In January 1990, 567,000 gallon of No. 2 fuel oil appeared on the surface of the Arthur Kill, New York Harbor. Since the spill involved more than 10,000 gallons, it was considered by the United States Coast Guard to be a major incident. Because of the concentration of oil-related industries and storage facilities in the region, the authors' note oil pollution is a continuous problem. Approximately 18 billion gallons of oil arrive in the harbor annually via barges and more than 1,700 oil tankers. Consequently, spills are common but they are usually small, contained, and go unnoticed. However, the Arthur Kill incident was the largest single event to affect the Arthur Kill region. Even so, with the large quantity of mineral fluids moving through the area's waterways one would expect all parties responsible for reacting to an oil spill to be prepared. One important point made in this book is that intrastate jurisdiction can cause administration problems that delay the deployment of the people required to respond properly to a spill. As a result, cleanup and damage assessment were hampered initially by the number of state agencies (from New York and New Jersey), federal agencies, and private organizations involved. With time, cooperation did prevail.

This book is a collaborative effort involving 11 contributors (John N. Brzorad, Joanna Burger, Angela Cristini, Keith R. Cooper, Lynne Frink, Michael Gochfeld, Romona Haebler, Paul M. Hauge, Gordon J. Johnson, Alan D. Maccarone, Katharine C. Parsons, Carolyn Summers, and Robert K. Tucker) who worked directly or indirectly on mitigating the Arthur Kill incident. While the volume does contain considerable information on ecosystems and their dynamics, the editor does not overlook public policy, the law, government cooperation, and a number of important people/cultural matters as well. This is refreshing, since socioeconomic considerations are often overlooked.

The book has eighteen chapters divided into three themes (Responses and Cleanup, Biological Effects, and Conclusions). In general, all chapters are well written and organized around general topics before addressing specific points and/or problems. This approach provides the reader with good background information that helps understand the principal topic. Further, each contributor tries to note the important problems and concerns associated with his or her chapter. One of the book's strong points is its bibliography. There are more than 30 pages devoted to references.

Although the Arthur Kill event serves as the book's focus, many contributors digress. They, in fact, address numerous issues/problems/questions that are more general than specific. Therefore, if a reader intends to purchase this book just to learn about the Arthur Kill oil spill, they may be disappointed. Several chapters deal with important subjects, but they are only marginally related to the Arthur Kill incident. These chapters serve, however, as reminders to significant general concerns and the authors do a good job discussing these non-Arthur-Kill related themes.

An important underlying thesis is that this incident can provide valuable information on how to best organize before and after an oil spill to maximize the cleanup, damage assessment, biological monitoring, and subsequent rehabilitation efforts. As is often the case, in order to accomplish these goals there must be a long-term commitment to the research involved. Follow-up studies are hard to fund. The contributors regard this as a problem that needs to be addressed systematically. Regardless, it is a good book and while one may be a bit disappointed by the extraneous material not related directly to the Arthur Kill incident, it can serve as an important manual for documenting this spill and understanding all of the various elements that surface when one has to respond to a disaster involving oil, water, marsh, birds, mammals, and human kind.

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Physical Models and Laboratory Techniques in Coastal Engineering, S. A. Hughes, 1993. 568p.

This text is the outgrowth of course notes on physical modeling prepared by the author as an instructor for the U.S. Army Engineer Waterways Experiment Station's Graduate Institute. Although written for graduate level instruction, it is enjoyable and informative reading for engineers and scientists with a background in fluid mechanics and wave mechanics.

The book addresses the art and science of laboratory physical modeling applied to real problems in coastal engineering. Developed from more than 360 references in the coastal engineering literature, the text summarizes and interprets 60 years of knowledge evolved from physical modeling efforts worldwide. Divided into eight chapters and two appendices, the volume describes the physical and mathematical basis of coastal hydraulic models and discusses specific requirements for modeling coastal hydrodynamics, nearshore structures, movable-bed models, wave generation and instrumentation.

Chapter 1 presents a brief historical perspective of hydraulic modeling along with some modeling philosophy and definitions. Dimensional analysis is developed in Chapter 2 with identification of important dimensionless products in fluid mechanics. Similitude principles are discussed in Chapter 3, separating geometric, kinematic and dynamic considerations applied to hydraulic models. Fixed-bed hydrodynamic models are separated into short wave and long wave models in Chapter 4. Scaling requirements are derived from the equations of motion and mass conservation. Geometric distortion and scale effects are discussed. Chapter 5 is devoted to physical modeling of coastal structures. Rigid, compliant and rubble structures are considered with attention directed to scale selection and model verification. Movable-bed modeling is presented in Chapter 6 with separate discussions for bed load and suspended load models. The difficulties associated with these models are addressed. Distorted model interpretations and scale effects are discussed. Linear and finite amplitude wave generation algorithms are derived and presented in Chapter 7. Piston, hinge and variable draft wave makers are discussed. Regular, irregular and directional wave generation methods are covered in the discussion. This chapter incorporates the most detailed description of hydrodynamic control in the text. The final chapter, Chapter 8, is devoted to measurement methods for wave profiles, local velocity, force, mass transport and boundary location. Data analysis procedures, including those required for reflected wave evaluation, are summarized.

The narrative is modestly illustrated with 36 figures, 12 tables and 34 example problems. The print and illustrations are not of the quality found in many contemporary fluid mechanics texts, nevertheless, this is not a serious distraction from the highly useful information conveyed by the author. The strength of this book is the identification of similitude requirements, in terms of relevant dimensionless products, for a variety of modeled coastal phenomena. Where complete similitude cannot be achieved, scale effects are identified and mitigation efforts are presented. This is a valuable source of information for physical modelers and for those who are dependent upon model results generated by others. It is an excellent graduate level text for coastal engineering students and an important resource for those who find computational models and field experiments inadequate to their needs.

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Coastal Stabilization; Innovative Concepts, Richard Silvester and John R. C. Hsu, 1993. Englewood Cliffs, New Jersey: Prentice Hall, 578p. ISBN 0-13-140310-9 ($US96.00).

In its preface, the authors state that the book aims to summarize and present theory, physical models and sedimentary problems in a form useful for design engineers—with selections from both mathematical theory and descriptive accounts of nature. Unfortunately, the book falls short of the authors' admittedly lofty goal. The mathematical result of many theories are presented (some quite sophisticated) with little description as to their origin or limitations. Other important theories relevant to sediment transport are not mentioned. There is insufficient linkage between the theories and the natural-world examples and the design aspects of the book. Both the examples and design aspects are almost completely limited to crenulate and headland-dominated shorelines. The book offers 10 chapters (each with a list of references), an appendix and an index. The chapters are addressed individually below.

Chapter 1 introduces the concept of "static equilibrium" (which is given much credit). The authors note only weakly that this state of equilibrium is found only in pocket bays or along nonsedimentary coasts. Likewise, the authors fail to note that imitating nature in this regard by building structures to create pocket bays can result in adverse impacts to adjacent shorelines if the structures' barriers effects are not eliminated nor mitigated through advance nourishment.