

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 Serviço Geográfico do Exército, 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.*,

forthcoming). For a large atlas the advantages of this method of production are clear. Firstly, the cartographic and editorial workload involved in a production of this type is inevitably time-consuming. By sending out sub-collections of maps as and when they are ready, the publishers can ensure that the finished maps reach the customers relatively soon after completion. For the publisher there is also the advantage that collection of subscriptions to the atlas at an early stage in production provides a financial safety-net and assists in funding the complete work. This latter benefit is, presumably, of particular value in a developing country such as Brazil, where cash flow has to be particularly carefully planned and monitored.

The quality of the Atlas, if these maps are truly representative of the whole, is impressive. The cartographic design, the quality of the data presented, and the quality of the overall production are all high, and match anything produced by, for example, either the British or the U.S. Geological Surveys. If any complaints have to be made then these are slight and, to a certain degree, reflect the personal preferences of the reviewer.

The lack of a contents page has already been mentioned. Also lacking is any bathymetric information: it is possible that the necessary data have not yet been obtained, but in a series of maps depicting an area so strongly influenced by the sea, and riddled with both tidal and fresh-water lagoons, this omission is regrettable.

In terms of cartographic design, one quite serious criticism concerns the selection of patterned screens for different facies. Most readers would, presumably, expect a pattern of coarse circles on the map (or in the sections) to represent coarse sediments, and finer dots and dashed lines represent finer sands and silts respectively. However, on these maps this is not the case: a screen of open circles, for example, is used to depict aeolian and littoral dune formations, while deltaic formations are shown by a pattern of dashed horizontal lines. Similarly, while the crestlines of principal gravel ridges and sand dunes are shown in many places and add substantially to the information content of the maps - these are frequently obscured or confused by the use of uniformly-spaced horizontal lines as part of the symbolism for certain lithologies.

Lastly, although, presumably, the Atlas is directed mainly at readers familiar with the

region and hence with the Portuguese language, a brief translation into English of the sedimentological and technical terms used in the key might have been useful for a more international readership. The ultimate test of any map or atlas is, of course, its efficiency as a means of communicating information. In this respect, the Geological Atlas performs extremely well. The reviewer approached the maps knowing nothing about the coast of Southern Brazil, and came away with the satisfying feeling of having learned a considerable amount. Since the start of the Caenozoic this area of coastline has been prograding in a complex series of shingle ridges, longshore bars, sand dunes and lagoons. The generally intelligent use of colours and symbols on the maps (notwithstanding the above remarks) enables the story of this evolution to be elucidated easily and painlessly.

There was no indication, in the package received for review, of the selling price of the Atlas. This is a pity, since in the absence of this information it is difficult to make any recommendations regarding purchase. Both as an example of good cartography and as a record of the coastal evolution of this part of the world, the Atlas performs excellently. It would be a valuable asset on the library shelves of any university department or similar institution where a significant level of research and teaching on coastal matters is conducted, or with specific research interests in southern Brazil. However, at the price level suggested by the printing and paper quality, it is difficult to see the Atlas being bought by many individual subscribers unless they, too, had strong research interests in the area covered.

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Living with the Shore of Puget Sound and the Georgia Strait, by Thomas A. Terich, 1987, Duke University Press, Durham, North Carolina, 165p. ISBN 0-8223-0689-1 (hardcover), \$30. ISBN 0-8223-7745-6 (softcover) \$12.95.

This book is intended as a guide to selection of building sites along the shorelines of Puget Sound and Georgia Strait in Washington state. Directed primarily at prospective coastal homeowners, it provides information for a first cut