

slightly from the generally high quality production. Figure captions are commonly incomplete so that the reader must search back through the text in order to understand the symbols or graphics depicted in the figure. No separate list of symbols exists to help decipher the equations. Aside from that minor frustration, I found the book easy reading, well referenced and the Environmental Problems: Case Histories presented in the implications/applications section have provided me with an excellent source of teaching examples.

This book is a necessary library addition for earth scientists working in modern environments.

Gail M. Ashley  
Department of Geological Sciences  
Rutgers University  
New Brunswick, NJ 08903 USA

**Hydrodynamics and Sediment Dynamics of Tidal Inlets**, Aubrey, D.G. and Weishar, L., 1988, Springer-Verlag, Berlin. DM 88.00, 456p., ISBN 3-540-96888-1.

The volume contains 23 papers presented at the International Symposium on Hydrodynamics and Sediment Dynamics of Tidal Inlets, held at Woods Hole in December 1986. With the exception of two Canadian contributions, all papers deal with examples from the US east coast. About half the volume (ten papers) is devoted to hydrological models, the rest to sediment dynamics. Both principal sections of the book begin with introductory chapters by van de Kreeke (Hydrodynamics of Tidal Inlets) and FitzGerald (Shoreline Erosional-Depositional Processes Associated with Tidal Inlets), which make it easier but not easy for the reader to understand the following state-of-the-art contributions. This is no book for the beginner.

The hydrodynamic section is largely devoted to modeling of tidal processes. This is also true of the second group of papers where under the heading of 'Observations of Tidal Inlet Hydrodynamics' field observations are used to test the respective models. As shown in the papers by Swain (Port of Miami), Rainey (Sikes Cut, Florida) and Rao Vemulakonda *et al.* (Oregon Inlet, North Carolina) the models can be applied to solve coastal engineering problems—apparently with great success.

In the sediment dynamics section the formu-

lae are replaced by measurements and observations. The topics range from the development of flood tidal deltas (Stauble *et al.*) and ebb tidal deltas (Reynolds) to suspended sediment flux and salinity changes in the Upper St. Lawrence Estuary over a tidal cycle (Hamblin *et al.*). Giese gives a valuable insight into the coastal morphodynamics on southeastern Cape Cod. However, the period of observation (charts are available since 1772) seems a bit short to demonstrate cyclical behaviour at a 150-year period.

Sediment trapping by dredging of tidal inlets is an interesting aspect of barrier behaviour, largely neglected so far. Marino and Mehta have come to the conclusion that from the  $420 \times 10^6 \text{ m}^3$  of sand trapped in ebb tidal deltas at Florida's east coast,  $282 \times 10^6 \text{ m}^3$  result from the artificial opening of new inlets and construction of jetties at the mouth of existing ones.

One of the most interesting aspects touched by various contributors deals with the effects of coastal engineering measures. Amongst other topics, Drapeau deals with the stability of dredge spoil islands and adjacent navigation channels in tidal inlets, and Hansen and Knowles point out the influence of jetty construction on ebb tidal deltas (change from tidal dominance to wave dominance, landward migration of swash bars, ebb-tidal delta elimination). Kana and Mason discuss the consequences of an inlet relocation in South Carolina, and Nordstrom demonstrates the influence of shore protection and dredging on neighbouring beaches.

Of course, there are many more aspects dealt with. Most of the papers are beautifully illustrated, and only occasionally some minor inaccuracies occur. A brief index is provided, restricted largely to place names. The book will be of great use for people involved in coastal research, especially for those dealing with applied work, either modelling the hydrodynamic response or calculating the morphological changes and impact on the sedimentary budget coast by coastal engineering in and around tidal inlets.

Jürgen Ehlers  
Geologisches Landesamt  
Oberstrasse 88  
D-2000 Hamburg 13  
West Germany