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|  | **Topic/ Objective: Marine Ecology**I can identify biotic and abiotic factors of marine ecosystems and describe how they interact with one another.  |
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| **Essential Question**: What is marine ecology and how is the ocean divided up into different zones?  |
| **Name the 5 oceans on Earth:** 1. 2. 3. 4. 5. **Marine Ecology**Marine ecology is an interactive science that studies the basic structural and functional relationships within and among living populations and their physical-chemical environments in **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**. AKA the study of \_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**Features of Marine Ecology**1. The sea is big- it covers \_\_\_\_\_\_\_\_\_\_\_\_\_\_ of the Earth's surface.
2. The sea is \_\_\_\_\_\_\_\_\_\_\_\_\_ and life extends to all its depths.
3. The sea is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, not separated as our land and freshwater habitats.
4. The sea is in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- air temperature differences between poles and equator set up strong winds that work with the rotation of the Earth to create different currents.
	1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- bringing to the surface cold water rich in nutrients which have been accumulating in the depths
	2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- Occurs when nutrient-rich estuarine water moves out to sea.
5. The sea is dominated by \_\_\_\_\_\_\_\_\_\_\_ and tides produced by the pull of moon and sun.
6. The sea is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- the average salinity or salt contents is 35 parts of salts by weight per 1000 parts of water, or 3.5%.
	1. Sea water has the pH of \_\_\_\_\_\_\_\_\_\_\_.
7. The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of dissolved nutrients is low and constitutes an important \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in determining the size of marine populations.
8. The ocean floor is constantly altered and renewed by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and sedimentary processes.

**The Marine Biota**Biota- The combined \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_ of a region. Examples of Biota in Pacific Ocean: *
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**Zonation in the Sea**Zonation- refers to the way an \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ can be divided up into zones based on a particular factor, like altitude or latitude. 1. Horizontal Zones- Those extending from the sea
	1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- region in which tides expose the sea bottom for some part of the day.
	2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_- region located seaward of the coastal zone's low-tide mark
		1. Neretic Zone- Water underlying the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ shelf. Sunlight penetrates the entire water column.
		2. Oceanic Zone- Extending to the edge of the continental shelf, over the continental slope and over ocean floor. It is characterized by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
2. Vertical Zones- Life Zones in the Ocean
	* Defined by:
		+ How much \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ it receives
		+ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
		+ Amount of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Zone- the thin film or "Skin" formed by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ at the surface of the water
	2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ or Sunlight Zone-
		1. Light availability: Top of the water column as far down as light is available for \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
		2. Depth: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
		3. Biotic Ex: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ or Twilight Zone-
		1. Light: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
		2. Depth: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
		3. Biotic Ex.: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ or Midnight Zone –
		1. Light: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
		2. Depth: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
		3. Biotic Ex: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	5. Abyssopelagic Zone (\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_)
		1. Light: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
		2. Depth: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
		3. Biota: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. Benthic Zone
	1. This zone contains all the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of the sea bottom, whether in coastal, continental shelf, or deep sea environments.

Create a Diagram below of all of the horizontal and vertical zones of the ocean.  |