



Coral Reefs: Their Health, Our Future!

Coral Reefs are in Danger!

There is an old saying that what the eye does not see the heart does not grieve. That is, until it is too late! Unlike the destruction of farm land and forest, damage to our coral reefs is hidden below the surface of the water. Our first clue is when we catch less fish, or the beach begins to disappear. Often when the first signs become visible the damage can be extreme. World-wide coral reefs are under threat. Too much fishing, pollution from cities, soil washed down rivers, anchor damage and tourism are all having an effect on our reefs.

Coral reefs are living animals which build the reefs

Coral reefs are made up of colonies of tiny colourful animals called polyps. A coral polyp is a simple jellyfish-like animal living in a cup of

limestone which it builds. Only the thin outermost layer of the reef is alive with coral polyps. When they die, the next generation will build onto their skeletons. This is how reefs grow. The structures built by corals provide a home for the coral reef community and food for our families.

Feeding

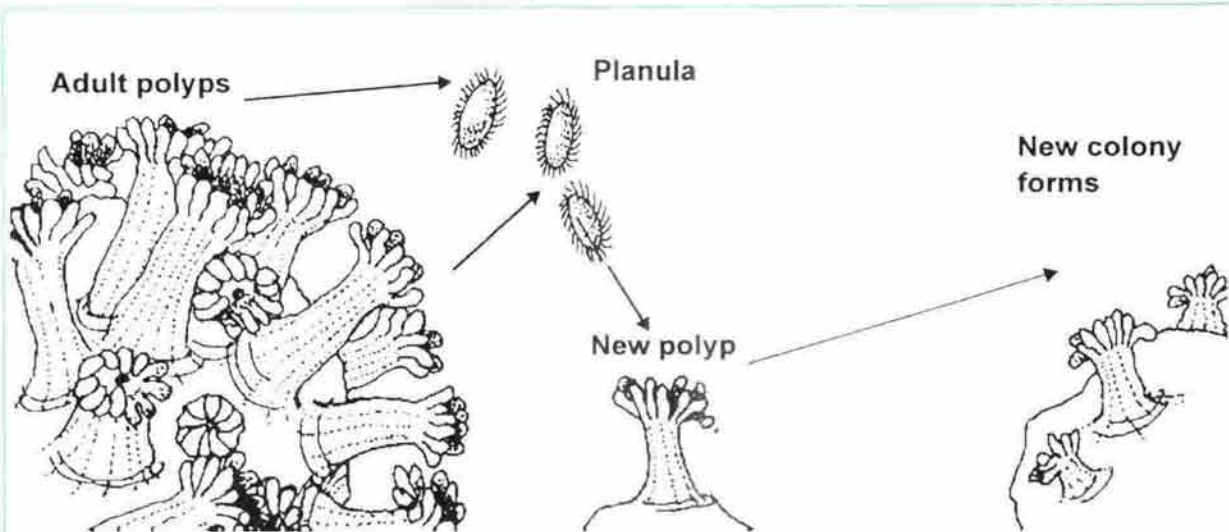
Corals cannot swim to catch their food, they must catch food that drifts by. Little spears that cover the tentacles of the corals are used to capture food. Corals share their body with a simple plant (algae). Like all plants, these algae produce food from the sun's energy. The coral can use this food and in return give the algae a place to live.

Reproduction

Colonies of coral start with just one coral polyp. This "founder" polyp reproduces through a

process known as budding. This process is repeated over and over and the coral colony increases in size.

Many corals reproduce sexually just once each year during a mass spawning (breeding). Mass spawning normally lasts about a week with different species of coral spawning at different times during the night and on different nights. Eggs and sperm float on the water surface and combine and develop into a planula, the free swimming planktonic larval stage of coral. Depending on the type of coral, the planula may stay as part of the plankton from weeks to months. When it is time to settle, the planula attaches itself to a vacant patch of reef and starts to grow into the founder polyp for a new coral colony.



The life cycle of the Coral

Found only in the shallow warm waters of the world, coral reefs require:

- annual mean water temperature above 21°C for reef growth
- clear water to allow adequate light to reach the corals: soil washed down from rivers and streams can reduce light or even cover the corals
- firm base to build on

- stable levels of salt: this is the reason why reefs do not occur near the mouth of rivers
- low nutrients: large quantities of nutrients allow plants and algae to grow over corals

Healthy Coral Reefs Build Beaches and Islands and Protect Our Homes From the Sea

Corals are the ocean's master builders forming a living

monument visible from outer space. The diversity of life on coral reefs is unmatched by any other environment. Coral reefs protect the land from wave and sea damage. Healthy corals build the following:

Fringing reefs grow outward from the shores of continental islands. Being close to land they are affected by run-off and pollution.

Barrier reefs also surround islands but at a greater distance from the shore and with an intervening lagoon. They are normally found away from run-off from the land.

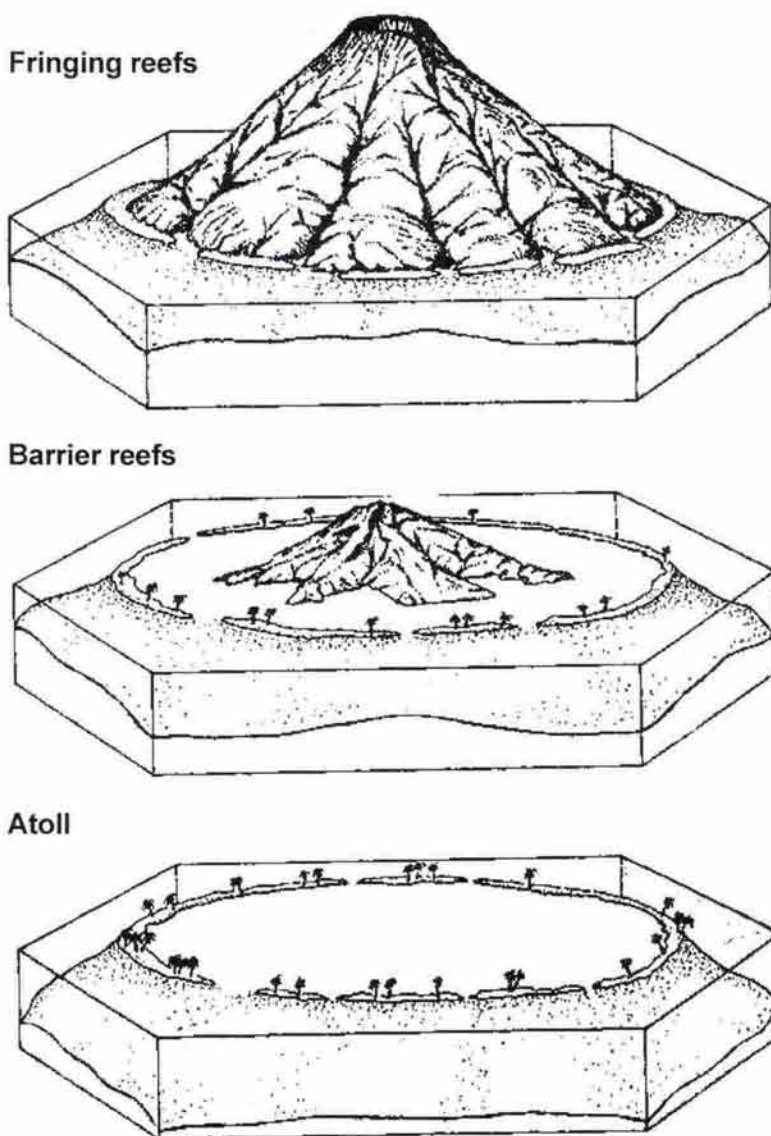
Atolls are reefs which surround a shallow lagoon. They initially form as a fringing reef growing around a volcanic island. Over time the volcano disappears and the coral keeps growing to meet the sea surface. Eventually the island disappears altogether leaving a circular reef around a lagoon.

What are the things that damage the Coral Reef?

• Soil Is Precious On Land But Kills Our Coral Reefs

The soil and fertilisers that make plants grow on land, will smother and kill our coral reefs if they are washed into the sea. The roots of trees and plants hold the soil together during storms. The rivers and streams are slowed down at the coastal edge by mangrove forests and as the water slows, the soil drops out gradually building up land. Mangrove forests sift the soil runoff and keep the outer reefs clean. Other nutrients and

Types of Coral Reefs



Slow subsidence of a volcanic island with fringing reefs produces first a barrier reef, then an atoll, as the volcanic core sinks beneath sea level.

sediments are absorbed by the sea grass, and with mangroves, form the nurseries of the sea. Here, many of the fish we eat are born and spend the early part of their life before moving off to live on the coral reef. Do not clear land on steep slopes or remove plants that are holding the soil together. Good farming keeps the soil on land and protects our coral reefs. Don't waste your soil!

- **Don't Let Our Reefs Go Down the Drain—Pollution Kills our Coral Reefs**

Every year when the rains come it is not just water that washes into our rivers. Soil, fertiliser, pesticides and other pollution get washed down to the sea and onto the reefs. These smother and kill reefs. Apply fertiliser thoughtfully so that the plants get the benefit. Don't waste your soil!

- **Dynamite and Poison Kills Our Coral Reef and Blows Up Your Children's Future**

This kills more than the fish you want to catch. It also kills the fish's food, their homes and their young. It is like cutting down a tree to pick the fruit. Do not use dynamite or poison to fish. Help make sure that your children will have fish to eat in the future.

- **Anchor damage**

Anchoring on coral and swinging anchor chains can smash over an acre of coral in a few hours.

- **Coral walking**

Coral is alive and protects itself from the harmful effects of the sun by producing mucus. We

remove this protection and break coral—if we walk on or touch coral. So try to walk on sand and do not touch coral if you can avoid it.

- **Taking Too Much From The Sea Today Steals From Our Children's Future**

Harvesting too much coral, beche de mer, fish, turtles and shell collecting disrupts the balance in coral reef communities. The loss of one important level of the food chain can mean the death of many other organisms found on the reef and ultimately destroys your way of life. *So take only what you need and eat what you take!*

Why have a whole year set aside for the "1997 Pacific Year of the Coral Reef" to celebrate coral reefs in the Pacific?

1997 has been set aside as "Pacific Year of the Coral Reef" because coral reefs give us all something to celebrate, they guard our homes and fill our bellies. Without them there would be no fish, no wall to protect our fragile coasts from the pounding seas, and, in many cases, no islands themselves as many are built on the remains of coral skeletons. The world's largest and most complex system of reefs is found here in the Pacific and they are in danger!

The Pacific Year of the Coral Reef is a region-wide education and awareness campaign. The campaign is aimed at communicating the urgent need to conserve the Pacific coral reef and related ecosystems. The goal of the campaign is to increase understanding, appreciation, support and immediate action for coral reef conservation and wise use. Coordinated by the South Pacific Regional Environment Programme (SPREP), the campaign involves activities by Pacific island governments and non government organisations (NGOs) at the regional and national level.

Protecting our Coral Reefs helps secure our future and is everyone's responsibility

There is a lot we can all do to ensure that we have healthy coral reefs for the future. Helping to organise events in your community to publicise the "Pacific Year of the Coral Reef" is a good start. Help get the message out that our reefs need saving. If not you, then who will? Don't leave it to someone else. It is our responsibility. You could also help promote the following advice to those using the reef to lessen the impact we have on coral reefs.



Local people, reef owners, reef users and you as individuals, can:

- Take only what you need and eat what you take
- Avoid using destructive fishing methods such as poison or dynamite
- Avoid building pig pens and toilets on the shoreline
- Help promote awareness of the value of coral reefs
- Use alternate materials other than coral reef materials for construction purposes
- Observe traditional customs to help manage your reef
- Tread carefully when walking, swimming, snorkelling and boating on and around coral reefs
- Support and respect Marine Protected Areas and sanctuary areas
- Participate in and support coral reef awareness programmes

Divers and snorkelers

- Ensure you are weighted correctly and enter the water away from coral
- Don't stand or rest on coral
- Avoid touching things with your fins and secure gauges that might catch on coral
- If you pick up anything, living or dead, always return it to where you found it
- Do not poke or prod animals and plants
- Do not chase or try to ride free swimming animals
- Take the time to learn about coral reefs and the marine environment

Boat operators

- Anchor in mud and sand away from live corals and make sure the line is clear

- Motor towards the anchor when hauling the line in
- Use moorings instead of anchoring to the reef

Fishers

- Obey Fisheries regulations and do not take undersized fish
- Use only a line or net to fish, not dynamite or poison
- Return undersized or unwanted fish to the water immediately, to minimise injury and damage

Researchers

- Ensure your research is not having an impact on other traditional users and assess the potential dangers to other users e.g. protruding stakes
- Explain the purpose of your research to other reef users and where possible provide an opportunity for community involvement in the project
- Remove all hardware, litter and equipment from the study site at the end of the research programme
- Provide feedback of study results to the local community and those who have assisted during the course and at the end of the project

- Teach others about the coral reef community

What is SPREP?

The South Pacific Regional Environment Programme (SPREP) is the intergovernmental organisation responsible for environmental matters in the South Pacific region. Its members are the governments of twenty-two Pacific island countries and territories – American Samoa, Cook Islands, Federated States of Micronesia, Fiji, French Polynesia, Guam, Kiribati, Republic of the Marshall Islands, Nauru, New Caledonia, Niue, Northern Mariana Islands, Palau, Papua New Guinea, Pitcairn, Solomon Islands, Tokelau, Tonga, Tuvalu, Vanuatu, Wallis and Futuna and Western Samoa – and four developed countries – Australia, France, New Zealand and the United States of America. SPREP was established to promote regional cooperation in environmental matters, to assist its members to protect and improve their shared environment, and to help them work towards sustainable development for present and future generations.

How Can I Find Out More?

Contact your local Environment and/or Fisheries Office or contact SPREP at the following address:

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