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Marine Biology: Scientific Study of Biology of Marine Life

Key Mccoy*

Department of Biology, Princeton University, Princeton, Iraq

Short Communication

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***For Correspondence:**

Key Mccoy Department of Biology, Princeton University, Princeton, Iraq

E-mail:mccoy49gmail.com

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ABSTRACT

Marine biology is the study of marine life, or species that live in the sea. Because many phyla, families, and genera in biology have some species that live in the water and others that dwell on land, marine biology classifies species according to their environment rather than their taxonomic classification.

The ocean is home to a substantial percentage of all life on Earth. Because many ocean species are still to be found, the exact amount of this enormous share is uncertain. The ocean is a three-dimensional realm that covers around 71 percent of the Earth's surface.

DESCRIPTION

The habitats studied in marine biology range from the tiniest layers of surface water, where organisms and abiotic items may become trapped in the surface tension between the ocean and the atmosphere, to the depths of the oceanic trenches, which can be 10,000 metres or more below the ocean's surface. Estuaries, coral reefs, kelp forests, seagrass meadows, the surroundings of seamounts and thermal vents, tidepools, muddy, sandy, and rocky bottoms, and the open ocean (pelagic) zone, where solid objects are rare and the water's surface is the only visible boundary, are all examples of habitats. The organisms studied range in size from microscopic phytoplankton and zooplankton to massive cetaceans (whales) with lengths of 25-32 metres (82–105 feet). The study of how marine organisms interact with one other and the environment is called as marine ecology [1].

Marine life is a vast resource that provides food, medicine, and raw materials, as well as assisting in recreation and tourism around the globe. At its most basic level, marine life influences the very nature of our world. Marine creatures play an important role in the oxygen cycle and in the management of the Earth's climate. Marine life shapes and protects shorelines, and certain marine organisms even assist in the formation of new land [2].

Humans rely on a variety of species for their livelihood, including finfish and shellfish. It's also becoming clear that the health of marine species and other organisms are intricately linked.

The human body of knowledge about the relationship between sea life and major cycles is quickly expanding, with new findings occurring virtually every day. These cycles include those of substance (like the carbon cycle) and air (like Earth's respiration and energy transfer via ecosystems like the ocean). Large swaths beneath the ocean's surface are still largely unexplored.

Biological oceanography and marine biology can be contrasted. Marine biology and biological oceanography are both fields of study that deal with marine life. Biological oceanography is the study of how organisms interact with and are affected by the oceanographic system's physics, chemistry, and geology. Biological oceanography is mainly concerned with marine microorganisms and how they are affected by their surroundings, as well as how this impacts larger marine species and their ecosystem. Biological oceanography is comparable to marine biology, but it requires a different approach to studying ocean life.

Biological oceanography studies the food chain from the bottom up, whereas marine biology studies the ocean from the top down. Biological oceanography is primarily concerned with the ocean ecosystem, with a focus on plankton: their diversity (morphology, nutritional supplies, motility, and metabolism); productivity and how it affects the global carbon cycle; and dispersion (predation and life cycle). Biological oceanography also looks at the role of bacteria in food webs, as well as how humans affect ocean ecosystems [3].

Coastal environments ocean habitats are the two types of marine environments. Coastal habitats are found in the area between the beach and the continental shelf's edge. Even though the shelf region accounts for only 7% of the overall ocean area, coastal environments are home to the majority of marine life. Open ocean habitats are found beyond the continental shelf's edge in the deep ocean. Alternatively, coastal and such like habitats can be distinguished in marine ecosystems. Pelagic habitats are found on the surface or in the open water column, away from the ocean's bottom and impacted by ocean currents, whereas demersal habitats are found near or on the ocean's bottom and are not affected by ocean currents. The inhabitants of marine ecosystems have the ability to alter it.

Some marine organisms, such as corals, kelp, and sea grasses, are ecosystem engineers, reshaping the marine environment so that more habitats for other organisms can be produced.

The ocean's tides regularly expose and cover intertidal zones, which are the areas closest to the shore. This zone is home to a diverse range of life [4]. Shore habitats range from the upper intertidal zones to the zone where land vegetation begins to take hold. It can be submerged on a daily basis to extremely occasionally. Many of the species here are scavengers, feeding on sea life washed up on the beach. The beach and intertidal ecosystems are also important to many land animals.

There are some species that dwell in the sea and others that live on land in numerous phyla, groups, and genera in biology. Species in marine biology are classified based on their environment rather than their taxonomy. As a result, marine biology includes not just species that live exclusively in the sea, but also organisms whose lives revolve around the sea [5].

Microbial marine systems, as inhabitants of the world's largest habitat, influence every global system. Microbes are responsible for nearly all photosynthesis in the ocean, as well as carbon, nitrogen, phosphorus, and other nutrients and trace elements cycling.

CONCLUSION

The variety of microscopic life under the water is astounding, and it is still poorly understood. Even at the dawn of the twenty-first century, the role of viruses in marine ecosystems is scarcely being investigated.

Because of their vital significance as the world's most numerous primary producers, phytoplankton's role is well recognised. *Cyanobacteria* (also known as blue-green algae/bacteria), various forms of algae (red, green, brown, and yellow-green), diatoms, dinoflagellates, physically embodied, coccolithophorids, cryptomonads, chrysophytes, based on partial, prasinophytes, and silicoflagellates are all species of phytoplankton.

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