

Name: \_\_\_\_\_

Date: \_\_\_\_\_

## Oceanography Midterm 2

1. These describe where water moves vertically. (2)

upwelling, downwelling

2. How do upwellings help fish in the surface waters? (2)

Upwelling is the movement of deep cold water to the surface of the ocean. The movement of this water brings up high concentrations of nutrients from organisms from deep water and allows fish to flourish.

3. What are the easterly surface winds found in the tropics near the equator?(1)

trade winds

4. What zone is the area that is exposed at low tide and submerged at high tide? (2)

intertidal

5. What are plankton? (2)

Plankton are any floating or feebly swimming organisms that live close to the surface of the ocean. These organisms include animals, plants, bacteria, or any other organisms which cannot resist the ocean current.

6. How do the carbon and oxygen cycles work together? (4)

Carbon cycle: occurs as photosynthesizing plants and algae take in carbon, in the form of carbon dioxide (an inorganic compound), and produce carbohydrates (organic compounds); animals take in carbon compounds when they eat plants, then they give off this carbon, again in the form of carbon dioxide, as a waste product of cellular respiration; the carbon once again becomes available to plants for photosynthesis.

Oxygen cycle: releases this crucial element as a by-product of photosynthesis from algae and plants; oxygen is taken up by animals and plants for cellular respiration; the carbon and oxygen cycles together are called the carbon-dioxide-oxygen cycle, which shows how plants and animals are dependent upon one another.

Simpler explanation: animals give off carbon, plants take in carbon and produce oxygen, needed by the animals

7. Three biological limiting factors include: competition, predation, and herbivory. Take each one and describe how it causes a decrease in living organisms. (3)

- Competition tends to increase when resources are limited.
- Predation is the interaction between organisms in which one organism captures and feeds upon another.
- Herbivory is described as the act of organisms eating producers. If there are limited amounts of primary food sources, the consumers will perish.

8. Name one type of symbiotic relationship. Define it and give an example of it. (3)

#### Mutualism

Mutualism is a relationship in which both species benefit. A common example found in the ocean is the relationship between the clownfish and the sea anemone. The clownfish benefits from this relationship because it is protected from predators by the sea anemone's stinging tentacles, which do not harm the clownfish. The sea anemone benefits from the relationship by receiving scraps of food left over by the clownfish and the bright colors of the clownfish attract other fish to the anemone tentacles.

#### Commensalism

Commensalism is a relationship in where one species benefits, while the other is not affected by the association. A marine example includes the remora and sharks. The remora often swims below or attached to the underside of a shark. The remora benefits by eating leftovers from the shark's meals and the shark appears to be neither helped nor harmed by the remora.

#### Parasitism

Parasitism is a relationship in which one species benefits at the expense of the other. In the case of fin rot, the parasite is the beneficiary, while the fish, also referred to as the host is harmed. From this relationship, the fish suffers and eventually dies from disease while the parasite lives by causing the infection in host fish.

9. What is a semi-enclosed body of water where the salt water of the ocean meets fresh water of a river? (1)

#### An estuary