

# Biological Oceanography and Distribution Factors in Marine Biology

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## Perspective

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## DESCRIPTION

The scientific study of the biology of marine animals, or life in the sea is known as marine biology. Marine biology classifies species based on the environment compared to taxonomy because many phyla, families and genera in biology have some species that live in the water and others that live on land. The ocean is habitat to a massive majority of all life on Earth. Since many ocean species have yet to be identified, it is unknown the extent to which this significant component is in precision. A complex three-dimensional environment the oceans occupy around 71% of the Earth's surface. The habitats studied in marine biology range from the microscopic layers of surface water where organisms and inanimate objects may be caught in the surface tension between the ocean and atmosphere, to the depths of the oceanic trenches, which can be as deep as 10,000 metres or more below the ocean's surface. Humans depend on many species for their economic well-being, including both finfish and shellfish. The underlying connections between the health of other creatures and marine organisms are also coming to view. With new findings being produced almost daily, the human corpus of knowledge understanding the connection between marine life and significant cycles is rapidly expanding. These cycles include those of air and matter (such as the carbon cycle and the transfer of energy through ecosystems like the ocean). Effectively unexplored are vast stretches of the ocean floor.

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### **Biological oceanography**

Biological oceanography and marine biology can be contrasted. Marine life is a topic of research for both biological oceanography and marine biology. The study of biological oceanography focuses on how organisms interact with the physics, chemistry, and geology of the oceans. The majority of biological oceanography focuses on the ocean's microorganisms, examining how their environment affects them and how that impacts the ecosystem and larger marine life. While biological oceanography and marine biology are related fields, they approach the study of ocean life differently. While marine biology studies the ocean from the top down, biological oceanography approaches the food chain from the bottom up. The primary focus of biological oceanography is the ocean environment, with a special emphasis on plankton. This includes information about their diversity (morphology, nutritional sources, motility, and metabolism), productivity and how that affects the global carbon cycle, and distribution (predation and life cycle). Additionally, biological oceanography looks on the function of bacteria in food webs and how people affect ocean ecosystems.

### **Distribution factors**

Discovering and mapping the life cycles of various species and where they spend their time is an active research area in marine biology. Technologies like acoustic tags, pop-up satellite archival tags, and a number of other data loggers help in this discovery. Marine biologists research the growth, distribution, and health of aquatic life forms as well as how ocean currents, tides, and many other oceanic elements affect them. Due to advancements in GPS technology and more contemporary underwater optical equipment, this has just currently lived technically possible. The majority of marine life breeds in particular locations, nests in others, spends time as juveniles and matures in still other locations. Few details regarding the many stages of many species' life cycles, particularly the infancy and adolescence, are known to scientists. For instance, the locations of some year-1 sharks and young sea turtles are still entirely unknown. Recent developments in underwater tracking technology are shedding new light on our understanding of marine life that dwells at extremely deep oceanic depths. The creation of a marine protected area and the implementation of seasonal fishing closures are both aided by the information provided by pop-up satellite archival tags. This information is crucial because both scientists and fishermen are learning how restricting commercial fishing in a small area can significantly affect the maintenance of a healthy fish population in a much bigger area.