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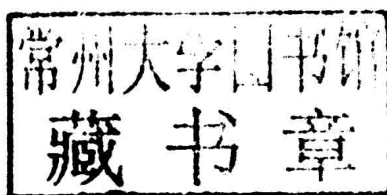


Routledge Handbook of Ocean Resources and Management

Edited by Hance D. Smith, Juan Luis Suárez de Vivero
and Tundi S. Agardy

ROUTLEDGE HANDBOOK OF OCEAN RESOURCES AND MANAGEMENT

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Hance D. Smith, Juan Luis Suárez de Vivero
and Tundi S. Agardy



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ROUTLEDGE HANDBOOK OF OCEAN RESOURCES AND MANAGEMENT

This comprehensive handbook provides a global overview of ocean resources and management by focusing on critical issues relating to human development and the marine environment, their interrelationships as expressed through the uses of the sea as a resource, and the regional expression of these themes. The underlying approach is geographical, with prominence given to the biosphere, political arrangements and regional patterns – all considered to be especially crucial to the human understanding required for the use and management of the world's oceans.

Part 1 addresses key themes in our knowledge of relationships between people and the sea on a global scale, including economic and political issues, and understanding and managing marine environments. Part 2 provides a systematic review of the uses of the sea, grouped into food, ocean space, materials and energy, and the sea as an environmental resource. Part 3 on the geography of the sea considers management strategies especially related to the state system, and regional management developments in both core economic regions and the developing periphery. The primary themes within each chapter are governance (including institutional and legal bases); policy – sets of ideas governing management; and management, both technical and general.

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Hance D. Smith
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INTRODUCTION

*Hance D. Smith, Juan Luis Suárez de Vivero and
Tundi S. Agardy*

The concept of resources is primarily economic and, in the case of the world ocean, environmental, thus focusing on the interrelationships between human activities concerned with the uses of the sea on one hand, and the 71 per cent of the Earth's surface covered by the sea on the other. This is, of course, a vast subject, and this Handbook thus necessarily deals with selected themes, which have been chosen with particular reference to the current stage of economic development of the world ocean. There are three first-order themes corresponding to the three major sections of the book, with selected second-order themes within these. First is the human dimension of globalisation of economic activity, understanding and management of marine environments. Second are the uses of the sea, considering in turn living resources, energy and materials, ocean space and the marine environment considered as a resource. Finally attention turns to the complexity of regional patterns engendered by the first two themes – the geography of the sea in terms of spatial organisation and development of both core and peripheral maritime regions of the global economy.

A first priority throughout is to place the book firmly in the present geographical and historical context of the world ocean, in the belief that humankind's relationship with the sea and, for that matter, the Earth as a whole, is passing through a crucial juncture in its development on at least two timescales, with characteristic regional development patterns linking land and sea. This is in part the focus of the first chapter in the book. With this in mind, the final chapter looks forward with particular reference to trends in the major fields considered in various chapters. In between are the three themes, further elaborated below.

The world ocean

The world ocean encompasses many human worlds – environmental, technological, economic (the main focus of this Handbook), social and political – as well as the historical and geographical worlds that link all these together. At the present juncture in human history the sea above all represents the power of globalisation that permeates all these worlds, exemplified by the conclusion of the United Nations Conference on the Law of the Sea in 1982, and its entry into force in 1994. It is thus with globalisation that the Handbook begins. The primary focus is concerned primarily with ocean governance with particular reference to the system of states, and the relationships of governance on the one hand with the management and protection of

biodiversity and ocean ecosystems. Thus Chapter 2 highlights the relatively dynamic world of changing geopolitical scenarios at the turn of the twenty-first century. Chapter 3 then focuses on the open ocean through discussion of state ocean strategies with especial reference to the international dimensions of treaties and organisations concerned with the sea. Chapter 4 then deals with the implications of this governance system for the protection of biodiversity; while Chapter 5 underlines the critical regional ecosystem-based dimension of governance that is needed to manage the increasingly stressed ecosystems of life in the world ocean.

The challenge that naturally follows that of governance is that revolving around knowledge and understanding. This challenge, which is based on scientific understanding, has many dimensions, including those concerned with the ocean-atmosphere system and its relationships with the Earth itself; life in the ocean, which is a major theme in the foregoing section on governance as well as the fisheries and aquaculture chapters in Part 2; the human impacts that result in substantial modification of the ocean environment; and the driving force of marine scientific research that is necessary not only to extend knowledge, but also to prioritise management issues. Chapter 6 begins the section by focusing on the ocean itself and its relationships with the atmosphere and life, as well as the implications for climate change, which has always been a central characteristic of what is an integrated ocean-atmosphere system – the Blue Planet. Chapter 7 highlights the relatively new concept of ocean health as a means of measuring the profound changes wrought by human influences on the ocean environment. Chapter 8 provides an overview of marine scientific research that underpins human understanding, including the nature of objectives; the issues with which research is concerned; and the programmes through which the research is accomplished.

The permutations and combinations of politics and governance allied to understanding lead to the practical challenges of management. Many would regard marine conservation, which is the topic of Chapter 9, as the most pressing issue in the pantheon of management activities. However, underlying all of these management concerns is the ‘gyro’ of science and policy which heavily influences and to a substantial extent steers management priorities, and which is the subject of Chapter 10. Many understand ocean science simply as being concerned with the natural sciences: Chapter 11, dealing with ecosystem services and their economic and social value, demonstrates the crucial importance of social science inputs. Chapter 12 on strategic environmental assessment then considers an all-important technical management dimension through which practical management must be attained. Finally, Chapter 13 on greening the ocean economy provides something of an audit of human activity and impacts on the ocean environment, primarily from the point of view of uses of the sea, leading naturally to the second main part of the book.

The uses of the sea

The uses of the sea section deals with four main themes. The first of these is living resources – the provision of food from the sea by exploitation of marine ecosystems through both the catching of wild fish and the enormous expansion of fish farming or aquaculture in the marine environment that has characterised the last several decades. The second theme is that of energy and materials: these are best considered together for a number of reasons, including the large capital investment, mainly transnational companies, and advanced technologies required; marine genetic resources, while living in the strict sense, are primarily the use of living resources as materials, rather than food. The use of ocean space is perhaps the best indicator of the geographical and economic globalisation of the world ocean; while the final section on the marine environment as a resource highlights the importance of the ‘total’, integrated and functioning ocean environment for material waste disposal, marine recreation and heritage.