

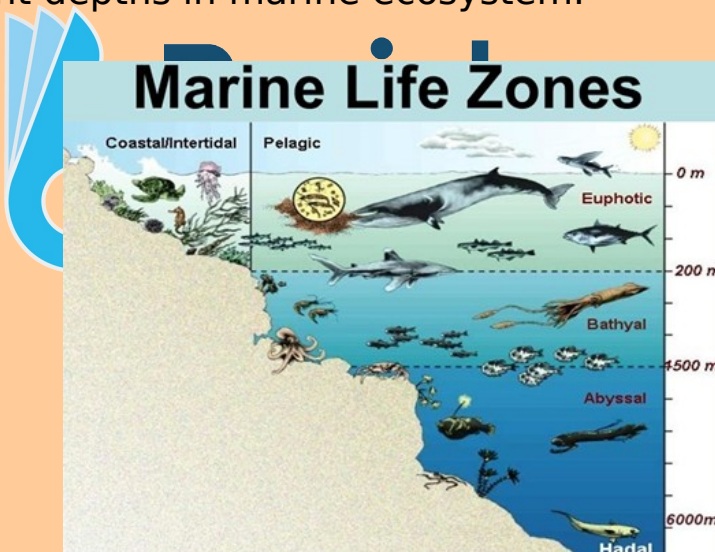
CHAPTER 09

Adaptations in Different Ecosystem

Light related adaptations of marine life forms:

The following shows certain zones in a marine ecosystem on the basis of availability of light at different depths.

You can see different types of organisms at different depths in marine ecosystem.



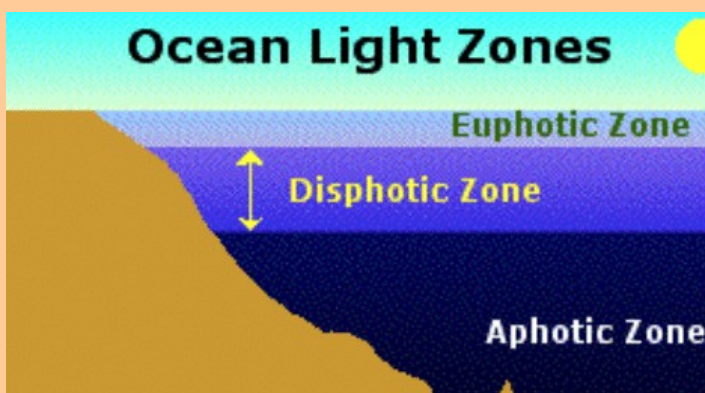
Let us understand these three zones and the organisms that live there along with the abiotic conditions like light, temperature and altitude or depth of the zone.

Jelly fish (euphotic zone):

Oceanic Zones	Light	Temperature	Depth	Plants/ Animals
Euphotic zone (Sunlit zone)	Brightly lit	Up to 30°C (104°F)	0 - 200m	Planktons, physalia, dolphins, flying fish, green turtles, sea anemones etc.
Bathyal zone (Twilight zone)	Dimly lit	4°C (39°F)	200m - 2000m	Whales, lantern fish, red, brown kelps, sea cucumbers, squids, octopus, sponges, corals etc.
Abyssal zone (Dark zone)	Dark	2°C - 3°C (36°F - 37°F)	2000m - 6000m	Brittle star, angler fish, tripod fish etc.

Adaptations on the basis of light penetration:

Euphotic zone:



Nearly 80% of marine flora and fauna are found in this zone due to the abundant solar energy present

there.

The organisms living in this zone are mostly floaters and swimmers. They have shiny bodies reflecting light away to merge with shiny water surface are transparent.



These animals have very sharp vision. Plants living in this zone are mostly green and photosynthetic activity is maximum in euphotic zone.

Some flora and fauna of this zone are trout, herrings, dolphins, jellyfishes different type of coral colonies which are extremely colorful different types of algae & sea grasses, diatoms etc.

Twilight zone or Bathyal zone:

Most of the plants found in this zone are the red and brown kelps, sponges, corals even animals with tubular bodies like squids and large animals like whales etc.



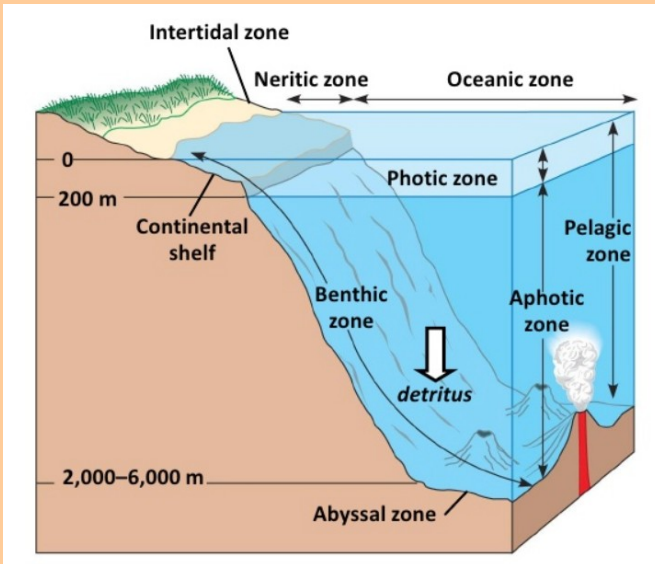
Some of these have a flat body like the ray fishes.



Since it is a dimly lit zone, most of the animals in this zone have big eyes that are sensitive to very dim light.

Abyssal zone:

This zone is dark and cold throughout the year. Photosynthetic activity is absent. Deep-sea animals are mostly predators and scavengers.



The larger forms have wide mouths and huge curved teeth, which prevent escape of any prey. Absence of skeleton, flattened bodies are the other features.

Some species have special structures that produce light on their bellies, some have it around their eyes (and these eyes are usually nonfunctional hence they are blind) and at the sides of their bodies, some animals glow (shows bioluminescence) in the darkness of deep waters.



Electric eel:

One such fish is the electric eel, which is apex predator.

Despite its name, it is not an eel, but rather a knife fish.

Electric eel is capable of generating electric shocks of up to 600 Volts, which is used for hunting and self-defence.

