

The first chapter briefly puts the subject of benthic ecology and the advent of diving in its historical perspective and the author takes the opportunity to remind us that until the 18th century, the general term for a diver was "urinator." Those familiar with the ambiance in diver's changing rooms may mourn the passing of this apt word. The remaining six main chapters then cover the traditional subject areas in marine macrobenthic ecology. Three deal with the major physical factors (light, water movement, and substratum), the others with biological concepts (biological interactions, the community concept, and biogeography).

What marks this compilation as different from other marine biology texts is that each chapter was written by a professional diving scientist, each ideally placed to synthesize the background knowledge with what they have directly observed on the sea bed and, perhaps most importantly, what is possible in terms of underwater fieldwork. As a whole, the book clearly reflects the outstanding contribution that diving has made to our understanding of patterns and processes occurring on the sea bed.

As is not unusual for multi-author works, the style is somewhat variable and in places rather pedestrian, and some sections could profitably have been introduced to the editorial pruning shears. Nevertheless, the basic groundwork is in all cases covered competently and the whole provides a good "state of the art" picture of field-orientated marine biology in the British Isles. The extensive 59-page bibliography will be particularly valuable for British marine biologists in drawing together macrobenthic work which hitherto has been rather widely scattered among the scientific literature. It is based on the Nature Conservancy Council's reprint collection supplemented by checking relevant journals, recent reviews, and making computer searches, in addition to those papers referred to in the text.

My overall impression was of a science which has proceeded in a piecemeal fashion, often distorted by an emphasis towards the large and more easily identified organisms. If the resultant picture may at times seem confused, it is because it contains all the classic symptoms of chronic underfunding. The need now is for a more systematic and co-ordinated approach, based on hypothesis-testing, with a move away from purely descriptive work. This book contains plenty of relevant ideas and I hope that, together with the emergence of the Marine Conservation Society and the provisions made for marine nature reserves by a recent Act of Parliament, it will prove to be a watershed in the process of under-

standing, and thereby protecting, the fascinating but largely unseen life at the bottom of the shallow seas around our coast.

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Coastal Oceanography, edited by H.G. Gade, A. Edwards, and H. Svendsen, 1982. Plenum Press, New York, 582p. US\$ 79.50.

This volume of thirty-four papers, arranged in five sections, is a product of a NATO Workshop held in Norway in 1982, the aim of which was "to deal with the frontiers of research on physical oceanography of coastal waters . . . stress was laid on the importance of bottom topography."

Section 1, coastal and shelf sea circulation has one general paper and several regional case studies, ranging from the Alaskan coastal current to coastal upwelling off Peru. The papers vary in approach; some have a large mathematical content, others are more descriptive.

Section 2, coastal upwelling etc. has four papers. Again, this section contains an introductory paper which develops a linearized model of two-dimensional transient upwelling generated by variability in the wind stress, followed by three Canadian regional examples.

Sections 3 and 4, topographically controlled flow etc. at meso and small scales appear to be closer to the aim of the workshop and together these sections have ten papers. These include a few general and several wide-ranging regional case-studies. Some of the papers contain references to sediment transport but the main themes are essentially those of water mass interactions and flows produced by meteorological effects, especially winds, tidal, and other physical forces.

Section 5 consists of three papers on turbulent mixing and entrainment.

All papers have extensive reference lists and there is a subject index. A useful Geographical Index is also provided.

This is clearly a book for physical oceanographers. For some readers *e.g.* coastal geomorphologists, geologists, ecologists, the term coastal might be a little misleading in that there is little or no reference to the coastline, rather it is concerned with shelf and nearshore water movements in both horizontal and vertical directions. Most papers involve mathematical modelling related to oceanographic measure-

ments. There are some laboratory simulations and several papers illustrate the possibilities of remote sensing techniques for identifying coastal and shelf currents. Overall in keeping with its "workshop" origin, this is a book for the specialist oceanographer rather than the general reader.

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The Geological Evolution of the River Nile, Rushdi Said, 1981. Springer-Verlag, New York, 151p. US\$ 59.00.

Since the days of Herodotus (484-425 B.C.), the Nile delta has been recognized as the principal site of sedimentation for the silts and clays carried downstream by the annual monsoonal flood. But this annual siltation came to an end with the completion of the Aswan High Dam ("Sudd al Ali"), and serious coast erosion is now in progress around the delta littoral. This volume does not deal with the latter question but presents the geological, archeological, and historical record of the Nile in Egypt which is essential to understanding the present-day situation. Natural, climatogenetic fluctuations of great magnitude are recognized since the establishment of its present course to in late Miocene. The author attributes the principal valley incision to the Messinian fall of sea level in the Mediterranean (although the uplift paralleling Red Sea rifting must have been important, but is not mentioned). Since then, the main stages are called: Eonile, Paleonile, Protonile, Prenile, and Neonile. The role of neotectonics is mentioned for some areas, but the lower course is essentially thalassostatic, *i.e.* controlled by the fluctuations of sea level. The shape of the delta shore and the loci of the distributaries is nicely illustrated in four maps (Figure 52), dating from Herodotus (c. 450 B.C.), Strabo (64 B.C.), Serapion (350 A.D.), and El-Idrisi (1154 A.D.).

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Fisheries Ecology, by T.J. Pitcher and P.J.B. Hart, 1982. Croom Helm Limited, 414p. US\$ 34.50.

This book is designed for senior undergraduates. This ambitious target is certainly achieved, as it brings together and discusses the important litera-

ture in fisheries management up to 1980. The subject was already treated by WEATHERLY's (1972) textbook and a new book in this field was urgently required.

My first doubt is about the title of a book on applied ecology where only 22 pages are devoted to the environment the fish live in. As ecology is a "partie de la biologie qui étudie les organismes animaux . . . en fonction de milieu naturel où ils vivent," (MANUILA, 1971), references to the habitat should be extended. This is probably why some citation classics (MANN, 1965) are not included in the book. Another study, which I believe will become a classic (LEGGETT and CARSCADDEN, 1978), demonstrating environmental impact throughout the zoogeographical distribution of the species on the plasticity of the interparity or semelparity advantages, deserves to be mentioned.

Although the authors excused themselves for not treating "the impact of fish behaviour on fisheries" (from preface) due to "lack of space," they should consequently realize that this will limit the readership among fishery biologists. It is a common problem of every text book to sacrifice depth or detail of the treated topic, but a stronger choice should have been made in several cases in this volume.

The first section deals with fish morphology and examples of fish communities are given. Although the 6 pages of broad description of changes during fish storage do not constitute the missing "fish behaviour" section, this part adds little to the section of World Fisheries. The real book starts when the authors deal with fish population structure and population growth parameters, which are the subjects familiar to their own research activities.

Genetic progress is a function of heritage selection intensity and phenotypic variance of the organism, so short sections of "heritability in fish" under the subheading, "Evolutionary Effects of Mortality," is a rather general casually treated overview.

The three chapters on recruitment, prediction of fishery yields, and models in fishery management are excellent, up to date, and perceptive.

The chapter on fish farming is a little removed from the main stream of the book, although several areas of intensive aquaculture could profit from more knowledge of fish ecology.

Two sections, namely "Fisheries Economy", and "Fisheries and Ecology of Man" present specific author's efforts to integrate overall fishery activity in the modern world and are worth reading.

There are some erroneous interpretations which