

PROPERTIES AFFECTING LIFE IN THE SEA

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TEMPERATURE AND DENSITY

- **Temperature** is a physical property of a system that underlies the common notions of hot and cold; something that feels hotter generally has the higher temperature.
- **Density** is defined as mass per unit volume of a substance and is usually measured in grams per cubic centimeters or g/cm^3

DISSOLVING ABILITY

- Water is an extremely good solvent. More substances like, solids, liquids and gases dissolve in water than in any other common liquid
- The dissolving ability of water is related to its molecular chemistry

LIGHT

- Seawater transmit only visible wave lengths of sun light
- About 60% of the entering light is absorbed in the first 1 meter or 3 feet depth
- No sunlight penetrates below 1000m
- The long wave lengths absorbed rapidly
- The short wave lengths light are transmitted to the greater depth

DISSOLVED GASES

The most abundant gas in the oceans are nitrogen, oxygen and carbon dioxide.

Gas	In surface water (%)	In Total oceans (%)
Nitrogen	48	11
Oxygen	36	6
Carbon dioxide	15	83
Argon, Helium, Neon etc.,	1	-

DISSOLVED GASES

- Oxygen and carbon dioxide play an important roles in the ocean because they are necessary to life and biological activities
- Nitrogen is not used directly by living organisms except for certain bacteria
- Gases such as argon, helium and neon are present in small amounts, but they neither interact with the ocean water, they are not used by living organisms

DISSOLVED NUTRIENTS

- Plants require nitrogen and phosphorous in the form of nitrate and phosphate ions
- A third nutrient required in the oceans is the silicate ion, which is needed to form the hard outer wall of the single celled plants like, diatoms and skeletal parts of some protozoans
- These nutrients brought to the sea by the rivers and land runoff
- Nitrates and phosphates are continually recycled from decomposing organic matter

OTHER PROPERTIES

- Turbidity/Transparency
- Dissolved solids
- Suspended solids
- Algal blooms