

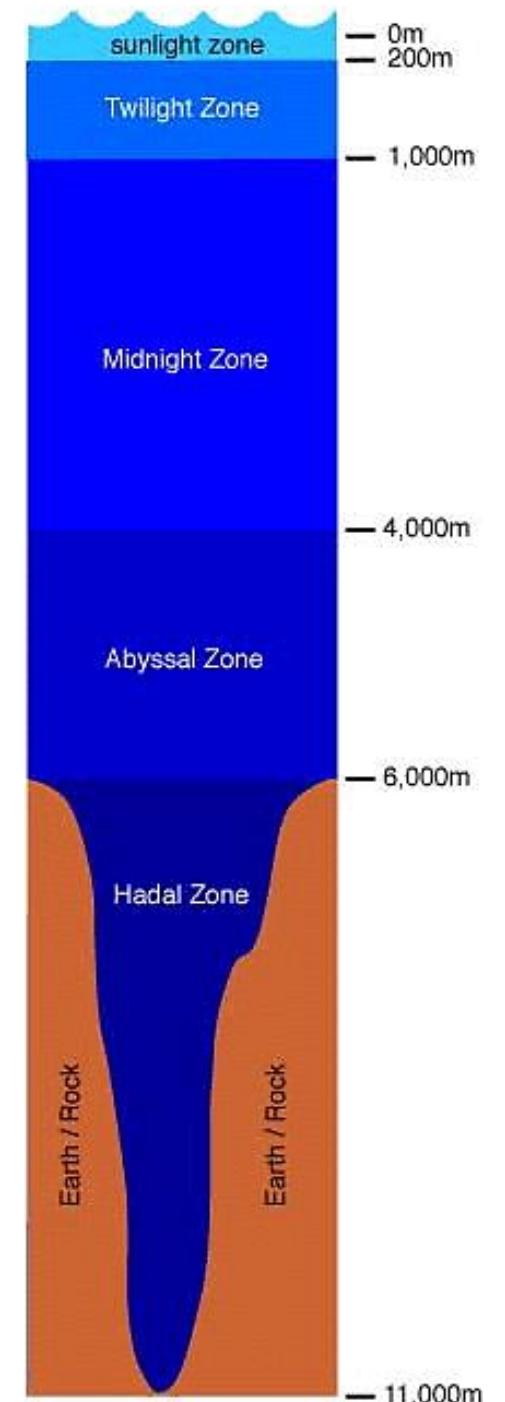
Saltwater Environments

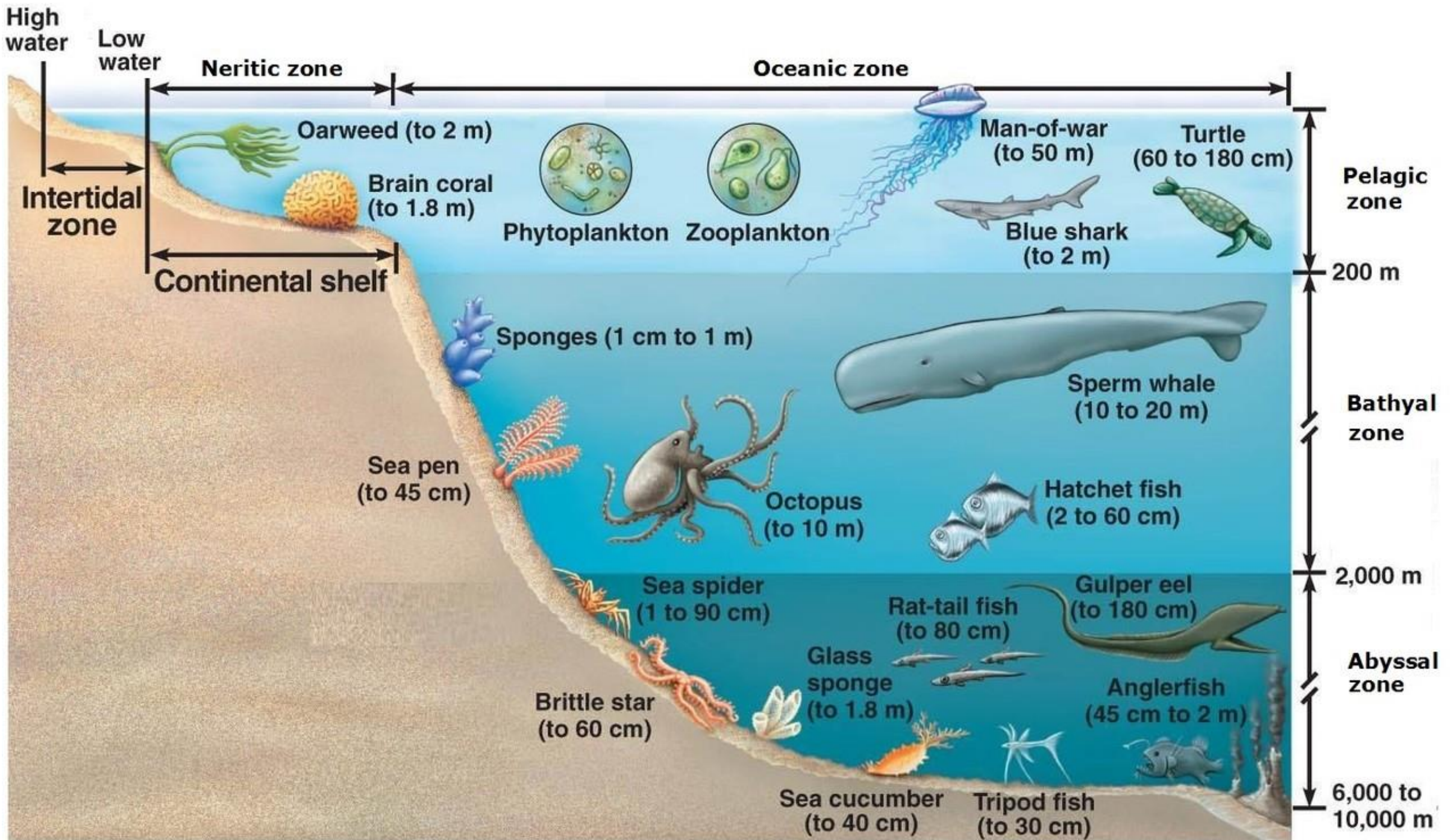
Changes in water quantity and quality can affect living things

Lesson 33

Saltwater Environments

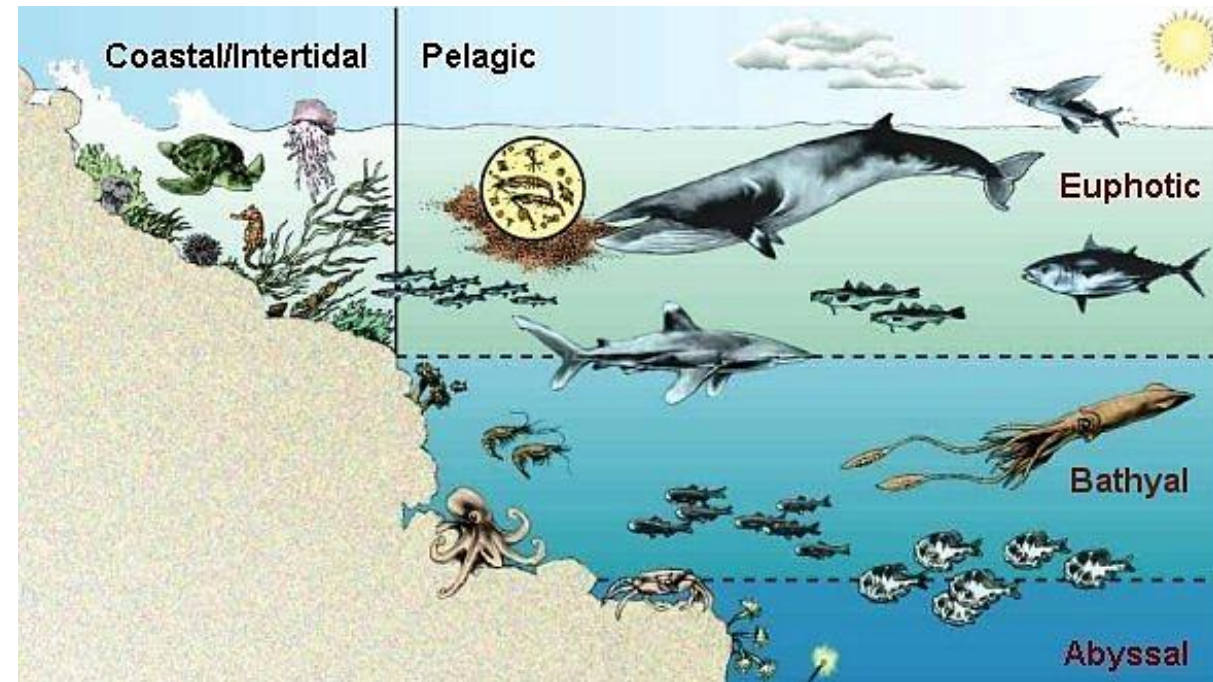
- Ocean water can be divided into two different environments
 - The open water = **pelagic zone**
 - The bottom of the ocean = **benthic zone**
- The **PELAGIC ZONE** is divided into THREE subzones
 1. The sunlight zone
 2. The twilight zone
 3. The midnight zone
- The **BENTHIC ZONE** has TWO subzones
 1. The abyssal zone
 2. The hadal zone





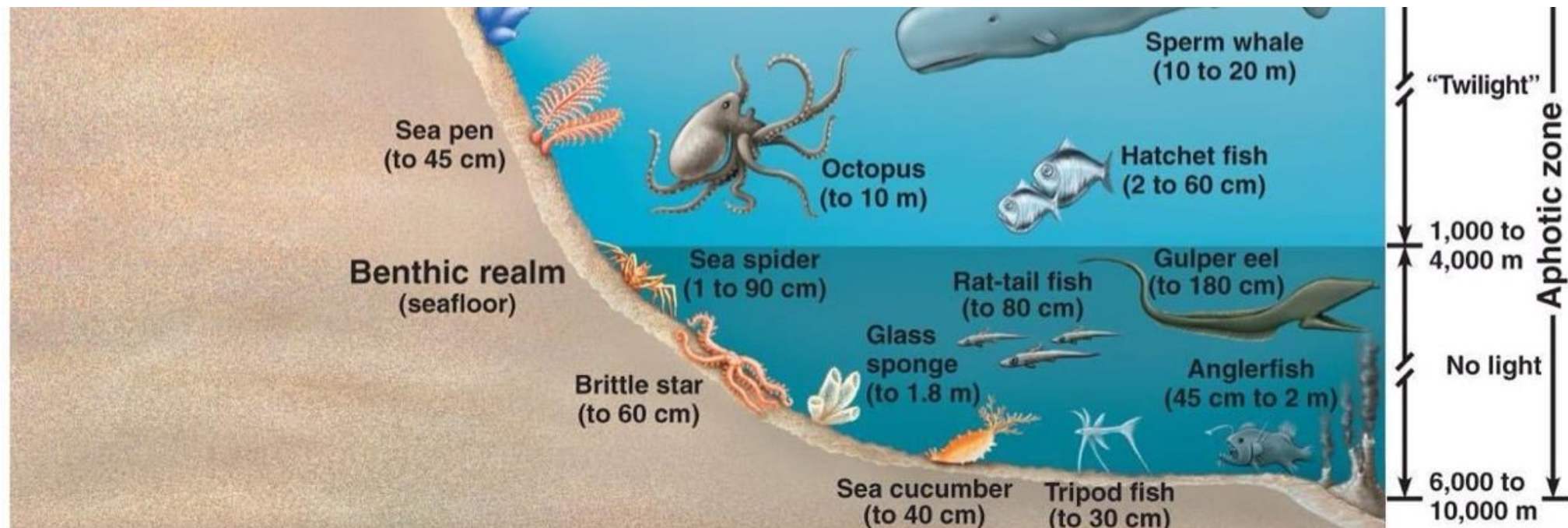
Pelagic Zone

- Food is plentiful and sunlight warms the water
- The amount of sunlight is especially important for the microscopic plants such as plankton and algae
 - Provide food and nutrients for other organisms which are then eaten by fish and larger animals in the ocean (food chain)
- The upper pelagic layer is like a seafood lover's buffet
- Almost 90% of all sea creatures live near the surface of the ocean



Below the pelagic zone

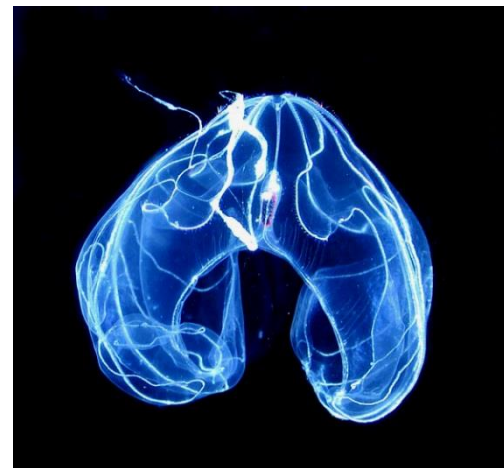
- Deeper ocean waters are much cooler than the upper pelagic zone
 - Do not receive the amount of sunlight required for plants to grow (through photosynthesis)
 - The organisms in the deeper waters must rely on food other than plants



Below the pelagic zone



- Almost 10% of all sea creatures live in total darkness deep in the ocean
 - Some rely on bioluminescence to find food, attract a mate, or scare away predators
- Bioluminescence is the ability of certain marine fish and invertebrates (animals w/o bones) to light up part of their bodies through a chemical reaction



Saltwater Life Forms



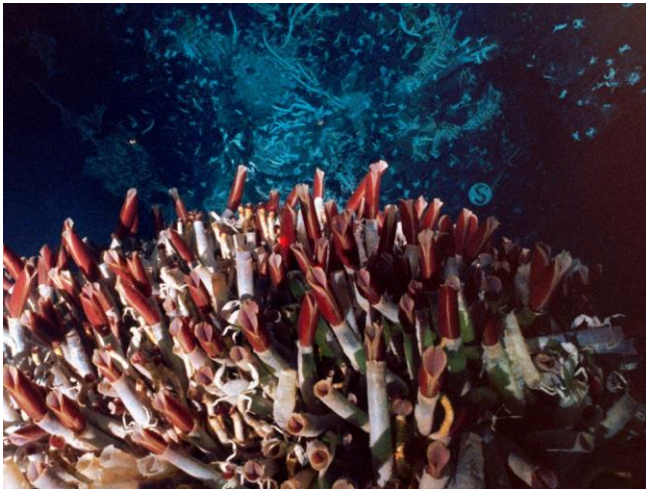
- The ocean is home to a huge variety of life of every shape and size
 - From single-cell organisms to the largest mammal on Earth, the blue whale
- Shallow warm waters close to the equator are preferred by tropical corals
 - Provide habitat for countless small fish and plants
- Larger fish (tuna and halibut) are found in colder, deeper water



Saltwater Life Forms



- Life can even be found in the darkest, coldest parts of the ocean
- Sea sponges, tube worms, and sea cucumbers live on the ocean floor
 - Feed off the plankton, microscopic plants, dead sea creatures, and other organic material that drop from the surface layer



Saltwater Life Forms

- If you put a few grains of sand from the ocean under a powerful microscope, you would see aquatic life in its smallest forms
 - E.g. bacteria and diatoms (food source)
- Shoreline creatures such as sea urchins, crabs, sea stars, mussels, and clams feed on these smaller organisms
- In BC, the rocky coastal islands and reefs that live just offshore are inhabited by larger marine mammals (otters, seals, sea lions)



Summary

- The ocean is not like a fish tank, where all the inhabitants have access to any part of the tank
- The ocean has many layers, or zones, with different varieties of life in each layer
 - Pelagic zone → sunlight (epipelagic) zone, the twilight zone, midnight zone (bathypelagic)
 - Benthic zone → abyssal zone, hadal zone
- Where an organism lives in the ocean depends on what it needs to survive

