

Laro in the Mediterranean, the appearance of Russian submarines in Swedish inshore waters, the wreck and subsequent oil spill from the Amoco Cadiz, and the continuing turmoil in the Iranian Gulf. It is clear that politicians are concerned with the increasing threats on both ocean resources and security, and the international impacts of ocean waste disposal. There is thus a need to define and enforce ownership. But there are many fundamental, and as yet unanswered questions, for example, should ocean resources be declared 'commons' (i.e. available to all, but in effect available only to those with the appropriate technology), or should they fall under the jurisdiction of coastal states?

This and other questions are answered at length by Professor Prescott in this excellent commentary on maritime boundaries. The book is both a major rewrite and a complementary volume to the author's "The Political Geography of the Oceans" published in 1975. Since the first book, the international community has suffered a prolonged and unsatisfactory debate over the provisions of the 1982 Law of the Sea Convention, resulting in an LOS Treaty that remains unratified by several major seafaring nations. Also in the last 10 years there have been widespread developments in Outer Continental Shelf (OCS) leasing, designation of Exclusive Economic Zones (EEZs) and Exclusive Fishing Zones (EFZs).

Maritime Political Boundaries details the bewildering variety of methods by which the seas are divided. The guiding principle seems to be to use the method that is the most advantageous to the designator. Often, even the simplest lines can be drawn according to several criteria, so that squabbles between nations are commonplace. The United Kingdom alone has 'disputes' with Ireland, France, Denmark and Iceland.

The book divides into two. The first section deals with the theory and practise of defining all territorial waters, from the 3-mile limit to the 200-mile zone, backed by all manner of example coastlines, from reefs and barrier islands to islands and fiords. The section is a mixture of legal uncertainties and geographical fact, leading to a multiplicity of formal and informal definitions for the delimitation of maritime zones. It also deals with international rights, such as navigation, over-flying, scientific research, plus a discussion of resource sharing and exploitation. The first part of the book concludes (Chapter 5) with a consideration

of the international responsibilities on the high seas, including a brief, but fascinating dip into 'gun boat diplomacy' - essential reading for all would-be pirates.

The second part of the book (Chapters 6 to 13) covers various geographical areas, which range in size from the Indian Ocean to the North Sea. These chapters bear witness to the difficulties discussed in the first part and they are a tribute to the skill of the author in exploring and explaining the intricacies of national and international decision-making.

In some respects the book is hard to read. One needs the vocabulary of a lawyer, coupled to an extensive geographical knowledge-base, in order to maximise understanding. Despite this, one cannot fault the author's detailed and up-to-date research, which alone will make the book an indispensable volume in all oceanographic and coastal libraries. The book is let-down slightly by one thing, the maps. Many of these would have benefitted from shading, and in the case of the larger scale plans, from inset location maps. Despite this shortcoming, this is an important and well-produced book, which highlights a now often neglected area of geographical studies the study of boundaries and frontiers.

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**The Alaskan Beaufort Sea: Ecosystems and Environments**, edited by P.W. Barnes; D.M. Schnell, and E. Reimnitz, 1984. Academic Press, Orlando, Florida, 466p., \$39.00. ISBN 0-12-079030-0.

This book focuses on the Alaskan Beaufort Sea shelf and coastal environment. It is a product of the late 1970's surge in field research, i.e. Outer Continental Shelf Environmental Assessment Program (OCSEAP), conducted in response to petroleum industry activities in northern Alaska. Written primarily for the scientific community, this selected collection of biological and physical environmental papers on the Alaskan Beaufort Sea shelf provides an excellent regional sequel to the earlier symposium on the Canadian and Alaskan Beaufort Sea (Reed and Sater, 1974).

The book is organized into four sections: Introduction, The Environment, Biological Interactions and Man's Interaction. The intro-

ductory chapter by Norton and Weller provides an excellent physical and historical overview of the region and the evolution of scientific studies that lead up to OCSEAP and this volume. Section two (12 papers) focuses primarily on sea ice, its general motion across the shelf and processes that effect it, its deformation and the effects of ice impingement on the sea bed and shoreline. The section begins with a discussion by Koza of local variations in mesoscale winds caused by thermal and orographic effects and the problems of predicting wind stress on sea ice using regional synoptic weather information. The occurrence of an eastward flowing Beaufort undercurrent seaward of the 50 m isobath and cross shelf flows between the deeper undercurrent and the nearshore are examined by Aagaard, and Pritchard assesses the use of the free-drift model in predicting ice/oil trajectories across the shelf. Processes of fine sediment entrainment during frazil ice formation by Osterkamp and Gosink, the relationship of sea ice thickness and its deformation into free-floating pressure ridges by Tucker *et al.*, and the processes of fast ice ridging onshore by Shapiro *et al.*, provide more topical perspectives of sea ice character. Sea ice interaction with the sea bed is considered in three papers. The first by Reimnitz and Kempema examines ice interaction on linear shoals in the stamukhi zone and the effects of these shoals on general sea ice conditions. Barnes *et al.* suggest a standardized terminology for describing sea ice gouging and present an excellent regional synopsis of ice gouging characteristics across the shelf. Weeks *et al.* take the topic one step further by presenting a statistical analysis of ice gouging characteristics. They stress the need for a good numerical simulation model which incorporates initial gouging and subsequent infilling. The use of seismic techniques in mapping the distribution, thickness and status, *i.e.* relict vs presently aggregating, of subsea ice-bonded sediment is discussed in two closely related papers by Neave and Sellmann, and Morack and Rogers. The second paper also examines the acoustic properties of non ice-bonded materials and some of the problems in distinguishing partially ice-bonded from coarser sediment. The only paper describing the physical coast is that by Naidu *et al.* who present rates of shoreline retreat and who evidence for the formation of Simpson lagoon through the breaching and coalescing of tundra lakes. Section three contains seven biological papers which examine productivity at the lower levels of the food chain and

the interrelationships between various lower and upper level consumers of the regional food supply. Strong ties with the physical environment are continually emphasized in these papers. Types of phytoplankton species and their distribution across the shelf, by Horner, is followed by a calculation of the annual carbon production by kelp, relative to other carbon producers, under turbid and clean ice conditions by Dunton. Atlas and Griffiths examine the seasonal variations in bacterial populations and briefly discuss the effects of oil on microbial activities. From a non-biologist's point of view, the papers on trophic dynamics in Simpson Lagoon by Craig *et al.* and the feeding habits of the major vertebrate consumers by Frost and Lowry are most informative about the interrelationships of the various vertebrate consumers, *eg.* birds, fishes and marine mammals. Connors discusses the migration and use of breeding and post-breeding habitats by various shore birds, and Divoky outlines the decrease in seabird biomass with distance seaward and the differences in feeding habits of pelagic versus nearshore species. Both papers illustrate the vulnerability of the bird populations to a late summer oil spill. Concluding the book is a thorough review of the spread, incorporation and release of oil as well as its cleanup within the various sea ice zones following a well blowout under shallow, ice-covered water.

Well written, illustrated and edited, this collection of papers presents a strongly focused examination of the Alaskan Beaufort Sea shelf. The content of the book reflects the expertise of the editors, and it is recognized that not all aspects of the Beaufort Sea shelf could be covered, however, a good physical description of the coast and an expanded discussion of man's interaction with the environment, such as how industry utilizes the scientific information, *eg.* ice scour statistics, in designing their exploration and production facilities, would have been useful. Although much of the information has been released previously in various other forms, and many of the examples cited are restricted to the vicinity of Barrow, Prudhoe and Harrison Bays, the text still presents a wealth of knowledge that is applicable to many other arctic regions. With the reduced petroleum industry activity in the Beaufort Sea it is a good time for scientists working in that area to reflect on their research and catch up with the literature. This volume provides a good reference text of the continuing research con-

ducted from the mid 1970's to the early 1980's along the Alaskan Beaufort Sea.

### LITERATURE CITED

Reed, J.C. and Sater, Y.E., 1974. *The Coast and Shelf of the Beaufort Sea*. Arctic Institute of North America, Arlington, Virginia.

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**Managing Dublin Bay**, edited by M. Brunton; F.J. Convery and Ann Johnstone, 1987. Resource and Environmental Policy Centre, Richfield House, University College, Dublin 4. 191p, IR£7.50, ISBN 1-870089-04-9.

This book reviews the environmental problems of Dublin Bay, a shallow, industrialised embayment on the west side of the Irish Sea, once famous for its shellfish. The book comprises 20 short chapters, each dealing with a different aspect of the Bay, from geology and hydrology to recreation and political administration. It is clear that the Bay has come under increasing environmental stress in the last 40 years, both from internal pollution (sewage, hydrocarbons, heavy metals) as well as being vulnerable to external influences like low-level nuclear waste contamination. The standard of the content varies enormously from fully referenced scientific statements to emotive, unsupported comment. The book deserves a wide audience, if only because it provides yet another example of Man's inability to deal with estuaries and embayments.

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**Proceedings of the 1985 California Offshore Petroleum Conference**, edited by W.N. Tiffney, Jr. Pallister Resource Management Ltd., 29169 Heathercliff, Suite 216-417, Malibu, California 90265. 256p. No ISBN.

These proceedings consist of many short papers (often little more than extended abstracts), covering all aspects of the offshore petroleum industry, but with an emphasis on environmental concerns. The focus is Califor-

nia, although much of the material has a wider application. A number of the papers are obviously taken from a verbatim transcript which makes them difficult to read. There are some good things worth sorting out, including a neat, well-referenced summary of oil spill effects on coastal ecology, and two interesting papers on coastal air quality. These proceedings are well-produced and a useful addition to any library.

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**Atlas Geologico da Provincia Costeira do Rio Grande do Sul** (Geological Atlas of Rio Grande do Sul Coastal Province, Southern Brazil). Centro de Estudos de Geologia Costeira e Oceanica (CECO), Porto Alegre, Brazil. No Price given. No ISSN/IBSN.

The folio of maps reviewed here comprises nine sheets of maps at 1:100,000, plus a page of introduction ("Nota Explicativa") and a page for the general key and a series of geological sections. The language of the Atlas is Portuguese. The maps are printed in four colours which, in combination, enable a wide range of tones and shades to be employed to depict different geological formations. These are enhanced further by the use of a variety of screens, over-printed in black, which enable different sedimentary facies to be shown. The cartographic base for the Atlas is derived from the 1:50,000 topographic surveys of the Servico Geografico do Exercicio, dated 1979 and 1980, each atlas sheet covering an area corresponding to two 1:50,000 maps.

The Atlas is produced on heavy-weight glossy paper in landscape format. The pages are punched for binding, and it appears that these maps are the first release of a much larger work. The maps are all dated 1984 or 1985, and one assumes that future maps will be sent to subscribers as and when they are completed. Unfortunately there was no indication, in the set of maps reviewed, of the total number intended in the series: a contents page would have been useful.

There are many precedents for the publication of folio atlases as "part-works" released on subscription - examples include the National Atlases of Finland and Canada, and the Atlas of Italian Sea Level Changes (Pirrazoli *et al.*,