



BOOK REVIEWS

Biogéographie des milieux aquatiques, Gabriel Rougerie, 1993. Paris: Armand Colin, 252p. \$CAN 68.40. ISBN 2-200-21477-4.

"Biogéographie des milieux aquatiques" is a book whose author, Gabriel Rougerie, honorary professor at Université Paris VII, is well known in his field. The book completes a series of three books published by the same editor. In the first one, entitled "Géographie de la Biosphère", the author presents the vegetation cover of emerged lands; in the second, entitled "Montagnes dans la Biosphère", he focuses on the problems posed by these geographical entities to the shifting of flora and fauna; in the present book, he completes his overview with all of the aquatic environments.

Generally, the book addresses the following overall difficulties encountered in the study of aquatic environments: (1) the tri-dimensional distribution of species, (2) food chains often little dependent on the substrate resources, (3) several environments varying from the smallest and most confined such as ponds, to the very large such as oceans and very elongated such as lakes and rivers.

After a foreword which places the reader in context, the book is divided in two parts. The first part (7 chapters), entitled "Le berceau dépassé" (The obsolete cradle) deals first with the history of the appearance of life, the liberation of certain species from water and the ecological structure of the oceans. It also deals with the differentiation of oceanic species according to their nutritional richness and their zonal location, *i.e.*, (1) the marine "deserts" of the Tropics, (2) the rich areas of the upwellings and ocean fronts, (3) the complex areas of the cold seas or those of the mid latitudes and even (4) of the abyssal zones which are little known. The second part (5 chapters), entitled "Les gradients de l'espace" (The gradients of space) deals with the water bodies near or in transition towards the terrestrial environment. The author discusses successively the basic characteristics of: (1) the inland seas such as the Black,

the Baltic and the Caspian Seas, (2) the so-called "stagnant water bodies" such as soft or salt water lakes, lagoons, ponds, and marsh environments, (3) water courses, estuaries and fjords and, finally, (4) the river areas, neither terrestrial nor aquatic. At the end of the book, the reader will find a glossary and a bibliography with international references cited in the text.

The book is well written, well printed in a soft cover binding, and the subject is complete and well structured. Unfortunately the editor places lists of contents and figures at the end of the book which is now obsolete. Another problem is that the references in the bibliography are regrouped not by chapter but thematically. This procedure is advantageous for those wishing to have an overall picture of a particular theme, but is quite impractical for those wishing to establish a rapid correspondence between the name of an author cited in the text and the description of a document mentioned in the bibliography. Also, figures are badly drawn even if they are clear and informative, and the chapters vary quite extensively in length, between 7 and 33 pages with an average of 18, and each is poorly illustrated with 3 or 4 tables or figures.

In spite of the later formal comments, the book is well worth its price for teachers and professionals, but is rather expensive for use by students.

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Oil Spill Response in the Marine Environment, J.W. Doerffer, 1992. New York: Pergamon, 391p. \$120.00. ISBN 0-08-04-1000-6.

While this welcome book covers the issues involved in oil spill response in the marine envi-

ronment in detail, it does so with high readability. Starting with the characteristics of oil and how it behaves when in contact with sea water, the book goes on to comprehensively discuss alternative systems for managing oil spills. Impacts of oil on the marine environment are well summarized through cataloguing its effects on fisheries, shellfish, mammals, birds, coral reefs, beaches, marshes, and mangroves. Examples are drawn from throughout the world.

Responses to oil spills in open waters are covered comprehensively by including natural biodegradation, chemical barriers, sinking agents and solvents, chemical dispersants, burning on site, mechanical containment via booms and skimmers, collection vessels and towed nets. Variations within these categories are described in detail both in process and application. Responses to oil spills on shorelines also are covered comprehensively to include discussions on shoreline sensitivity rating and clean-up via manual and mechanical methods. Handling and disposal of recovered oil and its contaminated materials and debris are covered as well. Planning for oil spill contingency and various monitoring and surveillance systems also are described. Finally, a discussion of international cooperation for oil spills is summarized.

While this book is thorough in its coverage, it lacks an integrated decision-making framework for deciding the most appropriate actions among the alternatives. A decision tree or flow chart would have enhanced the overall use of the book. As well, a chapter on expert systems and computer models would have been an important and useful addition.

This book succeeds in making a wealth of detail readable and uses excellent drawings to illustrate technical points. The large size print for so detailed a book is quite helpful in alleviating reader strain. The book blends well both technical detail and comprehensive coverage. No technical aspect of oil spill response is left untouched. Indeed, this book could well act as a technical manual for both planning and conducting oil spill response. The technical glossary, detailed reading list and index further enhance the book (although my book on managing oil blowouts in the North Sea is not included).

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The Sea Floor: An Introduction to Marine Geology, E. Seibold and W.H. Berger, 1993. New York: Springer Verlag, 356p. ISBN 3-540-56884-0.

This is the second edition of *The Sea Floor: An Introduction to Marine Geology*, written for those generally interested in the subject, or those with little background in the natural sciences. An introductory section to the text provides a concise overview of the pioneers of Marine Geology from John Murray, Alfred Wegener, Francis Shepard and Phillip Kuenen, to mention a few. Chapters one and two deal with the origin and morphology of the ocean basins and their margins respectively. Chapter three provides a well written and largely complete overview of the sources and composition of marine sediments, and in a logical follow on, Chapter four deals with the effects of waves and currents on sediment redistribution. In Chapter five, the processes responsible for, and magnitude of, sea-level change are presented since the early Paleocene, in addition to some discussion of the effects of sea-level change on the marine environment. Chapter six concentrates on productivity, benthic organisms, their distribution and activity and environmental reconstruction, followed by a discussion of climatic zonation in marine sediments in Chapter seven. Chapter eight presents a well written, although standard, overview of deep-sea sediments, processes of sedimentation and certain aspects of stratigraphy and dating. Chapter nine centers on reconstructing paleoclimates from the deep sea record. The main body of the text is brought to a close in Chapter ten with discussion of mineral resources from the ocean floor, waste disposal and pollution problems. A brief epilog identifies where marine geology has been and may well go in the near future. A very useful appendix contains such things as the geologic time scale, common rocks and minerals, radio isotopes and a list of common marine organisms.

Most readers will identify two broad themes that emerge from this text: First, the ever increasing interdisciplinary nature of marine geology including chemistry, physics, mathematics, astronomy, geography, geophysics, oceanography, meteorology and biology; and second, the dramatic advances in the discipline since the advent of plate tectonics, deep sea drilling and isotopic dating. As the authors suggest, perhaps the role of the marine geologist will take a new turn in the '90's