

Keystone species

A keystone species is a plant or animal that plays a unique and crucial role in the ecosystem functions. Without a keystone species, the ecosystem would be dramatically different or cease to exist altogether. Some keystone species are also apex predators (top carnivores).

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Animal migration is the relatively long-distance movement of group of animals (not individuals), usually on a seasonal basis. It can be observed in all major animal groups; birds, mammals, fish, reptiles, amphibians, insects, and crustaceans. The trigger for the migration behaviour includes **local climate, local availability of food, the seasonal factors or reproductive needs.**

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To be considered as a true migration movement of the animals should be annual or seasonal; such as Northern Hemisphere birds migrating to the south for winter; or Atlantic salmon leaving the river where they were born when they become a juvenile.

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Diel vertical migration

Although, diel or diurnal vertical migration is not considered as a true migration (since it is not seasonal or annual) it is accepted as the greatest migration on earth based on biomass. (Seasonal vertical migration occurs among Foraminiferida, but it is a very rare phenomenon in nature).

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Most of the organisms showing Diel vertical migration (DVM), belong to the group: zooplankton. However, it is not restricted to any one taxa; *Doc. Dr. M. Barga Engonvil* copepods, some squids, some ray-finned fishes etc. The migration occurs as organisms move up to the epipelagic zone at night and return to the mesopelagic zone of the oceans or to the deeper parts of the lakes during the day.

The vertical migration plays an important role in the active transport of dissolved organic matter to the deeper parts of oceans (or lakes). Vast majority of the deep sea biota depends on nutrients falling down. The **biological pump** (also called **biological carbon pump**) transfers organic matter and inorganic nutrients stored in phytoplankton by photosynthesis in the euphotic zone to the deeper ocean.

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The most important part of this pump is that it is a very effective way of transferring CO₂ to the deeper oceans.

Grazing

Graze means to feed on growing grass and pasturage, as do cattle, sheep, etc. However, it also refers some filter feeder aquatic animals including zooplankton, gastropoda, some fish and sea mammals which feed upon epiphytic, epilythic diatome and other plankton. Filtering the phytoplankton from water, or filtering krill from water column, or scraping of the diatome film from substrates are examples of grazing.

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Grazing is carried out on a selective basis. Some algae are actively rejected or selected by grazers. Edible plankton is determined primarily by **size and taste**. For example *Daphnia* has a selectivity size of 1 μm .

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Nekton refers to the aquatic organisms which can move actively in the water column for reproduction, gathering food, looking for shelter etc. Some nektonic forms are related to the bottom for Doç. Dr. M. Bolga Ergönül searching for prey or burrowing themselves in the sand. These organisms are called **nektobenthonic** forms.