UPSC Civil Services Examination

UPSC Notes [GS-I]

Topic: Salinity of Ocean Water [Geography Notes for UPSC]

Salinity of ocean waters

- Salinity means the total content of dissolved salts in Sea or Ocean.
- Salinity is calculated as the amount of salt dissolved in 1,000 gm of seawater.
- It is generally expressed as 'parts per thousand' (ppt).
- A salinity of 24.7 % has been regarded as the upper limit to fix 'brackish water'.
- It is a significant factor in deciding several characteristics of the chemistry of natural waters and of biological processes.

Factors affecting ocean salinity

- Salinity, temperature, and density of water are interconnected. The salinity of water in the surface layer of oceans is influenced by:
    - Evaporation
    - Precipitation
- In the coastal regions, the surface salinity is influenced by the freshwater flow from rivers.
- In the Polar region, the surface salinity is influenced by the processes of freezing and melting of ice.
- The wind also influences the salinity of an area by moving water to other areas.
- The ocean currents contribute to the salinity variations.
- The change in the density or temperature influences the salinity of water in an area.

Highest salinity in water bodies

Lake Van in Turkey	330 o/oo
Dead Sea	238 o/oo
Great Salt Lake	220 o/oo

Dissolved Salts in Sea Water (gm of Salt per kg of Water)

Chlorine	18.97
Sodium	10.47
Sulphate	2.65
Magnesium	1.28
Calcium	0.41
Potassium	0.38
Bicarbonate	0.14
Bromine	0.06
Borate	0.02
Strontium	0.01

Share of different salts

- Sodium chloride — 77.7%
- Magnesium chloride—10.9%
- Magnesium sulphate —.4.7%
- Calcium sulphate — 3.6%
- Potassium sulphate — 2.5%