



BIO

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(AMMA)

Habitats

The following points highlight the top five types of habitats. The types are:

1. Marine Habitat
2. Fresh-Water Habitat
3. Estuarine Habitat
4. Terrestrial Habitat
5. Arboreal

However, habitats are broadly categorized into two;

1. Aquatic Habitat and
2. Terrestrial Habitat

Marine Habitat:

The marine habitat is the largest of all habitats. The seas, oceans and bays have occupied about 70% of the earth's surface. The physical features of the marine habitat are relatively stable.

The depth varies from intertidal zone (a zone covered by water only part of the time) to depth as great as 35,400 feet or 6.7 miles. The average depth is about 12,500 feet. In tropical seas, the usual temperature is about 32°C . and that in the arctic region is about -2.2°C . In a given area this temperature rarely varies more than 5°C . during the year.

The different salts dissolved in sea-water vary slightly in concentration.

The amount of gas dissolved is dependent upon depth and temperature. So far as the concentration of oxygen is concerned it is more in surface water as also in cold water at a certain depth. Penetration of light into the sea-water is dependent upon factors like turbidity and surface motion.

irradiability

On an average light can penetrate a depth up to 6000 feet and below it there is permanent darkness. Pressure at different depths of the sea is different. It is known that pressure increases at the rate of one atmosphere, i.e., 14.7 lbs per square inch per 10 m of water.

This means that organisms in the depth of the sea are exposed to high pressure.

Living organisms exhibit much stratification in their distribution in marine water. Producer organisms are limited up to the region where light penetration ends. But consumers occur in decreasing number from surface to bottom. Even the deepest portion of the sea is inhabited by living organisms. All the phyla (excepting amphibia) have representatives present in the sea.

Ecological classification of marine organisms

The marine biota is varied. The animal communities are grouped into two vertical components—Pelagic and Benthic forms. The pelagic forms include the communities inhabiting the open sea, while the benthic forms are the bottom dwellers. All the communities are grouped into two heads—Producers and Consumers.

Pelagic organisms

Pelagic organisms are found in the open sea. Pelagic organisms are classified ecologically on the basis of their means of locomotion and the depth at which they live. The recognized groups are listed below. They are divided into two groups: Plankton and Nekton. Plankton includes organisms that lack the power of locomotion by their own.

They float in water and move passively from one place to another with the help of wind or water current. Most of them are microscopic in size and are represented by protozoa and larval forms of crustacea, helminths, coelenterates and molluscs.

Both producers and consumers are present among the planktons.

Most of the larval forms, viz., pilidium larva, zoea larva, planula larva, veliger larva, etc., are the meroplanktonic forms. Nekton organisms can swim about freely

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in water. They are mainly consumers and are represented by squids, whales, seals, fishes, turtles and many sea birds.

Benthic organisms

Marine benthos or bottom dwellers are characterised by numerous sessile or relatively inactive animals. The benthonic forms exhibit marked zonation and they are quite distinct from each other in three primary regions—supratidal, intertidal and subtidal zones.

Zonation in sea:

The sea is regionated into different zones, primarily depending on the penetration of light rays.

The main regions are:

- (A) Neritic or shallow-water, zone,
- (B) Oceanic or open deep-water zone.

Fresh-Water Habitat

Freshwater is defined as having a low salt concentration; usually less than 1%. Plants and animals in freshwater regions are adjusted to the low salt content and would not survive in areas of high salt concentration (i.e., ocean or sea). The different types of freshwater regions are:

- (a) Ponds and lakes
- (b) Streams and rivers
- (c) Wetlands

Ponds and lakes

These regions range in size from just a few square meters to thousands of square kilometers. Scattered throughout the earth, several are remnant from Pleistocene glaciation. Scattered ponds are seasonal, lasting just a couple of months (such as

Towards the mouth of the river/stream, the water becomes murky from all the sediments that it has picked up upstream, decreasing the amount of light that can penetrate through the water. Since there is less light, there is less diversity of flora and fauna.

Wetlands

Wetlands are areas of standing water that support aquatic plants. Marshes, swamps, and bogs are all considered wetlands. Plant species adapted to the very moist and humid conditions are called hydrophytes. These include pond lilies, cattails, sedges and black spruce. Wetlands have the highest species diversity of all ecosystems. Many species of amphibians, reptile, birds (such as ducks and waders), and furbearers can be found in wetlands.

Estuarine Habitat

An estuarine is a unique habitat that is created by the mixing of fresh and salt water due to tidal action. It is equally an ecological zone where river and sea meet to establish brackish conditions.

Estuarine habitat supports the growth of phytoplankton, grasses, algae, red and white mangrove trees while animals like crabs, snails and oysters that feed on the detritus are commonly found. These are in turn consumed by fishes and birds.

Terrestrial Habitat

This type of habitat is associated with the land. Examples include grasslands, sahel savanna, northern guinea savanna, tropical rainforest, etc. The land supports all kinds of life forms except the aquatic organisms. Rodents, birds, reptiles, gorillas, chimps, and all kinds of mammals inhabit these biomes.

Arboreal

Arboreal is a name coined from the Latin word arboreous. Arbo means tree. The word was first used in 1667. Some animals live on trees such as monkeys, baboons, bats and birds. Therefore, tree dwelling type of habitat is called arboreal.

sessile pools) while lakes may exist for hundreds of years or more. Ponds and lakes may have limited species diversity since they are often isolated from one another and from other water sources.

Lakes and ponds are divided into different "zones" which are usually determined by depth and distance from the shoreline.

The topmost zone near the shore of a lake or pond is the littoral zone. This is the warmest since it is shallow and can absorb much of sun's heat. It is a fairly diverse community, which can include several species of algae like diatom, rooted and floating aquatic plants, grazing snails, clams, insects, crustaceans, fishes, and amphibians.

The near-surface open water surrounded by the littoral zone is the limnetic zone. The limnetic zone is well-lit (like the littoral zone) and is dominated by plankton, both phytoplankton and zooplankton. Plankton are small organisms that play a crucial role in the food chain. Without aquatic plankton, there would be few living organisms in the world and certainly no humans. A variety of freshwater fish occupy this zone.

The third zone is the profundal zone. Plankton have short life span, when they die, they fall into this deep-water part of the lake/pond. This zone is much cooler and denser than the other two.

Little light penetrates all the way through the limnetic zone into the profundal zone.

The fauna are heterotrophs, meaning that they eat dead organisms and use oxygen for cellular respiration.

Streams and rivers

These are bodies of flowing water moving in one direction. Streams and rivers can be found everywhere---they get their start headwaters, which may be springs, snowmelt, or even lakes, and then travel all the way to their mouths, usually another water channel or the ocean. The characteristics of a river or stream change during the journey from the source to the mouth. The temperature is cooler at the source than it is at the mouth. The water is clearer, has higher oxygen levels, and freshwater fish such as trout and heterotrophs can be found there. Towards the middle part of the stream/river, the width increases, as does species diversity.