
Preface

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Biographical notes: Ravendra Kumar Singh obtained his Bachelor of Science in Biological Sciences and Master's in Zoology from Kanpur University, India. He received his PhD in 1981 from Vikram University, India on Freshwater Fisheries including fish taxonomy and limnology. He also did postgraduate Diploma in Environmental Sciences related to water pollution and aquatic life. He is fellow of International Society for Environmental Protection and Academy of Environmental Biology, India. He is currently working as Director, Taraporevala Marine Biological Research Station, Mumbai, India. The research station is under Faculty of Fisheries, Balasaheb Sawant Konkan Agricultural University, Dapoli, India.

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Aquatic environment

The aquatic environment is similar to terrestrial environment but the former has water as a media, and can be categorised into stagnant and running ecosystem. Freshwater covers 0.8% of the earth's surface and known to contain 41% of the fish species of the world. Aquatic environment recycle ground water and provide habitats for wildlife including fishes, shrimps, molluscs etc. The organic production in an aquatic ecosystem is an important index of its production potential. The biological niches for fishes, afforded by lentic and lotic water bodies, show a wide multiplicity of environmental conditions. The health of aquatic environment is degraded when the ecosystem's ability to absorb a stress has been exceeded. Increase in per capita fish consumption in many countries, has further put stress on aquatic environment. This stress on aquatic ecosystem may be attributed to physical, chemical and biological changes. The physical changes are fluctuation in water temperature, water flow and light availability while, the chemical changes are brought about by increase in organic matters, oxygen consuming materials, pesticides and insecticides and a biological changes are owing to introduction of exotic fish and other species. An aquatic environment is comprised of biotic community and abiotic environmental factors having role of self-regulating and self-sustaining ecosystem. The autotrophic organisms in ecosystem, manufacture organic compounds from inorganic nutrients while, heterotrophic organisms survive on autotrophic organisms and used organic compounds as energy source.

Source of livelihood and animal protein

The aquatic ecosystems, due to their production potential, are used for human purposes. Fish as a source of good quality protein, has been more readily available especially in rural area of many countries and plays important role in employment generation and economy of the country. Fish being a source of food for people provide 16% of animal protein requirement of the world's population as per report of Food and Agriculture Organisation (FAO) of United Nations (1997). It is reported that about 1 billion people world wide rely on fish as their primary source of animal protein (FAO, 2000). The FAO estimated the value of fishery trade of US\$ 51 billion per annum and about 36 million people are engaged in fishery sector especially in fishing and aquaculture. The consumption of food fish has increased from 40 million tonnes in 1970 to 86 million tonnes in 1998. The aquatic ecosystems has immensely contributed in food and nutritional security of the world. In view of this, it is important to study aquatic ecosystems extensively as the information on this important ecosystem is still inadequate in comparison to terrestrial ecosystem.

Special issue

The aquatic environment can be defined as interacting system of resources such as water and biota. The world has a variety of lotic and lentic aquatic environment, which are major source of food to millions of people across the earth. The abundance and distribution of fishes in the water are the products of interaction among fishes and their chemical, physical and biological surroundings. Hence, the dynamics of aquatic environment depends on the properties of water. Environmental forces such as temperature, light, dissolved oxygen, current, population density that impinge on the live of aquatic animal are complex and interrelated in their effects. The unprecedented development at all fronts associated with fast growth of human and cattle population has

caused rapid deterioration in the aquatic environment. The major effects of the industrial discharge on aquatic fauna and water quality are the mortality and contamination of water by toxic metals. Therefore, conservation and management of these resources with the environment are of paramount interest. The exponential growth of human population and progressive industrialisation are posing serious threats to aquatic environment and its resources potential. Consequently, environment is emerging as one of the top priorities, and aquatic environment has gained new dimensions.