How do light, sound and heat behave in the ocean? (- continued-)

Why is the ocean blue?
Why do noises sound different in water?

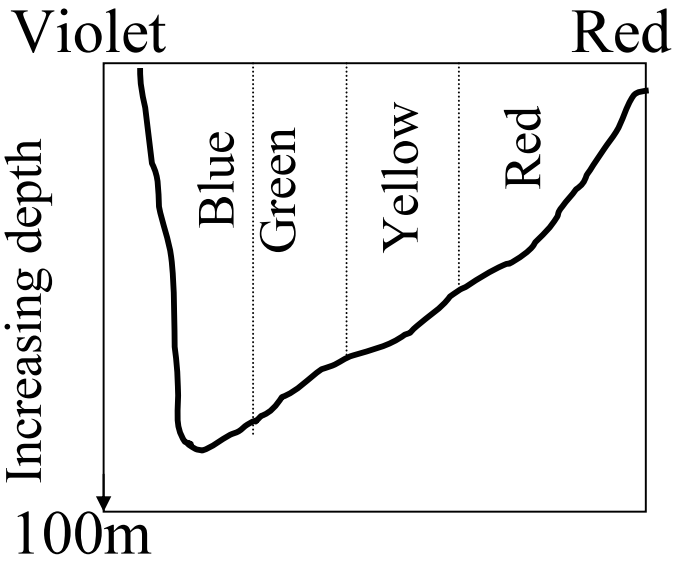
What do light and sound have in common?

Wave phenomena

- refraction (bending)
- reflection
- scattering
- absorption

Electromagnetic radiation

Light in the ocean



How does it affect the life under the sea?

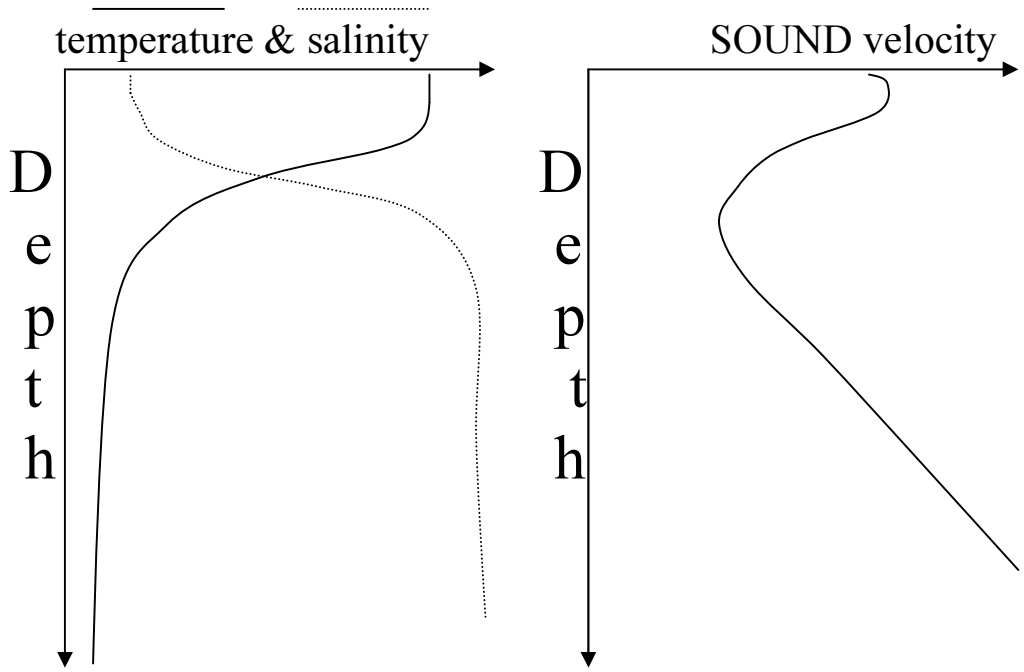
Sound in the ocean

1100 ft/sec in air

5000 ft/sec in ocean

In ocean, sound velocity is function of temperature and salinity

1. warmer water → faster sound
2. saltier water → faster sound



Sofar channel (sound fixing and ranging)

- at ~1000 m a band of water with temperature and salinity such that sound travels with minimum velocity

Ocean climate study

Send sound pulses over long distances and look for long-term changes in the temperature of ocean waters.

Heat in the ocean

Transmitted by

- radiation (no medium necessary)
- conduction (conductors and insulators)
- convection (based on density changes)