

Preface to 2nd Edition

What can I say now? The hope expressed in the preface to the 1st Edition — that this work finds its way to the bookshelves of practitioners, as a basic reference — has happened. Further, the book has been adopted as a text for coastal students around the world. I am very thankful for these two very positive responses to this work. The knowledge that the contents of this book are so valued is my reward and it is the impetus to publish this update.

Much has happened since the 1st Edition was printed in 2000. Most notable are:

Gigantic natural disasters, such as the Indian Ocean Tsunami of 2004 and the cyclone-generated storm surge devastations in Bangladesh (2007), Myanmar (2008) and New Orleans (2005) have taught us much about failure and that contemporary design must include failure, resilience and adaptive strategies.

We have also begun to realize that global climate change will radically alter coastal design and management practice.

The coastal system to be considered in coastal design and management has also been radically altered. We no longer simply design structures for protection, but we must now consider coastal systems that consist of the physical/environmental subsystem that must be supported by the socio/economic subsystem.

These three items constitute the main topics of expansion in this 2nd Edition. I thank all who inspired me on these three new topics through discussion of my papers and presentations on these subjects.

I sincerely hope that this book will be a tool to help you understand the basics of coastal engineering and management as well as the three difficult contemporary topics: failure and adaptation, the impacts of climate change and the contemporary system.

Kingston, January 2010.

Preface to 1st Edition

What can I say? This book is really not about facts and formulas. It is about learning and understanding. It is about diligence and care, about stewardship of a precious resource. It was essentially 32 years in the making. It was developed from lecture notes for an introductory course and its stated purpose is *to bridge the gap* between an eager student who knows nothing about coastal engineering and management, and the available literature. My hope is that this book also finds its way on the bookshelves of the practitioners, as a handy reference to those “first things we all need to know”.

This book distils things I learned from my professors, from reading, from interacting with colleagues, from practicing all over the world, from listening to stories, and from questions, comments and remarks of my students. My students asked me to write this book — that’s why it’s here.

My thanks to all who inspired me. My thanks also to the many who helped me — in particular: Mohamed Dabees, Steve Hughes, Tim Janssen, Han Ligteringen, Laura McHardy, Vicki Mitchell, Karim Rakha and Cathy Wagar. Without Queen’s University and its Civil Engineering Department, this book would not have become reality. There I first learned the trade, particularly from Arthur Brebner and Bernard Le Méhauté and later Queen’s paid me for the privilege to teach so many for so many years. I am also indebted to Delft University of Technology and Delft Hydraulics Laboratory who hosted me at the times that I needed to be away to write this book. I thank the National Sciences and

Engineering Research Council of Canada for their continuous research support. And I thank my wife, Nelly, who provided the space and support for me to do this.

This book is about strategy, tactics and philosophy. It is not only about how we should design and manage, but also about design and management itself. It is also about enjoyment. Coastal problems are very complex. They allow us to put together elements of physics, oceanography, geology, geotechnical and structural design, and resource management. In the process, we rub shoulders with experts in each of these areas, and with biologists, chemists and environmentalists. We must also be familiar with the economic, legal and political frameworks, within which we practice. Because our art is young, we still approach our task with only a few rules. We have no coastal engineering design code. We have no precedents in our coastal management tasks. That means challenge, thinking, innovation and unfortunately it may mean mistakes. I enjoy such a challenge, I hope you do.

There is much to do. People still die because of natural disasters. Much of the coastal work to date has been ill-conceived, ill-designed or poorly constructed and needs to be redone. We are faced with the largest migration of people in history. This migration has become a true invasion of the coast, putting tremendous pressure on a scarce natural resource. We are dealing with a mega shift in priorities as we convert industrial areas, rail yards and loading docks of the previous era into residential and recreational settings. We are also asked to integrate. Projects must fit into systems. Physical coastal systems must fit into biological, environmental, legal and sociological systems. Finally, we know so much in theory and at pilot scale, but the translation of this knowledge into prototype reality is so very difficult.

The information in this book goes beyond the printed text. The symbol (Ⓢ) identifies computer programs, tables and examples that are available in electronic form on the Compact Disk that accompanies this text.

I have provided a basic tool. The tool is incomplete. It only discusses some of the topics needed in our trade. There is much literature for you to expand into. Good luck on your further journey.

Kingston, June 2000.