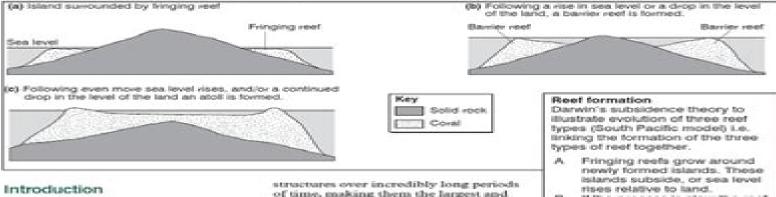
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GARRETT NAGLE

#### CORAL REEFS

Figure 1: Formation of fringing roofs, barrier roofs and atolls



Coral reefs are one of the most biologically diverse ecosystems, rivalled only by the tropical rainforests in this respect. Corals themselves are marine animals, and almost a thousand coral species currently exist. However, human activities are threatening their future.

With the majority of the world's population living in coastal regions, many people depend on living coral reefs for food, and protection from storm surges and erosion, as well as the additional benefits of medical research, tourism and aesthetic beauty. Coral reefs contribute about 25% of the total fish catch in LEDCs, providing food for one billion people in Asia alone. Human activities, such as those associated with global warming, are threatening coral reefs. Increasing sea temperatures stress corals and cause damage, including bleaching.

#### The development of coral

All tropical reefs began life as polyps—
tiny, soft animals, like sea anemones—
which attach themselves to a hard
surface in shallow seas where there is
sufficient light for growth. As they
grow, many of these polyps exade
calcium carbonate, which forms their
skeleton. As they grow and die, these
colonies of 'rock'-forming corals create
reefs.

Tropical reefs can grow at rates of under 2.5-60 cm/year, forming huge structures over incredibly long periods of time, making them the largest and oldest living systems on Earth. For example, the 1,250-mile Great Barrier Reef was formed over five million

Polyps have growing inside them small algae, zooxanthellae. The algae receive shelter and food from the polyp, while the polyp also gets some food via photosynthesis. Algae need sunlight to live, and obviously photosynthesis (conversion of light energy from the sun into food) cannot occur in darkness, hence corals only grow where the sea is shallow and clear.

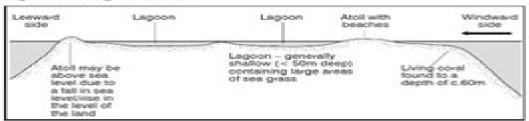
#### Threats to coral

The main threats to coral include:

- coral bleaching and global climate change
- diseases of corals and other reef organisms

- B If the process is slow the reef will grow upwards to form a larger barrier reef separated from the island by a deeper lapson.
- C When the island disappears beneath the sea an atoll forms. Corals can continue to grow on the outside to keep the reef on the surface. On the inside, where the land used to be, quiet water with increased sedimentation prevails.
- plagues of predators like the crownof-thorns starfish (COTS) and other damaging organisms such as the sea urchin
- invasive species which have been introduced onto new coral reefs.

Figure 2: Zoning in an atoll



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