

**Coastal-Offshore Ecosystem Interactions**, Bengt-Owe Jansson, 1987, Lecture Notes in Coastal and Estuarine Studies Number 22, Springer-Verlag, Berlin, 367p. DM69.00, ISBN 3-540-19051-1.

This book comprises a series of reviews based on the proceedings of a symposium sponsored by SCOR, UNESCO and other organizations and held in San Francisco during April 1986. Most of the 15 contributions take the form of review papers, three covering hydrology and water exchange between coastal and off-shore regions, eight covering mass balance studies, three dealing with active transport by nekton, and one covering numerical modelling. In addition to this there is a general introduction and final synthesis at the end. Some chapters lack abstracts but typographical and other errors are few and generally the book is well edited. Most of the reviews are extremely good and provide thorough and thoughtful coverage of their specific fields. Several are based on Europe and the North Sea area, but there are also contributions from the United States and elsewhere.

The paper on numerical modelling by Uncles is specialized and too detailed for the average coastal ecologist. Uncles concludes that estuarine applications that fixed element, tidally-averaged models are most suitable for coupling hydrodynamic and ecological data. Most of the other papers are of general interest. Those on water exchange provide a sound basis for the remainder of the book. A lengthy paper on water exchange in shallow coastal systems by Dronkers is perhaps the most useful of these, but the other two, dealing with narrow shelves and remote sensing, techniques are both sound.

The reviews in the mass balance section, with estimates of inputs and outputs and carbon and nitrogen budgets for a variety of coastal systems and their interactions with the ocean, are particularly good. They include papers by Hopkinson on salt marshes, Twilley on mangroves, Postma on tidal flats, Smith on coral reefs, Pearson on fjords and Gearling on the use of stable isotope ratios for tracing the exchange of organic material of different origins.

Papers on active transport are less central to the theme of the book, but nevertheless interesting. They deal with the on-offshore migrations of fishes and crustaceans coupled to life cycle patterns and possible utilization of coastal nursery areas. The paper by Zijlstra on fish migration is the most valuable contribution, even-though it concludes that transport of liv-

ing matter by fish is unimportant in comparison to transport by physical processes.

Although a wide variety of evidence and ideas are raised, the general conclusion from these collected reviews seems to be that outwelling from coastal regions is insignificant except in localized areas. Rather coastal systems are envisaged as being largely self-contained with recycling generally more important than inputs. The value of coastal areas as nursery grounds for certain species is also stressed, but not exaggerated. Recommendations for future research include studies on frontal structures, turbulent exchange, terrigenous inputs, export from salt marshes and larval transport. Subjects not covered include surf zones and wave driven mixing on high energy coasts, kelp beds and zooplankton exchanges.

These reviews should be of general interest to marine ecologists. For the coastal marine ecologist specialising in hydrological transport mechanisms, carbon and nitrogen fluxes and interactions with between ecosystems, especially estuaries, the book will be worth getting.

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**Coral Reef Geomorphology**, Andre Guilcher, 1988. Wiley, Chichester, 228p., £32.95, ISBN 0-471-91755-9.

It was the English version of Andre Guilcher's *Coastal and Submarine Morphology* (1958) which first aroused this reviewer's interest in coastal geomorphology in the late 1950s. It included a short section on coral reefs and subsequently Guilcher has produced a succession of papers on reef morphology, mostly in French, from a wide area of the tropical seas. I therefore looked forward to reading his new coral reef text, the first in a Coastal Morphology and Research series edited by Eric Bird which the Foreword states "is to present up-to-date accounts of coastal topics especially those on which there is a substantial literature published in languages other than English." The level at which this series is directed is not stated but the impression from this production would be an early university teaching level.

After a short introduction there are five chapters: (1) Distribution and ecology; (2) Surface features; (3) Origin; (4) Types of reef; and (5) Reef and man. This is a logical progression but