

THE ENVIRONMENT IN ASIA PACIFIC HARBOURS

The Environment in Asia Pacific Harbours

Edited by

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He is the chief editor of *Estuarine, Coastal and Shelf Science* and *Wetlands Ecology and Management*. He is a member of the editorial board of *Journal of Coastal Research*, *Journal of Marine Systems*, and *Continental Shelf Research*. He is a member of the Scientific & Policy Committee of the Japan-based International Center for Environmental Management of Enclosed Coastal Seas.

FOREWORD

In the USA, Asia and Europe, as well as worldwide, trade is growing rapidly and much of it depends on shipping. This is leading to the development of mega-cities and mega-harbours. The marine environment is degrading. Is increasing trade ecologically sustainable? This book addresses this question through harbours in the Asia Pacific region, including Tokyo Bay, the Pearl Estuary, Hong Kong, Shanghai, Ho Chi Minh City, Manila Bay, Jakarta Bay, Bangkok, Singapore, Klang, Pearl Harbour, and Darwin. Much of the world trade goes through these harbours. This book demonstrates, through the writing of eminent scientists in each of these countries, the oceanography and ecosystem science necessary to understand how these urbanised marine ecosystems function. It offers science-based solutions to achieve ecologically sustainable development. These lessons are important not only for the Asia Pacific Region, including Australia, but also worldwide.

The book is a wake-up call that all the countries in the Asia Pacific are facing the same, serious socio-economic and environmental problems with varying scales. Each of these countries addresses these issues differently. This book shows that we have much to learn from each other to ensure that development does not need to be at the cost of the environment. I commend this book for its comprehensive coverage of the links between oceanography, ecosystem processes, and socio-economic issues. I hope it will create constructive discussion and awareness of the potential pitfalls and possibilities for the Asia Pacific region and the need for integration our efforts to deal with these issues.

This book by Eric Wolanski, a leading scientist at the Australian Institute of Marine Science should be taken seriously by all governments throughout the region.

The Right Honourable Malcolm Fraser, A.C., C.H.

Former Prime Minister of Australia

PREFACE

We live in a world that is increasingly dependent on international trade and transport. Measured both by volume and by value, most imports and exports travel by sea. Ports and harbours are the essential gateways through which all this marine traffic must pass. Expansion is leading to the development of mega-cities and mega-harbours. Inevitably, these are under further pressures to expand, and to work more efficiently. At the same time there is increased awareness of the need for maintaining healthy marine environments in and around these busy coastal areas. In many cases, these marine environments are degrading. Coastal managers and politicians are asking whether, and if so how, increasing trade can be balanced with ecologically sustainable environments.

This book addresses this challenge by presenting a series of studies of harbours in the Asia Pacific region, including Tokyo Bay, the Pearl Estuary, Hong Kong, Shanghai, Ho Chi Minh City, Manila Bay, Jakarta Bay, Bangkok, Singapore, Klang, Pearl Harbour, and Darwin. Much of the world trade goes through these harbours. Each individual harbour has its own special circumstances. Nevertheless, internationally there is much to be learned by exchange of information on existing management practices in different ports, and within different coastal areas.

These detailed examples demonstrate, through the writing and insights of eminent scientists in several countries, the oceanography and ecosystem science necessary to understand how these urbanised marine ecosystems function. The book offers science-based solutions to achieve ecologically sustainable development. These lessons are fundamentally important for the Asia Pacific Region, but they will also substantially inform similar analyses of port and harbour management and practices worldwide.

David Pugh

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