

Plankton

The term 'plankton' was first used by a German Scientist, Victor Hensen (1887). The word plankton is derived from the Greek word 'planktos', meaning for wanderer or drifters. Plankton form the major component of pelagic life in the oceans and on which all the marine life depends. These organisms are free floating with limited locomotory powers and are transported horizontally with the mercy of the prevailing water movements such as tides, waves and currents. Plankton are often used as indicator of environmental and aquatic health because of their high sensitivity to changes such as eutrophication and pollution with their short life span.

Based on Nutrition

Plankton are classified into phytoplankton and zooplankton based on nutrition.

Phytoplankton

Phytoplankton are the free floating organisms of the sea that are capable of photosynthesizing organic matter as their food i.e. primary producers. These are the autotrophic organisms, as they bear chlorophyll and synthesise organic matter, and hence are the major primary producers in the marine ecosystems. Phytoplankters are microalgae, which include diatoms, dinoflagellates, blue-green algae, silicoflagellates, etc.

Zooplankton

Zooplankton are the various free floating animals, i.e. heterotrophic or primary and secondary consumers. All the animal components of the plankton are called zooplankton. They are heterotrophic in nature as they depend on the already formed organic matters for their source of food. Their food materials include phytoplankton, smaller or microzooplankton and detritus. Zooplankton encompass many different groups of animals that range in size from microscopic crustaceans to jellyfish which measure a few feet across. As many zooplankton can feed on tiny phytoplankton, and are intern eaten by larger zooplankton, fish, or even whales, zooplankton form an important and intermediate link in the food web between primary producers and the higher trophic levels. E.g., copepods, foraminiferans, siphonophores, eggs and larvae of fishes, veligers of molluscs etc.

Based on life History

Zooplankton are further classified into two types based on their mode of life viz. holoplankton and meroplankton.

Holoplankton

Holoplankton are organisms that spend their entire life as plankton. These are the permanent planktonic organisms (both phytoplankton and zooplankton) covering the whole spectrum of plankton sizes and types. E.g. most phytoplankton, some seaweeds, copepods, salps, jelly fishes etc.

Meroplankton

Meroplankton are organisms that spend only part of their life in the plankton. These are temporary planktonic organisms. These include the larval forms of majority of benthic invertebrates and nektonic forms. Often benthic organisms have an early planktonic stage in the life history followed by metamorphoses into an organism which settles to the bottom . There include species of seaweeds and kelps, and also crabs, shrimps, lobsters, clams, oysters, and worms among many others. The meroplanktonic forms, such as eggs and larvae of fin fishes are collectively called as ichthyoplankton.

Based on size

Based on size, these organisms are classified as follows into seven groups:.

1. Megaplankton - are organisms above 20 cm in size
2. Macroplankton - are organisms in size range of 2-20 cm
3. Mesoplankton - fall between 0.2&20 mm in size range
4. Microplankton - are organisms in size range of 20to200 μm
5. Nanoplankton - are very small organisms ranging from 2-20 μm in size.
6. Picoplankton - are minute organisms of 0.02-2.0 μm in size
7. Femtoplankton - are still smaller organisms of 0.02-0.20 μm in size.

Of the seven size groups, megaplankton, macroplankton microplanktonand mesoplankton are normally captured by using standard plankton nets. Hence, they are called net plankton. The nanoplankton, picoplankton and femtoplankton cannot be collected by using plankton nets and these organisms can be obtained only by centrifuging samples of seawater, filtering water samples on fine filters such as Millipore filters, or allowing them to settle down from water samples.