and for students taking a course in freshwater invertebrates. I think it is also likely, however, to be useful for all freshwater ecologists. Specialists may not find much that is helpful in the chapter pertaining to the group they know best, but they are likely to find much of value in the other chapters. Broadly based ecologists, not just freshwater ones, will find the book particularly useful as an intelligent introduction to the biology of groups they may have forgotten existed.

This is a book by biologists for biologists, constructed with care, professionalism and detail. I found no chapter to be disappointing, and those covering the groups I know best were fair and helpful syntheses. This book will be immediately helpful to me and my graduate and senior undergraduate students; it will be a valuable reference in several of our biology courses such as limnology, ecology and invertebrate biology. If we offered a course in freshwater invertebrates, we would use this volume as a textbook.

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POPULATION BIOLOGY OF SEALWORM (*PSEUDOTERRANOVA DECIPIENS*) IN RELATION TO ITS INTERMEDIATE AND SEAL HOSTS. *Based on two workshops held in Halifax, Nova Scotia, April 1987 and June 1988. Canadian Bulletin of Fisheries and Aquatic Sciences, Volume 222.*

Edited by W. D. Bowen. Canadian Government Publishing Centre, Ottawa. $39.00 (paper). viii + 306 p.; ill.; no index. ISBN: 0-660-13357-1. 1990.

This volume contains 18 articles reviewing original research in the biology of the sealworm, the most economically important fish nematode in North Atlantic waters. In addition, it is a potential pathogen to humans. The articles are grouped into the following sections: (1) Historical Background (1 paper); (2) Hatching and Infection of Intermediate Hosts (7 papers); (3) Infection of Definitive Hosts (1 paper); (4) Seal Ecology (6 papers); and (5) Models (3 papers). Each section is preceded by a short review on the subject. The contributors to the papers are well-qualified fish nematologists and specialists in seal ecology; most contributors are Canadian. The title of the book is somewhat misleading, as the book deals with the sealworm in eastern Canada only (except for one article on smelt as hosts of the sealworm in Germany).

The change in the generic name of the sealworm or codworm from *Ascaris, Porrocaecum, Terranova* and *Phopcascaris* to *Pseudoterranova* is reviewed in the first section. The increasing abundance of sealworms in the flesh of benthic fish such as cod and flatfishes is linked to the increase in abundance of the main definitive host, the grey seal. Well-documented experiments show that newly hatched larvae (L2 or L3) were transmitted directly to benthic copepods and amphipods, but that sealworms were more efficiently transmitted to macroinvertebrates such as amphipods, isopods, shrimps and polychaetes via copepod carrier hosts. The article on larval anisakine nematodes in fish species reviews records of *Pseudoterranova decipiens* (or rather a complex of morphologically similar sibling species) and the herringworm (the *Anisakis simplex* complex), and discusses the divergence in their distribution in North Atlantic fishes. The livers of the fish were apparently not examined and the occurrence of the sealworm in fish liver was not discussed.

Most information is clearly presented and well documented, and there are thorough references at the end of each paper. Parts of the book, especially the papers dealing with models, are not easily accessible to nonspecialists. The only (three) micrographs show larvae in amphipods. The book would have been more valuable if micrographs or drawings of the different developmental stages had been included. This book is indispensable for nematologists working not only on the sealworm, but also on other anisakide nematodes.

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STUDIES ON LARGE BRANCHIOPOD BIOLOGY AND AQUACULTURE. *Based on a symposium held in Belgium, 9-12 August 1989. Developments in Hydrobiology, Volume 64.*

Edited by D. Belk, H. J. Dumont, and N. Munuswamy. Kluwer Academic Publishers, Dordrecht and Boston (Massachusetts). $176.00. xii + 288 p.; ill.; index. ISBN: 0-7923-1169-8. [Reprinted from *Hydrobiologia*, Vol. 212 (1991).] 1991.

Twenty-six papers presented in the first international symposium on euphyllopods, the large branchiopod crustaceans, and six manuscripts selected by the editors during "peer" review, probably for the journal *Hydrobiologia*, were collected to make these symposium proceedings. There are five sections: Aquaculture, Ecology, Genetics, Morphology, and Taxonomy and Geographic Distribution.

Papers in the first section, providing data for growth in relation to ration and cultural conditions, are informative especially to those concerned with the commercial side of anostracans. Most papers in the second section are simple descriptions of life history and environmental relationships. Exceptions are that by Blaustein and Margalit, which focuses on direct and indirect effects of *Bacillus thuringiensis* var *Israelensis*, a bacterial mosquito larvicide, to three anostracan species, and that by Thiéry, which considers complex abiotic features

in relation to multispecies coexistence under long-term observation. The third section consists of three papers. The one by Sassaman is a good genetic study on sex ratio variation of notostracans, but the other two appear to be out of place and should be placed in the fifth section. Using quite preliminary data of isoelectric focusing, Navarro et al. struggle to rationalize the use of this technique for studying population subdivision. The majority of the papers in the fourth and fifth sections are descriptions of morphology and of geographic variation, geographic distributions, and new species. The paper by Thiéry and Gasc is a good one, testing the taxonomical value of size and external morphology of resting eggs in Notostraca, Anostraca and Spinicaudata, with nice scanning electron microscope photographs. It provides important information for phylogenetic relationships among species, although the discussion does not *seem* to contain reasonable speculation.

Taken as a whole, the papers are uneven in quality, and would be enhanced by additional theoretical considerations. This book is a mixture of wheat and chaff, which is typical for proceedings volumes. There are omissions and errors of various kinds, and it is doubtful whether there was "peer" review. Nevertheless, this book might be useful for further study of this group, and this may persuade some libraries to add it to their collection.

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ACANTHASTER PLANCI: MAJOR MANAGEMENT PROBLEM OF CORAL REEFS.

By Charles Birkeland and John S. Lucas. CRC Press, Boca Raton (Florida). $159.95. viii + 257 p.; ill.; index. ISBN: 0-8493-6599-6. 1990.

This extremely comprehensive and well-organized book is probably directed primarily toward reef managers, but it frequently contains more information than would be necessary for the majority of managers. Marine biologists and other professionals should find it very useful as a state-of-the-art review (albeit up to mid-1989) of this very important starfish of coral reefs. The book contains references to no less than 1129 sources of information (with 976 direct references to *Acanthaster planci* and related topics). Certain sections of the book should be essential reading for journalists covering stories on reef issues and in particular, on crown-of-thorns outbreaks. The recent history of public debate and perceptions is also handled well by the authors.

The approach the authors take is to describe the uniqueness of *Acanthaster planci* within the coral reef system, and to emphasize the degree to which its behavior and effects of feeding on the coral reef community can vary with sometimes quite subtle changes in circumstances. Once this message is fully comprehended, it is understandable how much of an "issue" *A. planci* becomes, and continues to be from time to time. Over half of the text is devoted to an exhaustive review of the known scientific data covering every conceivable topic, including the rubbery nature of some definitions that lead to misunderstandings. The section on ecological interactions is organized from a number of partly overlapping perspectives, and as such gives the reader a sense of repetition of some topics. It may be wiser when reading this section to jump about within the subsections according to one's particular interests.

The latter part of the book is devoted to detailed methods for controlling unwanted outbreaks and to possible expectations of control options, gleaned from hard-earned experience. In fact, throughout the book, all of the management problems related to the starfish phenomenon are confronted by the authors without fear or favor and are presented in a balanced, informative and refreshingly easy-to-read style. The last four pages on possible causes of outbreaks succinctly presents the current position of knowledge at the time of writing, and as such act as a summary of the preceding scientific data presented throughout the book. Despite the wealth of knowledge already available, the authors conclude that much more still needs to be known to firmly establish the hypothesized link between anthropogenic influences and outbreaks.

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NEW PERSPECTIVES IN SPONGE BIOLOGY. *Based on a conference held in Woods Hole, Massachusetts, 17-23 November 1985.*

Edited by Klaus Rützler. Smithsonian Institution Press, Washington, D. C. $50.00. ix + 533 p.; ill.; no index. ISBN: 0-87474-784-8. 1990.

The proceedings of a 1985 conference are now made available to a wider audience, with bibliographies updated through 1988. The breadth of topics in the symposium reflects the multifaceted nature of modern sponge studies, and the value of sponges as material for many types of biological inquiry. Section titles range from biochemistry and chemotaxonomy, through histology and developmental biology, to ecophysiology and evolutionary biology. Papers of particular breadth and interest to nonspecialists include studies on algal-sponge associations by Rützler, poriferan affinities of Mesozoic stromatoporoids by Wood, and flagellated chamber structure by both Boury-Esnault et al. and Langenbruch and Scalera-Liaci. Misevic et al. provide additional evidence against the ancient