

M. Speight and P. Henderson: Marine ecology: concepts and applications

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This textbook is based on material used by the authors during their teaching of a marine ecology course to second- and third-year undergraduate students. The book is made up of ten chapters, an Appendix outlining ecological changes in the Hudson River ecosystem over several centuries (1600 to the present), an extensive and up-to-date reference list and an index, but the book lacks a glossary of terms. The failure of the authors to include a glossary is an unfortunate oversight, because several terms are not clearly defined the first time they are used; some terms will probably be unfamiliar to many undergraduate students, even if they have a basic grounding in biological sciences. An additional criticism might be that too many practical examples are sometimes given, meaning that it is occasionally difficult to pick up key information about concepts quickly and effectively. None the less, the overall structure of the book has been well thought out to provide students with a modern text that combines discussion of concepts with more descriptive passages. The sequencing of chapters is such that one leads logically to the next, and the writing style is generally crisp, compact and concise; senior undergraduate students with a good foundation in zoology, botany and ecology should not experience any great difficulties in comprehending the text. In addition, it is refreshing to come across a textbook that draws on examples from many regions of the world, rather than the more usual parochial selections from northern Europe or the Pacific and Atlantic coasts of USA; this should be good news for teachers and students from outside the confines of north-west Europe and North America.

As is the case with many other student texts covering marine biology and ecology, this book opens with a chapter that provides a brief introduction to oceanography, giving information about physical and chemical characteristics of marine environments that impact on living organisms: depth, pressure, light, temperature, salinity, ocean currents, tides, waves and so on. Most of this is relatively familiar fare, presented in a fairly standard format, but there is also focus on ideas developed since the turn of the century. The chapter includes citation of several recent works, especially a number relating to the possible influences of climate change on oceanographic processes. Marine biodiversity is the theme

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of chapter two, covering the interactions in time and space that have produced the species richness observed in marine ecosystems in different geographical regions. As such, the first two chapters of the book lay the foundation upon which the construction can be built storey for storey. The ground floor houses primary production and chemosynthesis, and then come the primary consumers—marine herbivores and detritivores—which, in turn, are followed by the predators, parasites and pathogens. Chapter six is devoted to a discussion of competition and succession, and chapter seven gives a presentation of the patterns of development of marine organisms, concentrating on dispersal and settlement. The final three chapters cover more controversial and applied aspects of marine biology and ecology; marine and estuarine fisheries, human threats to marine ecosystems and marine conservation. Some readers may feel that the omission of an in-depth discussion of the potential importance of the ‘microbial loop’ in energy flow within marine ecosystems is a major shortcoming in a modern textbook covering marine ecology; the term does not even appear in the index.

Moving on to consider technical presentation: The text has a quite good structure and is fairly easy to read. There are a few typographical errors, but these are not excessive. To give a couple of examples, I noted lava for larva on page 130 and conversation for conservation on page 203. Unfortunately, the presentation of the tables and figures is not of the same standard as the text. The layout of many of the tables is not ideal, and the use of a peculiar background colour scheme is a distraction. Many of the figures are good, but some are over-cluttered, others are more ornamental than illustrative, and a few contain mistakes. In addition, some table headings and figure legends are not as informative as they could be, and a few are either misleading or inconsistent with, for example incorrect information about symbols and colour codes. For example, does Figure 2.5 show species diversity, as indicated on the *Y*-axis of the graph, or the diversification of families, as stated in the figure legend? A couple of additional examples can be given. First, when introducing marine photosynthetic organisms on page 49, the authors refer to a non-existent figure (Figure 2.21b); readers with Sherlock Holmes instincts may come to the conclusion that it is probably Figure 1.22b that is meant. Secondly, in the discussion of mangroves on page 51, readers are directed to Figure 9.42 to see the conversion of mangrove forests to aquaculture ponds, but the figure is a map that gives an overview of worldwide coral bleaching; again by carrying out a bit of detective work readers can find the correct figure—Figure 9.33. These, and other minor glitches, detract somewhat from the overall impression of the book.

To summarise: this is a well organised, easily read text that provides a useful introduction to marine ecology for senior undergraduate students. It does have a few shortcomings, but teachers looking for an up-to-date text with a modern approach should, nevertheless, look at this book to see whether it meets their particular course needs.

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