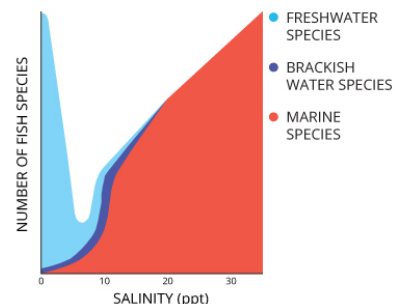


Life under the H₂O Reference Sheet

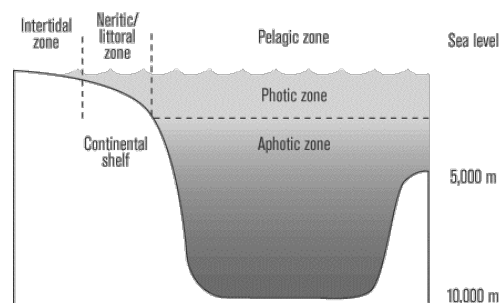
Water makes up the largest part of the biosphere, covering nearly 75% of the Earth's surface. Aquatic biomes or any part of earth covered with water, houses numerous species of plants and animals, both large and small.

Many biotic and abiotic factors interact within the aquatic biomes. Some of the abiotic factors are salinity, temperature, pH, dissolved oxygen and carbon dioxide as well as minerals and nitrogen concentration. These factors determine the survival of the many plant and animal species that habit these waters.

Aquatic biomes can be broken down into different regions: freshwater (i.e., lakes and rivers), marine (i.e., oceans) and estuaries based on the concentration of salt. At the same time, aquatic biomes can be classified as standing or flowing based on the movement of water.



Sunlight also plays a big role in aquatic biomes. The sunrays only penetrate 200 meters in depth, this area is called photic zone in which photosynthesis can occur. Below the 200 m. where the rays of the sun cannot reach is called the aphotic zone, organism in this zone depend on chemosynthesis, marine snow (falling of dead organisms and nutrients to the sea floor), among other adaptations for their survival.

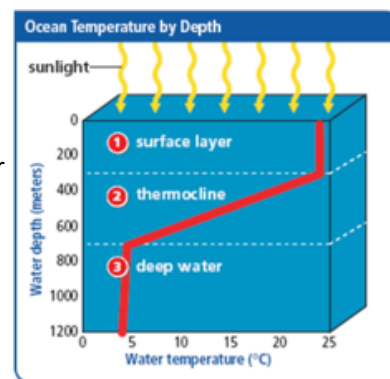
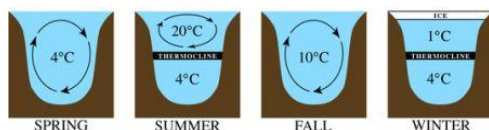


Below is a description of some of the factors that influence life under water.

Temperature

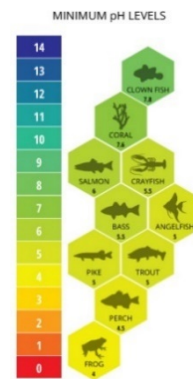
How cold or warm is the water, depends on how much sunlight penetrates the water. Temperature affects amount of energy used by organisms and their reproduction. High temperatures prompt higher levels of energy and lower temperature, lower levels of energy. Temperature also affects the amount of dissolved oxygen in water.

Freshwater average temperature



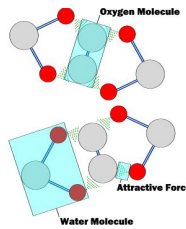
pH

pH is a measure of how acid or basic a substance can be also. Aquatic organisms both plants and animals are sensitive to pH, especially during reproduction. Sea water has an average 8- 8.3, slight changes pH can affect aquatic and humans life. The Aphotic zone usually is more basic than the aphotic zone.

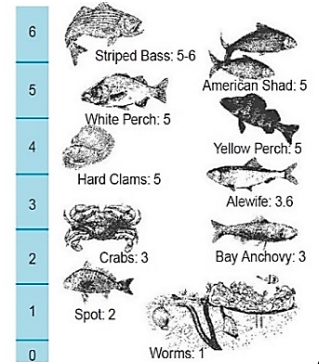


Dissolved Oxygen (O₂) mg/L

Aquatic organisms require oxygen as dissolved gas (O₂). Aquatic organisms do not take the oxygen from water molecules, they use free O₂ in the water. Lack of significant levels of dissolved oxygen required by most aquatic organisms for respiration can cause impairment or death. Some organisms have adapted to low oxygen in water or are able to ingest air directly. The photic zone is usually high in dissolved oxygen and the aphotic zone the opposite.

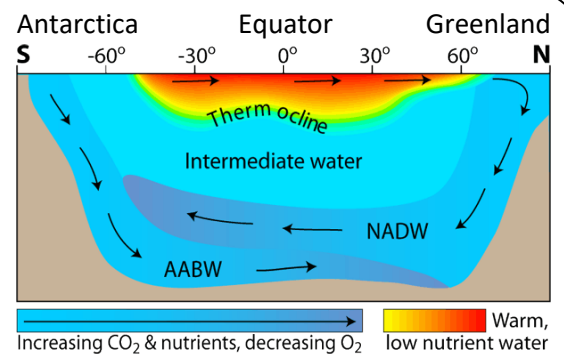


Migratory Spawning and Nursery Habitats
Shallow-Water and Open-Water Habitats
Deep-Water Habitats
Deep-Channel Habitats



Nutrients

Nitrogen and phosphorus are essential nutrients in Aquatic life. Both are used for growth. However, excess inputs of nitrate can cause overgrowth of aquatic plants and algae, which in turn, use up dissolved oxygen in the process of decay. Normally the aphotic zone is high in nutrients, and the photic is low. The water cycle, winds and ocean currents influence the movement of nutrients in aquatic biomes.



Turbidity

Is a measure of the relative clarity of the water and is a significant indicator of overall water quality. High turbidity levels can be caused by suspended sediment (caused by erosion and runoff), bacteria, and algal blooms. Excessive turbidity levels can impair photosynthesis and suspended particles absorb heat, raising water temperature and lowering dissolved oxygen levels. Turbidity is measured in units of length (cm), representing the depth to which light penetrates, or in turbidity units (NTU's)

