

# Dissolved oxygen and water depth

Business



Since the first formation of the hot ball that became known as the Earth, life has continued to evolve in mysterious ways. All forms of complex life that are seen today can be traced back millions of years to ancestral species in the ocean, some of the variants that still exist today.

As more complex life began to develop, there were more complex intracellular processes that were developing as a result. For plants to gain a foothold on land and provide energy for other species, the process of photosynthesis had to become possible. The early atmosphere did not have the high concentrations of oxygen and nitrogen that are now seen today. This can be seen in the evidence when core samples are taken from the Earth by looking at the bands produced when there was a change in oxygen count. For photosynthesis to work, carbon dioxide and water must be combined through a light reaction to produce the oxygen and sugar. However, the early atmosphere on the Earth had low levels of carbon dioxide, therefore photosynthesis could not occur.

One of the early sources of carbon dioxide comes from hydrothermal vents at the bottom of the ocean. These hot gases that are escaping from the Earth's core are what allow the chemical reaction to take place and for life to exist thousands of meters below the surface to where even light cannot penetrate. In chemical composition, carbon dioxide is heavier than oxygen; therefore it can sink faster than oxygen. It is possible that in the primordial development of the Earth, carbon dioxide concentrations were able to rise because these early photosynthetic organisms at the bottom were producing oxygen that was reaching the surface. As more developed life rose to the surface, cellular respiration reconverted the oxygen into carbon dioxide,

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which then provided the ingredients necessary for plant life and more complex animal forms to move from the sea onto land.