Fish Ecology

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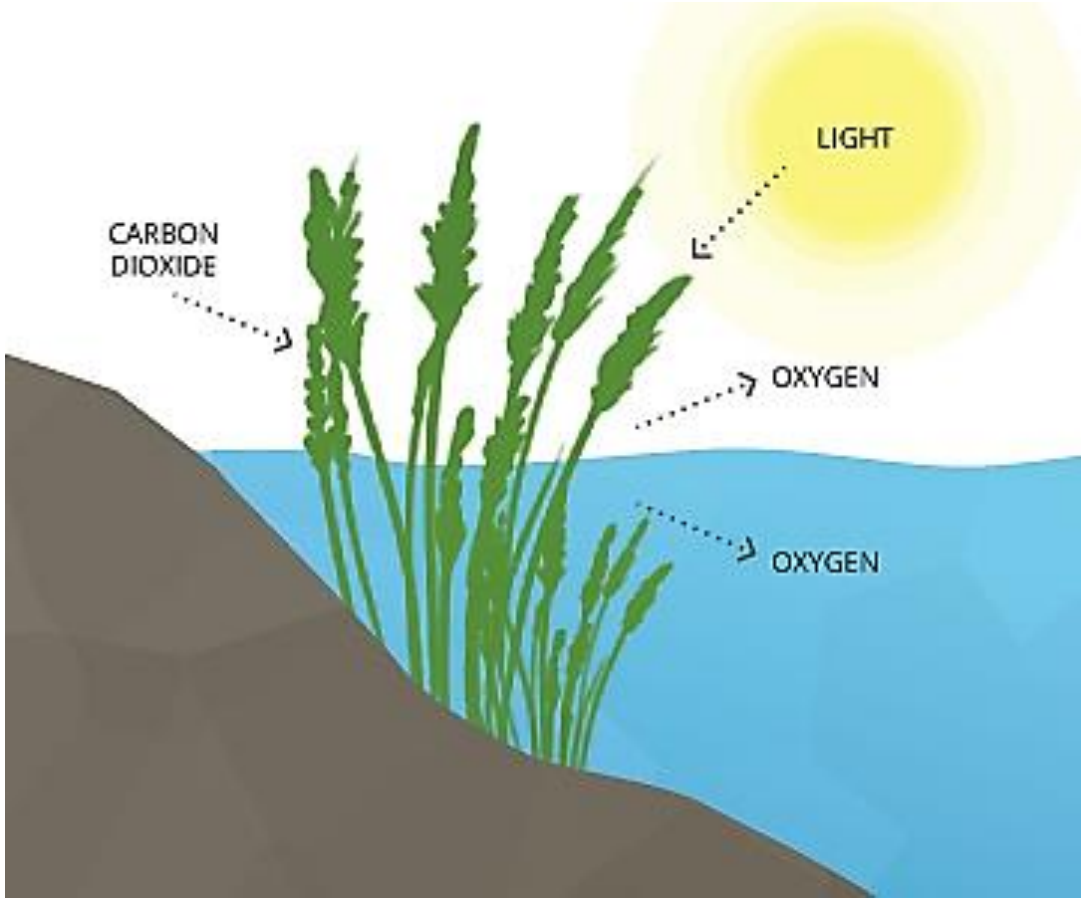
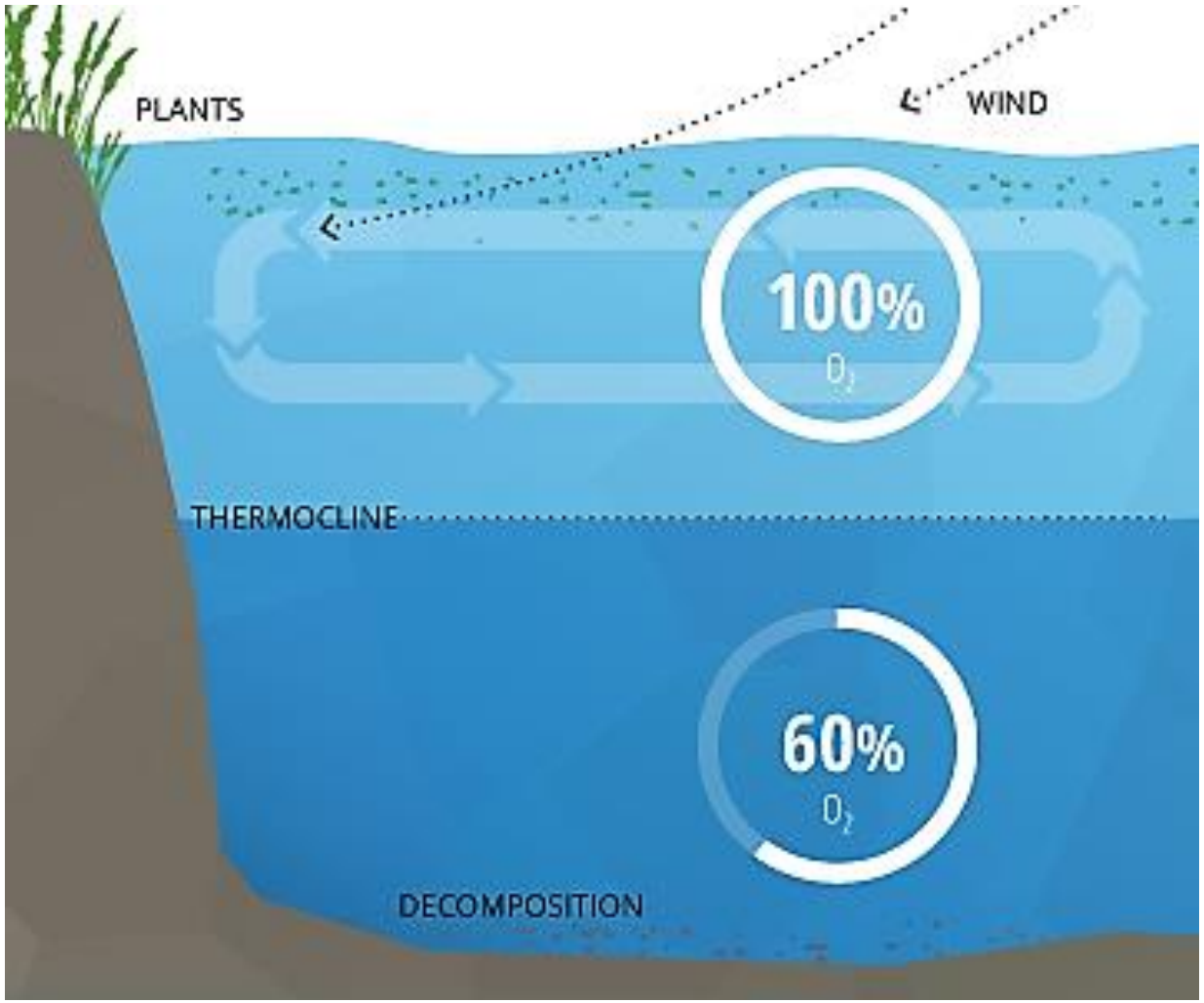
Dissolved Oxygen

- While most photosynthesis takes place at the surface (by shallow water plants and algae), a large portion of the process takes place underwater (by seaweed, sub-surface algae and phytoplankton).
- Light can penetrate water, though the depth that it can reach varies due to dissolved solids and other light-scattering elements present in the water.
- Depth also affects the wavelengths available to plants, with red being absorbed quickly and blue light being visible past 100 meters below the surface.
- In clear water there is no longer enough light for photosynthesis to occur beyond 200 meters and aquatic plants no longer grow. In turbid water, this photic (light-penetrating) zone is often much shallower.



Dissolved Oxygen

- In a stable body of water with no stratification, dissolved oxygen will remain at 100% air saturation.
- 100% air saturation means that the water is holding as many dissolved gas molecules as it can in equilibrium. At equilibrium, the percentage of each gas in the water would be equivalent to the percentage of that gas in the atmosphere. The water will slowly absorb oxygen and other gasses from the atmosphere until it reaches equilibrium at complete saturation. This process is sped up by wind-driven waves and other sources of aeration.



Dissolved Oxygen

colder, deeper fresh waters have the capability to hold higher concentrations of dissolved oxygen

- Two bodies of water that are both 100% air-saturated do not necessarily have the same concentration of dissolved oxygen. The actual amount of dissolved oxygen (in mg/L) will vary depending on temperature, pressure and salinity.