coastal geomorphologists to browse through it. It should prove more beneficial to coastal students than any number of lectures! To conclude, two points to ponder on: is this the publication path that coastal scientists need to follow in order to publicize their work to the world at large? Secondly, coming from a cool temperate climate, the image of several meters of effective rainfall being washed into the cliffs from suburban garden hoses, is one that will remain with me for a long time!

Julian Orford
Queen's University
Belfast, Ireland

Sea Bed Mechanics, by J.F.A. Sleath, 1984, Wiley-Interscience, New York, 335p. £46.00, ISBN 0-471-89091-X.

John Sleath's new book aims, in the author's own words, to 'study various aspects of the flow near the sea bed: the currents that carry pollutants from one place to another, the dissipation of wave energy, the formation of ripples and dunes, the transport of sediment.' Apart from chapter three on Sediment Properties the remaining five chapters are divided into three sections: Waves Alone, Steady Currents, and Combined Waves and Currents. This approach is rigorously maintained and provides an effective framework for the detailed material.

The first chapter, Basic Wave and Current Theory, briefly deals with choice of wave theory followed by more detailed sections on small amplitude, shallow water, rotational, and numerical solutions. Each section describes the assumption and then quotes formulae for the most useful wave parameters. These formulae are not derived and rarely referenced so that the reader must trust the author and his proof reading. Edge, internal, and breaking waves are treated in a similar manner followed by the wave-induced longshore currents. The second part of this chapter presents a concise summary of standard boundary layer theory with a very brief outline of tidal and ocean currents and the effects of combined flows.

Chapter two, Fluid Velocities and Pressure Near and in the Sea Bed, presents a detailed and up-to-date summary of laminar, transitional and turbulent boundary layers beneath waves, followed by a page on unidirectional boundary layers and a slightly longer section on combined boundary layers. Chapter three, Sediment Properties, provides a brief summary of standard material on grain size, shape, density, repose, and permeability together with the detail on fall velocities which is required for the sediment transport chapter later in the book.

Chapter four, Bedforms, deals firstly with the qualitative and quantitative description of wave-generated rolling grain and vortex ripples and some of the theories of ripple generation. The standard empirical and quasi-theoretical formulae which describe the full range of unidirectional bedforms are presented, but it is perhaps a pity that the author does not relate the bedforms to their role as roughness elements in preparation for the following chapter. Two pages describe the effect of combined flows on bedform geometry.

Chapter five, Bed Friction, Energy Dissipation, Forces on Bodies on or Near the Bed, is the longest in the book and is again highly abbreviated, yet fairly comprehensive and up-to-date. Formulae are presented which deal with the various forms of wave and current attenuation due to frictional drag and with the lift and drag forces on cylinders and spheres.

Chapter six, Sediment Transport, presents a wide range of formulae for the initiation and bedload and suspended load transport rates of sediment beneath, first, waves, then unidirectional currents and, finally, beneath combined waves and currents. Here, as elsewhere in the book, the author has cleverly re-arranged and tabulated the formulae to express the results in terms of comparable parameters. For example the twenty bedload formulae which are listed in Table 6.1 generally use a mean and critical flow, or discharge or shear stress. The reader may then easily compare the form of the solutions, but is given little guidance as to their respective predictive capabilities.

In conclusion this review must address two questions. Firstly does the book achieve its stated aim and secondly can it be recommended for this or other reasons. I feel that the answer to the first question must be no, because a study of even this limited number of aspects of the benthic boundary layer deserves and requires a much longer book. Such a volume does not, of course, exist and in that sense *Sea Bed Mechanics* comes top of a class of one. The answer to the second question must however, be a strong "yes." This is not a teaching text but many engineers and research scientists require access to a comprehensive list of formulae dealing with these aspects of hydro- and sediment dynamics. If the reader accepts the rigidly structured framework, the bland quotation of equations and

the farily terse explanations then the book fulfils that role. It is the marine equivalent to Yalin or Raudkivi and I found *Sea Bed Mechanics* more comprehensive and more comprehensible than either of those.

J. Hardisty
Royal Holloway & Bedford New College
Londin University
Egham, England

Living With the South Carolina Shore, by William J. Neal, W. Carlyle Blakeney, Jr., Orrin H. Pilkey, Jr., and Orrin H. Pilkey, Sr., 1984, Duke University Press, Durham, N.C., 224p. Cloth, $22.75, ISBN 0-8223-0522-4, Paper, $9.95, ISBN 0-8223-0524-0.

This book is part of the *Living With the Shore* series, which describes U.S. coastal erosion problems on a state-by-state basis. Titles in the series, edited by Orrin H. Pilkey, Jr. and William J. Neal, now cover the entire Gulf coast, much of the Atlantic coast from Long Island southward, and the California shoreline. These books might best be termed "user's guides to the coast," because they focus on practical information that can — and should — be applied by the individuals, corporations, planning boards, and governing bodies involved in using or regulating use of the coast. The books are written in nontechnical language and are aimed at a wide audience including coastal developers and seasonal and year-round residents of barrier islands.

The stated objective of the South Carolina volume is "to increase the reader's awareness of how barrier islands and beaches operate . . . what kinds of hazards are faced by coastal dwellers and property owners, and how to reduce the impacts of those hazards if you are already in such a zone." After a brief introduction to the history of development and storm damage on the South Carolina shore, Neal *et al.* give a basic explanation of barrier island geomorphology and barrier migration, emphasizing the concept of beaches in dynamic equilibrium. Subsequent chapters treat coastal engineering, selecting a site on the South Carolina shore, state and federal programs to manage and regulate coastal land use, and storm-resistant housing designs. Appendices include a hurricane checklist to guide coastal residents, a list of agencies involved in coastal development, and an annotated reference list.

The authors' success in meeting their objectives is evident in the easy-to-comprehend presentation of technical material and the wealth of specific information about the South Carolina shore. Individual island analyses in the chapter on site selection provide large-scale maps of the state's coastline that delineate risk levels and coastal hazards such as flooding potential, erosion history, overwash potential, inlet migration, and possible evacuation problems. These maps, along with numerous line drawings and black-and-white photos, are well-executed and make the text far more understandable to the layman.

Living With the South Carolina Shore and its companion volumes are essential reading for those who contemplate moving to or building on the shore. These books could also be employed as supplementary texts for upper-level classes in coastal management and related disciplines. Wider awareness of the hazards inherent in coastal development will lead to wiser development and, hence, less panic and less damage when the U.S. experiences another active hurricane such as 1985.

Jacob H. Kahn
Morgantown, West Virginia

Neptune's Revenge: The Ocean of Tomorrow, by Anne W. Simon, 1984, Franklin Watts, New York, 222p. $15.95, ISBN 0-531-099761-7.

Ms Simon's book is written in the breathless style of a committed environmentalist. She cuts an elegant swathe through many of the contemporary environmental problems affecting our oceans and coasts — overfishing, oil spills, pollution absorption and so forth. The book has the same spirit and thrust as Rachael Carson's *Silent Spring* did 30 years ago, although the impact today seems much reduced. This may be because we have become more cynical about the environment, or we have become buffered against repeated eco-shocks. This *genre* of book seems very dated; certainly the great upsurge in interest by the Media tends to mitigate against this type of work. More's the pity.

The book divides into two. The first half summarizes many of the problems facing coast and ocean communities, their planners and their decision-makers and -takers. The main theme is the imprudent use of resources, and the author provides summaries of many of the more extreme examples — the collapse of the pelagic fishing industry, the