

## BOOK REVIEW

### Ecology of Barnegat Bay, New Jersey

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Estuaries, an integral part of coastal ecosystems, have long been a subject of scientific inquiry. However, in the last two decades or so, research on estuarine ecology has progressed very rapidly mainly due to the increasing awareness about environmental protection, arising out of population growth, transportation, waste disposal, food production and recreational activities. Consequently, a number of estuarine ecotones are investigated extensively for collecting baseline data for evolving the short-term and long-term management strategies towards the utilization and conservation of highly productive estuarine ecosystems.

The monograph under review has the twin objectives of defining, both qualitatively and quantitatively, the ecological characteristics of Barnegat Bay—the study area—and to generate an ecological data base for future comparison studies and environmental impact assessments. The volume embodies the results of nearly 20 years of intense ecological research conducted on physical, chemical and biological components; their inter-relationships; resource utilization; human habitation and recreational effects on Barnegat Bay—a shallow lagoon type estuary along the east coast of New Jersey (USA). The presentations subject-specific by 20 specialists, are comprehended in 14 different sections or chapters.

An overview of the information, strewn through various chapters alongwith the synopses of organisms forming estuarine communities in Barnegat Bay and the natural and anthropogenic factors that affect them, forms the Introduction. A resume of physico-chemical features of the study area in Chapter 1 provides an insight into the hydrodynamics, geomorphology and water quality of the Barnegat Bay. Nutrient conditions with emphasis on nitrogen in the form of ammonia-N, nitrate-N and organic-N in the coastal zone of New Jersey, are presented and discussed in Chapter 2.

Distribution, abundance and primary production of phytoplankters forms the theme of Chapter 3. An account of macroflora, playing a dual role as habitat formers and primary producers, is presented in the next chapter. The zooplankton representing an intermediate link in the food chain, is reviewed (Chapter 5) with specific reference to the contributions by micro-, macro- and ichthyoplankton and the structure and function of zooplankton community, as a whole. Temporal and spatial stability of benthos and the absolute abundance of individual species of invertebrate benthic fauna, dominated by deposit feeders, has been recounted in Chapter 6. Description of commercially important shellfishes, with an account of life history and population characteristics forms the contents of Chapter 7. While an account on ecology, distribution and abundance of three species of shipworms, forming the borer fauna of Barnegat Bay, is presented in Chapter 8, an insight into the species composition, abundance, diversity and larval dynamics of the fouling community within the study area is provided in Chapter 9. Chapter 10 defines the community structure, seasonal patterns, reproductive characteristics and population trends of finfish communities, dominated by forage fishes and juveniles. An account of commercial and sport fisheries, mainly contributed by three species of finfishes and a species each of blue crab and hard clam, forms the contents of Chapter 11.

The complex interrelationships between producer, consumer and decomposer organisms—all the components of food web—and the energy pathways are presented in Chapter 12. Effects of human interference, through dredging, waste disposal and operation of nuclear power station, on the estuarine ecosystem of Barnegat Bay are recounted in Chapter 13. A resume of ecological treatment duly substantiated by logical conclusions, purported to serve as a model for future coastal zone management

programmes, forms the contents of Chapter 14. A bibliographic enumeration of more than 70 unpublished technical papers, theses and government reports pertaining to the study area is presented in Appendix A. Separate indexes for author, organism (scientific name) and subject are also included.

Though the contents of the monograph are basically

of regional importance, in no way does it devalue the merits of having wider application not only in the estuarine research but, particularly, in impact assessments and conservation of resources. It would certainly make a valuable acquisition for the libraries of colleges, research institutes and academies.

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