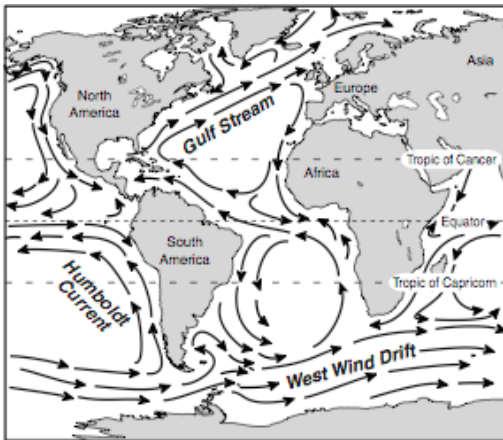
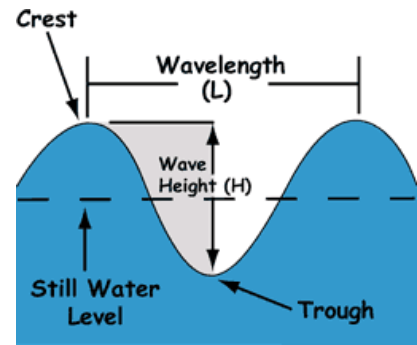


## Oceans –SOL 5.6

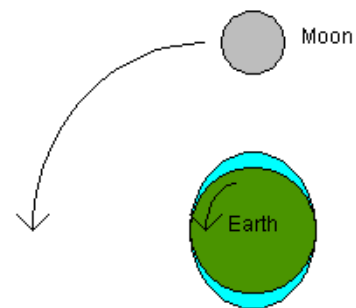
Did you know that oceans cover about **70%** of the surface of our Earth?!

- Ocean water is a complex mixture of gases and dissolved solids, especially sodium chloride.
- The **salinity** (amount of salt dissolved in water) of the ocean water varies in some places depending on rates of evaporation and amount of runoff from nearby land.
- The basic motions of ocean water are waves, currents, and tides.
  - Wavelength is measured from crest to crest; wave height is measured from crest to trough.

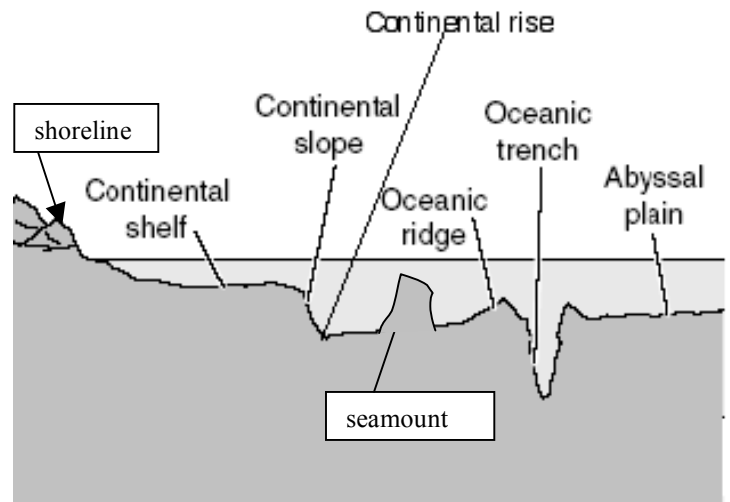


- Ocean **currents** are caused by wind patterns and the differences in water density. Currents can affect navigation routes for ships, and plant and animal populations.
- The **Gulf Stream** is the major ocean current on the east coast of the U.S.

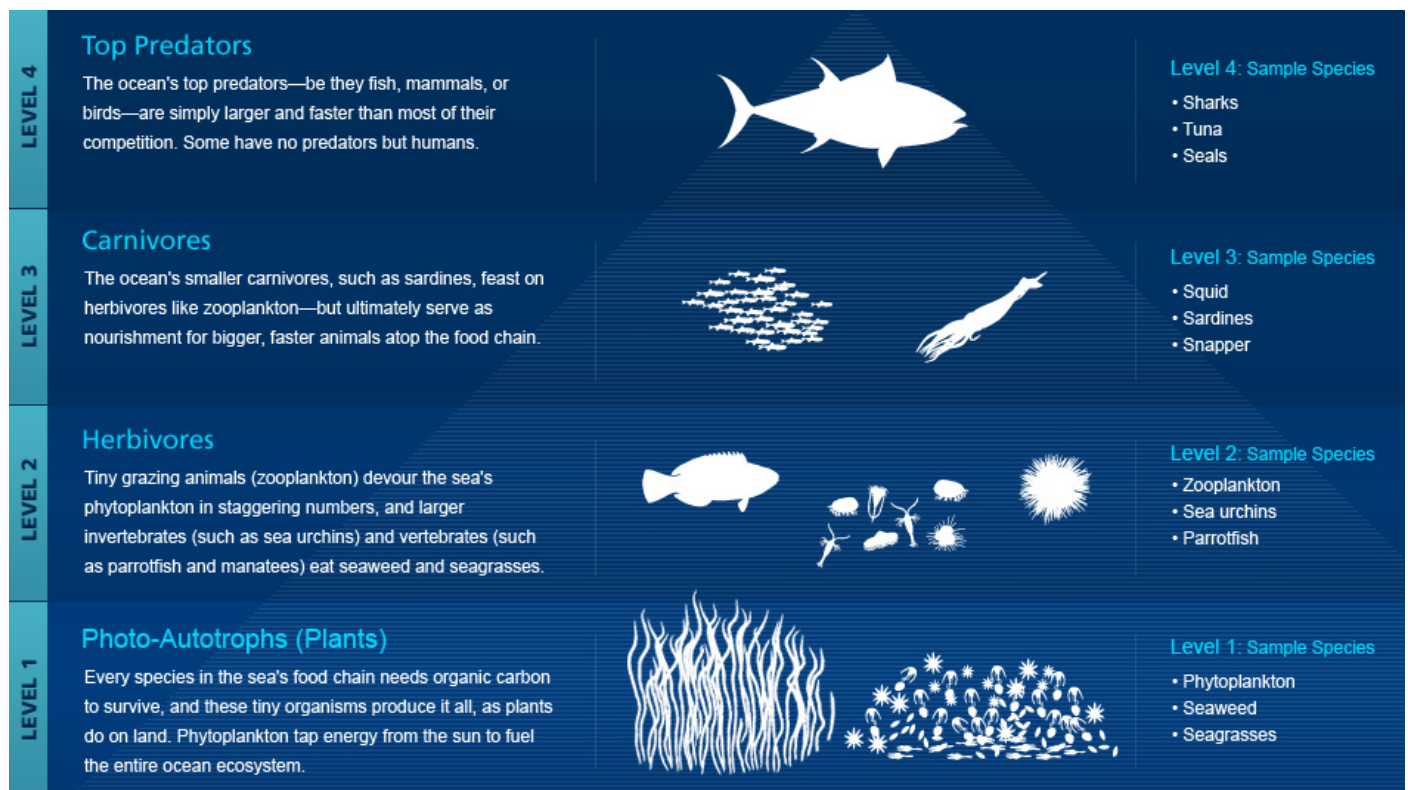
- Tides are caused by the **moon's gravitational force** that pulls on water in the oceans so that there are "**bulges**" in the ocean on both sides of the planet. The moon pulls water toward it, and this causes the bulge toward the moon. The bulge on the side of the Earth opposite the moon is caused by the moon "**pulling the Earth away**" from the water on that side.
- There are 2 high tides and 2 low tides on the coastlines every day.



- The ocean floor changes drastically. Near the continents are the *continental shelf*, the *continental slope*, and the *continental rise*. Deeper in the ocean you will find *ridges*, *trenches* (the deepest part of the ocean), and the *abyssal plain*.
- As the depth of the ocean increases, the pressure increases, the temperature decreases, and light decreases. This also affects the life forms present at a given depth.



- Plankton are tiny free-floating organisms that live in water. Animal-like plankton are called **zooplankton**; plant-like plankton are called **phytoplankton**.
- Phytoplankton carry out most of the photosynthesis on earth and provide much of the Earth's oxygen! They are the base of the ocean food web.



## **Vocabulary**

Abyss- a deep space, gulf, or cavity that extends from 4,000 to 6000 meters

Abyssal plain- pile of sand and sediments at the base of the continental slope; curves down from the slope to the ocean floor (4,000-6,000 meters deep)

Continental shelf- the land of around the edge of a continent that is under the shallowest water (150-200 meters deep)

Continental slope- the steep drop-off in the seafloor that extend from the shelf down to the rise (200-4,000 meters deep)

Crest- the top of a wave before it breaks

Currents- streams of water within the ocean; can be caused by wind or water temperature and salinity deeper in the ocean

Depth- the distance below the oceans surface

Gulf Stream- a major ocean current on the east coast of the United States

Midnight Zone- the area that extends from 1,000 to 4,000 meter; pitch black due to no sunlight at all; extreme pressure due to depth

Ocean ridges- mountains found on the ocean floor where plates of the Earth pull apart

Ocean trenches- deep cracks in the flat bottom of the ocean floor (up to 11,000 meters deep)

Phytoplankton- plant-like organisms that produce most of the earths oxygen and serves as the base of the ocean ecosystem

Plankton/zooplankton- small floating organisms that eat the phytoplankton

Salinity- a measurement of the amount of salt dissolved in water

Seamount- an underwater mountain that lies completely below the sea (also called an ocean ridge)

Sunlight Zone- the area that extends to a depth of 200 meters; well lit by sunlight and most of the oceanic food is produced and found there

Tides- the rise and fall of the oceans due to the gravitational pull of the moon and, to a lesser degree, the sun

Trench- deep valley on the bottom of the ocean

Trough- the bottom portion of a wave

Twilight Zone- the area that extends from 200 to 1,000 meters; some light is found there (most organisms there are consumers and come up to the Sunlight Zone to feed)

Wave- a disturbance seen on the surface of the water caused by winds