Environmental Threat to Coral Ecology of the Great Barrier Reef, Australia

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Abstract
A coral reef is composed of calcium carbonate, or limestone, derived from the water by the reef organisms: colonies of coral polyps and coralline algae. Most of this structure, the underlying-foundation on the reef, is deed, made up of layer upon layer of coral skeletons. Though, coral looks like a plant, it is really an animal: or rather, a colony of animals that belong to the cnidarice (the same groups are jellyfish and sea anemones). These are a multitude of difference kinds of coral, about 350 species including both hard and soft varieties, on the Great Barrier Reef. Their shapes are very different and their colours come in the hundreds. Until 250 years ago, coral was commonly believed to be a form of plant life, and even today many people who took at the soft colourful waving fronds find it had to believe that they are actually made up of tiny living creatures, Great Barrier Reef is a part of coral reef. Water pollution, increase in the sea water temperature, tourist industry, fisherman, scientific study, water games, oil spills, pesticides draining from the main land, fishing by aboriginal tribes are the causes of Environmental threat to Great Barrier Reef. To protect the Great Barrier Reef the participation of local people can play an important role example - through environmental awareness among the local people, Aboriginal people, local meeting, poster as well.

Key Words: Continental, Reefs, Corals, Creatures and Environmental threat
The Great Barrier Reef is a chain of coral reefs that stretches for some 2000 kms, almost parallel to the northeastern Australian coastline, on the edge of the continental shelf. It consists of about 3000 reefs, the majority of which are situated on the mid and outer continental shelf, 20 to 150 kms from the mainland. However, about 750 reefs exists at inshore or near shore sites close to the coast within the Great Barrier Reef lagoon. The Great Barrier Reef catchment covers 22% of Queensland's land area and contains 20% of its population. It includes around 30 major rivers and hundreds of small streams that drain into the Great Barrier Lagoon.

**Ideal Natural Environmental Conditions:**

- Corals are generally found at depths of less than 150 ft. where sunlight penetrates easily. Sunlight is necessary for these corals to thrive and grow.
- Reefs tend to grow faster in clear water. Clear water allows light to reach the symbiotic algae living within the coral phlyp's tissue.
- Light absorbing adaptation enable some reef-building corals live in dim blue light.
- Reef-building corals require warm ocean temperatures about 20 to 28°C. Warm water flows along the eastern shores of major land masses.
- Reef development is generally more abundant in areas that are subjected to strong wave action. Waves carry food, nutrients, and oxygen to the reef.
- Precipitation of calcium from the water is necessary to form a coral polyp's skeleton. This precipitation occurs when water temperature and salinity are high and carbon dio-oxide concentrations are low.
- Most corals grow on a hard substrate.
- The oceanic salinity about 25 to 30% is most ideal for the growth of coral polyps.
- Hard rocks provide an ideal base to coral reefs.

**Coral Feeding:**

Coral can obtain food in a variety of ways. Most corals feed at night. This may be because night is when the Zooplankton travel into the water column and become available for capture. Keeping the tentacles retracted during the day may also help coral avoid predation, protect themselves from Ultra Violet light, and avoid shading their Algae. Reef building corals
rely on the photosynthetic products of Algae for the majority of their nutrients. However, corals also capture Zooplankton for food. Corals are suspension feeders.

**General Information on Great Barrier Reef:**

- It stretches from the Tropic of Capricorn in the South to Cape Yark and the Torres Strait in the South.
- Geologically formed probably only 60,000 or 70,000 year ago.
- It is the world's largest structure made up of living organisms.
- It covers an area greater than the landmark of great Britain.
- It may contain more species of fish than does the entire Atlantic ocean.
- It contains 3000 individual reefs.
- It contains 400 kinds of corals.
- It contains 1500 species of fishes, countless number of warm.
- Two basic types of corals—hard and soft.
- Soft corals have no lime skeletons.
- Hard corals secrete a rigid skeleton of limestone.

**Causes of Environmental Threats to Great Barrier Reef:**

- Increase in sea water temperature (due to thin ozone layer over Australia).
- Due to tourism Industry.
- Crown of thorns Starfish
- Fishermen.
- Big ship water track along the GBR.
- Due to under water boats.
- Traditional festival related to open water swimming.
- Water pollution.
- Due to scientific studies.
- Water games (snorkelling, diving, boating, etc).
- Oil spills.
Pesticides draining from the main land cause heavy damage to coral reefs.

Aboriginal tribes (traditional ways of fishing).

The Impact of Tourism as An Ecological Threat to the Great Barrier Reef:

There is no doubting the drawing power of the GBR in attracting the overseas and interstate visitors. It is estimated that about 2 million people visit the Reef every year. Tourism is the pre-dominant industry in the far north region which accounts for more than 40% of the value of tourist expenditure in the GBR lagoon and catchment. Carins is the regional centre of the far north region and is the major mecca for the tourists transport hub. The Cairns transport authority noted that Crains has the 5th busiest International Airport in the country and with almost 34,000 visiting passengers in 2014 was the second largest cruiseliner port after Sydney. The authority also observed that 737,000 passengers deported on reef trees from the city port area in 2013. Correspondingly, the farnorth region also has by far the largest share of employment in tourism with more than 40% of all the tourist industry employed persons working for the GBR. (Productivity commission, Research report 2013:84).

Not all visitors who report having been to the GBR used a commercial tourism operations. The Great Barrier Reef Marine Park Authority (GBRMPA) records visitation numbers from tourism operators logbooks. In the year ended June, GBRMPA recorded 2,017,604 visitors to the entire Marine Park. This represented a slight decrease of 1.1% compared with the previous financial year. Most of the business (close to 40%) occurs in the months between October and January. About half of all commercial visitations into the Marine Park are recorded in the Cairns Planning Area (1,059,473 in the year ended June 2014).

The major reef related activities undertaken by tourists includes diving, snorkelling, reef walking and coral viewing. There is no doubt that the weather and the natural environment are the features that attract visitors but the foremost attraction is the Great Barrier Reef itself. Each section of the Reef has individual touristic visitation characteristics. In 2014 tourism operators licensed to use 1492 vessels/ aircraft, were permitted to operate in the area. Marine visits are concentrated in the Cairns and Whitsundary regions, which account for 85-95% of total visits but only 7% of the area of the Marine Park.
Tourist activities and operations include:

- Boat-based operations (such as day trips of reef and island destinations; charter boats, particularly for diving and fishing; and international cruise ships).
- Pantoon based operations at fixed sites.
- Aircraft operations (for scenic flights and charters); and
- Resort-based activities.

These activities have a variety of potential environmental impacts, including direct damage to Coral through poor anchoring and reef walking.

What Coral Reefs Do for Us:

- Provide shorelines with protection by breaking waves.
- Save as nurseries for growing fishes.
- Supply a protein source in coastal people's diets.
- Give food, shelter and protection to a variety of marine species.
- Provide jobs through fishing and tourism.
- Serve as a source of medicine against a variety of diseases.
- Give us a wondrous underwater world to study and enjoy.

What we do to Coral Reefs:

- Pollute them with sewage, oil spills, fertilizers and pesticides.
- Fish them in destructive ways (overfishing, chemicals, damaging gear and anchors).
- Mine them with explosive devices.
- Smother them with silt resulting from logging, land use and development.
- Ground boats on them.
- Drop anchors on them, step on them, drag dive gear over them, chop them down for tacky jewellery and coffee table curios (decoration).
Conclusion:

In conclusion we can say that if the degrading human activities persist them the day is not far when we shall lose nature is most beautiful gift i.e. Great Barrier Reef. It is the duty of everyone to conserve such types of sources of mystery and beauty so that our future generations too can enjoy them. To protect the Great Barrier Reef the participation of local people can play an important role example - through environmental awareness among the local people, Aboriginal people, local meeting, poster as well.

References:


