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F2IQSA - KEIRA SIMPSON

The interdisciplinary field of marine chemical ecology is an expanding and dynamic science. It is no surprise that the breadth of marine organisms studied expanded in concert with developments in underwater technology. With its up--to-date subject reviews by experts, Marine Chemical Ecology is the most current, comprehensive book on the subject. The An up-to-date atlas of an important fossil and living group,with the Natural History Museum. Deep-sea benthic foraminifera have played a central role inbiostratigraphic, paleoecological, and paleoceanographical researchfor over a century. These single--celled marine protists areimportant because of their geographic ubiquity, distinctionmorphologies and rapid evolutionary rates, their abundance anddiversity deep–sea sediments, and because of their utility asindicators of environmental conditions both at and below thesediment–water interface. In addition, stable isotopic dataobtained from deep--sea benthic foraminiferal tests providepaleoceanographers with environmental information that is provingto be of major significance in studies of global climaticchange. This work collects together, for the first time, new morphologicaldescriptions, taxonomic placements, stratigraphic occurrence data,geographical distribution summaries, and palaeoecologicalinformation, along with state-of-the-art colour photomicrographs(most taken in reflected light, just as you would see them usinglight microscopy), of 300 common deep-sea benthic foraminiferaspecies spanning the interval from Jurassic - Recent. This volumeis intended as a reference and research resource for post-graduatestudents in micropalaeontology, geological professionals(stratigraphers, paleontologists,

paleoecologists,palaeoceanographers), taxonomists, and evolutionary(paleo)biologists.
Foraminiferal cultures now serve as tools for researching biological, environmental, and geological topics. However, the biological backgrounds, in particular the natural histories of foraminifera, largely remain unclear. It is also true that the different techniques used in different subdisciplines are a setback to fully understanding the subject. Taken together, these factors prevent progress in experimental approaches to foraminiferal studies. This book aims to share and exchange knowledge between researchers from different subdisciplines, and the book should interest not only foraminiferal researchers but also scientists who are working with marine organisms to explore questions in relation to biology, geology, and oceanography.
A one-stop practical guide to foraminifera with numerous case studies demonstrating their applications, for graduate students, micropalaeontologists and industry professionals.

Marine sediments dominate the global seabed, creating the largest ecosystem on earth. Seafloor biodiversity is a key mediator of ecosystem functioning, yet critical processes are often excluded from global biogeochemical budgets or simplified to black boxes in ecosystem models. This accessible textbook provides an ideal point of entry into the field, providing basic information on the nature of soft-sediment ecosystems, examples of how and why we research them, the new questions these studies inspire, and the applications that ultimately benefit society. While focussing on coastal habitats (
The book features comparative perspectives on the field of chemical ecology, present and future, offered by scientists from a wide variety of disciplines. The scientists contributing to this book –biologists, ecologists, biochemists, chemists, biostatisticians – are interested in marine, freshwater and terrestrial ecosystems and work on life forms ranging from micro-organisms to mammals, including humans, living in areas from the tropics to polar regions. Here, they cross their analyses of the present state of chemical ecology and its perspectives for the future. Those presented here include complex, multispecies communities and cover a wide range both of organisms and of the types of molecules that mediate the interactions between them. Up to now, no book has presented a solid scientific treatment of a wide range of examples. This book illustrates a diverse panel of the most advanced aspects of this rapidly expanding field.
River networks are critically important ecosystems. This interdisciplinary book provides an integrated ecohydrological framework blending laboratory, field, and theoretical evidence that changes our understanding of river networks as ecological corridors. It describes how the physical structure of the river environment impacts biodiversity, species invasions, population dynamics, and the spread of waterborne disease. State-of-the-art research on the ecological roles of the structure of river networks is summarized, including important studies on the spread and control of waterborne diseases, biodiversity loss due to water resource management, and invasions by non-native species. Practical implications of this research are illustrated with numerous examples

throughout. This is an invaluable go-to reference for graduate students and researchers interested in river ecology and hydrology, and the links between the two. Describing new related research on spatially-explicit modeling of the spread of waterborne disease, this book will also be of great interest to epidemiologists and public health managers.

The continuing global decline of the health of the sea, and the increasing depletion of marine resources and biodiversity, caused by human activity and climate change, have led to ever-increasing international concern. These changes in the marine environment highlight the importance of effective monitoring of the ecology of the benthos which has been shown to be a sensitive index of such alterations. Completely revised and updated to include many new methods and technologies, this Fourth Edition of Methods for the Study of Marine Benthos provides comprehensive coverage on the tools and techniques available to those working in the area. Commencing with an overview of the design and analysis of benthic surveys, the book continues with chapters covering the sedimentary environment, imaging and diving techniques, macro- and meiofauna techniques, deep sea sampling, energy flow and production. An additional new chapter provided in this edition covers phytobenthos techniques. Written by many of the world's leading authorities in marine sampling techniques and use, and edited by Professor Anastasios Eleftheriou, this comprehensive Fourth Edition is an essential tool for all marine and environmental scientists, ecologists, fisheries workers and oceanographers. Libraries in all research establishments and universities where these subjects are studied and taught will find this book to be a hugely valuable addition to their collections.

This book began life as a series of lectures given to second and third year undergraduates at Oxford University. These lectures were designed to give students insights as to how marine ecosystems functioned, how they were being affected by natural and human interventions, and how we might be able to conserve them and manage them sustainably for the good of people, both recreationally and economically. This book presents 10 chapters, beginning with principles of oceanography important to ecology, through discussions of the magnitude of marine biodiversity and the factors influencing it, the functioning of marine ecosystems at within trophic levels such as primary production, competition and dispersal, to different trophic level interactions such as herbivory, predation and parasitism. The final three chapters look at the more applied aspects of marine ecology, discussion fisheries, human impacts, and management and conservation. Other textbooks covering similar topics tend to treat the topics from the point of view of separate ecosystems, with chapters on reefs, rocks and deep sea. This book however is topic driven as described above, and each chapter makes full use of examples from all appropriate marine ecosystems. The book is illustrated throughout with many full colour diagrams and high quality photographs. The book is aimed at undergraduate and graduate students at colleges and universities, and it is hoped that the many examples from all over the world will provide global relevance and interest. Both authors have long ex-

perience of research and teaching in marine ecology. Martin Speight's first degree was in marine zoology at UCNW Bangor, and he has taught marine ecology and conservation at Oxford for 25 years. His research students study tropical marine ecology from the Caribbean through East Africa to the Far East. Peter Henderson is a Senior Research Associate at the University of Oxford, and is Director of Pisces Conservation in the UK. He has worked on marine and freshwater fisheries, as well as ecological and economic impacts and exploitation of the sea in North and South America as well as Europe.

A derivative of the Encyclopedia of Inland Waters, River Ecosystem Ecology reviews the function of rivers and streams as ecosystems as well as the varied activities and interactions that occur among their abiotic and biotic components. Because the articles are drawn from an encyclopedia, the articles are easily accessible to interested members of the public, such as conservationists and environmental decision makers. Includes an up-to-date summary of global aquatic ecosystems and issues Covers current environmental problems and management solutions Features full-color figures and tables to support the text and aid in understanding

The book describes and discusses the numerical methods which are successfully being used for analysing ecological data, using a clear and comprehensive approach. These methods are derived from the fields of mathematical physics, parametric and nonparametric statistics, information theory, numerical taxonomy, archaeology, psychometry, sociometry, econometry and others. Compared to the first edition of Numerical Ecology, this second edition includes three new chapters, dealing with the analysis of semiquantitative data, canonical analysis and spatial analysis. New sections have been added to almost all other chapters. There are sections listing available computer programs and packages at the end of several chapters. As in the previous English and French editions, there are numerous examples from the ecological literature, and the choice of methods is facilitated by several synoptic tables.

During the last decades there has been an increasing evidence of drastic changes in marine ecosystems due to human-induced impacts, especially on benthic ecosystems. The so called "animal forests" are currently showing a dramatic loss of biomass and biodiversity all over the world. These communities are dominated by sessile suspension feeder organisms (such as sponges, corals, gorgonians, bivalves, etc.) that generate three-dimensional structures, similar to the trees in the terrestrial forest. The animal forest provide several ecosystem services such as food, protection and nursery to the associated fauna, playing an important role in the local hydrodynamic and biogeochemical cycles near the sea floor and acting also as carbon sinks. The present book focus its attention on these three dimensional animal structures including, for the first time, all the different types of animal forests of the world in a single volume.

"Salt marshes and mangrove forests, the intertidal wetlands of the world's coastlines, provide key ecological services to all areas of the globe, and are vital sinks and sources in carbon budgets"--

Seaweeds, also known as macroalgae, are among the most important pri-

mary producers and act as ecological engineers on rocky coasts of the world's oceans. In addition to their extreme ecological importance they are also of high economic relevance. Complementing available textbooks with its more research-oriented approach, this volume contains 22 chapters by renowned experts, grouped in five parts. In Part I fundamental processes and acclimation strategies of seaweeds towards the abiotic environment are covered. Part II focuses on the multitude of biotic interactions in seaweed communities, and in Part III the reader is introduced to the structure and function of the main seaweed systems of the world. The chapters of Part IV highlight and discuss the effects of global and local environmental changes on seaweeds and their communities. In the final Part V a comprehensive overview of developments in seaweed aquaculture, industrial applications and the overall economic importance of seaweeds is provided. Summarizing the advances in seaweed biology achieved within the last few decades, this book also identifies gaps in the present knowledge and needs for future research.

Microfossils are ideally suited to environmental studies because their short generation times allow them to respond rapidly to environmental change. This book represents an assessment of the progress made in environmental micropalaeontology and sets out future research directions. The taxa studied are mainly foraminifera, but include arcellaceans, diatoms, dinoflagellates, and ostracodes. The papers themselves range from reviews of applications of particular taxa to specific case studies.

Gas hydrates in their natural environment and for potential industrial applications (Volume 2).

The role of fossil planktonic foraminifera as markers for biostratigraphical zonation and correlation underpins most drilling of marine sedimentary sequences and is key to hydrocarbon exploration. The first - and only - book to synthesise the whole biostratigraphic and geological usefulness of planktonic foraminifera, Biostratigraphic and Geological Significance of Planktonic Foraminifera unifies existing biostratigraphic schemes and provides an improved correlation reflecting regional biogeographies.Renowned micropaleontologist Marcelle K. Boudagher-Fadel presents a comprehensive analysis of existing data on fossil planktonic foraminifera genera and their phylogenetic evolution in time and space. This important text, now in its Second Edition, is in considerable demand and is now being republished by UCL Press.

This major textbook provides a broad coverage of the ecological foundations of marine conservation, including the rationale, importance and practicalities of various approaches to marine conservation and management. The scope of the book encompasses an understanding of the elements of marine biodiversity - from global to local levels - threats to marine biodiversity, and the structure and function of marine environments as related to conservation issues. The authors describe the potential approaches, initiatives and various options for conservation, from the genetic to the species, community and ecosystem levels in marine environments. They explore methods for identifying the units of conservation, and the development of defensible frameworks for marine conservation. They describe planning of ecologi-

cally integrated conservation strategies, including decision-making on size, boundaries, numbers and connectivity of protected area networks. The book also addresses relationships between fisheries and biodiversity, novel methods for conservation planning in the coastal zone and the evaluation of conservation initiatives.

Algae are an important component of aquatic benthic ecosystems because they reflect the health of their environment through their density, abundance, and diversity. This comprehensive and authoritative text is divided into three sections to offer complete coverage of the discussion in this field. The first section introduces the locations of benthic algae in different ecosystems, like streams, large rivers, lakes, and other aquatic habitats. The second section is devoted to the various factors, both biotic and abiotic, that affect benthic freshwater algae. The final section of the book focuses on the role played by algae in a variety of complex freshwater ecosystems. As concern over environmental health escalates, the keystone and pivotal role played by algae is becoming more apparent. This volume in the Aquatic Ecology Series represents an important compilation of the latest research on the crucial niche occupied by algae in aquatic ecosystems. Presents algae as the important player in relation to environmental health Prepared by leading authorities in the field Includes comprehensive treatment of the functions of benthic algae as well as the factors that affect these important aquatic organisms Acts as an important reference for anyone interested in understanding and managing freshwater ecosystems

Publisher description

Ecological Informatics is defined as the design and application of computational techniques for ecological analysis, synthesis, forecasting and management. The book provides an introduction to the scope, concepts and techniques of this newly emerging discipline. It illustrates numerous applications of Ecological Informatics for stream systems, river systems, freshwater lakes and marine systems as well as image recognition at micro and macro scale. Case studies focus on applications of artificial neural networks, genetic algorithms, fuzzy logic and adaptive agents to current ecological management issues such as toxic algal blooms, eutrophication, habitat degradation, conservation of biodiversity and sustainable fishery.

Shellfish Aquaculture and the Environment focuses primarily on the issues surrounding environmental sustainability of shellfish aquaculture. The chapters in this book provide readers with the most current data available on topics such as resource enhancement and habitat restoration. Shellfish Aquaculture and the Environment is also an invaluable resource for those looking to develop and implement environmental best management practices. Edited one of the world's leading shellfish researchers and with contributions from around the world, Shellfish Aquaculture and the Environment is the definitive source of information for this increasingly important topic. View the Executive Summary here: http://seagrant.uconn.edu/publications/aquaculture/execsumm.pdf

This book is a treatise on microbial ecology that covers traditional and cutting-edge issues in the ecology of microbes in the biosphere. It emphasizes on study tools, microbial taxonomy and the fundamentals of microbial activi-

ties and interactions within their communities and environment as well as on the related food web dynamics and biogeochemical cycling. The work exceeds the traditional domain of microbial ecology by revisiting the evolution of cellular prokaryotes and eukaryotes and stressing the general principles of ecology. The overview of the topics, authored by more than 80 specialists, is one of the broadest in the field of environmental microbiology. The overview of the topics, authored by more than 80 specialists, is one of the broadest in the field of environmental microbiology.

Biological monitoring of running waters is a scientifically and economically valid approach for surveys and monitoring programmes to assess the water quality. Biological Monitoring of Rivers is a timely, up-to-date book that includes a good number of practical how-to-do chapters. Up-to-date assessment of biological water monitoring Practical how-to-do chapters help the practitioner Provides a broad survey of methods uses inside and outside the EU Gives perspectives for future applications

In this book, an easily understandable account of modelling methods with artificial neuronal networks for practical applications in ecology and evolution is provided. Special features include examples of applications using both supervised and unsupervised training, comparative analysis of artificial neural networks and conventional statistical methods, and proposals to deal with poor datasets. Extensive references and a large range of topics make this book a useful guide for ecologists, evolutionary ecologists and population geneticists.

The aim of this edited volume is to introduce the scientific community to paleoenvironmental studies of estuaries, to highlight the types of information that can be obtained from such studies, and to promote the use of paleoenvironmental studies in estuarine management. Readers will learn about the the application of different paleoecological approaches used in estuaries that develop our understanding of their response to natural and human influences. Particular attention is given to the essential steps required for undertaking a paleoecological study, in particular with regard to site selection, core extraction and chronological techniques, followed by the range of indicators that can be used. A series of case studies are discussed in the book to demonstrate how paleoecological studies can be used to address key questions, and to sustainably manage these important coastal environments in the future. This book will appeal to professional scientists interested in estuarine studies and/or paleoenvironmental research, as well as estuarine managers who are interested in the incorporation of paleoenvironmental research into their management programs.

This is an important and authoritative review of foraminiferal ecology, the first for over a decade. Professor Murray relates ecological data on living forms of foraminifera to the palaeoecology of fossil species, and defines in detail areas of global distribution.

Marine sediments are the second largest habitat on earth and yet are poorly understood. This book gives a broad coverage of the central topics in the ecology of soft sediments.

The aim of this new book series (Diatoms: Biology and Applications) is to provide a comprehensive and

reliable source of information on diatom biology and applications. The first book of the series, Diatoms Fundamentals & Applications, is wide ranging, starting with the contributions of amateurs and the beauty of diatoms, to details of how their shells are made, how they bend light to their advantage and ours, and major aspects of their biochemistry (photosynthesis and iron metabolism). The book then delves into the ecology of diatoms living in a wide range of habitats, and look at those few that can kill or harm us. The book concludes with a wide range of applications of diatoms, in forensics, manufacturing, medicine, biofuel and agriculture. The contributors are leading international experts on diatoms. This book is for a wide audience researchers, academics, students, and teachers of biology and related disciplines, written to both act as an introduction to diatoms and to present some of the most advanced research on them.

A comprehensive account of how abiotic and biotic interactions shape patterns of coastal marine biodiversity and ecosystem processes globally.

Provides a comprehensive synthesis of a fundamental phenomenon, the species-area relationship, addressing theory, evidence and application.

Freshwater Ecology, Second Edition, is a broad, up-to-date treatment of everything from the basic chemical and physical properties of water to advanced unifying concepts of the community ecology and ecosystem relationships as found in continental waters. With 40% new and expanded coverage, this text covers applied and basic aspects of limnology, now with more emphasis on wetlands and reservoirs than in the previous edition. It features 80 new and updated figures, including a section of color plates, and 500 new and updated references. The authors take a synthetic approach to ecological problems, teaching students how to handle the challenges faced by contemporary aquatic scientists. This text is designed for undergraduate students taking courses in Freshwater Ecology and Limnology; and introductory graduate students taking courses in Freshwater Ecology and Limnology. Expanded revision of Dodds' successful text. New boxed sections provide more advanced material within the introductory, modular format of the first edition. Basic scientific concepts and environmental applications featured throughout. Added coverage of climate change, ecosystem function, hypertrophic habitats and secondary production. Expanded coverage of physical limnology, groundwater and wetland habitats. Expanded coverage of the toxic effects of pharmaceuticals and endocrine disrupters as freshwater pollutants More on aquatic invertebrates, with more images and pictures of a broader range of organisms Expanded coverage of the functional roles of filterer feeding, scraping, and shredding organisms, and a new section on omnivores. Expanded appendix on standard statistical techniques. Supporting website with figures and tables - http://www.elsevierdirect.com/companion.jsp?ISBN=9780123747242

Foraminiferal Micropaleontology for Understanding Earth’s History incorporates new findings on taxonomy, classification and biostratigraphy of foraminifera. Foraminifera offer the best geochemical proxies for paleoclimate and paleoenvironment interpretation. The study of foraminifera was

promoted by oil exploration due to its exceptional use in subsurface stratigraphy. A rapid technological development in the past 20 years in the field of imaging microfossils and in geochemical microanalysis have added novel information about foraminifera. Foraminiferal Micropaleontology for Understanding Earth's History builds an understanding of biology, morphology and classification of foraminifera for its varied applications. In the past two decades, a phenomenal growth has occurred in geochemical proxies in shells of foraminifera, and as a result, crucial information about past climate of the earth is achieved. Foraminifera is the most extensively used marine microfossils in deep-time reconstruction of the earth history. Its key applications are in paleoenvironment and paleoclimate interpretation, paleoceanography, and biostratigraphy to continuously improve the Geologic Time Scale. Provides an overview of the Earth history as witnessed and evidenced by foraminifera Discusses a variety of geochemical proxies used in reconstruction of environment, climate and paleobiology of foraminifera Presents a new insight into the morphology and classification of foraminifera by modern tools of x-ray microscopy, quantitative methods, and molecular research

The aim of this open access book is to review and analyse the goods and services of bivalve shellfish. How they are defined, what determines the ecological functions that are the basis for the goods and services, what controversies in the use of goods and services exist, and what is needed for sustainable exploitation of bivalves from the perspective of the various stakeholders. The book is focused on the goods and services, and not on impacts of shellfish aquaculture on the benthic environment, or on threats like biotoxins; neither is it a shellfish culture handbook although it can be used in evaluating shellfish culture. The reviews and analysis are based on case studies that exemplify the concept, and show the strengths and weaknesses of the current applications. The multi-authored reviews cover ecological, economic and social aspects of bivalve goods and services. The book provides new insights for scientists, students, shellfish producers, policy advisors, nature conservationists and decision makers. This book is open access under the CC BY license.

A comprehensive introduction to ocean ecology and a new way of thinking about ocean life Marine ecology is more interdisciplinary, broader in scope, and more intimately linked to human activities than ever before. Ocean Ecology provides advanced undergraduates, graduate students, and practitioners with an integrated approach to marine ecology that reflects these new scientific realities, and prepares students for the challenges of studying and managing the ocean as a complex adaptive system. This authoritative and accessible textbook advances a framework based on interactions among four major features of marine ecosystems—geomorphology, the abiotic environment, biodiversity, and biogeochemistry—and shows how life is a driver of environmental conditions and dynamics. Ocean Ecology explains the ecological processes that link organismal to ecosystem scales and that shape the major types of ocean ecosystems, historically and in today's Anthropocene world. Provides an inte-

grated new approach to understanding and managing the ocean Shows how biological diversity is the heart of functioning ecosystems Spans genes to earth systems, surface to seafloor, and estuary to ocean gyre Links species composition, trait distribution, and other ecological structures to the functioning of ecosystems Explains how fishing, fossil fuel combustion, industrial fertilizer use, and other human impacts are transforming the Anthropocene ocean An essential textbook for students and an invaluable resource for practitioners

Evolution and Geological Significance of Larger Benthic Foraminifera is a unique, comprehensive reference work on the larger benthic foraminifera. This second edition is substantially revised, including extensive re-analysis of the most recent work on Cenozoic forms. It provides documentation of the biostratigraphic ranges and palaeoecological significance of the larger foraminifera, which is essential for understanding many major oil-bearing sedimentary basins. In addition, it offers a palaeogeographic interpretation of the shallow marine late Palaeozoic to Cenozoic world. Marcelle K. BouDagher-Fadel collects and significantly adds to the information already published on the larger benthic foraminifera. New research in the Far East, the Middle East, South Africa, Tibet and Americas has provided fresh insights into the evolution and palaeographic significance of these vital reef--forming forms. With the aid of new and precise biostratigraphic dating, she presents revised phylogenies and ranges of the larger foraminifera. The book is illustrated throughout, with examples of different families and groups at the generic levels. Key species are discussed and their biostratigraphic ranges are depicted in comparative charts, which can be found at http://discovery.ucl.ac.uk/10047587/2/Charts.pdf.

The Ecology of Seashores explores the complex shore environment. It covers the ways in which representative species have adapted to life in a constantly changing environment in terms of their interactions, the control of community structure, and how energy and materials are cycled in different ecosystems. Written by an eminent marine biologist,

Seascape Ecology provides a comprehensive look at the state-of-the-science in the application of landscape ecology to the seas and provides guidance for future research priorities. The first book devoted exclusively to this rapidly emerging and increasingly important discipline, it is comprised of contributions from researchers at the forefront of seascape ecology working around the world. It presents the principles, concepts, methodology, and techniques informing seascape ecology and reports on the latest developments in the application of the approach to marine ecology and management. A growing number of marine scientists, geographers, and marine managers are asking questions about the marine environment that are best addressed with a landscape ecology perspective. Seascape Ecology represents the first serious effort to fill the gap in the literature on the subject. Key topics and features of interest include: The origins and history of seascape ecology and various approaches to spatial patterning in the sea The links between seascape patterns and ecological processes, with special attention paid to the roles played by seagrasses and

salt marshes and animal movements through seascapes Human influences on seascape ecology—includes models for assessing human-seascape interactions A special epilogue in which three eminent scientists who have been instrumental in shaping the course of landscape ecology offer their insights and perspectives Seascape Ecology is a must-read for researchers and professionals in an array of disciplines, including marine biology, environmental science, geosciences, marine and coastal management, and environmental protection. It is also an excellent supplementary text for university courses in those fields.

The monitoring of benthic diatoms, macrophytes, macroinvertebrates and fish will be the backbone of future water management in Europe. This book describes and compares the relevant methodologies and tools, based on a large data set covering rivers in most parts of Europe. The 36 articles presented will provide scientists and water managers with a unique insight into background and application of state-of-the-art monitoring tools and techniques.

A synthesis of concepts and examples of how physiological processes influence seaweed communities worldwide, authored by experts in the field.