



***Coastal resources and systems
of the Pacific basin: investigation and
steps toward protective management***

UNEP Regional Seas Reports and Studies No. 147

Editor's Preface

This volume is the fourth in a series that provides a record of UNEP-sponsored meetings held to encourage inter-regional co-operation and communication among people concerned with the three Regional Seas Programmes and their Action Plans⁽¹⁾ in the Pacific (South Pacific, South-East Pacific, and East Asian Seas). The first of the meetings was held at the XV Pacific Science Congress in Dunedin, New Zealand, in 1983⁽²⁾; the second at the XVI Pacific Science Congress in Seoul, Korea, 1987⁽³⁾; and the third at the VI Inter-Congress of the Pacific Science Association in Viña del Mar, Chile, 1989⁽⁴⁾.

The meeting that forms the basis of this volume was held at the XVII Pacific Science Congress in Honolulu, Hawaii, 1991. William C. Clarke served as Chairman of the meeting and edited the volume. Paul F. Holthus of the South Pacific Regional Environment Programme (SPREP) represented UNEP's Oceans and Coastal Areas Programme Activity Centre (OCA/PAC) at the meeting and was its organiser/rapporteur. The agenda of the meeting focused discussion on a review of Programme activities in each of the Pacific regions and on the possibilities for inter-regional co-operation in the activities, particularly as these related to:

- climate change and sea-level rise
- marine-pollution assessment and control
- integrated coastal zone management
- coastal ecosystem monitoring
- conservation of marine biological diversity

Other agenda items brought forth discussion of environmental education in relation to marine issues, consideration of Pacific-wide issues to be brought to the attention of the UN Conference on Environment and Development (UNCED), and submission by the meeting of

(1) CPPS/UNEP: Action Plan for the protection of the marine environment and coastal areas of the South-East Pacific. UNEP Regional Seas Reports and Studies No. 20. UNEP, 1983.

UNEP: Action Plan for the protection and development of the marine and coastal areas of the East Asian Region. UNEP Regional Seas Reports and Studies No. 24. UNEP, 1983.

SPC/SPEC/ESCAP/UNEP: Action Plan for managing the natural resources and environment of the South Pacific Region. UNEP Regional Seas Reports and Studies No. 29. UNEP, 1983.

(2) UNEP: Environment and resources in the Pacific. UNEP Regional Seas Reports and Studies No. 69. UNEP, 1985.

(3) UNEP: Co-operation for environmental Protection in the Pacific. UNEP Regional Seas Reports and Studies No. 97. UNEP, 1988.

(4) UNEP: Regional co-operation on environmental protection of the marine and coastal areas of the Pacific basin. UNEP Regional Seas Reports and Studies No. 134. UNEP, 1991.

recommendations to the Pacific Regional Seas programmes and to OCA/PAC, UNEP. The recommendations and further details of the meeting are provided by Paul Holthus in this volume's concluding paper.

As with the previous volumes in the series, the papers in this collection possess a great variety in approach, topic, and scale of coverage. Such variety is only natural amongst contributors so varied as to educational background, national origin, and career specialization, and who are united only by a shared concern with improving understanding and management of an area as vast and varied as the Pacific, its islands, and its contiguous continental shores.

It was initially intended that the papers in the volume be organised according to the five activity foci or topics discussed at the meeting and listed on the previous page. But not all the papers in the volume were prepared with the inter-regional seas meeting in mind -- although all were presented in some forum of the XVII Pacific Science Congress -- and the final collection available for publication did not divide easily into the five listed topics. As would be expected, all of the papers treat at least one of the topics, but a more significant division among the papers seems to be, on the one hand, an emphasis on basic investigative research (Sections I and V) and, on the other hand, a concern with developing or applying forms of protective management (Sections II, III, and IV). Many other categorisations could be devised, and in many of the papers the "pure science" component very much interpenetrates with management applications. In their separation of research from management as well as in their merging of research with management, the papers signify the two fundamental actions needed to attain protective management and sustainable resource use:

- **learning more** about the Pacific's natural inventory, its processes, functions, and structure, and how it interacts with human-induced components and changes;
- **managing better** on the basis of that information and knowledge.

All of the papers in the collection contribute to our understanding of one or the other or both of these basic activities.

The title of the volume stresses "coastal" because in almost all the papers the weight of attention is wholly or heavily on coastal or nearshore resources or systems. In terms of scientific content, there is a strong emphasis on mangroves, atoll lagoons, and the fishes of coral reefs and reef slopes. El Niño Southern Oscillation (ENSO) stands out as especially significant in the papers from the South-East Pacific, one of which uses ENSO as a surrogate for secular climatic change. Otherwise, climatic change as such is not a pervasive theme in the volume although one paper urges that an understanding of global warming and the processes of sea-level rise be better integrated into the education of the Pacific's youth, and another paper hints at the effects of global warming on corals by analogy with thermal pollution from a nuclear power plant in Taiwan.

Case studies of management issues include an analysis of the history of artisanal village fisheries of reef slopes in Vanuatu, pearl culture at Manihiki in the Cook Islands, the problems of tourism in coastal Thailand, and an examination of how traditional approaches to resource use might be used in attempts at sustainable development at remote Marovo Lagoon, Solomon Islands. There is also a more general consideration of the use of pricing of marine resources as a management tool. Both intra- and inter-regional cooperation are addressed in a paper on integrated coastal ecosystem monitoring in the East Asian Seas region. And even broader aspects of cooperation in monitoring and enhancement of education are contained in a paper that proposes a structured network of marine and environmental-science institutions across the South Pacific, Southeast Asia, and beyond to the north Pacific and southern Asia.

Special mention should be made of the long paper on marine ecosystem classification for the South Pacific that makes up Section V. In that paper, J.E. Maragos presents the progress to date of a widely cooperative and intensive programme to develop "an ecosystem classification of the insular tropical Pacific that would be useful in furthering resource inventories and conservation efforts in the region." The inter-regional seas meeting recognized the value of this work, both as basic inventory and as important in the process of determining conservation priorities. The paper and the work of the many scientists behind it provide a significant step in the efforts to move from *ad hoc* towards broader systematic classificatory schemes in a region and, in time, inter-regionally and globally. It should be mentioned too that the programme to develop this marine ecosystem classification also has a component covering inland waters (now available) and a component on terrestrial ecosystems (still undergoing revision).

As Chairman of the inter-regional seas meeting and editor of this volume, I would like to express thanks to Dr L.G. Eldredge (Executive Secretary of the Pacific Science Association) and the XVII Pacific Science Congress staff for facilitating so well the organisation of the meeting. I would also like to give thanks to Paul Holthus of SPREP for his many contributions to the meeting and the volume, to Professor John Morrison for his expert advice, and to all the authors for their valuable participation in the work of extending cooperation and environmental understanding across the wide Pacific.

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I. Investigating Coastal Resources and Systems

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