Journal of Sedimentary Research
An International Journal of SEPM
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Review accepted 10 December 2006

High Resolution Morphodynamics and Sedimentary Evolution of Estuaries (Coastal Systems and Continental Margins, Vol. 8), edited by Duncan M. FitzGerald & Jasper Knight, 2005. Springer, Tiergartenstrasse 17, D-69121 Heidelberg, Germany. Hardcover, 364 pages. Price USD 169.00. ISBN 1-4020-3295-1.

From fifteen case studies, this book revisits the definition of estuaries as sediment traps, with sediment importing both from the sea and from the rivers. It is proposed that the trap is leaky because large river floods export sediment offshore. Being based in the U.S.A. and the U.K., the two editors brought a wealth of knowledge from both sides of the Atlantic. For the rest of the world, there is only one paper. The selection of the papers thus cuts off much knowledge from the rest of the world on a number of relevant processes that impact the degree of leakiness of estuaries, such as tropical cyclones (hurricanes) and damming. The reader is left a bit puzzled at the lack of synthesis; indeed, there is no final synthesis chapter. There is no cross referencing between the chapters that would help the reader synthesizing the knowledge. Thus, the book reads unfortunately like a glorified conference proceedings, although it must be stressed that it contains a wealth of information on specific estuaries.

Three themes emerge: (1) Remote sensing and geophysical techniques (3 papers); (2) Within estuaries sediment dynamics and fluxes (5 papers); (3) Multiscale morphodynamics. A most valuable lesson arises, namely the transient nature of estuaries—most commonly estuaries are in a transient mode recovering from the last major flood or the last storm at sea that breached a spit, or adjusting to human impacts such as land clearing, dredging, reclamation, port structures, and jetties to stabilize the mouth.

The book demonstrates well through case studies a number of key techniques to (1) measure sediment fluxes - this is most difficult for non-cohesive sediment; (2) quantify land-cover changes; and (3) estimate the evolution of estuaries as a function of the oceanography (tidal dynamics and cold fronts) and the hydrology (floods and freshets). The scientific quality of all the papers is good to excellent; the editors did an excellent job there. It is a very useful book on case studies in modern marine geology.

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