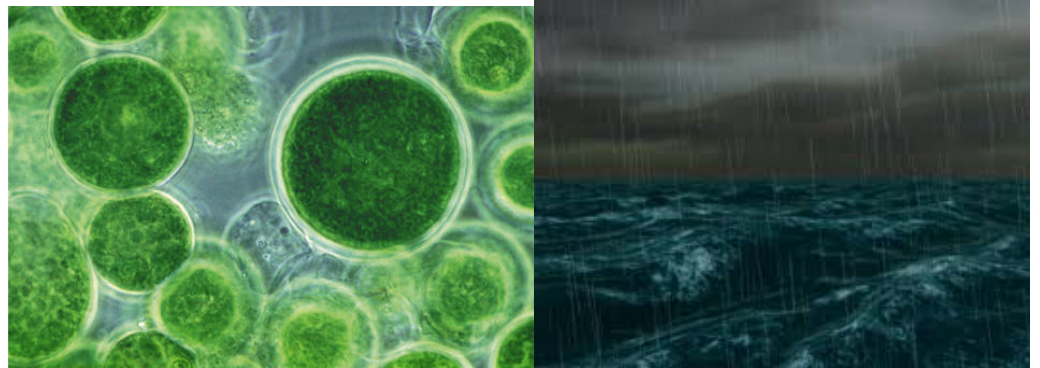


3.3- Part 2

Marine Ecosystems

Impact of Oceans on the Planet

- Marine algae consume large amounts of carbon dioxide from the atmosphere
- Water that evaporates from the ocean provides most of Earth's precipitation

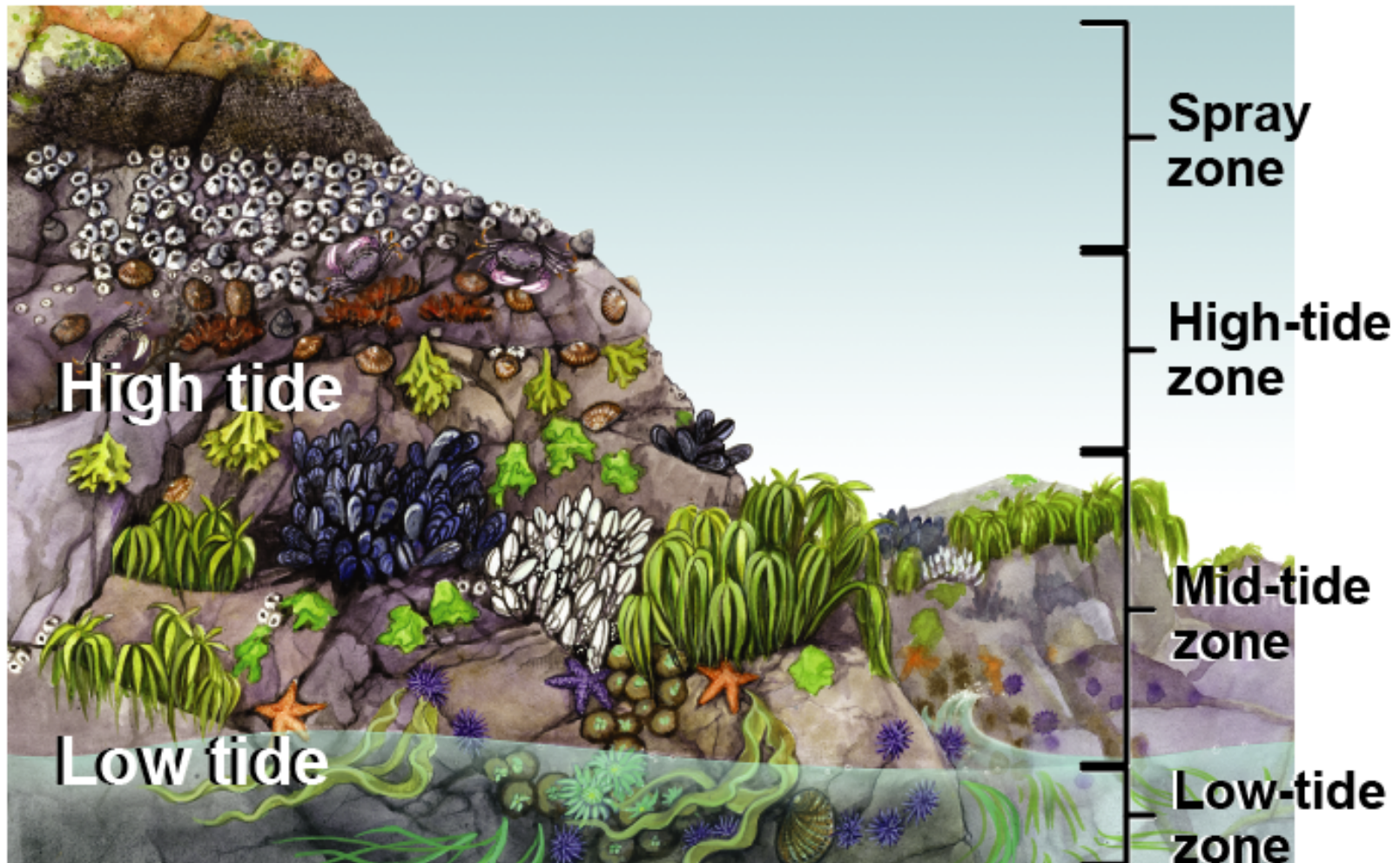


Intertidal Zone

- Where ocean meets land.
- Organisms must adapt to daily changes in tides and wave action.

4 parts of the intertidal zone.

Spray, High-tide, Mid-tide, Low-tide



Open Ocean Ecosystems

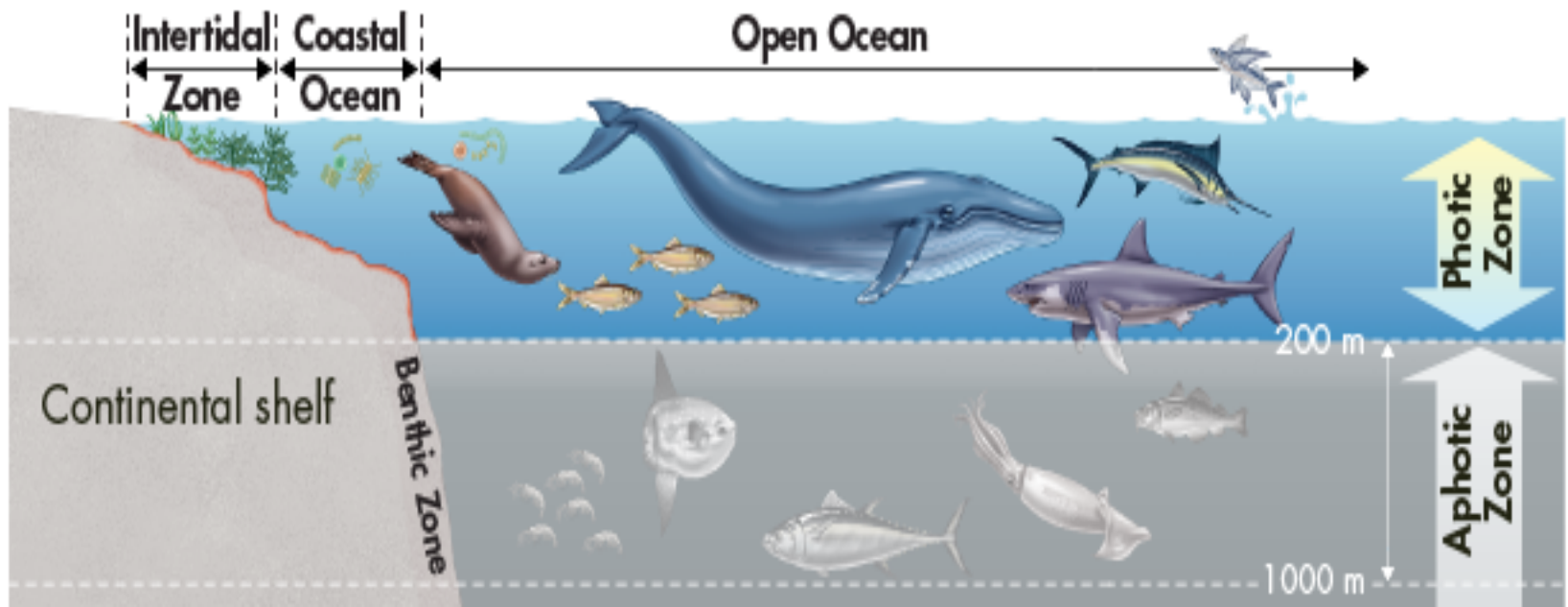
- The open ocean is divided into three zones: pelagic, abyssal, and benthic.

The pelagic zone is divided into two zones

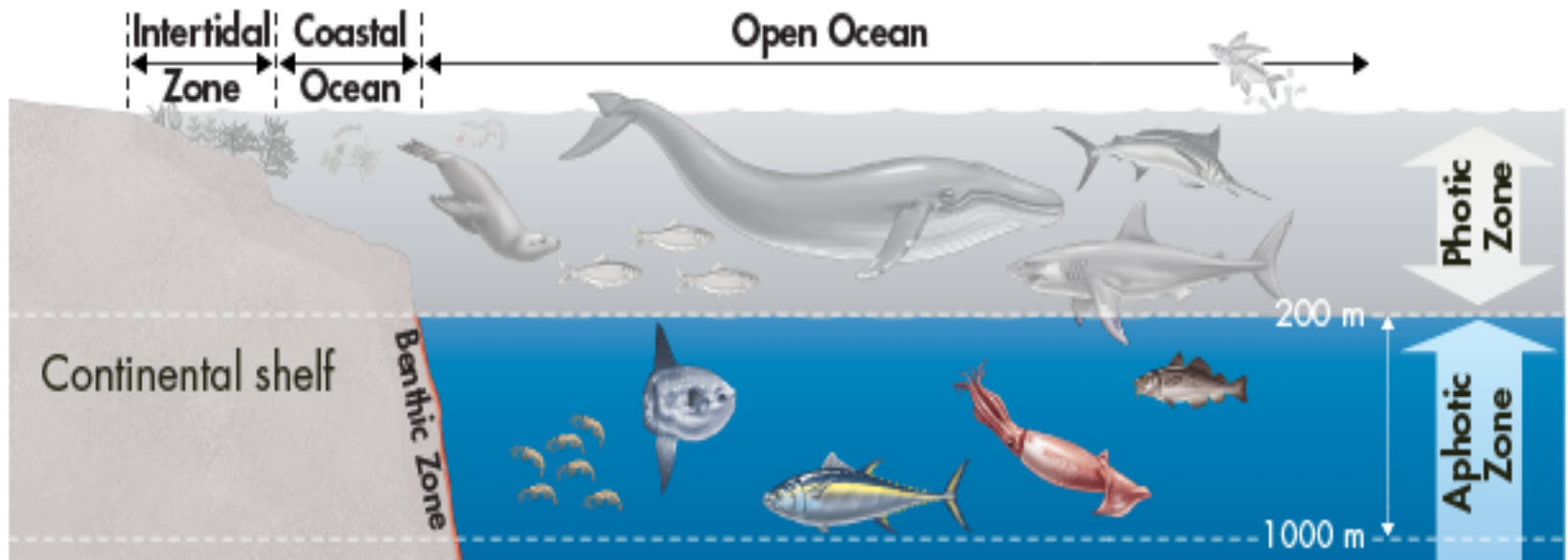
- Photic Zone

- Aphotic Zone

photic zone close to the surface, photosynthesis can occur

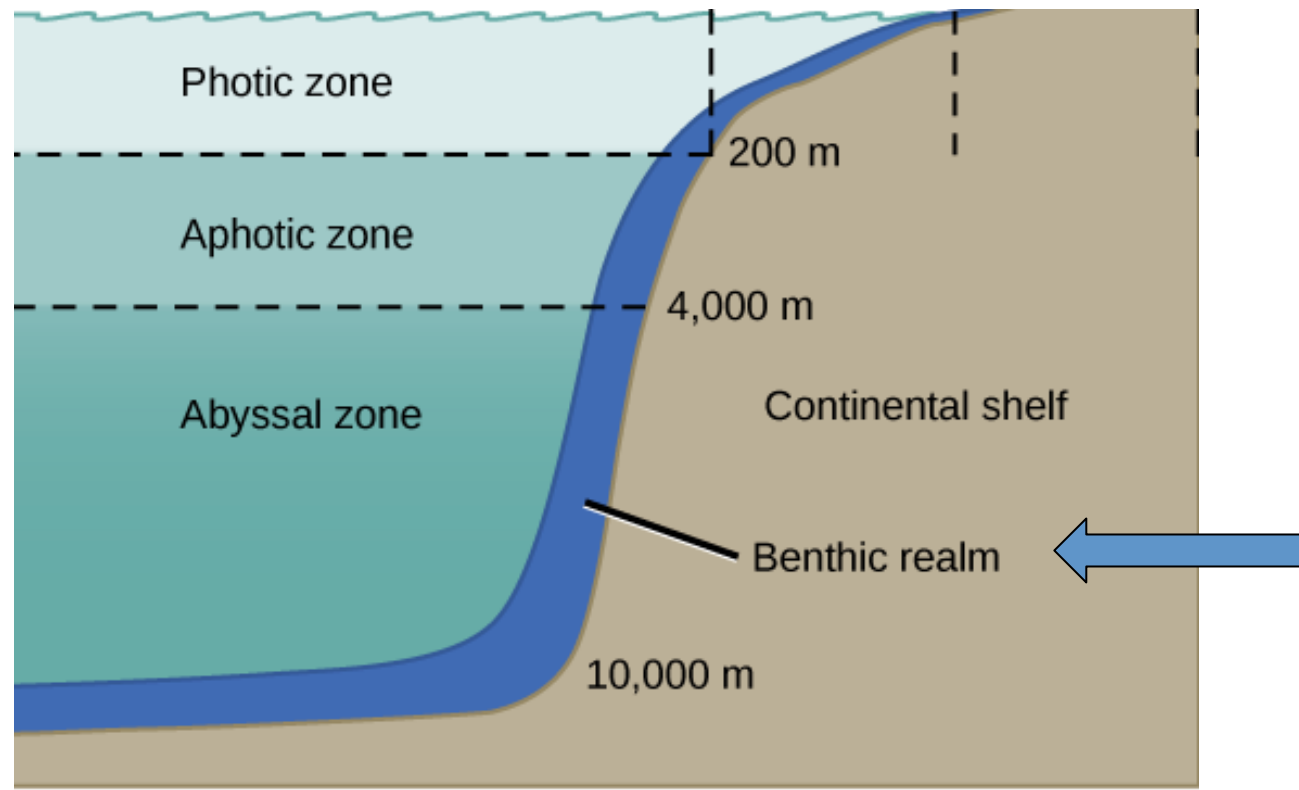


aphotic zone deep, no
photosynthesis can occur



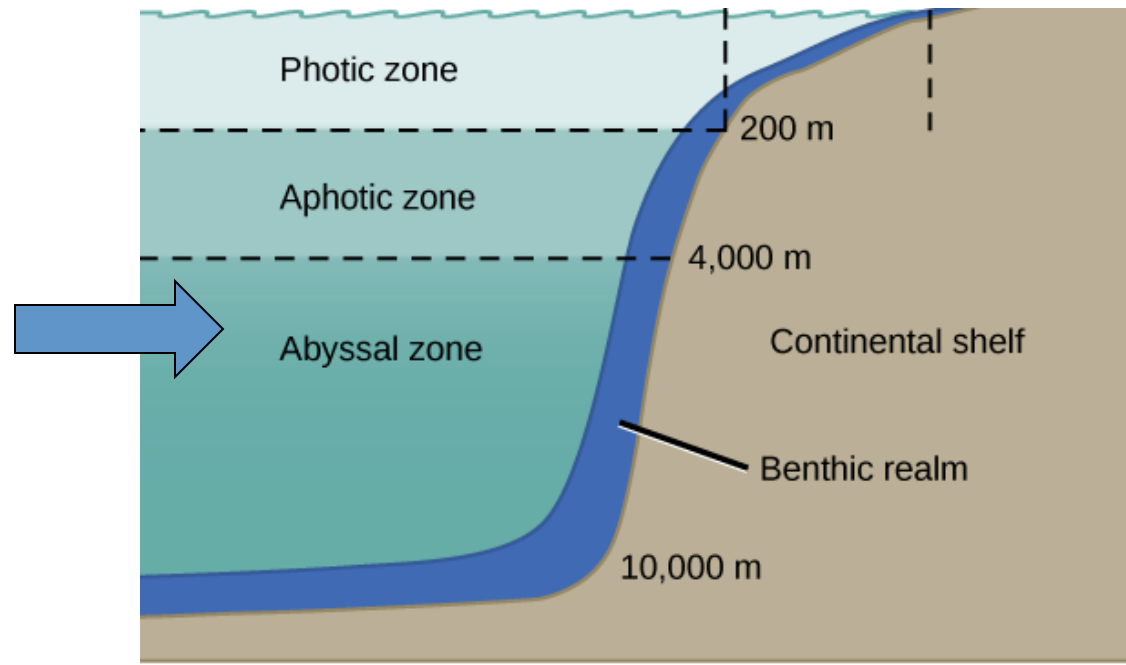
Benthic Zone

- Area along the ocean floor.
- Some parts receive sunlight, as depth increases, light and temperature decrease.



Abyssal Zone

- The deepest region of the ocean
- Water is very cold, no light
- Food sinks from the surface



Abyssal Zone Adaptations

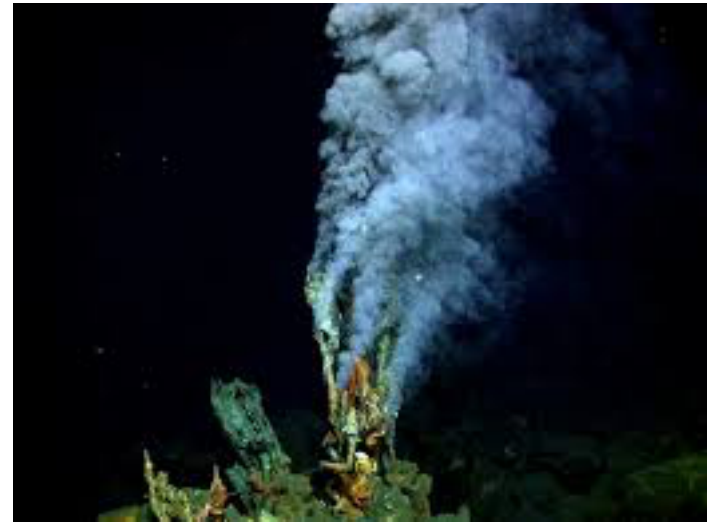
Anglerfish- bioluminescent lure



Deep-sea vents

- superheated water boils out of cracks on the ocean floor

Chemosynthetic producers



Coral Reefs

Coral reefs are one of the most diverse ecosystems on Earth.



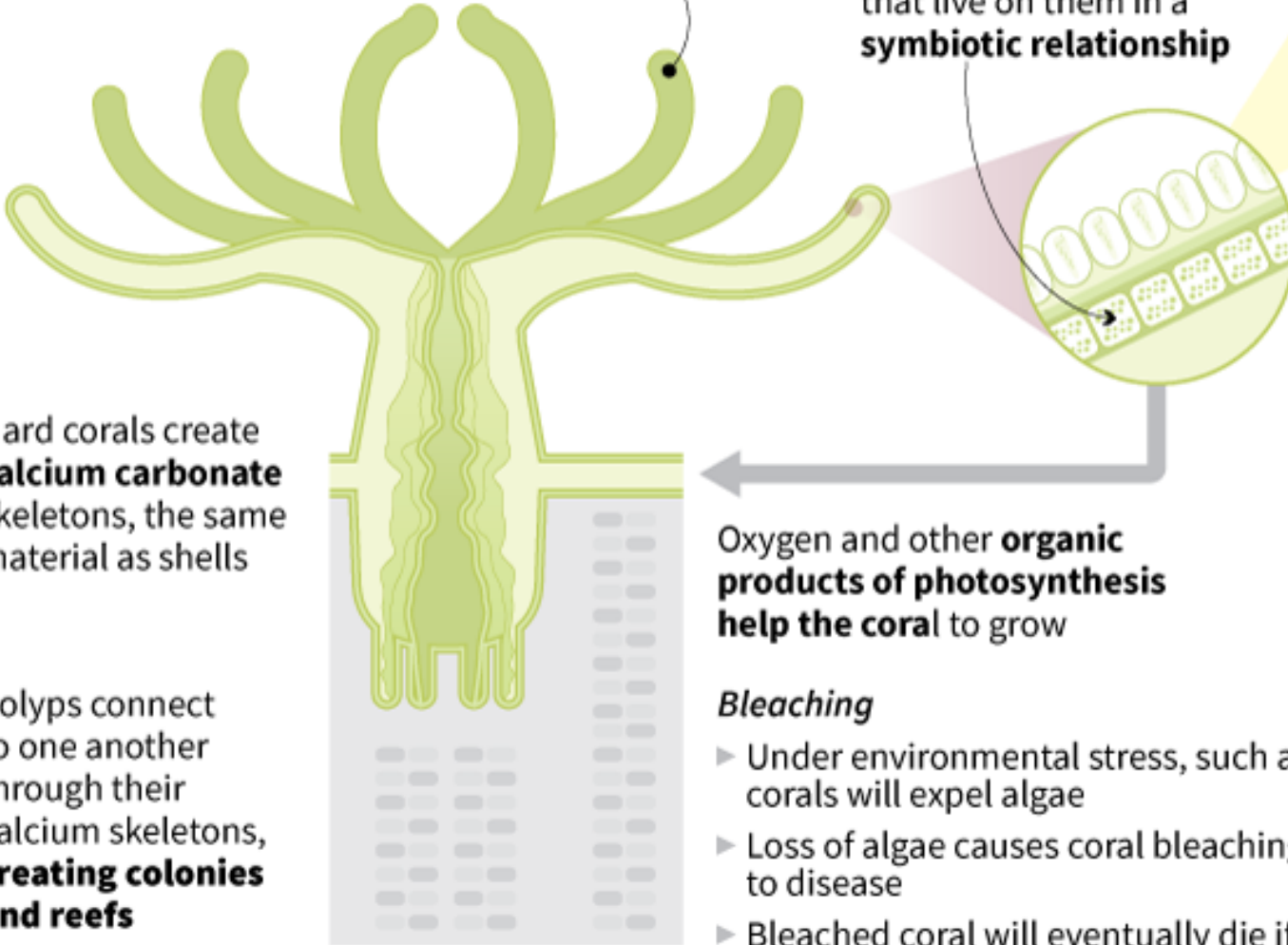
What is coral?

Corals are made up from colonies of tiny organisms called polyps

Polyps are related to sea anemones and jellyfish

Tentacles to capture microscopic organisms in the water

Coral polyps are translucent, they receive colour from algae such as **dinoflagellates** that live on them in a **symbiotic relationship**



Algae use nitrogen, phosphorus and other **metabolic waste from the coral** to generate energy from the sun via **photosynthesis**

Hard corals create **calcium carbonate** skeletons, the same material as shells

Polyps connect to one another through their calcium skeletons, **creating colonies and reefs**

Oxygen and other **organic products of photosynthesis** help the coral to grow

Bleaching

- ▶ Under environmental stress, such as a change in temperature, corals will expel algae
- ▶ Loss of algae causes coral bleaching, making them vulnerable to disease
- ▶ Bleached coral will eventually die if they don't regain algae

- Symbiotic relationship with algae
- Widely distributed in warm shallow marine waters
- Sensitive to environmental changes