



BOOK REVIEWS

Baroclinic Processes on Continental Shelves, edited by Christopher N.K. Mooers, 1986. American Geophysical Union, Washington, D.C. 130p. ISBN 0-87590-252-9.

This is the third in the American Geophysical Union Monograph Series on Coastal and Estuarine Regimes. It contains seven reviews which collectively cover most of the physical processes occurring on the continental shelves:

- (1) Coastal Trapped Waves by J.M. Huthnance, L.A. Mysak and D.P. Wang.
- (2) Internal Tides, Internal Waves and Near Inertial Motions by P.G. Baines.
- (3) Shelf Break Circulation Processes by John A. Johnson and Nicole Rockliff.
- (4) Coastal and Estuarine Fronts by J.H. Simpson and I.D. Jones.
- (5) The Coastal Boundary Layer and Inner Shelf by N.R. Pettigrew and S.P. Murray.
- (6) Estuarine-Shelf Interactions by W.J. Wiseman, Jr.
- (7) Processes That Affect Stratification in Shelf Waters by Larry P. Atkinson and Jackson O. Blarton.

The reviews are written very much for physical oceanographers. In some cases the theoretical background is quite technical and people without some knowledge of physical oceanography might have difficulty. However, each review also considers observational data and their relationship with the theory. The reviews are all concise and have been well edited so that they complement each other with very little repetition. Each review (with the exception of Atkinson and Blarton) is followed by a substantial list of references which should provide the necessary background to investigate further in any particular subject area. Field observations are taken from around the world, but there is, not surprisingly, a weight of examples from around the U.S.A.

I feel that Huthnance *et al.* rather overstress the theoretical background of trapped coastal waves at the expense of a discussion of observational data and the role of these very long (in time and distance) waves in shelf processes. However, it was interesting to note that a shelf wave was observed (although not correctly interpreted) as early as 1665! Baines provides a balanced account of internal tides, internal waves and near-inertial motions, including a compilation of observations of internal tides on the continental shelf. Johnson and Rockliff provide a very interesting account of shelf break circulation processes with examples from around the world. They then consider the different types of model which simulate these processes and examine possible improvements. The account on coastal and estuarine fronts by Simpson and James follows a similar pattern. I found this the most enjoyable review of the seven. It is very well written and considers the influence of frontal processes on other aspects of oceanography such as biological productivity. It is also well illustrated including a number of satellite images and photographs of fronts. Pettigrew and Murray consider the coastal boundary layer drawing on examples from the Great Lakes and the U.S.A. shelf. They present a good account of the influence of a shallow coastal boundary on circulation patterns in the adjacent shelf. Wiseman reviews estuarine-shelf interactions at subtidal timescales drawing attention to the importance of plumes. This review is the shortest in the book (5 pages) and notably contains no equations. Finally Atkinson and Blarton consider stratification in shelf waters taking as an example the South Atlantic Bight between Cape Hatteras and Cape Canaveral U.S.A. Their interesting account appears to contain a lot of new results and considers an energy budget of processes creating and destroying stratification.

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