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BOOK NOTICES

Ausich, W.I. and Webster, G.D. (editors). *Echinoderm paleobiology*. xii, 456 pp. Bloomington, IN: Indiana University Press, 2008. Price 59.9 US$

This volume highlights the modern study of fossil echinoderms and is divided into five parts: echinoderm palaeoecology, functional morphology and palaeoecology; evolutionary palaeoecology; morphology for refined phylogenetic studies; innovative applications of data encoded in echinoderms; and information on new crinoid data sets.

Barange, M., Field, J.G., Harris, R.P., Hofmann, E.E., Perry, R.I. and Werner, F.E. (editors). *Marine ecosystems and global change*. xxiv, 412 pp. Oxford: Oxford University Press, 2010. Price £75.00 (hardback); £35.63 (paperback)

Global environmental change (including climate change, biodiversity loss, changes in hydrological and biogeochemical cycles and intensive exploitation of natural resources) are having significant impacts on the world's oceans. This book advances knowledge about the structure and functioning of marine ecosystems, and their past, present and future responses to physical and anthropogenic forcing. It illustrates how climate and humans impact marine ecosystems, provides a comprehensive review of the physical and ecological processes that structure marine ecosystems as well as the observation, experimentation and modelling approaches required for their study. Recognizing the interactive roles played by humans in using marine resources and in responding to global changes in marine systems the book includes chapters on the human dimensions of marine ecosystem changes and on effective management approaches in this era of rapid change. A final section reviews the state of the art in predicting the responses of marine ecosystems to future global change scenarios, with the intention of informing both future research agendas and marine management policy.

Boyd, I.L., Bowen, W.D. and Iverson, S.J. (editors). *Marine mammal ecology and conservation. A handbook of techniques*. xxiv, 450 pp. Oxford: Oxford University Press, 2010. Price £61.75 (hardback); £34.95 (paperback)

Marine mammals command a high level of public attention, reflected in specific legislation for their protection and management in many countries. They also present particular challenges to ecologists and conservation biologists. The entire range of techniques associated with the study of marine mammals is summarized in this book. Current technologies and methodologies, as well as the latest statistical approaches, to data analysis are included.

Braithwaite, V. *Do fish feel pain?* xi, 194 pp. Oxford: Oxford University Press, 2010. Price £14.99

A new and growing body of science demonstrates that fish are more intelligent and more responsive than we have previously accepted. Current scientific knowledge on the topic of fish pain is presented in this book and the philosophical and ethical issues are explored. It is suggested that we should widen the protection currently given to birds and mammals to fish.

Crowther, J.R. *The ELISA Guidebook (Methods in Molecular Biology 516)*. 2nd edition. xv, 566 pp. Totowa, NJ: Humana Press, 2009. Price £79.50

This edition enlarges on charting methods for assessing the indirect ELISA, ruggedness and robustness of tests, aspects of kit use and validation, and internal quality control and external quality management of data. Each method is described in great detail to ensure experimental success and includes advice on equipment choice, maintenance and calibration. With its numerous worked examples, detailed instructions, and extensive illustrations, *The ELISA Guidebook*, 2nd edition offers a powerful synthesis of all the basic concepts and practical experimental details investigators need to understand, develop and apply ELISA methodology successfully in the basic day-to-day clinical research.

Cyrino, J.E.P., Bureau, D.P. and Kapoor, B.G. (editors). *Feeding and digestive functions of fishes*. xiii, 575 pp. Enfield, NH: Science Publishers, 2008. Price £88.00

Few books have focused on feeding and digestion of fish in their natural habitat or in captivity. This book contains twelve chapters contributed by the international scientists actively involved in research on nutrition, feeding and digestion in fish. The chapters cover topics as diverse as, feeding ecology of fish in their natural habitat, feeding behaviour, developmental biology, anatomy and nutritional physiology of the gastrointestinal tract of different fish species at different life stages, and the effect of nutrition on growth, and health of fish. Information from studies published only in foreign languages is also reviewed.

Domenici, P. and Kapoor, B.G. (editors). *Fish locomotion. An eco-ethological perspective*. xv, 534 pp. Enfield, NH, USA: Science Publishers, 2010. Price 139.00 US$

This book aims at filling a gap in the literature, by adding behavioural and ecological viewpoints to the more traditional biomechanics, ecomorphology and physiological perspectives used in studies of fish swimming. The book is therefore largely integrative by its very nature, and it includes aspects related to fisheries, conservation and evolution. It is aimed at students and researchers interested in fish swimming from any organismal background, be it biomechanics, ecomorphology, physiology, behaviour or ecology.

Eiras, J.C., Segner, H., Wahli, T. and Kapoor, B.G. (editors). *Fish diseases*. 2 volumes. 1038 pp. Enfield, NH: Science Publishers, 2008. Price £95.00

The purpose of this book is to provide a comprehensive overview on infectious as well as non-infectious diseases of fish, with emphasis on recent advancements in our understanding of fish disease processes. This book is aimed at scientists involved in basic and applied fish research, aquaculture industry, and private and governmental fish health laboratories. It will also serve as a reference textbook for graduate courses on general parasitology, microbiology, aquaculture and environmental studies.

Genten, F., Terwinghe, E. and Danguy, A. *Atlas of fish histology*. viii, 215 pp. Enfield, NH: Science Publishers, 2009. Price £95.00

The *Atlas of fish histology* contains about 450 colour micrographs of histological sections of more than 40 fish species. It offers comprehensive coverage of normal fish histology and is the most recent reference work on this subject. The book will assist the reader to identify and understand the principal tissues

of these vertebrates. The book has 15 chapters and is intended for biologists, veterinarians, researchers and others interested in fish.

Grande, T., Poyato-Ariza, F.J. and Diogo, R. (editors). *Gonorynchiformes and ostariophysan relationships. A comprehensive review*. x, 592 pp. Enfield, NH: Science Publishers, 2010. Price £111.00 (149.50 US$)

Through a series of peer-reviewed chapters this book brings together a number of authors to examine the current knowledge about gonorynchiform biology including comparative osteology, myology, phylogenetics and palaeobiogeography. In addition to these chapters, experts currently working on each of the four otophysan subgroups provide a systematic overview of each group, including scientific disagreements yet to be resolved. The book ends with a thorough nomenclatural analysis of all gonorynchiform taxa described to date, that will serve as a practical tool to those interested in these organisms.

Gray, J.S. and Elliott, M. *Ecology of marine sediments. From science to management*. 2nd edition. xiii, 225 pp. Oxford: Oxford University Press, 2009. Price £78.00

This concise introduction to benthic ecology builds upon the strengths of the previous edition but has been thoroughly revised throughout to incorporate the new technologies and methods that have allowed a rapid and ongoing development of the field. It explores the relationship between community structure and function, and the selection of global examples ensures an international appeal and relevance. The economic value of marine sediments is reflected in the text with a new emphasis on the effects of pollution and fisheries, and the management of marine sediments. This accessible textbook is suitable for both advanced undergraduate and graduate students who have a general ecology background, but who have had no further training in benthic ecology. It will also be of relevance and use to professional researchers and consultants in marine ecology and environmental science who seek a compact but comprehensive introduction to benthic ecology.

Hallegraeff, G.M., Bolch, C.J.S., Hill, D.R.A., Jameson, I., LeRoi, J.-M., McMinn, A., Murray, S., de Salas, M.F. and Saunders, K. *Algae of Australia: phytoplankton of temperate coastal waters*. vi, 421 pp. Melbourne, Victoria: CSIRO Publishing, 2010. Price £105.00

Descriptions and illustrations are provided for 541 species of phytoplankton known from the estuarine, coastal and offshore waters of southern Australia. The book includes more than 1100 photographs and drawings, and represents the first guide for the identification of these fundamentally important microscopic algae in the temperate Australasian region. Comprehensive bibliographies and a glossary of technical terms are also included.

Helfman, G.S., Collette, B.B., Facey, D.E. and Bowen, B.W. *The diversity of fishes: biology, evolution, and ecology*. 2nd edition. xvi, 720 pp. Chichester: Wiley-Blackwell, 2009. Price £50.00

Originally published in 1997, this revised edition aims to put right several shortcomings identified by the authors, primarily, insufficient coverage of genetics. Advances and discoveries in ichthyology are included, and the book is linked to a website, through which the authors invite comment and correction. Each chapter ends with a summary and a supplementary reading list which includes websites. There is a bibliography of almost 60 pages, and the text is copiously illustrated with line drawings, photographs and maps.

Herring, P.J., Campbell, A.K., Whitfield, M. and Maddock, L. (editors). *Light and life in the sea*. 357 pp. Cambridge: Cambridge University Press, 2009. Price £23.99

Without light there would be no life in the sea. Since the seas were the cradle for the evolution of all life forms, the theme of this book is central to our understanding of the interaction between living organisms and their environment. To express the breadth of research in this area, leading experts in topics as diverse as satellite imagery and molecular biology have contributed to this collection of essays on light and life in the sea, first published in 1990.

Jamieson, B.G.M. (editor). *Reproductive biology and phylogeny of fishes (agnathans and bony fishes). (Reproductive biology and phylogeny series, Volume 8A)* xiv, 788 pp. Enfield, NH: Science Publishers, 2009. Price £94.00

Eleven of the 17 chapters in this book deal with the ultrastructure of the sperm of one or more families of fish. Other chapters are concerned with ovarian and testicular morphology, oogenesis and spermatogenesis. Each chapter is written by experts and has a substantial bibliography. The book is copiously illustrated (mostly in black and white) and has a very thorough index.

Kunz, Y.W., Luer, C.A. and Kapoor, B.G. (editors). *Development of non-teleost fishes*. 309 pp. Enfield, NH: Science Publishers, 2009. Price £61.00

Non-teleost fish include the jawless fish (hagfish and lampreys), the cartilaginous fish (sharks, rays, skates and chimaeras), the forerunners of the teleostei: the cladistia (bichirs and reedfish), the chondrostei (sturgeon and paddlefish), the neopterygii (gar pike and bowfin), and, finally, the closest relations to the tetrapods: the lungfish (the coelacanths ('living fossils'), Protopterus of Africa, Lepidosiren of South America and Neoceratodus of Australia). The present volume has been devoted to closing the gap by an up-to-date scientific review of the early life-history of these non-teleost fish (agnathi excepted).

Laughton, A.S., Gould, W.J., Tucker, M.J. and Roe, H.S.J. (editors). *Of seas and ships and scientists. The remarkable story of the UK's National Institute of Oceanography 1949–1973*. 350 pp. Cambridge: Lutterworth Press, 2010. Price £25.00

Of seas and ships and scientists is an account of a formative phase of UK science—the foundation and early years of the National Institute of Oceanography (NIO). The roots of the NIO may be found in the pre-second world war research by scientists, on Scott's 'Discovery',and in the biology of the vast Southern Ocean. These pioneers were joined by a small group of young scientists who were brought together under the leadership of Dr (later Sir) George Deacon, to learn about how to predict waves for amphibious landings. Shortly after the end of the second world war, these groups coalesced to form the core of the NIO. Discoveries made at the NIO during the 1950s, 1960s and 1970s underpin our modern-day scientific knowledge of the oceans and the seafloor. Written by NIO scientists, the chapters convey the challenges of ocean research in a bygone age before micro-electronics, small computers and satellite navigation.

Levinton, J.S. *Marine biology. Function, biodiversity, ecology*. 3rd edition. 640 pp. New York: Oxford University Press, 2009. Price £34.99

This undergraduate textbook aims to provide basic information coupled with pointers towards further resources. The 19 chapters cover topics ranging from marine organisms through the various marine environments to human impact on the sea.

Each chapter ends with a bulleted summary, Further Reading lists and Review Questions. Scattered throughout the book are essays on Hot Topics and Going Deeper, which introduce more complex issues. The book contains a glossary, journals list and index. It is linked to a website containing additional resources for teachers (lecture notes and a test bank of 400 questions) and students (interactive exercises and review aids).

Little, C., Williams, G.A. and Trowbridge, C.D. *The biology of rocky shores. (The biology of habitats series)*. 2nd edition. xiii, 356 pp. Oxford: Oxford University Press, 2009. Price £27.50

This new edition offers a concise but comprehensive introduction to rocky shore ecology and has been completely revised and updated throughout. It describes the diverse biota (invertebrates, vertebrates, seaweeds, seagrasses and microalgae) that inhabit rocky shores, and the factors that determine their distributions, abundances and interactions. The book discusses the latest research on processes that control community structure utilizing a global range of examples from a wide range of shore types—both temperate and tropical.

Lovett, J.C. and Ockwell, D.G. (editors). *A handbook of environmental management*. viii, 462 pp. Cheltenham: Edward Elgar Publishing Ltd., 2010. Price £135.00

A handbook of environmental management presents a range of case studies that demonstrate the complementary application of different social science techniques in combination with ecology-based management thinking to the natural environment. Contemporary environmental management is characterized by an increasing awareness of the need for interdisciplinary approaches. This requires managers to effectively combine insights from both the natural and social sciences in order to ensure sustainable outcomes. This handbook provides a broad overview, complemented by specific case studies and techniques that are used in environmental management from the local level to international environmental regimes.

Magnhagen, C., Braithwaite, V.A., Forsgren, E. and Kapoor, B.G. (editors). *Fish behaviour*. xiii, 648 pp. Enfield, NH: Science Publishers, 2008. Price £90.00

The book is structured to guide the reader from consideration of behavioural mechanisms that generate different categories of behaviour to how their functional effects influence fish in their day-to-day lives. To this end the chapters are divided into three different sections to consider: firstly how basic behaviours are generated; secondly, how behaviour is influenced and shaped by the local environment; and finally, how behaviour allows fish to generate complex and integrated responses to the world around them.

McLeod, K. and Heather, L. (editors). *Ecosystem-based management for the oceans*. xxii, 368 pp. Washington, DC: Island Press, 2009. Price £35.00

This book aims to gather current knowledge on the interactive and cumulative effects of multiple human activities on marine systems, and the importance of working towards common goals across sectors. It emphasizes social and ecological resilience—the extent to which a system can maintain its structure, function and identity in the face of disturbance. Its 19 chapters are collected into sections covering the history of ecosystem management, the concept, the practice, case studies and the future. Although most of the authors are North American, they cover ecosystem management across the globe. Illustrated with diagrams, tables and photographs, the book includes bibliographical references at the end of each chapter and an index.

Miller, B.S. and Kendall, A.W., Jr. *Early life history of marine fishes*. xii, 364 pp. Berkeley, CA: University of California Press, 2009. Price £41.95

Early life history of marine fishes brings together in a single reference much of the research available on the early life history of fish and its applications to the field of fishery science. For most fish adult populations are determined at the earliest stages of life. This book synthesizes an entire area of study and will benefit reproductive biologists, ecologists and evolutionary and fishery biologists. It offers expert guidance on how to collect and analyse larval fish data and explains how this information is interpreted by applied fish biologists or fisheries managers. Illustrated throughout, *Early life history of marine fishes* serves as a basic introduction to the discipline and to the additional information available in cited primary sources.

Montet, D. and Ray, R.C. *Aquaculture microbiology and biotechnology*. Volume 1. xi, 275 pp. Enfield, USA: Science Publishers, 2009. Price 99.50 US dollars

Topics addressed include the scope of microbiology and biotechnology in aquaculture, application of PCR-DGGE method in tracing the geographical origin of fish using native bacterial flora as a biological marker, application of molecular diagnostic methods in identifying bacterial and viral diseases of fish and shrimps, antibiotic resistance in aquaculture and its detrimental impact on fish genetics, DNA vaccination in aquaculture and associated concern about immunological reactions, probiotics and their beneficial uses in aquaculture, bioconversion of lignocellulosic wastes in aquaculture, transgenic fish: issues and application, and ethics, legislation, risk assessment concerning genetic engineering in aquaculture, particularly related to the release of transgenic fish into the environment. Emerging biotechnological approaches presented in this book provide in-depth accounts of approaches to improving aquaculture production and productivity, while also addressing natural resource conservation and environmental protection issues.

Morton, B. *The historical ecology of the River Arun and its beaches at Littlehampton, West Sussex: 1000 years of change. (The Ray Society Series 169)*. iv, 198 pp. London: The Ray Society, 2007. Price £35.00

Historical ecology is a new science that collates data on modern habitats and merges these with information gleaned from charts, maps, photographs and other sources of historical information to produce a more realistic picture of ecological change. Having established what has changed, reasons are sought for how and why. Such an approach allows us to understand more fully our ecological heritage and for decision-makers and managers to plan better for restoration conservation so as to allow communities to recreate lost, remnant, or vestigial habitats, even ecosystems—notably wetlands. This book is intended, through an examination of the history and coastal ecology of a virtually unstudied river on the English South Downs, its coastal port and associated beaches, to act as a general model to determine if historical ecology can reveal protection, conservation and, possibly restoration, priorities.

Oakley, J. *Seashore safaris. Exploring rocky and sandy seashores with Judith Oakley*. 224 pp. Cardiff: Graffeg, 2010. Price £9.99

This pocket guide has a wealth of photographs of sea creatures and their natural habitat. The author explains what to look for and there are panels in the book for recording findings and details of how to submit them to the marine associations. This book is ideal for amateurs, family groups or educational groups.

Patzner, R.A., Goncalves, E.J., Hastings, P.A. and Kapoor, B.G. (editors). *The biology of blennies*. xi, 482 pp. Enfield, USA: Science Publishers, 2009. Price £78.00

There is a growing awareness of the important roles played by small, bottom-dwelling fish in coastal marine ecosystems. Prominent among these are the blennies, a lineage of perciform fish that includes 883 species allocated among six families. Research on these fish is summarized in this book by over 20 experts. The book begins with a review of blennioid systematics, followed by sections on biogeography, feeding and sensory biology, reproduction and development, and ecology and behaviour. At the end is a list of the currently recognized species. This timely summary lays important groundwork for continued research on these fascinating fish.

Pietsch, T.W. *Oceanic anglerfishes: extraordinary diversity in the deep sea*. xii, 557 pp. Berkeley, CA: University of California Press, 2009. Price £61.00

This fully illustrated book aims to satisfy the needs of students and professional ichthyologists alike. The author delivers a comprehensive summary of all that is known about these fish. The first half of the book covers an historical account and various aspects of the biology of anglerfish—morphology, biodiversity, evolution, geographical distribution, bioluminescence, locomotion, feeding and reproduction. The second half contains a detailed classification of all known families, genera and species, based on all the available material in some 90 institutions worldwide. The book also contains a glossary, bibliography and index.

Poulsen, R.T. *An environmental history of North Sea ling and cod fisheries, 1840–1914. (Fiskeri-og Sofartsmuseets Studieserie nr. 22)*. 306 pp. Esbjerg: Fiskeri-og Sofartsmuseets Forlag, 2007. Price 100 Danish kroner

Based on the author's PhD, this book is primarily concerned with the Swedish longline fishery industry which operated in the North Sea and the Skaggerak, and includes information on the fishery industries of other European countries operating in the area, as well as a chapter on the Shetland fisheries. Using archival data as well as published sources, the author examines catch rates, abundances, expansion and contraction of the fisheries, and the social organization of the fishing communities.

Roberts, J.M., Wheeler, A.J., Freiwald, A. and Cairns, S.D. *Cold-water corals. The biology and geology of deep-sea coral habitats*. xvi, 334 pp. Cambridge: Cambridge University Press, 2009. Price £65.00

This book describes the ecology, biology, palaeontology and geology of deep sea corals. The authors begin with a history of research in the field and conclude with the conservation of coral habitats. Topic boxes explain unfamiliar concepts, and case studies summarize significant studies, coral habitats or particular conservation measures. Written for professionals and students of marine science, the text is enhanced by a glossary, an extensive bibliography, and an index. Lavishly illustrated with colour and black-and-white photographs and line drawings, as well as charts and tables, the book also includes a link to a website which promises video clips from coral habitats and an appendix listing all valid recent azooxanthellate scleractinian corals with their junior synonyms and depth-ranges.

Saintilan, N. (editor). *Australian saltmarsh ecology*. xi, 236 pp. Collingwood, Victoria: CSIRO Publishing, 2009. Price £60.50

Australian saltmarsh ecology presents the first comprehensive review of the ecology and management of Australian saltmarshes. The past 10 years in particular have seen a sustained research effort into this previously poorly understood and neglected resource. In 10 chapters contributed by experts in each discipline, the book outlines what is known of the biogeography and geomorphology of Australian saltmarshes, their fish and invertebrate ecology, the use of Australian saltmarshes by birds and insectivorous bats, and the particular challenges of management, including the control of mosquito pests, and the issue of sea-level rise. It provides a powerful argument that coastal saltmarshes are a unique and critical habitat vulnerable to the combined impacts of coastal development and sea-level rise.

Saunders, W.B. and Landman, N.H. (editors). *Nautilus. The biology and paleobiology of a living fossil. (Volume 6. Topics in Geobiology)*. Reprint with additions. lxxvii, 632 pp. Berlin: Springer-Verlag, 2010. Price 199.95€.

This volume is a reprint of a classic book about Nautilus, first published in 1987, with an introductory chapter summarizing all of the work on Nautilus and its habitat since the publication of the first edition more than 20 years ago. The surge in articles in the last two decades indicates an expanded interest in the subject, reflecting a renewed appreciation of the complexity and fragility of the marine habitat and its biota. The 37 chapters are written by 48 experts in the field and cover all aspects of this living fossil from its ecology to its embryology. This volume also features new photographs, including an impressive image of one of the first hatched Nautilus in captivity. Nautilus is an iconic animal in the marine realm and represents part of the diverse fauna of the Indo-Pacific. It is also a member of a lineage of shelled cephalopods dating back more than 400 million years. As a result, this volume will be relevant to the fields of marine science, evolutionary biology and palaeontology.

Smol, J.P. and Stoermer, E.F. (editors). *The diatoms. Applications for the environmental and earth sciences*. 2nd edition. xviii, 667 pp. Cambridge: Cambridge University Press, 2010. Price £115.00

This much revised and expanded edition provides a valuable and detailed summary of the many uses of diatoms in a wide range of applications in the environmental and earth sciences. Particular emphasis is placed on the use of diatoms in analysing ecological problems related to climate change, acidification, eutrophication and other pollution issues. The chapters are divided into sections for easy reference, with separate sections covering indicators in different aquatic environments. A final section explores diatom use in other fields of study such as forensics, oil and gas exploration, nanotechnology and archaeology. Sixteen new chapters have been added since the 1st edition, including introductory chapters on diatom biology and the numerical approaches used by diatomists. The extensive glossary has also been expanded and now includes over 1000 detailed entries, which will help non-specialists to use the book effectively.

Snelgrove, P.V.R. *Discoveries of the Census of Marine Life. Making ocean life count*. xvi, 270 pp. Cambridge: Cambridge University Press, 2010. Price £60.00 (hardback); £27.99 (paperback)

Over the 10-year course of the recently completed Census of Marine Life, a global network of researchers in more than 80 nations has collaborated to improve our understanding of marine biodiversity— past, present and future. Providing insight into this remarkable project, this book explains the rationale behind the Census and highlights some of its most important and dramatic findings, illustrated with full-colour photographs throughout. It explores how new technologies and partnerships have contributed to greater knowledge of marine life, from unknown species and habitats, to migration routes and distribution patterns, and to a better appreciation of how the oceans

are changing. Looking to the future, it identifies what needs to be done to close the remaining gaps in our knowledge, and provides information that will enable us to manage resources more effectively, conserve diversity, reverse habitat losses and respond to global climate change.

Suthers, I.M. and Rissik, D. (editors). *Plankton. A guide to their ecology and monitoring for water quality*. xvi, 256 pp. Collingwood, Victoria: CSIRO Publishing, 2009. Price £31.95

This practical book provides a comprehensive introduction to the biology and ecology of plankton and describes their use as a tool for monitoring water quality. All the major freshwater and coastal phytoplankton and zooplankton groups are covered and their associated environmental issues are discussed. A chapter on best practice in sampling and monitoring explains how to design, implement and conduct meaningful phytoplankton and zooplankton monitoring programmes in marine and freshwater habitats, as well as how to analyse and interpret the results for effective management decision-making. Real-life case studies demonstrate the use of plankton for identifying and monitoring water quality issues.

Thomas, D.N. and Dieckmann, G.S. (editors). *Sea ice*. 2nd edition. xv, 621 pp. Chichester: Wiley-Blackwell, 2010. Price £89.99

As the Arctic perennial sea ice continues to disappear at an alarming rate, a full understanding of sea ice as a crucial global ecosystem, and the effects of its loss is vital for all those working with and studying global climate change. Building on the success of the previous edition, the second edition of *Sea ice*, now much expanded and in full colour throughout, includes six completely new chapters with complete revisions of all the chapters included from the 1st edition. This book would be of interest to all those involved in the study of global climate change including oceanographers and marine scientists, environmental scientists, biologists, geochemists and geologists.

Vogel, S. *Glimpses of creatures in their physical worlds*. xii, 302 pp. Princeton, NJ: Princeton University Press, 2009. Price £52.00 (hardback); £24.95 (paperback)

Glimpses of creatures in their physical worlds describes how the characteristics of the physical world drive the designs of animals and plants. These characteristics impose limits but also create opportunities for the functional biology of organisms. In particular, the size and scale, and trade-offs among different physical processes are examined. Attention is paid to how the forms and activities of animals and plants reflect the materials available to nature, and the unique constraints and possibilities provided by fluid flow, structural design, and environmental forces are explored. Each chapter of the book investigates a facet of the physical world, including the drag on small projectiles; the importance of diffusion and convection; the size-dependence of acceleration; the storage, conduction, and dissipation of heat; the relationship among pressure, flow, and choice in biological pumps; and how elongate structures tune their relative twistiness and bendiness. Drawing examples from creatures of land, air, and water, the book demonstrates the many uses of biological diversity and how physical forces impact biological organisms.

Witman, J.D. and Kaustuv, R. (editors). *Marine macroecology*. xv, 424 pp. Chicago, IL: University of Chicago Press, 2009. Price £65.50

Pioneered in the late 1980s, the concept of macroecology—a framework for studying ecological communities with a focus on patterns and processes—revolutionized the field. Although this approach has been applied mainly to terrestrial ecosystems, there is increasing interest in quantifying macroecological patterns in the sea and understanding the processes that generate them. Taking stock of the current work in the field and advocating a research agenda for the decades ahead, *Marine macroecology* draws together insights and approaches from a diverse group of scientists to show how marine ecology can benefit from the adoption of macroecologial approaches. Divided into three parts, *Marine macroecology* first provides an overview of marine diversity patterns and offers case studies of specific habitats and taxonomic groups. In the second part, contributors focus on process-based explanations for marine ecological patterns. The third part presents new approaches to understanding processes driving the macroecological patterns in the sea.

Zaccone, G., Meseguer, J., Garcia-Ayala, A. and Kapoor, B.G. (editors). *Fish defenses. Volume 1: Immunology*. xii, 375 pp. Enfield, NH: Science Publishers, 2009. Price £90.00

The study of immunological fish defences has advanced considerably in recent decades, largely driven by the expansion of aquaculture and the need to control fish diseases. The objective of this book is to present a compilation of some of the main findings that reflect current thinking on fish immune defences. Most of the chapters review the current advances and outline perspectives for future research. The book will be of interest to scientists involved in fish immunology, fisheries and aquaculture as well as students of fish biology. Each chapter ends with a bibliography and the book is further enhanced with tables, diagrams and an index.

Zaccone, G., Perriere, C., Mathis, A. and Kapoor, B.G. (editors). *Fish defenses. Volume 2: pathogens, parasites and predators*. xiii, 400 pp. Enfield, NH: Science Publishers, 2009. Price £96.00 (129.50 US$)

Dramatic changes in the environment, including habitat degradation and climate change, have focused attention on how individuals and populations respond to a shifting biotic and abiotic landscape. A critical step toward meeting this goal is a clear understanding of the capacity of individuals to defend themselves against threats. Changes in water quality and temperature have direct and indirect effects on fish. Defensive responses can occur at many levels, from cellular to behavioural actions. The authors in this volume have attempted to provide a general view of the current state of knowledge of fish defenses with respect to pathogens, parasites, and predators, and to point out gaps where further study is needed.