Comments on the Ocean Biome material in the textbook

Chapter 3 – sections 2-4 Chapter 24 – sections 9-13 Chapter 25 – sections 1-3

Although the information is located in various places in the textbook, it all relates to aspects of the Ocean Biome.

Chapter 3 – sections 2-4:

This material focuses on the physical environment in large bodies of water like the ocean.

You should know (if you already don't) what hydrogen bonding is and the important properties it gives water.

Know the meaning of: specific heat; latent heat; cohesion; surface tension; viscosity; and buoyancy.

Know that pressure increases 1 atm for every 10 m increase in depth.

Know how organisms take advantage of, or adapt to the properties of water.

Know the fate of sunlight striking the surface of water and what can happen to it once in penetrates below the surface.

Know how the quantity and quality of light changes with increasing depth. Carefully study Figure 3.7, the material in the caption, and be able to answer the two questions associated with the figure. Know the implications for living things that are mentioned in the text.

The material in section 4 is largely a review of material in lecture. You should, however, be aware of seasonal variations in the temperature profile (see Fig. 3.9) and how they may differ between tropical and temperate zone waters. You will also want to refer back to this information when you study Figure 24.25.

After studying the assigned sections in this chapter you should be able to answer study questions 2-5 that are found on page 51.

Chapter 24 – sections 9-13:

Know the terms pelagic, benthic, neritic, and oceanic. These were also covered in lecture.

The vertical zones described use different names than those given in lecture so you can skip over them and just know what is presented in lecture.

Know what phytoplankton and zooplankton are.

Know the reasons why it is advantageous for phytoplankton to be small.

Know why autotrophs are restricted to the upper surface waters and why plankton is richer in littoral and neritic waters.

You don't need to know about specific types of plankton or algae (nanoplankton, red algae, brown algae, kelp, coccolithophores, etc.).

You don't need to know the information about the microbial loop.

Know about the movements of plankton, nekton, and the special adaptations of residents of deep water.

Note that the comments made about benthos (darkness & strictly heterotrophic) refer to when the bottom is deeper than the euphotic zone.

The material on hydrothermal vent communities is interesting but you don't need to know it.

You also don't need to know the material on coral reefs except that they have a very high number of species and are extremely productive – even more productive per unit area than tropical rain forests on land.

Study section 24.13 and Figure 24.25 carefully. Know the seasonal dynamics of both the temperature profile and productivity in Figure 24.25, and how they relate to each other. From the text on page 556, note sunlight associated with the short summer (rather than nutrient supply) is what causes the seasonal pattern of productivity in the polar waters around Antarctica.

You can skip the information on Dead Zones.

After studying the assigned sections in this chapter you should be able to answer study questions 7 & 8 on page 560.

Chapter 25 – sections 1-3:

Know why the intertidal zone (either rocky or sandy) is a stressful environment for living things.

Know the names and definitions of the basic zones of a coastal shoreline shown in Figure 25.1. You do NOT need to know the organisms found in these zones.

You can ignore Figure 25.2.

Know why life on a sandy intertidal zone (the beach) is difficult.

Know the difference between epifauna and infauna, and the advantages of burrowing below the surface.

You do not need to know the names of the plants and animals.

Know where animals living on a sandy beach get their food.

After studying the assigned sections in this chapter you should be able to answer study questions 1-3 on page 574.