

Thus well known impacts by *Cyprinus carpio* go unmentioned whilst *Sander lucioperca* is amply blamed for declines in cyprinid populations, contradicting Smith *et al.*'s comprehensive review (1998; *Stocking and Introduction of Fish* [Cowx, I. G., ed.], Blackwell Science). The use of common names for non-native species is also somewhat inconsistent, with English preferred over the foreign (usually German) names for some species (*Leucaspius delineatus* and *Pseudorasbora parva*) but not others, such as *S. lucioperca*.

The Perspectives section is a laudable endeavour to draw the book together, but is occasionally inconsistent with the species accounts. For example, *Cobitis taenia* are said to be specialist herbivore, but the species account describes not herbivory but a specialised buccal structure for preying on invertebrates. Suggestion that *Acipenser sturio* once spawned in the UK also seems at odds with the species' account. The important, and closely-related, issues of genetic integrity and fish translocations are duly raised, but in separate paragraphs and without cross-reference. The book is nonetheless informative, providing a level of species detail equivalent to Maitland's (2004) keys, and as such is reasonably good value for money. However, a greater level of detail, consistency and accuracy, say in the style of Scott & Crossman's (1973) *Freshwater Fishes of Canada*, would have truly set this book apart from any of its predecessors.

GORDON H. COPP

Salmon & Freshwater Team, CEFAS, Lowestoft

STOCK ENHANCEMENT AND SEA RANCHING/Developments, Pitfalls and Opportunities. 2nd Edition, edited by K.M. Leber, S. Kitada, H.L. Blankenship and T. Svåsand. xii 562 pp. Published by Blackwell Publishing Ltd, Oxford, 2004. Price £99.50. ISBN 1-4051-1119-4.

The book represents the proceedings of the Second International Symposium on Stock Enhancement and Sea Ranching held in Kobe, Japan in 2002. It would be better described as 'volume two', rather than as the 'second edition' of *Stock Enhancement and Sea Ranching* (edited by B.R. Howell, E. Moksness and T. Svåsand, Fishing News Books, 1999). Although the two books cover similar territory, they are separate proceedings in their own right and there is no sense that the new volume should somehow supersede the first.

The book contains 40 papers covering research on seed quality and stocking effectiveness, health management, evaluation methods, population management, ecological interactions, genetic management, socio-economics, and overviews and case studies of current enhancement programmes. Together, the papers provide a fairly comprehensive picture of the state of marine stock enhancement research. Evidently, the state of science is far more advanced in some areas than in others. Contributions on seed quality, release strategies, and genetic management suggest the emergence of a substantial and increasingly consolidated body of conceptual and empirical knowledge. Population dynamics, health management, socio-economic and institutional aspects on the other hand are covered in more speculative, essay style papers or in case studies that allow only limited generalisation. Such variation reflects the state of science rather than a fault on the part of the contributors or editors. Indeed, the symposium organizers and editors are to be commended for identifying and actively encouraging contributions in the less advanced areas of the subject, as are some of the authors for venturing into largely uncharted territory.

On the whole this is a book by and for stock enhancement specialists, but some chapters are likely to of wider interest. For example, Beamish and Noakes provide a broad perspective on climate change, aquaculture and fisheries, Miller and Walters discuss how releases of hatchery fish can be used to test ecological hypotheses within natural ecosystems, and Waples and Drake propose a framework for risk/benefit analysis of stock enhancement, supported by an extensive review of cultured-wild fish interactions. Reisenbichler *et al.* make an original contribution to the domestication problem, showing how domestication-selection in hatchery-reared fish may occur after release even

when selection intensities within the hatchery are low. Drummond provides a detailed case study of how stock enhancement together with enabling legislation can precipitate institutional change in fisheries management systems, leading to much wider benefits than can be expected from stocking as such.

With editors who have long fostered an open minded and rigorous approach to this controversial subject and good breadth and depth of contributions, this publication had all the ingredients to grow into something more than a collection of papers. Unfortunately, the book is let down in this respect by a lack of overview or synthesis sections, and a structure taken directly from the symposium programme. The resulting arrangement of papers and sections feels somewhat haphazard: some papers arranged under 'case studies' would be better placed in thematic sections and vice versa, and a diverse collection of contributions are combined in a "poster" section for no reason other than their original mode of presentation. A more inspired thematic arrangement, perhaps combined with editorial overview or synthesis section(s), would have strengthened the book considerably. Whilst the preface contains an excellent distillation of stock enhancement issues and research priorities, it makes no reference to the papers presented in the book or indeed, elsewhere.

In conclusion, the book does provide a broad and up to date overview of the state of marine stock enhancement research. Those directly involved in the field will want it on the shelves, and subject libraries should have it available for reference. Non-specialists are more likely to consult it at the library than buy their own copy.

KAI LORENZEN

Environmental Science and Technology, Imperial College, London

ICHTHYOLOGY HANDBOOK. By B. G. Kapoor and B. Khanna. xviii 1059 pp. Published by Springer-Verlag, Berlin, 2004. Price £229.00. ISBN 3-540-42854-2.

The fishes comprise the largest group of the vertebrate subphylum and their richness in both form and life style justifies a monographic and comprehensive treatment of their evolutionary achievements. The present *Ichthyology Handbook* is an attempt to do just that, but whether or not it has succeeded deserves some discussion. At a thousand printed pages it definitely qualifies as an impressive tome but the reviewer has mixed feelings about the content of the book.

On the plus side we have a very coherent presentation, probably due largely to the fact that the entire book has been written by just two authors rather than by a conglomerate of specialists. The presentation is straightforward and clear throughout, and the whole body of the material presented is fully referenced. The authors discuss the topics they have selected at an advanced level that should suit users from the graduate student upwards. If taken in isolation each chapter of the book could function as a useful review article but as such they may well have suffered from lengthened periods of gestation so that the content and references might not appear to be as up-to-date as frontline researchers would expect. The volume starts with a single chapter on evolution, phylogeny and classification and the rather complicated systematics of fishes is dealt with briefly and mostly in the form of tables listing fish groups. The bulk of the text integrates, as already noted, form with function in all the expected anatomical systems, and touches also on such ancillary topics as morphometrics, pheromones, biotoxins, senescence, sound production, teratology, regeneration, bioluminescence, and atavism. The authors succeed remarkably well in interweaving physiological processes with the anatomical situation of the fish under discussion, taking into account its life style. All chapters contain numerous black-and-white drawings that visualize the subject matter of the discussion.

However, viewed in greater detail, a number of shortcomings of the volume are revealed. First of all the scope of the book is not as wide as the title suggests. The latter and the publicity material suggest comprehensiveness with regard to a range of topics – 'adaptiveness to