











- ESM biomes & climate
- Global model
- No forest if water is not for ground friends to water or plants
- Wetland model

• Area of land covered by shallow layer of water most of year

Bogs: covered in a thick layer of mud

Swamps: forested wetland  
 • trees have roots above & below water

Marshes: wetland without trees

- grasses & reeds
- Plants have special tissues that carry air from the leaves to roots
- Some by coast are covered with salt water

Wetlands: Are home to many animals & plants - ALSO migrating birds

Birds' Feet

Camouflage for hunting  
 - Wade through shallow H<sub>2</sub>O

Webbed  
 - For swimming

Alligators

- eyes & nostrils raised above H<sub>2</sub>O to hide & hunt in shallow area

Wetlands = marshes  
 BOGS  
 Swamps

Coastlines

Oceans

Wavelength: distance between two consecutive crests or troughs

- wave of 1000m wavelength with 1000m period
- wave of 1000m wavelength with 2000m period
- wave of 1000m wavelength with 500m period

Wave speed: distance travelled per unit time

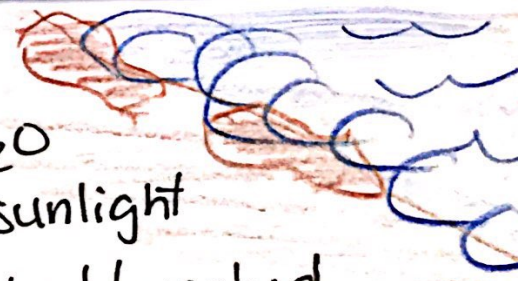
Wave period: time taken for one complete cycle



Wave frequency: number of waves per second

Wave energy: energy carried by the wave

## Intertidal zone

- Where ocean meets coast
- Bashed by waves
- tide comes in covers with salt H<sub>2</sub>O
- tide goes out exposes to air & sunlight
- Adaptations to survive being crushed/washed away or dried out



- Sea stars: suction cups 
- Surpulas: marine worms live in hard tubes
- Seaweed: strong, flexible bodies
  - air pockets to float so they can receive sunlight 

# Coastlines

# Oceans



- Largest Habitat on Earth
- Divided into zones

### Photic Zone:

- Top zone
- Close to shore (corals & seaweed)
- Full of Animal life <sup>open ocean</sup>



### Aphotic Zone:

- light does not reach - dark & cold

Animals



### Deep ocean floor:

- Floor covered with mountains, valleys, canyons, trenches, volcanoes and hot springs called vents
- Some animals depend on the heat and use the minerals to make food

Animals are adapted for water pressure  
 - some produce their own light to lure food or find mates

Oceans