

including; marketing, management, and stock assessment. The commercial fisheries chapters are mostly aimed at fishermen and fisheries scientists.

Part three is labelled conservation and management, which would better have been titled management and conservation to reflect the emphasis given. Conservation here refers to the management and regulation of the fishery as a sustainable resource, rather than in the broader sense of nature conservation. This is rather unfortunate as the bass provides an interesting and well publicized example of a species uniquely vulnerable within the estuarine environment. There is only one section on threats to the fishes and their environment and this chapter only briefly mentions human impacts. This could have been expanded in view of recent debates on bass conservation and the dramatic changes in the stocks that have been recorded in recent years. The effects (both good and bad) of power stations on bass populations could have been explored in a wider context without losing focus on the subject. This section finishes with a consideration of the regulations needed of bass fisheries and puts forward management proposals for such a fishery and the difficulties encountered in arriving at international agreement. The need to protect the estuarine environment for bass and other estuarine species should have been stressed rather than concentrating on the narrow fisheries interpretation of conservation.

The book is easy to use when dipping for information or for reading up on a subject and the sub-division of chapters makes for easy browsing. Summaries at the end of the chapters were useful, but lacked consistency. In places the book is overly subjective and descriptive, and not infrequently prone to speculation, although this rarely distracts from the detailed scientific content. The

book has a well presented contents list and good bibliography. However, the subject index should have been expanded to include place names, and there is much to be said for combining the subject and species indices. Another criticism is the mis-spelling of some scientific names. The diagrams and illustrations are generally clear and although some of the tables are rather large they are easy to follow. However, the photographic plates are of very indifferent quality which is unfortunate for a book as expensive as this and where some trouble has been made to include good line drawings.

The primary market for this book will be those with an interest in fish biology and fisheries and will include; fish biologists, students, anglers and fishermen. The broader 'conservationist' will find it lacking in environmental content, but it does provide a factual, interesting and readable study of an important species occupying the marine and estuarine environment. The major drawback is the price which is aimed at the institutional market, not the individual scientist or fisherman who stand to gain most by the book and who would wish to own a copy. The popularity of the subject certainly merits that Chapman and Hall consider a cheaper paperback version.

Sea Bass. Biology, Exploitation and Conservation is an interesting and highly personal account of a fascinating animal. Despite some minor criticisms, the content, presentation and easy style makes this book well worth reading by anyone with more than a passing interest in estuarine fishes and, in particular, the sea bass.

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THE BRACKISH WATER FAUNA OF NORTH-WESTERN EUROPE, R. S. K. Barnes, Cambridge University Press, Cambridge, 1994. xvi + 287 pp. Price: £40 (h/b ISBN 0 521 45529 4), £15.95 (p/b ISBN 0 521 45556 1).

To allude to ecology, the production of a book on the brackish water fauna of northwestern Europe fills both a niche and a need. In aquatic biology, this physically defined habitat falls between those more standard divisions—established in the human need to categorize all things as neatly as possible—freshwaters and marine waters ('the sea'). Thus, in ecological texts, its environmental characteristics and its organisms tend to be somewhat lost in the greater bulk of fully saline or totally fresh conditions and species, or to appear as a minor and incomprehensive addendum. It is evident that

Richard Barnes' book at last fills the gap as a comprehensive guide to the specialist fauna of this intermediate habitat. And while such a venture is also beset with the problem of species overlapping boundaries of human convenience, in this case it is the more irregular denizens of brackish waters which receive less-detailed attention. It is not possible to be fully comprehensive while satisfying the needs of the customer (price and size) and of the specialist (which one author can be sufficiently *au fait* with all taxa); yet, while the occasional purist will inevitably spot the odd species which *can* occur in estuaries, the potential problem is circumvented throughout this book by reference to more specialist keys for the individual groups.

As the publisher's notes explain, the book is aimed at, and undoubtedly appropriate for, students, naturalists and field workers (although I recommend that the last

do not take it into the field, lest they find the hardback too bulky or the paperback insufficiently robust). The first part of the book sensibly leads the reader through the evolution of brackish water habitats in the region, their physico-chemical and geological characteristics and—as far as their inhabitants are concerned—the challenges, advantages and methods of exploiting such an environment. Part 1 thus acts as an excellent introduction to the fauna itself, although a concrete section on sample collection (techniques and dos and don'ts) would have been welcome.

Part 2, the majority of the book, comprises identification keys to the various macrofaunal groups to be found, in a hierarchical sequence from coelenterates to fish. I cannot recall another book which offers detail on both insects and polychaetes (for example) within the same covers. The preliminary key bravely offers identification of the major groups (roughly Classes), with explanatory notes of guidance within the couplets; most workers, as suggested at the key's head, will proceed straight to the relevant species' keys (although, to pick at detail, some who don't will undoubtedly identify their capitellids as oligochaetes). The species keys include similar useful notes within them where confusion is possible, both at species level and as preambles to more difficult families or genera such as the corixid water-boatmen and the amphipods of the genus *Corophium*. Unfortunately, having reached an identification, the user must then wade through the text having been given no page reference to the species concerned (unless use is made of the index). It may perhaps have been appropriate to reiterate in this section that, to reduce the chances of misidentification, reference should be made to more specialist keys where doubt arises, lest collected but unmentioned species become 'shoe-horned' into one of those present in the text (but of how many identification guides can one not make this criticism?).

It is easy to quibble about species inclusion/exclusion: sections dealing with groups with which the author is more familiar are inevitably better than others. Thus I was glad to see mention of such recent arrivals/discoveries as the hydroid *Clavopsella navis* and the razor shell *Ensis directus* (though I would debate its name, *E. americanus* being favoured for the extant, as opposed to fossil, species). Conversely, the section on fish appears to rely too heavily on Wheeler, 1969—an

excellent book but now over 20 years old; for example, however one interprets recent opinion on sand smelt synonymy, *Atherina boyeri* (either the lagoonal/estuarine or the only *Atherina* species in European waters) should have some priority over *A. presbyter* in this text, while the choice of rockling is inappropriate (if only one, then surely the northern rather than the 4-bearded).

The main disappointment of this book is the standard of the figures, all too often tending towards a casual cartoon style, despite the possibilities which now exist in computer-aided reproduction from the wealth of good-quality illustrations already scattered through the scientific literature. While the fish illustrations are sourced from Wheeler's 1969 book, I suspect they are from his key illustrations rather than his fine text illustrations; elsewhere, the representation of *Arenicola* and of some annelid and crustacean appendage segmentation leaves something to be desired. Part of the problem rests with the printing, with notable fading of some lines (e.g. Figures 62 and 63 in the review copy at least).

What is most welcome is the emphasis on live-animal collection and identification (difficult though this latter often is). As the author points out in Part 1, a number of the more specialist brackish habitat species are particularly rare and of conservation interest, and some are Scheduled under the Wildlife and Countryside Act (including *Alkmaria*, *Tenellia* and *Paludinella* in the 1991 amendments in addition to those listed by Barnes). This book, with its emphasis on keeping animals alive and returning them to their point of collection wherever possible, should therefore serve to encourage a responsible ecological approach involving minimal disturbance to such sensitive species.

Barnes' book will therefore serve as an admirable introduction for its target readership, not prohibitively priced, generally achieving its aims as explained within the preface and in the subtitle—'An identification guide to brackish water habitats, ecology and macrofauna for field workers, naturalists and students', while engendering a sensible philosophy towards research and conservation of this particular group of organisms, readily found, easily studied, yet previously somewhat neglected in identification guides.

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STREAM ECOLOGY—STRUCTURE AND FUNCTION OF RUNNING WATERS, J. David Allan, Chapman and Hall, London, 1995. xii + 388 pp. Price £24.99. ISBN 0 412 35530 2.

As David Allan points out in the preface of his book, there have been many developments in the field of

running water ecology in the past 25 years. Whereas Hynes' *The Ecology of Running Waters* probably covered most of the papers published in this branch of aquatic biology up to 1970, the contemporary author reviewing the field is faced with a huge literature and must be selective. Allan admits a bias in favour of papers published in English language journals and describing