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Review: Biogeochemistry of Gulf of Mexico Estuaries by T.S. Bianchi, J.R. Pennock, and R.R. Twilley

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BOOK REVIEW

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Biogeochemistry of Gulf of Mexico Estuaries. 1999. T. S. Bianchi, J. R. Pennock, and R. R. Twilley (eds.), John Wiley and Sons, New York. 428 p.

In the last few years, I've come to believe that there is a new rule in the sciences that states that for every meeting or workshop, no matter how large or how small, there has to be some equally large or small book published, even if the people associated with the meeting don't want to produce a book. I have to admit that when I heard of this book, my first thought was that the new science rule was in effect again, this time striking some experienced research people in the Gulf of Mexico region. After looking this book over and reading portions in detail, I was pleased to find that this is not the case. Virtually every chapter is worth having on the bookshelf, and I think this book will be opened often and become a valued reference source.

The editors state in the preface that Gulf estuaries are diverse, interesting, and important ecological systems that, compared to more temperate systems, have been little studied until recently. This book was written because no current literature provides a comprehensive assessment of biogeochemical processes in these systems. The main objective of the book is to provide such a comprehensive overview of the biogeochemistry and the factors controlling these processes in the Gulf region. I think the editors and authors have largely accomplished this objective. In fact, as I was reading through some chapters, it occurred to me that a companion book that treats the upper trophic levels (e.g., zooplankton, benthos, and fish) would also be a useful contribution. It is a difficult task to fashion a book that is reasonably comprehensive while avoiding superficiality in the process of treating a range of subjects.

The book is presented in five logical sections, and all but the last two sections have two to four chapters. The book starts with a Physical Characteristics section, which includes the expected chapters concerning geology and sedimentary processes. An unusual, but very

welcome, twist in a book of this ilk is a chapter concerning hydrography, mixing, and residence times. The coupling of physics and estuarine processes is often talked about, hands are waved, and we all agree that it is very important, but it seems to me a rare event when someone actually does something about it. The estimates of residence times and the like contained in this chapter could nicely facilitate some broader studies of comparative estuarine ecology to the benefit of us all. The second section discusses nutrient dynamics in four chapters and may be the strongest section of the book . . . or perhaps I found this the most interesting only because I've been involved in these sorts of studies. Again, there is more to these chapters than just summaries of data (which are very nice); several authors made the leap to some syntheses and comparisons to non-Gulf systems. I spent less time reading the sections concerned with organic matter cycling (two chapters) and with trace element/organic cycling (three chapters), but these were rich in summary tables, figures, and analyses. I found the final section (Summary/Management) weak, almost as if the editors were tired and needed to get this book done and to the printers. Certainly all those involved with the day-to-day and decade-to-decade management of these ecosystems would argue that management deserves more space and thought. However, this is hardly a major flaw; there are many other good things between the covers.

The book chapters appear to be well referenced and provide a good starting point for those not familiar with Gulf ecosystems. Tables and figures are nicely done and very legible. Most chapter authors used a map showing the location of all the Gulf estuaries considered in the book (39 in all), which helps the chapters to stand alone and emphasizes the comprehensive intent of the book. Finally, I agree with the editors that this book is a substantial reference and could readily be used in graduate and advanced undergraduate courses.

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