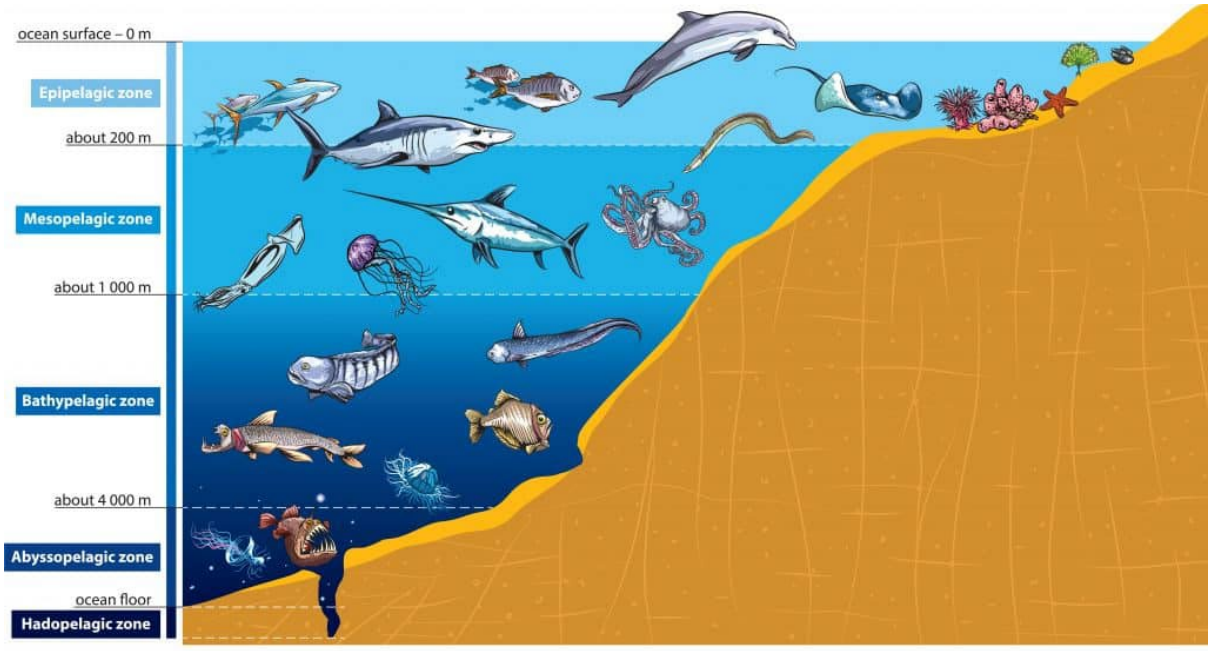
Earth's Waters

Section 3: Composition & Characteristics of Oceans Cont.



The diversity of wildlife on the oceanic zones

Oceans are divided into zones based on physical characteristics, including sunlight, temperature, salinity, and density.

The Surface Zone (Sunlight Zone) extends from the surface down to approximately 200 meters. In this zone, there is plenty of sunlight and heat, although both decrease the deeper you go. Organisms that perform photosynthesis are located here because it's the only open ocean part that gets enough sunlight to support growth. Most marine animals, such as whales, sharks, and jellyfish, are in the surface zone.

The Twilight Zone starts from the bottom of the sunlight zone to the point where sunlight cannot reach. This zone, extending down to approximately 1000 meters, is home to fish and invertebrates such as swordfish and wolf eels. At night, many swim to the sunlight zone to hunt and feed.

The Deep Zone (Midnight Zone) is 15 times the size of the surface zone, making it the largest ecosystem on Earth. Organisms in this zone live in complete darkness. Sunlight cannot penetrate beyond about 1000 meters, so the entire zone from 1000 to 4000 meters is completely dark. Many animals that live here have specialized glowing organs called photophores, like those of fireflies, which are used to attract prey, confuse enemies, or find a mate. The organisms produce light in their photophores through a chemical process called **bioluminescence**. Animals in this zone must be good hunters to survive, as resources are limited.

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The Abyssal Zone (Abyss) has crushing pressure and temperatures near freezing. This zone contains over 75 percent of the ocean floor covered with deep, soft sediments of mud and ooze. Here, organisms rely almost entirely on food sinking from above. Therefore, many animals here, such as sea stars, hagfish, and giant isopods, are scavengers.

The Trenches are a unique zone in that they exist only in certain places around the world –the deep, wide trenches of the ocean floor. The deepest parts of the ocean make up this zone, and despite the incredible pressure and near-freezing temperatures, life perseveres here. Invertebrates such as starfish, tubeworms, and the bacteria that live inside them have all adapted to this environment in unique ways.

Review:

1. Identify the five oceans.
2. What does salinity mean?
3. Explain bioluminescence.