

An overview to the Aquatic Organisms



Aquatic organisms are classified into 2 groups based on which compartment they live in water column. Pelagos are classified into 3 groups indicating their movement abilities and ecological requirements.

A- Pelagos (Pelagic Organisms)

- Plankton
- Neuston
- Nekton

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B- Benthos (Benthic Organisms)

Plankton

Plankton are marine and freshwater organisms that exist in a drifting (or freely floating) state. Thus, they are non-motile or too small or weak to swim against the current. The term plankton is a collective name for organisms such as certain algae, bacteria, protozoans, crustaceans (copepods, cladocerans), rotifers, mollusks, and coelenterates etc.

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Many planktonic organisms are neither clearly plant nor animal but rather are better named as **protists**. Thus, based on size, plankton can be divided into macroplankton, microplankton, and nannoplankton. However, no sharp lines can be defined between these categories.

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Eutrophication

Eutrophication is characterized by excessive aquatic plant and algal growth due to the increased availability of one or more limiting growth factors needed for photosynthesis, such as sunlight, carbon dioxide, and **nutrient fertilizers**. Eutrophication occurs naturally over centuries as lakes age and are filled in with Doç. Dr. M. Bora Ergönül **sediments**. However, human activities have accelerated the rate and extent of eutrophication by point-source or non-point loadings of limiting nutrients, such as **nitrogen and phosphorus**, into aquatic ecosystems. The human impact driven eutrophication is called **cultural eutrophication**.

Eutrophication has dramatic consequences for water sources, fisheries, and recreational water bodies. One of the most well-known consequences of cultural eutrophication include cyanobacterial blooms which leads to tainted drinking water supplies, altered water quality, preventing recreational opportunities, and lead to hypoxia.

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Freshwater zooplankton are represented primarily by Rotifera, Cladocera and Copepoda. However, marine zooplankton is a very diverse group of organisms including larval stages of gastropods, cephalopods, jellyfish, copepods etc. Some researchers consider **fish eggs** also as a part of zooplankton.

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Most of the marine zooplankton are microscopic. However, «krill», a very important group of marine zooplanktonic organisms are within a range of 5-6 cm.

They are shrimp-like crustaceans that are found throughout the world's oceans. Antarctic krill (*Euphausia superba*) are found in the Southern Oceans surrounding Antarctica. They can form large swarms in open ocean regions, or more scattered layers under the ice edge.

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Krill are extremely important because they are the main food item for most of the marine predators (penguins, seals, whales, fish) in the Southern Ocean. Krill are the major grazer of primary production. They play an important role of re-packaging vast amounts of primary production into their own body by grazing micro-size phytoplankton to make them available for marine predators. Antarctic krill are also regarded as one of the most abundant animal species on the planet. Because of this role they are called the **'keystone species'** in the Southern Ocean ecosystem.

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