

### Episode 3: Endangered Corals: Finding and Restoring Rare Coral Species

Scientists at the Central Caribbean Marine Institute (CCMI) have been explaining many aspects of coral biology and restoration in this episode of Reefs Go Live, including some key terms any marine scientist should be familiar with. Draw a line between the keywords in the left column to the correct definition in the right column.

Keywords	Definitions
Polyp	Process of corals appearing white due to the loss of the algae living inside of them
Coral bleaching	Renewal of a damaged, degraded, or destroyed ecosystem by active human intervention
Symbiotic relationship	Mostly stationary body form of the group of animals that include jellyfishes, corals, and sea anemones; has tentacles and a mouth
Restoration	Even higher level of risk than endangered. There is a very high risk of the species becoming extinct in the near future
Critically endangered	Microscopic algae that lives in the tissues of coral and provides the coral with energy and nutrients
Zooxanthellae	Interaction between two organisms where at least one benefits

## What are corals?

Fill in the blanks using these key terms:

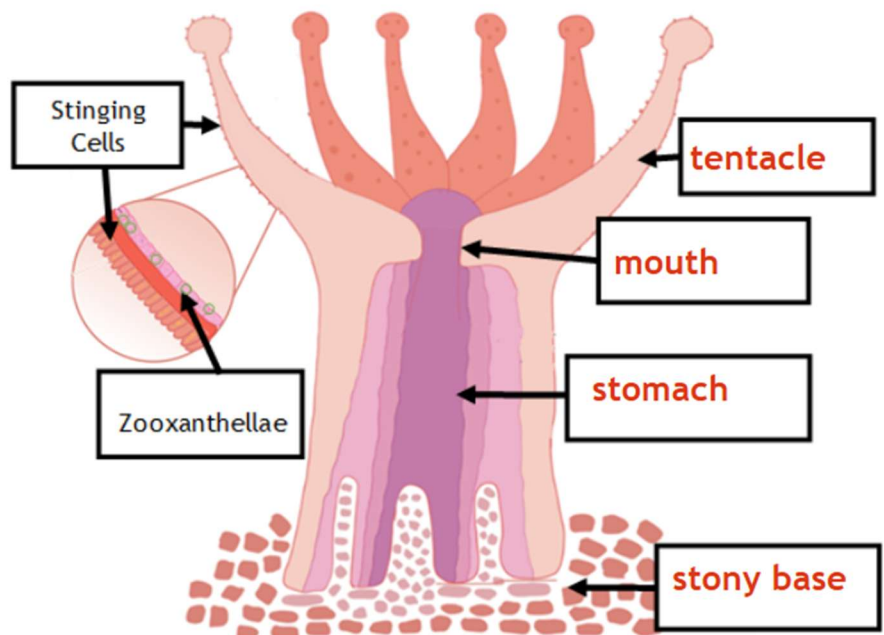
thousands      animals      polyps      symbiotic      tentacles  
photosynthesis      zooxanthellae

- 1) Corals are tiny soft bodied animals related to jellyfish and sea anemones.
- 2) When viewed up close, you can see that corals are made up of many individual polyps. Each polyp has a mouth, stomach, and tentacles. Polyps are generally grouped together by the thousands, forming colonies.
- 3) Corals often have a symbiotic relationship with a special type of algae called zooxanthellae.
- 4) Zooxanthellae live inside the cells of the coral and provide up to 95% of the coral's food through photosynthesis. The other 5% of nutrients comes from the coral polyps using their tentacles to reach out and grab food that floats by in the water column.

### Stony Coral Polyp Anatomy Diagram

Label the diagram below using the keywords to help you:

mouth  
tentacles  
stony base  
stomach



## How to build a coral nursery

A coral nursery is a place where scientists grow corals underwater on specialized structures. This helps corals recover after their numbers have declined after major environmental disturbances or diseases. Below are the steps involved in coral restoration, fill in the missing words:

growth      outplanted      fragments      cleaning      attached

Step 1: Scientists take small sections of a larger colony. These pieces are called fragments.



Step 2: Fragments are securely attached to structures in the nursery with lots of space to grow.



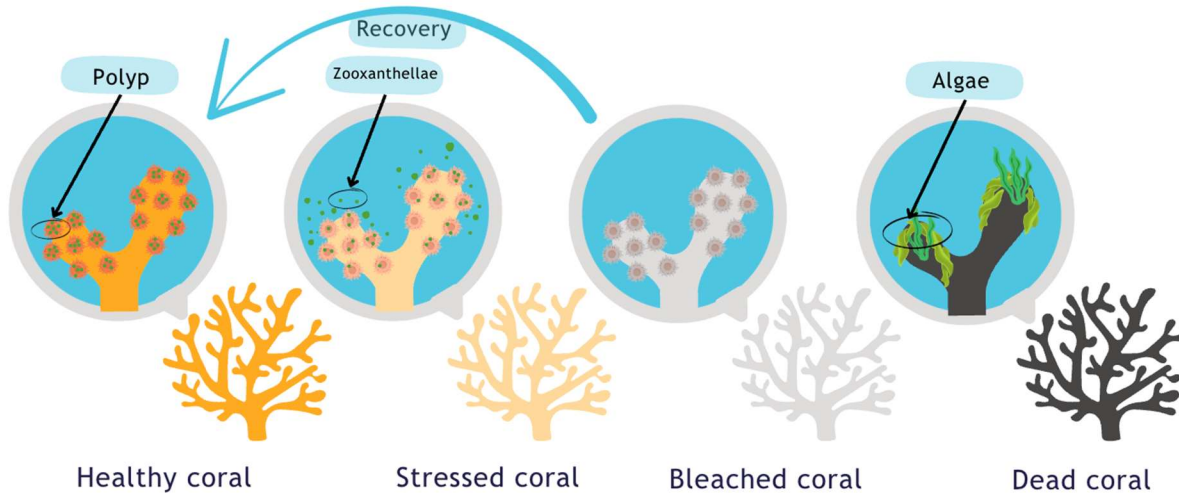
Step 3: The nursery needs to be maintained. This means cleaning any algae that grows on the structures and monitoring coral health and growth over time.



Step 4: When the corals are big enough they are outplanted back onto the reef to improve the natural environment.



## Coral bleaching



The diagram above shows what happens when the temperature in the ocean becomes too hot. Use the diagram to explain:

a) What happens when the temperature stays too hot for a long time:

The coral loses their zooxanthellae and they cannot produce enough energy to survive. Eventually the coral will die

b) What happens when the temperature quickly goes back to normal:

Zooxanthellae will re-enter the tissues of the coral; the coral animals will get their colour back, recover, and become healthy again

Fill in the blank letters to complete the names of some threats to corals:

- Rising temperatures
- Disease
- Increased storm activity
- Pollution
- Habitat destruction
- Overfishing

## Endangered coral species

Below are some of the most endangered coral species in the Caribbean. Label each type of coral with its common name and the matching fact about its status in the Cayman Islands from the list below.



Common name: **Elkhorn coral**

Scientific name: *Acropora palmata*

Endangered coral fact: **This is an important reef building coral in shallow waters**



Common name: **Staghorn coral**

Scientific name: *Acropora cervicornis*

Endangered coral fact: **This species is fast growing and used in CCMI's coral restoration projects**



Common name: **Pillar coral**

Scientific name: *Dendrogyra cylindrus*

Endangered coral fact: **There are 10 colonies mapped at dive sites around Little Cayman**

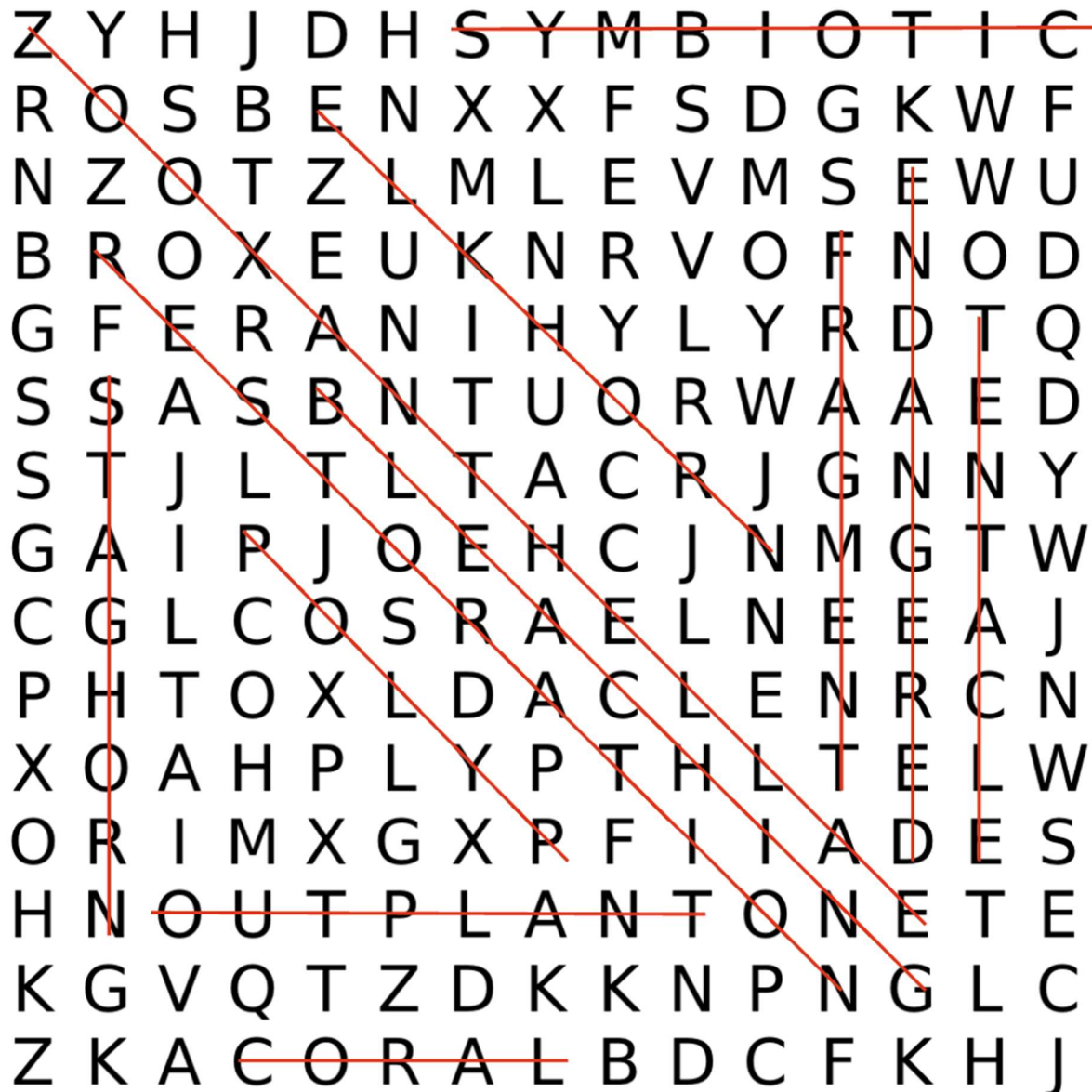
### Facts:

1. There are 10 colonies mapped at dive sites around Little Cayman.
2. This species is fast growing and used in CCMI's coral restoration projects.
3. This is an important reef building coral in shallow waters.



## Find the keywords

Some of the keywords in this worksheet have been hidden inside this wordsearch puzzle. There are 12 words in total. Can you find them all?



## Restoring the reef

Using coloured pencils, crayons, or markers, colour the images on this page. Then using your scissors, cut them out. Finally, arrange them on another piece of paper, and glue them in place to create your own restored, healthy coral reef. You can also add more drawings of a nursery, fish, or corals to colour in yourself. Be careful as there are some images that do not belong on a healthy reef!

