

BOOK REVIEWS

Crab farming in Japan, Taiwan and the Philippines. Lynda Cowan. Undated. Queensland Department of Primary Industries, Information Series Q184009. 85 p. ISBN 0-7242-2392-4. 30 x 21 cm. Price: \$A8 surface or \$A11.45 airmail in Southeast Asia, from Information and Extension Training Branch, Qld. Dept. Primary Industries, GPO Box 46, Brisbane 4001, Australia.

A useful coverage of mud crab (*Scylla serrata*) farming in the three countries as well as of the Japanese blue swimmer crab (*Portunus trituberculatus*) in Japan. The accounts include descriptions of the larval stages and production facilities; particular attention is paid to nutrition at the various stages. *Scylla* hatcheries in Japan are still experimental and the seedlings used for restocking natural waters. In Taiwan and the Philippines, the crab industry is based on capture of seedlings and on-growing to market size. Between the three countries there is a wealth of experience and ideas for potential crab farmers. The author has provided full details, most of which must be unique for English readers as most of the Japanese references are in the Japanese language (the author spent several years studying aquaculture there) while the Taiwanese and Philippine descriptions are the result of extensive visits.

Marine fisheries. D.V. Bal and K. Virobhdra Rao. 1984. Tata McGraw Hill Publishing Co., New Delhi, 470 p. No price information.

Fish population dynamics: course manual. M. Devaraj. 1983. Central Inst. Fish. Educ. Bull. No. 3(10), Bombay, 98 p. No price information.

The two books reviewed here have in common that they have been authored by Indian scientists and published in India for use in institutions of higher learning. They both represent attempts to provide, for students working in a tropical developing country, a replacement for the textbooks produced by authors based in Europe or North America, which until recently had been the only ones available. The foreword of the first of the two books states that "comprehensive published information on marine fish and fisheries of India is not adequate and the information available at present is widely scattered. Drs. D.V. Bal and K.V.

Rao through this book on *Marine fisheries of India* have filled a long felt gap."

Let us note right away that this foreword, written by Dr. M.S. Swaminathan, Director General of the Philippine-based International Rice Research Institute, correctly states that the book in question refers to the marine fisheries of *India* and not to any other fisheries, tropical or otherwise, in spite of what its more general new title implies.

As a whole, the reviewer disagrees that this book has filled a long felt gap. Rather, this book has made more apparent the real need for Indian fishery scientists to avail themselves of the progress that has been made outside India in the last three decades in the fields of fishery science, be it in the area of fish population dynamics, fish aging methods, fish biology or management.

Marine fisheries does look, at first sight, like a good fisheries book. It begins with a chapter on "Methodology in fishery biology", over 25 chapters dealing with different resource types and ends with chapters on "mariculture", "man-made hazards and fisheries" and "fishing industry and cooperative societies".

However, when reading, a feeling of disbelief and disappointment quickly sets in. There are simply too many stylistic problems (e.g., "Mortality comprises natural mortality and fishing mortality which tends to reduce it"), too many typographical errors ("Peterson method", "Ford-Wallford graph"), too many unsubstantiated generalizations, and too many omissions (daily otolith rings, discovered in 1971 in tropical fishes are not mentioned) for this book to be taken seriously.

In fact, several major errors—notably the presentation of perfectly symmetrical parabolas as yield-per-recruit and gill net selection curves suggest that the authors are not familiar with analytic methods, which would explain both the outdatedness of the models they present and the fact that no real data or applications are ever presented.

References are presented by chapter (435 references in 30 chapters), and the average publication date for the lot is an unbelievable 1959!

Fish population dynamics by M. Devaraj has been written by an author

who practices what he preaches. Thus, besides a lucid, if brief presentation of the present state-of-the-art in tropical fisheries management and fish stock assessment, the author includes worked out examples pertaining to fish (*Scomberomorus* spp.) he knows well. The illustrated examples, which take the reader through most methods currently applicable in fish stock assessment including original methods developed by Indian fishery scientists, do not stop with biological models. The reader is invited to follow the author's line of arguments right into the realm of economics, where he introduces the concept of resource rent, economy overfishing, optimum sustainable yield and other concepts crucial to fishery science.

A brief essay on fishery management, covering issues such as property rights, the need for management (in India!), management objectives and methods of regulation conclude this remarkable manual, in marked contrast with the other book reviewed here, in which management is not touched at all except for some restating of outdated and ill-founded development plans.

These two books illustrate very well, I believe, the two main trends in Indian fishery research, and in Indian research as a whole.¹

There is, on one hand, a stagnant school, in which students are taught length-weight relationships and other trivial aspects of their field with the same gravity as if they were earth-shaking discoveries, in which totally outdated foreign work is cited with gusto, and in which recent model developments by *Indian scientists* are ignored.

"But there are in India . . . many technically competent, well-motivated, critical and imaginative scientists, able to undertake or direct first-class research in all fields".² Clearly, as evidenced by his manual reviewed here, M. Devaraj is among those. D. Pauly

¹ See Arunachalam, S. 1979. Scientific Journals in India: Their Relevance to International Science. *Science Today*, March 1979: 45-50 and citations therein.

² Cited from Chapter 11, p. 275, in J. Ziman. 1976. *The Force of Knowledge*. Cambridge University Press, Cambridge.