

## BOOK NOTICES

Creath, R., Maienschein, J., editors. *Biology and epistemology*. xviii, 295p. Cambridge University Press, 2000. Price £12.95 (Paperback).

This set of original essays explores a range of diverse issues at the intersection of biology and epistemology. The volume is organized into three sections. The first focuses on a central idea of the nineteenth century: evolution and its contemporary philosophy of science. The second set of papers moves to this century and to the virtual explosion of laboratory and experimental research. The third section discusses the nature and role of argument, considers issues of objectivity and other goals in science, and examines the way those have changed over time in response to a diversity of factors.

De Mora, S.J., Demers, S., Vernet, M., editors. *The effects of UV radiation in the marine environment*. x, 324p. Cambridge University Press, 2000. Price £50.00.

This book provides a comprehensive review of UV radiation effects specifically in the marine environment. A multidisciplinary approach is adopted to discuss all aspects from physical, chemical and biological perspectives. The book begins by describing the attenuation of UV radiation in the atmosphere and seawater, outlining the photochemical reactions involved and highlighting the role that such chemistry can play in influencing the biogeochemical cycling of various elements. The deleterious consequences of such radiation on organisms are discussed, from viruses and bacteria through phytoplankton and zooplankton to fish and mammals. The strategies adopted by these organisms to migrate such harmful repercussions and a synthesis of the UV-induced response at a community level are also considered.

Dover, C.L., van. *The ecology of deep-sea hydrothermal vents*. xx, 424p. Princeton, New Jersey: Princeton University Press, 2000. Price £53.50 (Cloth), £24.95 (Paperback).

Written for scientists, undergraduate and postgraduate students, the book explains what is known about hydrothermal systems in terms of their deep sea environment and their geological and chemical makeup. Chapters cover topics such as microbial ecology, trophic relationships, reproductive ecology, community dynamics, physiological ecology, evolution and biogeography.

Fingerman, M., Nagabhushanam, R., editors. *Recent advances in marine biotechnology*. Volume 4—*Aquaculture*. Part A: *Seaweeds and invertebrates*; Part B: *Fishes*. ix, 291p.; ix, 248p respectively. Enfield, New Hampshire: Science Publishers, Incorporated, 2000. Price £58.00 (Part A), £52.00 (Part B).

Aquaculture, the fourth volume in the series *Recent advances in marine biotechnology* is published in two parts. The book covers not only the aquaculture of shellfish and finfish, but also seaweeds. Chapters provide information

on development that should lead to better ways to grow these organisms in controlled environments.

Fingerman, M., Nagabhushanam, R., editors. *Recent advances in marine biotechnology*. Volume 5: *Immunobiology and pathology*. x, 382p. Enfield, New Hampshire: Science Publishers, Incorporated, 2000. Price £64.00.

This book, the fifth in the *Recent advances in marine biotechnology* series, discusses advances in the understanding of the immune systems of fin and aquatic invertebrates. Covering both immunobiology and pathology as they relate to biotechnology, this volume should be of interest both to scientists and those involved in aquaculture.

Fingerman, M., Nagabhushanam, R., Thompson, M.-F., editors. *Recent advances in marine biotechnology*. Volume 3: *Biofilms, bioadhesion, corrosion, and biofouling*. viii, 302p. Enfield, New Hampshire: Science Publishers, Incorporated, 1999. Price \$88.00.

A major aim of the editors in selecting the topics presented in this volume was to provide in one place reviews of the striking advances being made in our understanding of the formation and role of biofilms and how bioadhesion occurs, with the idea in mind that these presentations will provide insight into ways to reduce the impact of corrosion and biofouling on the marine environment. Biotechnology has already made a significant impact toward resolving some of the problems that face those working with marine ecosystems. Corrosion and biofouling are responsible for major financial losses in marine operations world-wide. A better understanding of the role of biofilms in the settlement of fouling organisms, for example, may lead to more effective, environmentally friendly fouling controls.

Hall, S.J. *The effects of fishing on marine ecosystems and communities*. xii, 274p. Oxford: Blackwell Science, 1999. Price £55.00.

The book is divided into four sections covering the direct and indirect effects of fishing on fish populations and marine ecosystems, system level perspectives and fisheries management. This book will be of value to fisheries biologists and managers, environmental biologists, ecologists and oceanographers.

Hanson, R.B., Ducklow, H.W., Field, J.G., editors. *The changing ocean carbon cycle: a midterm synthesis of the Joint Global Ocean Flux Study*. xii, 514p. Cambridge University Press, 2000. Price £75.00 (Paperback). [International Geosphere-Biosphere Programme, Book Series 5.]

The Joint Global Ocean Flux Study (JGOFS) is the first multidisciplinary programme to address directly the interactions between the biology, chemistry and physics of

marine systems, with emphasis on the transport and transformations of carbon within the ocean and across its boundaries. This unique volume, written by an international panel of scientists, provides a synthesis of JGOFS science and its achievements to date. It will therefore appeal to all those seeking a recent overview of the role of ocean processes in Earth system science and their wider implications on climate change.

Howell, B.R., Mosksness, E., Svåsand, T., editors. *Stock enhancement and sea ranching*. ix, 606p. Fishing News Books, 1999. Price £89.50.

This work, based on the first International Symposium on *Stock enhancement and sea ranching*, presents and discusses advances in stock management techniques and their consequences. Priorities for future research in this area are identified.

Kaiser, M.J., De Groot, S.J. *The effects of fishing on non-target species and habitats. Biological, conservation and socio-economic issues*. xvi, 399p. Oxford: Blackwell Science, 2000. Price £69.50.

The emphasis of the book centres on the impact of fishing activities on marine habitats and biota and the mechanisms of minimizing these effects.

Little, C. *The biology of soft shores and estuaries*. ix, 252p. Oxford University Press, 2000. Price £19.50 (Paperback).

*The biology of soft shores and estuaries* addresses marine and estuarine soft sediments as habitats, then discusses the ecosystems found on estuarine and lagoonal habitats, sandy shores, mudflats and sea grass beds, salt marshes and mangrove swamps. Adaptations of organisms to these environments are described. Human impact on these habitats is also considered.

Mann, J., Connor, R.C., Tyack, P.L., Whitehead, H., editors. *Cetacean societies. Field studies of dolphins and whales*. vii, 433p. London: University of Chicago Press, 2000. Price £54.00.

*Cetacean societies* presents a synthesis and review on studies of cetacean behaviour and methodology, and summaries of major topics, including group living, male and female reproductive strategies, communication, and conservation. Appendixes cover cetacean phylogeny, evolution, and taxonomy. This volume will benefit not just students of cetology but also researchers in other areas of behavioural and conservation ecology as well as anyone with a serious interest in the world of whales and dolphins.

Massel, S.R. *Fluid mechanics for marine ecologists*. xviii, 566p. Heidelberg: Springer-Verlag, 1999. Price £57.50.

The book brings the attention of marine geologists, oceanographers and marine engineers to how ocean waters interact with, influence and constrain life in the

ocean. The physical processes are made intelligible to biologists with a modicum of mathematics and the nature of life in the sea is presented in an understandable manner for oceanographers and engineers. Classical fluid mechanics such as laminar and turbulent flow, boundary layers, and forces induced by flow are examined, together with large-scale flows, such as waves, large ocean currents, and tides. The link between hydrodynamics of ocean flows and marine ecology is demonstrated by examples of selected, well-established phenomena and processes. The CD-ROM contains 12 ready to use computer programs on the calculation, representation and simulation of various processes.

Meinesz, A. *Killer algae*. xvi, 300p. London: University of Chicago Press, 1999. Asian Marine Biology, Price £17.50.

*Caulerpa taxifolia* was introduced to the Mediterranean in the 1980s and has spread rapidly since. This book charts the events and their socio-political context from the introduction of *Caulerpa taxifolia* at Monaco through to the delayed recognition of its harmful nature.

Mills, D., editor. *The ocean life of Atlantic salmon. Environmental and biological factors influencing survival*. viii, 228p. Fishing News Books, 2000. Price £59.50.

The book highlights the environmental and biological factors affecting the survival of salmon at sea. Chapters discuss issues such as food availability, predation, climatic factors, migration and tracking of Atlantic salmon.

Mittal, A.K., Eddy, F.B., Datta Munshi, J.S., editors. *Water/air transition in biology*. xvi, 314p. Enfield, New Hampshire: Science Publishers, Incorporated, 2000. Price £63.00.

This volume addresses biological, morphological and functional aspects of vertebrates at the water/air interface, and analyses how these systems react and respond to change. The book also examines the transition from water to land environment in the context of palaeo-ecological conditions of the environment.

Naylor, P. *Marine animals of the South West*. 2nd edition. 143p. Sound Diving Publications, 2000. Price £11.95 (Paperback).

This book is intended for snorkellers, divers and anyone who loves the sea. Written around the author's underwater photographs, it aims to aid identification of the animals and, also, to illustrate their wonderfully varied forms and lifestyles. This second edition of *Marine animals of the South West* contains more information than the first. Extra material examines aspects of the lives of common animals, in addition to covering a wider variety of species. There are 200 photographs, of which 130 are new.

Qasim, S.Z. *The Indian Ocean—images and realities*. xiv, 340p. New Delhi: Oxford and IBH Publishing Company Limited, 2000. Price \$37.50.

The book discusses a wide variety of ocean subjects spread over 16 chapters. These include bottom communities, nitrogen cycling, microbiology, biofouling, genetic studies, population genetics, information technology, instrumentation needs, coastal erosion, engineering problems, and human dimension. It presents to the readers complex research findings in a manner easy to understand even to a non-scientist.

Reynolds, J.E., III, Rommel, S.A., editors. *Biology of marine mammals*. viii, 578p. Washington, DC: Smithsonian Institution Press, 1999. Price £44.95.

Taking an integrated approach to the biology of marine carnivores, cetaceans, and sirenians, 22 prominent researchers compare marine mammals with one another and with terrestrial mammals, providing a framework for fundamental biological and ecological concepts. They describe functional morphology, sensory systems, energetics, reproduction, communication and cognition, behaviour, distribution, population biology, feeding ecology and physiological adaptations. The book also includes information on marine toxicants and their possible effects on marine mammals. As an introduction for students, a reference for professionals in related fields, and a comprehensive resource for marine mammal biologists and managers, *Biology of marine mammals* provides a wealth of information that can be broadly applied.

Saksena, D.N., editor. *Ichthyology—recent research advances*. xii, 453p. Enfield, New Hampshire: Science Publishers, Incorporated, 2000. Price £65.00.

Recent ichthyological research developments are covered in this book. Chapters cover evolution, sensory perception, resource utilization, endocrinology, reproduction, zoology and survival in varying environmental conditions. This book will interest researchers in fish biology, fish farmers and aquaculturists.

Schram, F.R., Vaupel Klein, J.C. von, editors. *Crustaceans and the biodiversity crisis. Proceedings of the Fourth International Crustacean Congress, Amsterdam, The Netherlands, 20–24 July 1998*. Volume 1. xii, 1021p. Leiden, The Netherlands: Koninklijke Brill, 1999. Price £149.10.

This extensive volume presents part of the Proceedings of the Fourth International Crustacean Congress held in Amsterdam in 1998. From the five sub-themes covered at the conference, those of diversity in time and space (including systematics, phylogeny, and palaeontology), biogeography, larvae, and physiology and biochemistry (including molecular biology and genetics) are represented in this volume, along with a few contributions from other sub-themes (e.g. invasive crustacea, ecology, behaviour, and fisheries and aquaculture). The book is primarily meant for scientists working at institutes involved in research on the group (Crustacea: marine, freshwater, or terrestrial) and/or the disciplines covered. Individual carcinologists working on one of the themes

discussed in this volume, will find a wealth of interesting and timely contributions, as will other scientists working in marine or freshwater biology or in soil ecology.

Singh, R.S., Krimbas, C.B., editors. *Evolutionary genetics: from molecules to morphology*. xvii, 702p. Cambridge University Press, 2000. Price £60.00.

This collection of essays is set in an historical perspective, but it has an up-to-date coverage of material in the various fields. The areas covered are the mathematical and the molecular foundations of population genetics, molecular variation and evolution, selection and genetic polymorphisms, linkage and breeding system evolution, quantitative genetics and phenotypic evolution, gene flow and population structure, speciation, behaviour, and ecology. The volume brings out the central role of evolutionary genetics in all aspects of its connection to evolutionary biology.

Stoermer, E.F., Smol, J.P., editors. *The diatoms: applications for the environmental and earth sciences*. xii, 469p. Cambridge University Press, 1999. Price £70.00.

This volume is a summary of the expanding field of diatoms' uses in environmental and earth sciences. The major emphasis is on their use in analysing ecological problems such as climate change, acidification and eutrophication. This book should be read by environmental scientists, phycologists, limnologists, ecologists and paleoecologists, oceanographers, archeologists and forensic scientists.

Symes, D., editor. *Fisheries dependent regions*. xi, 238p. Fishing News Books, 2000. Price £79.00.

The book examines the socio-economic impact of fisheries policy on fisheries dependent regions. It also considers how these problems should be addressed through policy measures and planning procedures.

Twiss, J.R., Jr, Reeves, R.R., editors. *Conservation and management of marine mammals*. xi, 471p. Washington, DC: Smithsonian Institution Press, 1999. Price £35.95.

Emphasizing the diverse issues surrounding the conservation of marine mammals, 31 experts review the history, current status, and future implication of national and international marine mammal legislation, the concept of ecosystem management, interactions of marine mammals with fisheries, the contemporary whaling debate, and public attitudes to marine mammals. The contributors evaluate recent efforts directed at the Florida manatee, the Hawaiian monk seal, the North Atlantic right whale, and other endangered species. They also discuss strandings and die-offs, the practice of keeping marine mammals in captivity, and the regulation of marine debris pollution. The editors conclude that the conservation of marine mammals in the long term will depend on sound science, fundamental understanding of ecological relationships and the cooperative involvement of leaders from many disciplines, non-governmental organizations, and affected communities. Providing insight into issues

that involve a complex mixture of scientific, social, economic, and political considerations this volume is a valuable reference for students, scientists, conservationists, and policymakers.

Wangersky, P.J., editor. *Marine chemistry*. xiv, 228p. Heidelberg: Springer-Verlag, 2000. Price £65.00. [Handbook of Environmental Chemistry. Volume 5. Water Pollution, Part D]

The book examines areas of research in marine chemistry which have come into prominence in the past few years and which are changing the ways in which scientists look at reactions taking place in seawater. Covering topics such as photochemistry, gas exchange at the sea surface, interfacial processes and biomarkers the book

should be of interest to the graduate student and practising scientist.

Whitfield, M., Matthews, J., Reynolds, C., editors. *Aquatic life cycle strategies. Survival in a variable environment*. vii, 149p. Plymouth: Marine Biological Association of the United Kingdom, 1999. Price £15.00 (MBA members); £20.00 (non-members) (Paperback). [MBA Occasional Publications No. 6.]

The book illustrates the range of issues that must be addressed in order to understand the relationship between aquatic organisms and their habitats. It considers those aspects of life history that make aquatic organisms susceptible to changing environments and discusses the links between impacts on individuals and the consequent effects on populations and communities.