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T. TAMMINEN AND H. KUOSA [eds.]. 1998. **Eutrophication in planktonic ecosystems: Food web dynamics and elemental cycling**. Kluwer Academic Publishers, Dordrecht, The Netherlands. viii + 344 p. US\$159. ISBN 0792351118.

This book highlights recent European work on plankton ecology and eutrophication as presented at the fourth international PELAG symposium, held in Helsinki, Finland, in August 1996. This meeting focused on four main subjects: elemental cycling, food web dynamics, the relative balance between resource limitation and grazing, and physical-biological coupling. The book includes short introductory and concluding papers, four review papers by keynote speakers, and 24 contributed papers.

The contributed papers include studies of nutrient limitation of phytoplankton growth; how carbon, nitrogen, and phosphorus cycle within the planktonic food web; microbial processes; the balance between bottom-up and top-down factors in controlling food web dynamics; retention vs. export food chains; and physical-biological coupling. Many papers focus on careful descriptions of spatial variability (horizontal, vertical, or both). The message seems to be that there is much to be learned from high resolution sampling, as demonstrated by Truu et al.'s exploration of bacterial numbers and productivity as a function of spatial structure and underlying environmental factors.

One of the strengths of this volume is its diversity, both geographic (at least 17 countries are represented) and across the salinity gradient (there are papers from lakes, estuaries, and coastal seas). As a freshwater specialist seeking to expand my understanding of marine systems, I found the review papers by Glibert, Kiørboe, and Wassman to be useful guides to the literature on nutrient cycling, food web regulation, and retention vs. export food chains. Sarvala's concluding chapter indicates that there are some important similar-

ities in planktonic processes across salinity gradients, and that those differences that do occur may result from differences in physical energy. This is good news, and suggests that it may be possible to develop strategies for dealing with eutrophication that work across different types of aquatic ecosystems.

Unfortunately, the book also has some weaknesses. Eutrophication of freshwater, estuarine, and marine systems is a major worldwide problem and has long been a challenge to aquatic science. It thus presents a good opportunity to blend basic and applied research. However, despite the emphasis on eutrophication in the title, the book is clearly oriented towards basic plankton research, with little or no attempt to connect the results to the management of eutrophication. The preponderance of short-term descriptive studies and the near-absence of experimental tests of mechanistic hypotheses also disappointed me. Finally, the quality of the contributed papers varies widely, making it difficult to justify the book's high price.

Although I would not recommend its purchase, this book is worth perusing at your library (it was also published as volume 363 of *Hydrobiologia*). It provides a good overview of current European research on eutrophication and North Americans (especially students) seeking to extend their knowledge of aquatic science research in other parts of the world will find much of interest in it. Limnologists interested in finding out what their marine counterparts are doing in this field, as well as oceanographers with interests in particular subject areas, should also take a quick look at it.

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