

All the reviews indicate exciting and fertile subject areas where rapid progress is being made. The increasing need to produce predictive models of shelf seas particularly for environmental quality purposes, e.g. the U.K.-inspired North Sea Project makes the review very timely and holds out the promise of further exciting developments in the near future.

I enjoyed reading *Baroclinic Processes on Continental Shelves*. It will be of considerable interest to graduate students and professional physical oceanographers and other scientists studying the continental shelf. For more traditional coastal workers the reviews of Simpson and James, Pettigrew and Murray, and Wiseman may prove of some interest.

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**Port and Ocean Engineering Under Arctic Conditions**, edited by W.M. Sackinger and M.O. Jeffries 1988, The Geophysical Institute, University of Alaska, Fairbanks, US \$95.00 (Hardbound) 737 pp. ISBN 0-015360-05-5.

This book is a compilation of papers written for and presented at POAC-87 (Port and Ocean Engineering Under Arctic Conditions). One hundred and twenty-two papers were presented at the 14 sessions, which included: Arctic Database; Ice Properties; Icebreaking Vessels; Ice Modelling; Arctic Port Design; Geotechnical; Ice-Structure Interaction; Ice Morphology; Ice Dynamics; Ice, Climate and Forecasting; Spray Ice; Remote Sensing; and two special symposia on Noise and Marine Mammals, and Steel/Concrete Composite Structural Systems.

Papers in this proceedings volume have gone through a peer review process and have been edited for conformity. Thus the volume holds together as a coherent work and is organized in a logical sequence. The papers are well presented, most contain illustrations of one sort or another, some are in color. An author list is provided but a subject index would have been useful as well.

Perusal of the table of contents indicates that the volume contains many papers that will be

of interest to engineers, geologists, geophysicists, and coastal specialists, among others. Coastal researchers will find especially interesting articles dealing with such topics as sea ice thickness, ice island movement, wave reflection from an ice edge, impact of ice loads on offshore structures, operational ice forecasting models, and so on.

For those interested in coastal Arctic conditions, this volume should be of general interest.

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**Seabird Ecology** by R. W. Furness and Patricia Monaghan, 1987. Blackie, Glasgow £9.95 ISBN 0-216-92087-6 (Hardback), 0-216-92088-4 (Pbk) 164pp.

This book is one of a well-known series *Tertiary Level Biology* aimed at providing a brief introduction for undergraduates. Although the book is short, 164 pages, it still manages to cover an impressive range of material, with an up-to-date bibliography of some 250 citations.

Seabirds are one of the major components of coastal food chains, moreover they represent an important link between land and saltwater ecologies. The role of seabirds in transporting nutrients across the shoreline, especially on cliffed coasts, is extremely important. Seabird populations, as this book shows, are a significant barometer of environmental stress, both from natural and man-made causes. Studies have shown that numbers have fluctuated in tune with, for example, fish stocks or the availability of breeding niches on high rise buildings. Some birds concentrate man-made toxins, thus providing evidence of trends in environmental health.

*Seabird Ecology* is a well-written account of all aspects of marine bird life, beginning with individual traits and habits, through colonial behaviour to environmental interactions. There is quite a lot of emphasis on nesting behaviour and territorial claims, ranging from penguins to herring gulls. The book moves on to consider seabirds and man, and the impacts that arise, including air strikes, disease spreading and fish predation. It becomes clear that many seabirds are opportunistic and have adapted readily to

the human environment. The welter of topics means that most are covered in little more than a page, but nonetheless arguments are coherently presented and adequately referenced. Only once or twice does the book waver, mainly when it tries to become too technical. Perhaps the clearest examples are the four pages devoted to 'simulation modelling,' which simply do not 'work.' I suspect the authors are trying to indicate where research was heading, a laudable enough aim in itself, but in a book of this length, an almost impossible task.

Overall this is an excellent introduction. The text is stylish, well-illustrated with diagrams, but sadly no map and only two photographs. However these are minor quibbles for the book is definitely value-for-money, and should sell well.

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**Coastal Environments**, by R.W.G. Carter, 1988. Academic Press, London, 617pp. £42 (Hardcover), ISBN 0-12-161855-2.

This book is an introduction to physical, ecological, and cultural systems of coastlines. It is organized into 14 chapters that span the gamut from coastal processes (morphodynamics), effects of sea-level changes on the shoreline, to various aspects of coastal management including hazard mitigation. The overall plan or sequential organization follows a logical sequence that leads the reader from basic definitions and concepts through processes that are typical of certain types of coastal environments. The last couple hundred pages are devoted to coastal management. The framework here, again, proceeds nicely from reviews of human activities along the coast to discussions of human impacts on shorelines as well as providing ample consideration of the effects of natural coastal processes on coastal developments. For those interested in the general layout, topical matters are specifically grouped into the following chapters: Introduction, Waves and Wave-Dominated Coasts, Shoreline Morphodynamics, Tidal and Lake Coasts, Long-Term Develop-

ment of Coasts, Sea-Level Changes, Sub-Tidal and Beach Ecosystems, Coastal Dunes, Coastal Wetlands, Structures and Organization, The Management of Coastal Waters, Management of Coastal Lands and Sediments, Management of Coastal Ecosystems, and Coastal Hazards.

It is indeed a welcome relief to find a textbook that deals with such a broad spectrum of topics related to coastal environments and yet which retains sufficient detail to provide the student with much needed insight into the workings of natural environments as well as the possibilities for rational management of some coastal systems. Carter carefully documents various aspects of shoreline management, particularly the management of coastal (biophysical) resources. Beach nourishment (*i.e.* artificial renourishment) and coastal engineering works (*i.e.* breakwaters, groins, jetties, *etc.*) are, for example, discussed in terms of beneficial and unwanted effects. As with so many things in life, coastal management is a trade off. Although it is hoped that the benefits of a particular management procedure outweigh the down side, serious unwanted effects often occur. This book does not skirt the issues but faces them head-on, discussing the various options in a useful and productive manner. Students will come to appreciate the balanced views presented here where both sides of an issue receive equal time.

As an introductory text, this book is highly recommended. Because of its scope and orientation, the text will be admirably suited to a variety of courses ranging from coastal geology to various management-related themes. Although originally designed to fill a need for an upper division course at the University of Ulster, the text will no doubt find application at the post-graduate level, particularly in North America where increasing numbers of students are specializing in "coastal" science-management courses. In addition to qualities already highlighted, the author is commended for providing such an extensive bibliography. The list would have been much more useful, however, if the titles of articles in journals could have been provided. The savings in space is minimal and the publisher ended up with a couple of blank pages at the end of the book anyway. Also, the index is rather slim for a text of this sort; a more detailed and comprehensive index would