

Name: _____

Date: _____ Period: _____

Review: Marine Environments

I. Marine Zones

- Intertidal Zone:
 - Between High and Low tide mark
 - High tide line is marked by a “strandline” made of seaweed and debris
 - Creatures here have thick coverings (shells) to protect them and seal in moisture, or may have the ability to cling to surfaces (sea stars)
- Supratidal Zone
 - Extends from the high tide line to the dunes
 - Limited plant growth due to fine mist of sea spray (the salt prevents plant growth)
- Subtidal Zone
 - Below the low tide mark (under water all the time)
 - Much turbulence due to wave action
- Neretic Zone
 - Lies above the continental shelf
 - Most productive zone with the most abundant life
- Oceanic zone
 - Lies beyond the continental shelf
 - Considered the “open ocean”
- Pelagic zone
 - Includes the neretic zone (<200m) and the oceanic zone (>200m)
 - Largest life zone in ocean
- Photic zone
 - The area of the ocean that receives light
- Aphotic zone
 - The area of the ocean that does not receive light
- Abiotic - non living
- Biotic - living
- Salinity - the amount of salt dissolved in sea water

Review: Marine Environments

II. The Coral Reef

- Coral is a living animal found mostly in tropical oceans
- Algae (plants) live on the coral polyps (animals) and give it its bright colors
- The coral “polyps” are the tiny animals responsible for creating reefs
- Coral polyps secrete calcium carbonate (the hard, stony structure of the reef) and bond to the sea floor
- The calcium carbonate skeletons of these organisms make up the reef’s stony structure
- Coral polyps are related to jellyfish; both have stinging tentacles used to capture food
- The coral reef provides protection and shelter for many types of fish
- The coral reef is very diverse and supports tons of sea life, much like a rainforest on land.
- The largest coral reef on earth is the Great Barrier Reef
 - Located off Australia coast
 - Can be seen from space
 - 133,00 square miles
 - Consists of 2,900 individual reefs
- Coral polyps and algae have a symbiotic relationship whereby the algae (zooanthellae) gives oxygen to the coral polyps and the coral polyps produce carbon dioxide which the algae use during photosynthesis
- Different Types of Coral Reefs:
 1. Atoll - string of coral islands that form a circle around a sunken island
 2. Fringing Reef - shallow reef that grows directly from the shoreline and extends to the beach
 3. Barrier Reef - reef running parallel to the shore but separated by a channel of deep water
- Coral acts as a wave breaks protecting the coastline from damaging storms
- An increase in ocean temperatures is responsible for many reefs dying [coral bleaching]
- Bleaching occurs when coral under stress “kicks out” its helper algae and turns a ghostly white
- Many coral reef organisms have adaptations for living in this environment:
 - Butterfly fish have an elongated snout to pick food off the surface of the coral reef
 - Disruptive coloration help fish defend against predators by making its shape hard to see
 - Camouflage also helps organisms to blend onto the background

Review: Marine Environments

III. The Estuary

- The Estuary Environment:
 - Type of environment where freshwater and salt water mix
 - Brackish Water- a mixture of freshwater and salt water
 - Estuaries tend to be located on the other side of a barrier beach
 - Estuaries are the most productive environment for diverse marine life
 - Many organisms lay eggs here because they are protected from the harsh environment
 - As a result, estuaries are called “fish nurseries”
- The Salt Marsh Community
 - Also known as wetlands
 - Areas where grasses grow abundantly in shallow waters
 - Decaying grass provides nutrients to produce plankton
 - Grasses here (Spartina) have a waxy covering called a cuticle and can excrete salt
 - These areas act as wave breaks to protect shoreline
 - The entire south shore of Long Island is considered to be a salt marsh
- The Mudflat Community
 - Part of an estuary environment characterized by dark muddy sand and no grass
 - Often called the “graveyard”
 - No life exists except for small scavengers such as the mud snail, clams, and worms
 - Microscopic organisms decomposing give the mudflat a rancid smell
- The Mangrove Community
 - Grow in tropical climate
 - At low tide, roots are exposed
 - At high tide, the roots are underwater
 - Mangrove leaves decay and provide nutrients for plankton
 - Mangrove trees trap silt, which helps offshore coral reefs