

How do light, sound and heat behave in the ocean?

Depend on physical properties of water

~1800 Discovered chemical composition of water: two hydrogens and one oxygen → H₂O

- Polar molecule
- Covalent bonding between oxygen and hydrogen
- Hydrogen bonds between molecules

Changes of water states

ICE → LIQUID → VAPOR

→ Latent heat of fusion

→ Latent heat of vaporization

ICE → VAPOR

Sublimation

Density of water

The effect of pressure

Water is almost incompressible,
Yet if it was truly incompressible sea
level would be about 37 m higher

Pycnocline – line that represent density
change with the depth of the ocean

The effect of temperature

Density very sensitive to temperature
changes.

Maximum density at 3.98°C

The effect of salt

The higher the salt content the greater
the water density.

→ Fresh water floats on the surface of
seawater.

Heat capacity

The amount of heat that material can take in and undergo small changes in temperature.

Water heat capacity is the highest among natural materials.