The deep blue

Business

The ocean is the Earth’s largest habitat, and over sixty percent of it is more than a mile deep.

It is also Earth’s most unexplored habitat, as it is very hard to with stand the pressure and lack of light below a mile. Advances in technology have increased scientist knowledge of the deep. The ocean is divided into two broad realms, the Pelagic realm and the Benthic realm. They are several types of Benthic zones, such as kelp forests, eel grass, and coral reefs. Benthic zones are defined as bottom sediments.

Organisms that live in these zones are called benthos. Benthos live in close relationship at the bottom of the sea. Some are attached to it, or burrow in it. Benthos are categorized in terms of size; Macrobenthos, which is greater than one millimeter; Meiobenthos, which is size less than one millimeter; and Microbenthos, which are even smaller than Meiobenthos. Many of these creatures have adapted to the deep pressure and they cannot live in upper parts of the oceans.

The pressure difference can be very significant. The Benthic zone has very diverse fauna. The diversity of fauna increases with depth until the middle or lower bathyal region. Light does not penetrate into the very deep ocean zones, so therefore, the source of energy for benthos and their ecosystem is organic matter from the high water columns that falls to the depths. This matter is dead and decaying organisms that sustain the benthos food chain. The deep sea begins below 200 meters, where sunlight disappears for the use of photosynthesis.

From 200 m. to 1000 m. is called the mesopelagic, or twilight zone. In this zone, sunlight decreases until it disappears completely. Bioluminescence, a chemical reaction in a microbe or animal body that creates light without heat, helps many things to see.

Most bioluminescence is greenish or blueish because those colors travel furthest in the water. Because of this, most animals have lost the ability to see red light, but few fish can produce red light. Many fish in the deep sea have very large eyes to see and capture the small amounts of light that lie below 1000 m. Other fish are blind and rely on other enhanced senses, or they rely on each other. The pressure in the deeper parts of the ocean are very drastic compared to the surface area.

High pressures can cause air pockets to be crushed. Life in the deep have adapted so well that they have membranes and proteins that have pressure resistant structures. Some organisms use piezolytes, which are small molecules that somehow prevent pressure from messing up bioluminescence. Animals that are brought to the surface from the deep usually die because of rapid pressure change. That is partly why many organisms are undiscovered and the depths are so unexplored. The deep ocean has been one of the most interesting topics to me.

It has also been one of the most terrifying. It is vastly unexplored and so many creatures have not been identified. I hope in the future, as technologies increase, that humans will discover more and more about the deep.