



Importance of Marine Ecosystems

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DESCRIPTION

The marine environment provides many ecosystems that support biodiversity in coastal and open ocean habitats. Marine ecosystems provide many resources that benefit society, and a significant proportion of the world's population depends closely on the ocean and coast for survival and well-being. Impacts of land-use changes, overfishing, climate change, alien species invasion, and other anthropogenic activities impact biodiversity, increasing pressure on marine ecosystems and the resources they provide. As environmental conditions change, species must evolve and adapt to these changing conditions. Healthy marine ecosystems are important to society as they provide services such as food security, animal feeds, and raw materials for pharmaceuticals, building materials for coral and sand, and nature protection against dangers such as coastal erosion and floods. Marine ecosystems are the largest aquatic ecosystems on the planet and are found in high salinity waters. These systems are in contrast to freshwater ecosystems, which have low salinity. Ocean water covers more than 70% of the Earth's surface, accounts for more than 97% of the Earth's water supply and occupies 90% of the Earth's habitable space. The average salinity of seawater is 35/1000 of water. The actual salinity depends on the marine ecosystem. Marine ecosystems can be divided into many zones based on water depth and coastline. The oceanic zone is a wide open area of the ocean inhabited by animals such as whale sharks, sharks and tuna. The benthic zone is composed of aquatic substrates inhabited by many invertebrates. The intertidal zone is the area between high and low tides. Other coastal areas include tidal flats, sea grass beds, mangroves, rocky tidal systems, salt marshes, coral reefs, and lagoons. Hydrothermal vents can form in the deep sea where chemically synthesized sulphur bacteria form the basis of the food web.

Sunlight is one of the most important abiotic factors for marine ecosystems. It is very important for scientists to classify parts of the marine ecosystem (up to three) by the amount of light they receive. The top of the marine ecosystem is the aphotic zone, which extends up to 200 meters (656 feet) below the surface of the water. At this depth, there is enough light for normal photosynthetic activity. Most marine life lives in this zone. Aphotic zone ranges from 200 to 1,000 meters (656 to 3,280 feet) above the surface. Sunlight is still available at these depths, but it is sufficient to allow some photosynthesis. Below the aphotic zone is an aphotic zone that is not exposed to sunlight.

Scientists classify marine ecosystems into several broad categories, but depending on their source, there is a contradiction as to what counts as a marine ecosystem. The number of marine ecosystems is actively

debated. Although there are some disagreements, there is widespread agreement on several types of marine ecosystems, including estuaries, salt marshes, mangrove forests, coral reefs, open oceans, and deep seas. Estuary is a coastal zone where the sea and rivers meet. Here, in an area protected from extreme weather, nutrients and salt from the sea are mixed with nutrients and salt from the river. As a result, the estuary is one of the most productive places on the planet, supporting different types of life. Since the estuary is where the river meets the sea, it has traditionally supported many human communities and activities such as fishing, transportation and transportation. Estuaries are formed where the sea meets the river, while salt marshes occur where the sea meets the land. These places are rich in nutrients from sediments brought in from the sea. Swamps are regularly flooded, moistening and salting the surrounding soil. As a result, the soil is low in oxygen and filled with decomposition products. These ecosystems are dominated by low-growth shrubs and grass.

Another coastal ecosystem is the mangrove forest. Mangrove forests are found in the tropics. These ecosystems are frequently flooded with seawater that floods the roots of mangrove trees. The mangrove root system sits on the ground to filter salt and access oxygen. These trees provide homes of various species. Animals such as fish, crabs, shrimp, reptiles and amphibians live in the roots of mangroves, and their canopies provide a testing ground for birds.

Shortly beyond the tropical waters are coral reefs, a euphoric ecosystem constructed from exoskeletons secreted by coral polyps. These exoskeletons form complex structures that house many different organisms. Coral reefs are a very diverse ecosystem, home to sponges, crustaceans, soft animals, fish, turtles, sharks, dolphins and many other creatures. At some counts, coral reefs can occupy a quarter of all marine species. Coral reef is the open ocean. The open ocean ecosystem changes significantly as the depth of the ocean changes. In the aphotic zone on the surface of the sea, the ecosystem receives a lot of light and oxygen, is fairly warm, and supports many photosynthetic organisms. Many of the organisms we relate to marine ecosystems, such as whales, dolphins, squids, and sharks, live in the open ocean.

As the ocean gets deeper, it gets darker, colder, and less oxygen is available. Organisms that inhabit the aphotic zone and the deep-sea ecosystems within the aphotic zone have anomalous adaptations that help them survive in these difficult environments. Some organisms have such a large mouth that they can catch nutrients that fall from the depths of shallow waters. Others are adapting to obtain energy by chemically synthesizing chemicals from hydrothermal vents.

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