

Ocean Composition

- Contains dissolved salts, gases, and nutrients as ions
- Salts & nutrients replenish via decay of marine organisms



Layers

- <u>Surface Layer</u>: warm, light, 100 m deep
- <u>Thermocline</u>: rapidly decreasing temperature with depth.
- The warm surface layer and thermocline are absent in the polar regions.

-IT IS ALL COLD!!



Ocean Circulation

- Global movement of water
- Transfers energy, minerals, & nutrients
- Driven by:
 - Deep currents thermohaline differences
 - -Surface currents —air circulation
 - -Tides (caused by moon's gravity)
- Rotate via Coriolis Effect like air currents





Oceans as Energy Transporters

- Move energy via currents
 - Warm currents begin near the equator & move warm water toward the poles.
 - Cold currents begin near the Earth's poles & moves cold water toward the equator.
- Affects local climate patterns





Oceans as Heat Sinks

- High specific heat
- Global absorption of solar radiation
- Moderate coastal temperatures







Upwelling

- What happens:
 - Longshore winds combine with the Coriolis
 Effect cause warm surface water to move away
 from shore
 - Cold water rises from depths to replace warm H2O
- Effects:
 - Increased concentrations of dissolved nutrients (nitrates)



