

1. The Physical and Chemical Environment

a. Oceans are 71% of Earth's surface

i. 4 major

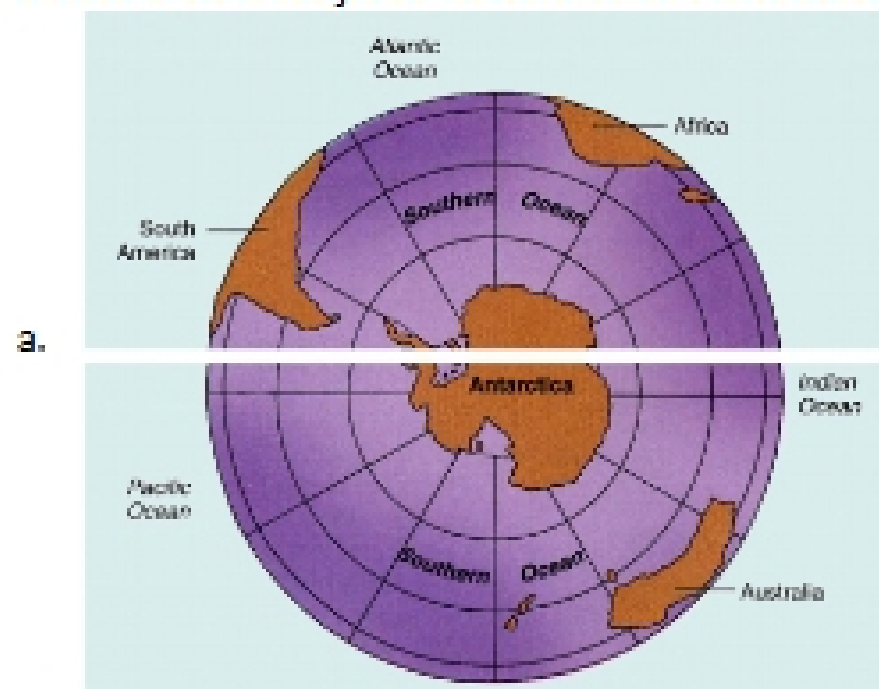
1. Pacific Ocean
 - a. Area: 166 Km²
 - b. Depth: 4,188 m
2. Atlantic Ocean
 - a. Area: 87 Km²
 - b. Depth: 3736 m
3. Indian Ocean
 - a. Area: 74 Km²
 - b. Depth: 3,872 m
4. Arctic Ocean
 - a. Area: 10 Km²
 - b. Depth: 1,330m

ii. Many Minor

1. Mediterranean Sea
2. Caribbean Sea
3. Baltic Sea

iii. "Southern Ocean"

1. Location where the major basins connect in the southern Hemisphere



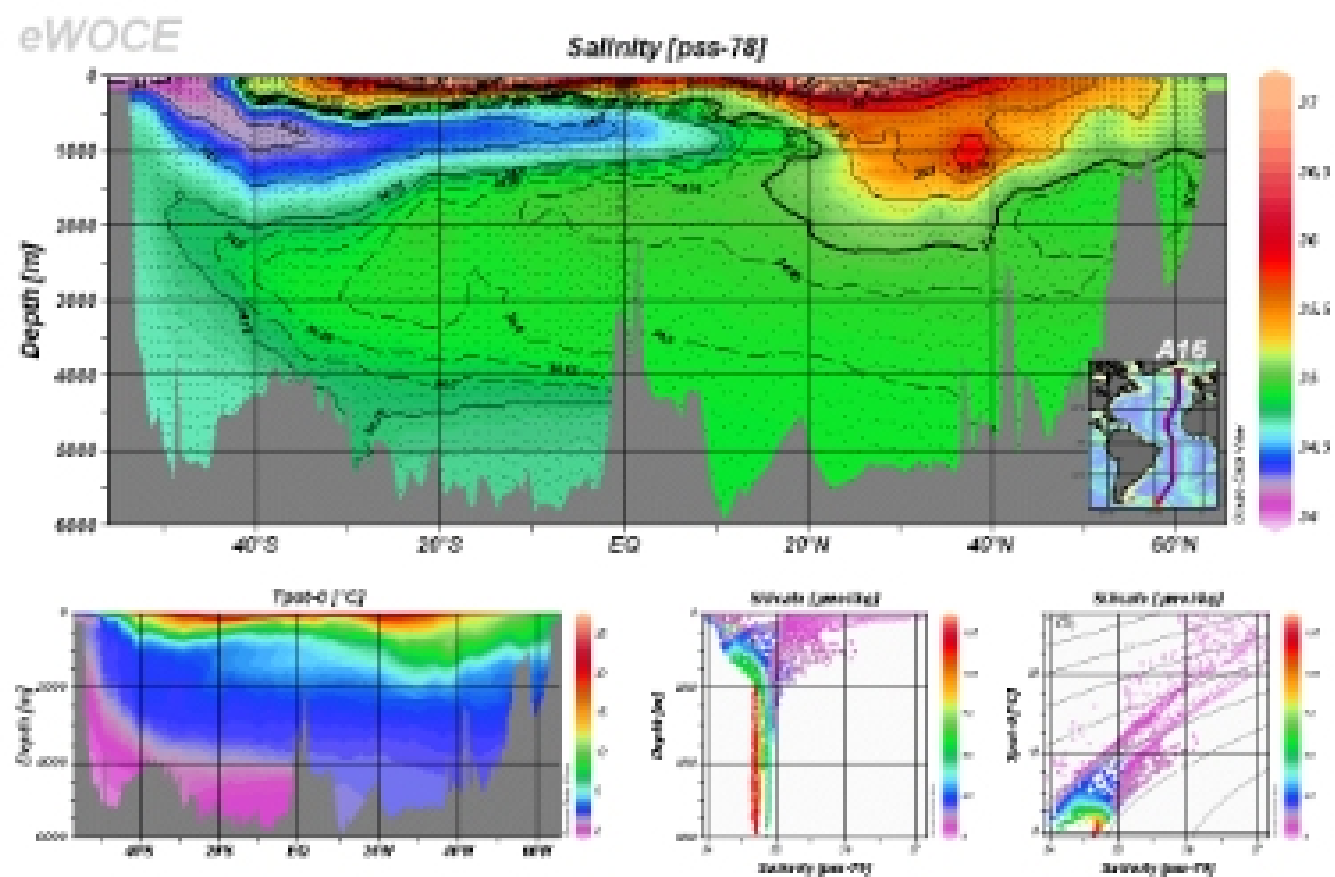
b. Ocean Bathymetry

- i. Bathymetry is the study of underwater depth of lake or ocean floors. In other words, bathymetry is the underwater equivalent to hypsometry or topography

c. Water: the magical miracle

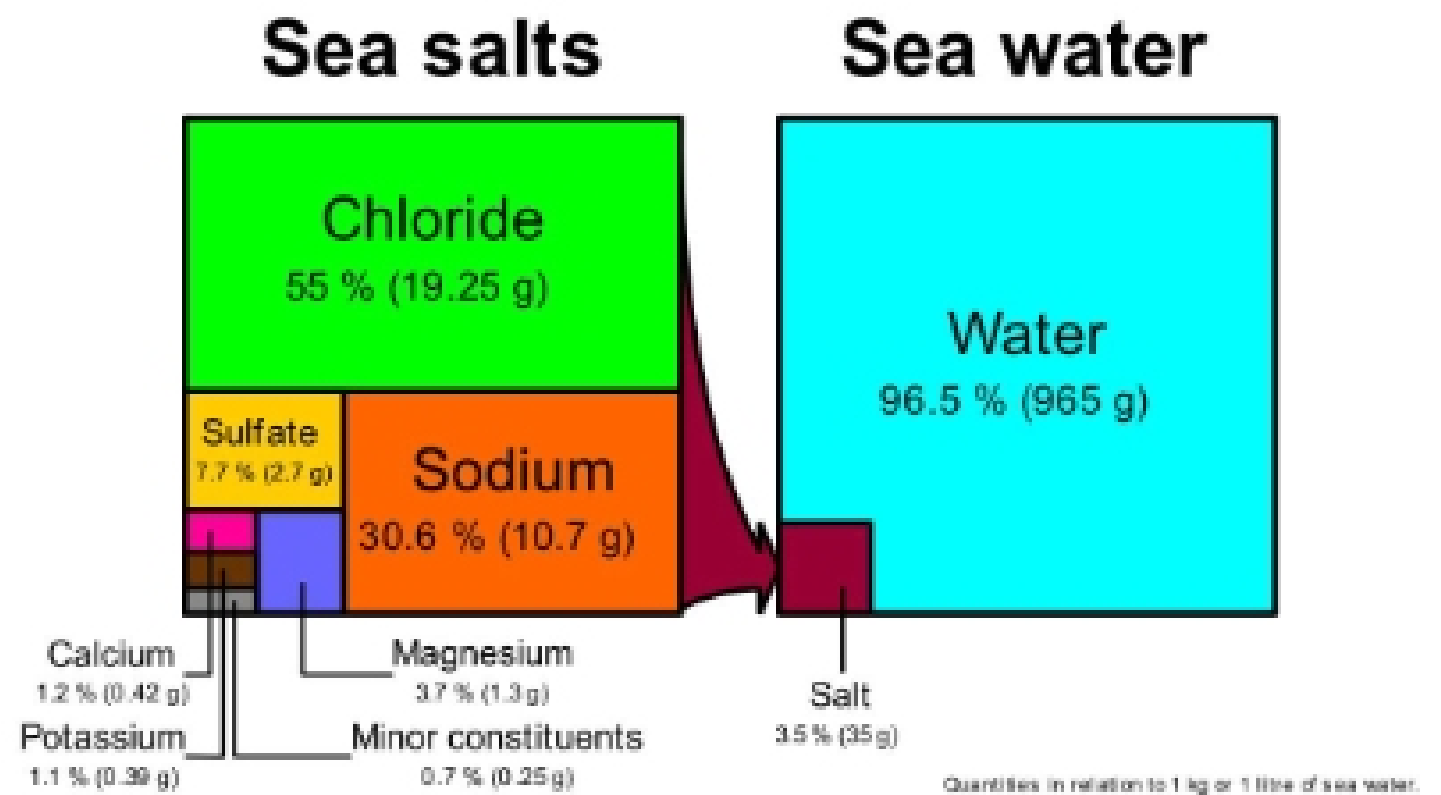
- i. Important properties of water
 1. Thermal
 - a. High Heat Capacity
 - b. High Latent heat of vaporization
 2. Mechanical
 - a. Surface tension

- b. Viscosity
- 3. Density
 - a. Controls the vertical structure of the ocean
 - b. Acts as a function of water salinity, temperature, and depth.
 - i. Warm water is less dense than colder water
 - 1. Water temperature isn't distributed uniformly due to stratification
 - ii. Salt increase density
 - iii. Ocean Salinity



- ii. Salt water Composition

1.

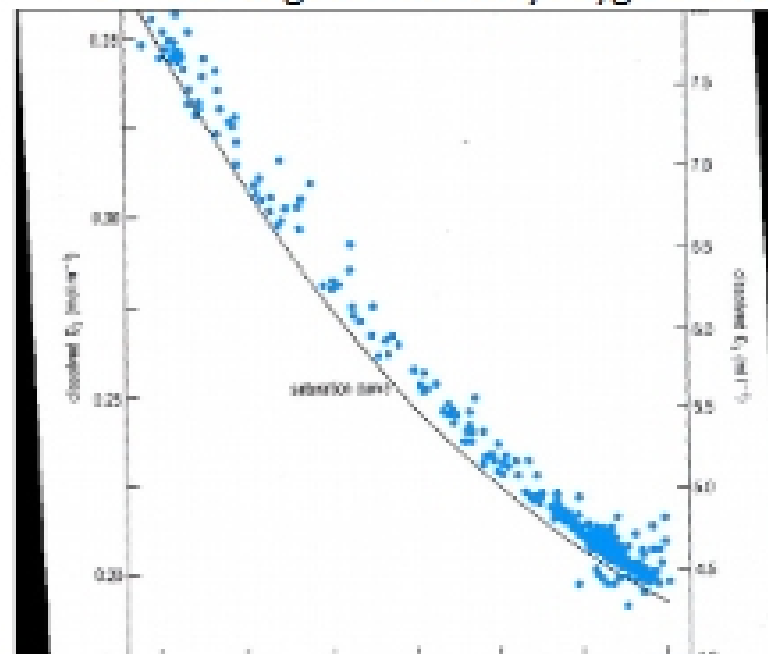


2. Take Home

- 96.5% water
- 3.5% salt (remember 35ppt)
 - 55% is Cl
 - 30.6% is Na
 - 7.7% is SO_4^{2-}
 - Most elements are not evenly distributed through the water

3. Dissolved Gases

- Colder waters hold more dissolved contents
 - Polar regions have very oxygenated waters



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