

## Oceanography Final Exam Review

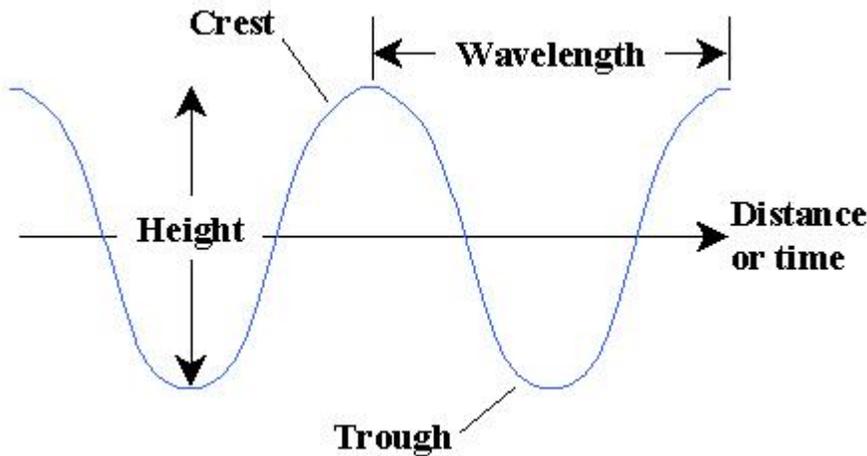
\*\*Please check your notes from class for more elaborate details\*\*

1. The oceans cover 71% of the globe.
2. An earthquake on the ocean floor caused the 2004 tsunami.
3. Plate tectonics: the Earth's lithosphere is broken into large sections, called plates that are in constant movement, due to convection currents in the mantle.
4. Continental drift was defined by Alfred Wegener and describes the gradual movement of the continents across the earth's surface through geological time. Continental drift: the continents have moved over time and continue to do so
5. Evidence for continental drift includes 1. Fit of the Continents 2. Fossil Evidence 3. Rock Type and Structural Similarities 4. Paleoclimatic Evidence.
6. Be able to label all of the formations listed in a diagram.

Continental Shelf	Shallow, submerged portion of the continent
Continental Slope	Transition between shelf and deep ocean (average 4 degree slope)
Continental Rise	Base of slope; accumulation of sediment
Abyssal plain	Flat, featureless expanse of sediment covering the ocean floor
Mid-ocean ridge	Divergent plate boundary; plates moving in 2 opposite directions
Seamount	Volcanic projection on the ocean floor
Trench	Deep crevice in the ocean floor caused by the subduction of a lithospheric plate

7. Oceanic ridge=divergent boundary
8. Trench=convergent boundary
9. Volcanic island arc=convergent (oceanic-oceanic) boundary
10. Hot spots are found in the middle of plates, where there is a weakness. Hawaii is an example.
11. Trenches are the focus of many earthquakes.
12. As you move away from a mid-ocean ridge, the rocks get older (youngest are on the ridge)
13. The primary dissolved minerals in ocean water are Calcium Carbonate and Sodium Chloride.
14. Density is mass/volume;
15. Salinity is the amount of dissolved salt in pure water
16. An Estuary is a body of water usually found where rivers meet the sea. Estuaries are home to unique plant and animal communities that have adapted to brackish water—a mixture of fresh water draining from the land and salty seawater.
17. The average ocean salinity is 35 ppt (parts per thousand)

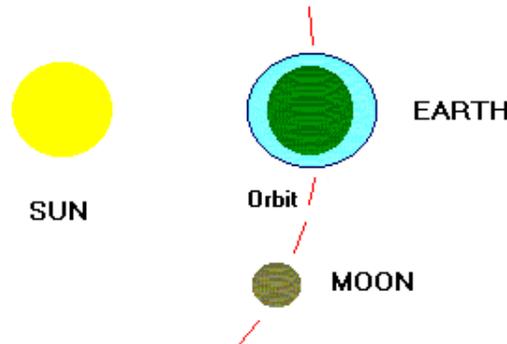
18. To increase the salinity of ocean water, you would have to increase evaporation, decrease fresh water input, or decrease the temperature to freezing or below.
19. To decrease the salinity of ocean water, you would have to increase freshwater input (precipitation, or river drainage)
20. Temperature and salinity prevent mixing in the ocean.
21. Temp increase=Density decrease
22. Salinity increase=Density increase
23. Salt in the oceans originated on the land
24. Increased density of the water=easier to float in it
25. Increase latitude (away from equator)=decreased temperature
26. Waves are caused by wind blowing over the ocean surface
27. The size of ocean waves is determined by wind speed, fetch, and time
28. Energy created by ocean waves: large circles at surface; circles decrease in size as you move through the water column, no circulation at the bottom from wave energy
29. Because the Earth rotates, circulating air is deflected. Instead of circulating in a straight pattern, the air deflects toward the right in the Northern Hemisphere and toward the left in the Southern Hemisphere, resulting in curved paths. This deflection is called the Coriolis Effect.
30. The fetch is the length of water over which a given **wind** has blown.



Density current	Currents along the bottom of the oceans driven by differences in water density
Upwelling	Movement of cold, nutrient-rich water from the ocean floor to the surface
Tidal range	Water level difference between high and low tides
gyre	Large, circular current pattern in the ocean, separated by hemispheres
Downwelling	Brings nutrients to the bottom of the ocean, which deep sea creatures could feed from.

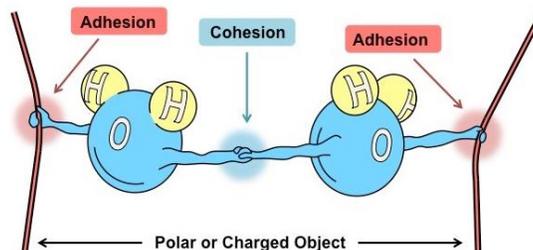


2. The bulge is large when the Moon and Sun are in line - this is a 'spring' tide



3. The bulge is at its smallest when the Moon is along the line of the Earth's orbit around the Sun - this is a 'neap' tide

31. Tides are caused by the gravitational attraction among the Earth, Sun, and Moon. Spring tides and neap times can be seen in the diagram above. Know the difference between them.
32. A bore tide is a rush of water upstream, due to narrowing of the channel as you move away from the ocean
33. A rip tide is a rush of water, seaward, caused by a break in a sandbar. To escape, swim parallel to the shoreline.
34. A long shore current is a current that flows parallel to the shoreline, which builds and moves sandbars.
35. The global ocean conveyor belt is a constantly moving system of deep-ocean circulation driven by temperature and salinity. The great ocean conveyor moves water around the globe.
36. Waves approach a shoreline at an angle.
37. pH is the measure of the concentration of Hydrogen ions in solution. Ocean acidification is caused by increasing amounts of dissolved carbon dioxide. The carbonate buffering system helps to regulate ocean pH levels and maintain it at a pH of around 8.
38. Water is a polar molecule and therefore has adhesive and cohesive properties.



Pelagic	In the water column (open ocean)
abyssal	Deepest part of the flat ocean floor
bathyal	Open ocean, 1000-4000m below surface
tidal	Between high and low tide
Plankton	Organisms that float with the currents
Nekton	Active swimmers that hunt/avoid being hunted

Cnidaria	Jellyfish; hydra; anemone
Echinoderms	Sea star; brittle star; sea cucumber; sea urchin; sand dollar
Mollusks	Clam, squid, octopus
Crustaceans	Crab, shrimp, lobster
Cetaceans	Whales; dolphins; killer whale
Fish	Sharks, rays ; salmon, tuna

39. Know the different anatomies for the various Marine Phylum listed above.
40. Photosynthesis is the production of sugars in the presence of sunlight. In the ocean, phytoplankton are responsible for this process, and are the basis of the food web.
41. A food chain is a single line of energy from one organism to another; a food web is a series of interconnected food chains.
42. A tertiary consumer is at the top of a food chain (killer whale, great white shark)
43. A producer is an organism that serves as the basis for a food web; usually photosynthetic. (phytoplankton, algae)
44. Osmoregulation is the active regulation of the osmotic pressure of an organism's body fluids to maintain the homeostasis of the organism's water content.

