622
Email: FISH@ttemi.com.ph

BOHOL FIELD OFFICE

2/F Robins Home Depot, 40 Palma St.,
6300 Tagbilaran City, Bohol
Tel. no.: (038) 501-7134
Cell no.: (0918) 906-1318

SURIGAO DEL SUR FIELD OFFICE

Selades Apartelle and Convention Center,
Mabua, Tandag, 8300 Surigao del Sur
Tel. no.: (086) 211-4262
Cell no.: (0918) 985-9981

CEBU OFFICE

5/F CIFIC Towers, J. Luna Ave. cor. J.L. Briones St.,
NRA, 6000 Cebu City
Tel. nos.: (032) 232-1821 to 22, 412-0487
Fax: (032) 232-1825
Email: fishproject@oneocean.org

NORTHERN PALAWAN FIELD OFFICE

5 Redfern Apartment, Barangay 1,
Coron, 5316 Palawan
Cell. no.: (0917) 824-7696

TAWI-TAWI FIELD OFFICE

Rachel's Place Hotel and Restaurant Bldg.,
Ilmoh St., Lamion, Bongao, 7500 Tawi-Tawi
Tel. no.: (068) 268-1253
Cell no.: (0918) 906-1304

For more information, contact:



The FISHERIES IMPROVED FOR SUSTAINABLE HARVEST Project

5/F CIFIC Towers, J.Luna cor. J.L. Briones Ave., NRA, Cebu City 6000
Tel. nos.(032) 232-1821 to 22, 412-0487 Fax (032) 232-1825
Email: fishproject@oneocean.org Website: www.oneocean.org

The FISH Project is an initiative of the Government of the Philippines implemented by the Department of Agriculture-Bureau of Fisheries and Aquatic Resources, funded by the United States Agency for International Development and managed by Tetra Tech EM Inc.