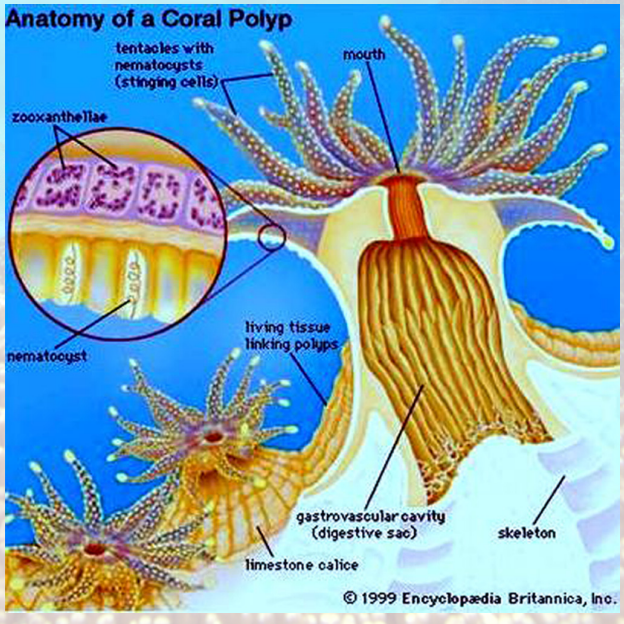
Importance of Coral Reefs

- Source of food (fish and shell-fish) for people
- Economic value (fishing, tourism, etc)
- Protects against coastal erosion
- Medicinal benefits - some anti-cancer drugs and painkillers come from reefs
- Provide food and shelter for various reef fishes
- A good sign of ocean water quality: Healthy reefs = Healthy water



Threats to Coral Reefs

•Crown of Thorns:
COTs feed on coral polyps, and an outbreak of COTs can eat up the entire coral reef within a few days or weeks.

•Climate Change:
Increasing sea temperature causes corals to bleach. Ocean acidification is also threatening corals.

• Pollution:
Suspended trash and particles will prevent sunlight from reaching the coral reefs.

• Overfishing:
Removal of the herbivorous fishes will allow algae to grow and compete with the corals for space and sunlight.

• Population Pressure:
More people on island will put more pressure on our natural resources.

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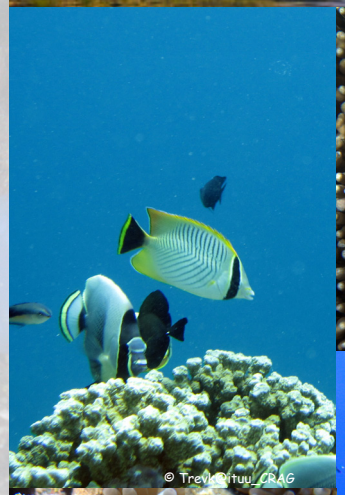
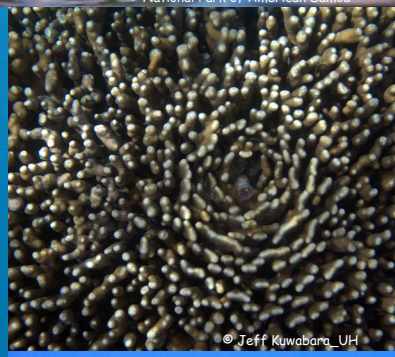
CORAL REEFS





Coral reefs are one of the most complex and colorful tropical ecosystems. Coral reef organisms build massive & complex physical structures that are home to fascinating plants and animals in the world.

What is a Coral Reef?

Coral reefs are massive structures made of calcium carbonate (limestone) deposited by coral animals and which forms the base of a complex reef ecosystem. Coral reefs are home to over 4,000 different species of fish, 700 species of coral and thousands of other plants and animals.

What is a Coral?

Coral is a tiny, fragile, spineless animal.

What is a coral polyp?

• A polyp is the most basic form of a coral. It is a sessile animal with an elongated cylindrical body and a ring of tentacles around its mouth. Thousands of polyps grouped together to form a coral colony.

• A polyp has a sac-like body and a single opening or mouth encircled by stinging tentacles.

• The polyp of a hard coral uses calcium carbonate from seawater to build itself a hard, cup-shaped skeleton. This limestone skeleton protects the soft, delicate body of the polyp.

Polyp ©Scott Santos; State University of NY Buffalo

When and how do corals feed?

Corals feed during day and night time. During day time they utilize the **zooxanthellae** that lives in their tissues to make their own food. At night polyps extend their entacles out to feed on tiny micro-organisms such as **plankton**.

Zooxanthallae ©Scott Santos; State University of NY Buffalo

• Pigments produced by the zooxanthellae are visible through the clear body of the polyp and give the coral its beautiful color.

Mutual Relationship - the polyp provides shelter for the Zooxanthellae and in return the zooxanthellae provide food for the polyp through the process of photosynthesis.

Coral need the following to grow.

• In general corals grow very slow about 1 to 2 inches per year.

• Corals grow at different rates depending on sunlight. Sunlight plays an important role in coral.

• Water temperature (70–85°F), salinity, turbulence, and the availability of food.

• Since hard corals depend on the zooxanthellae (algae) that grow inside of them and this algae needs sunlight to survive, corals too need sunlight to survive.

• Therefore, hard corals rarely develop deeper than 50 meters (164 feet).