

ZOOPLANKTON & FISHERIES

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Zooplankton is a group of heterotrophic plankton and form a dominant constituent of animal organisms in the sea. By virtue of their abundance and intermediary role between phytoplankton and fish, they are considered as the chief index of utilization of aquatic biotope at the secondary trophic level. The zooplankton inhabit the oceans at almost all depths and occupy practically every type of ecological niche. Being more complicated in species composition than phytoplankton, zooplankton include a great majority of taxa of invertebrate from the lowest Protozoa to higher Urochorda (Tunicata). The representatives of almost each taxon occur in holoplankton. In spite of their abundance and diversity, the zooplanktonic organisms exhibit uneven distribution both along the horizontal and vertical planes. The zooplankton patchiness or spatial heterogeneity along the horizontal plane becomes an important character of distribution of some taxa during certain period of the year. The patchiness extends on scales of several metres to hundred or thousands of kilometres. The intensity of zooplankton aggregation will depend on their ability to counter dispersion, phytoplankton growth, grazing rates, predator/prey relationship and reproduction strategies of zooplankton. The zooplankton patchiness is utilized by higher trophic

levels, particularly by pelagic fish species and larvae.

Zooplankton being passive drifters, they are used as indicators of water masses and their distribution, circulation, productivity, coastal upwelling etc. The occurrence of upwelling along the Indian coast and its influence on biological productivity has been well documented (Ramamirthm and Jayaraman, 1960; Sankaranaryanan et al. 1978; Sharma, 1978; Banse, 1968 & 1984 and Shetye et al. 1985). In the upwelling areas, the zooplankton standing stock (biomass) is higher and zooplankton community is usually dominated by herbivores. Barber and Smith (1981) described how the regularity of upwelling process has allowed organisms to evolve life history, feeding and behavioral adaptations to exploit the optimum conditions. Species of copepods of family Calanidae are perhaps the best studied of the zooplankton that have evolved mechanisms allowing them to dominate communities during upwelling events.

Zooplankton constitute the main food items of several economic important animals. During the feeding seasons, the pelagic fishes migrate in shoals to the feeding ground rich in food, such as various groups of crustacea (copepods, cladocerans etc.), which can, therefore, be used as indicators for finding migratory routes and fishing grounds. The fish catch, particularly pelagic, occur in areas of high plankton production. The zooplankton in addition to

indicators of rich potential fishing grounds are increasing being used as biological indicators for digestive enzymes, lipids and genetic markers.

Surrgested Readings

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