



A discipline is coming of age: a review of four contributions to tropical fisheries sciences.

Ecological studies in tropical fish communities. R.H. Lowe-McConnell. 1987. Cambridge University Press, The Edinburgh Bldg., Shaftesbury Road, Cambridge England CB2 2RU. 384 p. ISBN 0-521-23601-0 (hardcover), 0-521-28064-8 (paperback). 22.8 x 15.2 cm. Price: US\$64.50 (hardcover), US\$22.50 (paperback).

The ecology of tropical lakes and rivers. A.I. Payne. 1986. John Wiley and Sons Limited, Baffins Lane, Chichester, West Sussex, England, PO19 1UD. 301 p. hardcover. ISBN 0-471-90524-0. 23.5 x 15.5 cm. Price: 29 pounds sterling.

Fisheries development and the food needs of Mauritius. E.C. Paul. 1987. A.A. Balkema, Postbus 1675, NL-3000 BR Rotterdam, The Netherlands. 216 p. hardcover. ISBN 90-6191-627-5. 25.3 x 17 cm. Price: US\$42.50.

Ageing manual for Kuwaiti fish. T.P. Williams. 1986. Kuwait Institute for Scientific Research, P.O. Box 24885, Safat, Kuwait. 57 p. softcover. 27.7 x 21.5 cm. Limited copies free on request.

Four books are reviewed here which demonstrate, both singly and collectively, that tropical fisheries science is thriving and has reached a level of maturity possibly not attained in tropical biology in general (see *Tropical biology: a legacy of neglect* by E.C. Wolf, *The Scientist*, June 1987).

The latest book by Dr. Rosemary Lowe-McConnell is an update and synthesis of her two earlier classics, *Fish communities in tropical freshwaters: their distribution, ecology and evolution* (1975) and *Ecology of fishes in tropical waters* (1977). The former has long been out of print, while the latter, which also covered marine species, was too slim to satisfy interested readers.

This new book's main strength lies in the fact that its author is a passionate field biologist, with many years of experience in South America, especially Guyana, and Africa, especially with freshwater fishes.

The author has made an effort to compensate for what could have been an unbalanced treatment by complementing her personal experience with published accounts from other parts of the intertropical belt, notably from the "Far East". The book, overall, is thus geographically well-balanced.

Part I introduces tropical marine and freshwater environments and conditions, and fish faunas. This is followed by Part

II, presenting "freshwater studies", covering exemplary African, South American and Asian rivers, lakes and/or reservoir systems. Part III discusses in separate sections coral reef and other demersal and pelagic fishes, with emphasis on biological and behavioral adaptations. Finally, part IV discusses topics cutting across salinity zones, such as seasonality in fish communities, life history strategies, fish growth, trophic relationships and diversity, and ends with a chapter on the exploitation and conservation of tropical fish stocks.

Overall, the book presents an immense wealth of information, in a fluid text and with the use of many summary tables.

Readers who expect to find tests of the often glib "hypotheses" nowadays populating ecology journals will be disappointed with this book. However, those who want to learn what tropical fishes do what in what type of habitat will benefit from Dr. Lowe-McConnell's experience and from the book.

Dr. Payne's book is an ambitious one, the intention being to "produce a self-contained textbook for students from tropical countries, based mainly on material from the tropics and emphasizing those features which make tropical aquatic ecosystems different from temperate ones." The book's main sections are on: the river environment; the lake environment; community structure; community dynamics; seasonality; diversity and evolution; the use and control of aquatic resources; and a comprehensive bibliography complementing the brief list of general reading at the end of each chapter.

I believe that the overall result is a bit uneven, with the geographic imbalance (over half of the figures refer to Africa) being far less problematic than the imbalance in the topics covered, especially with regard to the author's attempt to also outline some of the "basic techniques". Thus, limnologists will miss the detailed treatment, e.g., of water chemistry, that one usually finds in limnology texts, while fisheries-oriented persons might feel short-changed by the eight pages devoted to fisheries management.

The book is good value, however. A wide range of topics is discussed and the tropical perspective of the author allows him to ask the right questions such as "Are there seasons in the tropics?" (The answer, incidentally, is YES!)

Overall, we have here a book which will enrich the shelf of tropical biologists

and which can serve as a student text, granted that it is used jointly with some complementary material.

Fisheries development and the food needs of Mauritius discusses an aspect which the large numbers of tourists visiting that island generally miss. That aspect is that Mauritius, far from being a tropical paradise, is rapidly moving toward a Malthusian catastrophe with a large and growing underemployed population outstripping and gradually reducing the producing capacity of the scarce land and of the inshore waters surrounding the island. This little island in the middle of the Indian Ocean imports 70% of its protein requirements, including fish.

Following a review of the geographic and historical context, the author presents a review of the country's one-crop (sugar), export-oriented economy, including the distortions this entails for the country as a whole. The author then reviews the available data on Mauritius' fisheries and concludes that the self-sufficiency in fish could be achieved if inshore overexploitation were alleviated, and if exploitation of various offshore banks were stepped up. However, Paul's review of the country's "insidious pursuit of communal politics" suggests that things will probably get far worse before they begin to improve. As a whole, this book represents an exemplary integration of various scientific disciplines, brought to bear on the specific problem of fishery management.

Ageing of tropical fish has long been a matter of contention, but various recent contributions, notably the discovery of daily otolith rings, has settled many of these. The superb photos in William's *Ageing manual for Kuwaiti fish*, depicting clear annuli on the cut and polished otolith of different species, some of them reading over 20 years of age, will help settle many remaining controversies, notably that some tropical fishes, in addition to having highly readable otoliths, also reach high ages.

The manual also contains a detailed method section (on collection, storage, sectioning, burning and reading otoliths -- including validation), along with a somewhat brief bibliography. D. Pauly.

