Biology Of The Baltic Sea 1st Edition

CROSS LAMBERT

A Systems Analysis of the Baltic Sea Springer Science & Business Media
Proceedings of the 17th BMB Symposium, 25-29 November 2001, Stockholm, Sweden
Second Assessment of Climate Change for the Baltic Sea Basin CRC Press
The first comprehensive overview of the enormous ecological diversity of Baltic coastal ecosystems is presented in this volume provides. A short introduction into the Baltic Sea as a reference ecosystem is followed by detailed descriptions of the characteristics of coastal ecosystems. Ecological case studies from four regions illustrate the different reactions of these ecosystems to natural and anthropogenic influences.
Physical Oceanography of the Baltic Sea Springer Science & Business Media
Volume 31 of Oceanography and Marine Biology: An Annual Review provides a carefully selected set of authoritative reviews of important topics in the broad field of marine science. The interest shown in oceanographical and marine biological work calls for a publication summarizing the results. For nearly 30 years Oceanography and Marine Biology: An
Ecology of Baltic Coastal Waters Routledge
This book is an update of the first BACC assessment, published in 2008. It offers new and updated scientific findings in regional climate research for the Baltic Sea basin. These include climate changes since the last glaciation (approx. 12,000 years ago), changes in the recent past (the last 200 years), climate projections up until 2100 using state-of-the-art regional climate models and an assessment of climate-change impacts on terrestrial, freshwater and marine ecosystems. There are dedicated new chapters on sea-level rise, coastal erosion and impacts on urban areas. A new set of chapters deals with possible causes of regional climate change along with the global effects of increased greenhouse gas concentrations, namely atmospheric aerosols and land-cover change. The evidence collected and presented in this book shows that the regional climate has already started to change and this is expected to continue. Projections of potential future climates show that the region will probably become considerably warmer and wetter in some parts, but dryer in others. Terrestrial and aquatic ecosystems have already shown adjustments to increased temperatures and are expected to undergo further changes in the near future. The BACC II Author Team consists of 141 scientists from 12 countries, covering various disciplines related to climate research and related impacts. BACC II is a project of the Baltic Earth research network and contributes to the World Climate Research Programme.
Managing a Sea Springer Science & Business Media
During recent decades, large-scale effects of pollution on marine estuaries and even entire enclosed coastal seas have become apparent. One of the first regions where this was observed is the Baltic Sea, whereby the appearance of anoxic deep basins, extensive algal blooms and elimination of top

predators like eagles and seals indicated effects of both increased nutrient inputs and toxic substances. This book describes the physical, biochemical and ecological processes that govern inputs, distribution and ecological effects of nutrients and toxic substances in the Baltic Sea. Extensive reviews are supplemented by budgets and dynamic simulation models. This book is highly interdisciplinary and uses a systems approach for analyzing and describing a marine ecosystem. It gives an overview of the Baltic Sea, but is useful for any marine scientist studying large marine ecosystems.
Biogeochemical Transformations in the Baltic Sea Springer Science & Business Media
The Baltic Sea area is an old cultural landscape with a well developed international framework for monitoring, assessing and managing its marine ecosystems. It provides a good case study for other regions where such management is being set up. The chapters in this book are based on lectures given at a summer school on the Baltic Sea island of Bornholm in the summer of 2009. They cover a range of topics, spanning from detailed descriptions of political agreements that protect the marine environment, to basic modelling instructions, to an assessment of the possible impacts of climate change on the marine ecosystem, to a reflection on the role of climate scientists and their responsibility in society. This interdisciplinary book is primarily directed at students and lecturers of the environmental disciplines to provide an overview of the possible impacts of climate change on the Baltic Sea. It is also intended to serve as a background reference for scientists and policy makers, both for the Baltic Sea area and more generally. The book is a contribution to the BALTEX programme and to the BONUS+ projects ECOSUPPORT and Baltic-C.
A Systems Analysis of the Baltic Sea Nordic Council of Ministers
This volume presents a reconstruction of the formation of the environmental conditions and biota in the present-day Baltic Sea area during the last glacial cycle and thereafter under the influence of extra-terrestrial, climatic and geological factors. Abiotic conditions in the contemporary Baltic Sea (water salinity, temperature, oxygen and light conditions, currents and other water movements) are characterized and in this background the natural regional system of the sea has been generated. Important issues are considered such as life forms in the Baltic and their dependence on the natural environment (both in the conditions of the relative stable environment and during the regime shifts), as well as anthropogenic influences and the basic differences between the areas of the World Ocean and the brackish Baltic Sea. This book also equips readers with basic principles of assessments and management of ecosystems and fish resources (including the long-term assessment and forecast on ecosystems and fish resources) and provides information on the structures of international collaboration developed in the Baltic Sea.
Recommendations on Methods for Marine Biological Studies in the Baltic Sea Springer
For many years the reduction of eutrophication in the Baltic Sea has been a hot issue for mass-media, science, political parties and environmental action groups with manifold implications related to fisheries (will the Baltic cod survive?), sustainable coastal development (have billions of Euros been wasted on nitrogen reductions?), ecotoxicology (can we safely eat Baltic fish?). This book takes a holistic process-based ecosystem perspective on the eutrophication in the Baltic Sea, with a focus on the factors regulating how the system would respond to changes in nutrient loading. This includes a very special process for the Baltic Sea: land uplift. After being depressed by the glacial ice, the land is now slowly rising adding vast amounts of previously deposited nutrients and clay particles to the system. 110,000 to 140,000 tons of phosphorus per year are added to the system from land uplift, in comparison to the 30,000 tons of phosphorus per year from rivers.
Eutrophication in the Baltic Sea Springer
International Workshop on Marine Genetics - Rio 98
Carbon Cycling in the Baltic Sea Springer
The Great Lagoon is a central part of the Szczecin Lagoon, a major component in the Odra River estuary system. It is also an important European natural heritage site and one of the largest resting places for migratory birds in the Baltic Sea area. The first part of Wolnomiejski's and Witek’s book gives a thorough overview of the most up-to-date knowledge of this region, including the assessment of its biological production. Based on these findings authors develop a food web model of the Polish part of the Szczecin Lagoon, identifying a total of 45 trophic-functional components. The model describes a variety of features ranging from the magnitude of consumption, to the amount of unassimilated food and export of individual system components, and serves as an invaluable source, helping researchers to estimate various ecological indicators of The Great Lagoon’s ecosystem.
Proceedings of the 12th Baltic Marine Biologists Symposium Walter de Gruyter
The present text compiles the latest research within the field of biology performed in the Baltic Sea area. The themes span from theoretical and philosophical aspects of the ecosystem concept over population and autecological studies to detailed descriptions of plant and animal physiology. Results from microcosm and mesocosm experiments as well as direct observations in field together bring insight of the special structure and function of the Baltic Sea ecosystem. How the spawning success of cod and spat are dependent of each other and environmental factors, the impact of alien species to the composition of plankton or benthic communities, the flip of phytobenthic to planktonic communities in lagoons and mechanisms triggering the change, pure descriptions of e.g. the Estonian coast and shallow off shore areas as well as strategies for the reproductive success of Fucus vesiculosus, and the influence of eutrophication of the different Baltic Sea areas and the fate of pollutants as radionucleids and PAH etc. and other themes are all discussed in the 24 original papers of this volume.
Oceanography and Marine Biology, An Annual Review, Volume 31 Springer Science & Business Media
The aim of this book is to discuss practically useful (operational) bioindicators for sustainable coastal management, criteria for coastal area sensitivity to eutrophication and an approach set a "biological value" of coastal areas. These bioindicators should meet defined criteria for practical usefulness, e.g., they should be simple to understand and apply to managers and scientists with different educational backgrounds. Central aspects for this book concern effect-load-sensitivity analyses. One and the same nutrient loading may cause different effects in coastal areas of different sensitivity. Remedial measures should be carried out in a cost-effective manner and this book discusses methods and criteria for this. Remedial strategies should generally focus on phosphorus rather than nitrogen because the effects of nitrogen reductions can rarely be predicted well and nitrogen reductions may favour the bloom of harmful cyanobacteria. Three case-studies exemplify the practical use of the bioindicators and concepts discussed in the book. The first concerns how local emissions of nutrients affect the receiving waters when all important nutrient fluxes are accounted for. The second concerns how to find reference values for "good" ecological status to set targets for remedial actions. The third gives a reconstruction of eutrophication. If the development during the last 100 years can be understood, key prerequisites to turn the development would be at hand. This book should attract considerable interest from researchers in marine ecology, consultants and administrators interested in management and studies of coastal systems.
The Fish Production Potential of the Baltic Sea John Wiley & Sons
The Baltic Sea oceanographic research community is wide and the research history is over 100 years old. Nevertheless, there is still no single, coherent book on the physical oceanography of the Baltic Sea as a whole. There is a strong need for such a book, coming from working oceanographers as well as the university teaching programmes in advanced undergraduate to graduate levels. In the regional conference series in physical oceanography (Baltic Sea Science Conference, Baltic Sea Oceanographers' conference, Baltex-conferences) about 500 scientists take part regularly. Even more scientists work in the fields of marine biology, chemistry and the environment, and they need information on the physics of the Baltic Sea as well. There are nine countries bordering on the Baltic Sea and five more in the runoff area. The Baltic Sea as a source of fish, means of transportation and leisure activities is highly important to the regional society. In the runoff area there are a total of 85 million people. Research and protection strategies need to be developed, as the Baltic Sea is probably the most polluted sea in the world. Since the Baltic Sea has become an inner sea of the EU (apart from small shore parts of Russia in Petersburg and Kaliningrad), it is anticipated that the importance of the region will consequently rise. The book will arouse interest among students, scientists and decision makers involved with the Baltic problems. It will also give important background information for those working with biogeochemical processes in the Baltic Sea, because the physical forcing for those processes is of vital importance.
Baltic Crustaceans Nordic Council of Ministers
It presents a new approach to set fish quota based on holistic ecosystem modeling (the CoastWeb-model) and also a plan to optimize a sustainable management of the Baltic Sea including a cost-benefit analysis. This plan accounts for the production of prey and predatory fish under different environmental conditions, professional fishing, recreational fishing and fish cage farm production plus an analysis of associated economic values. Several scenarios and remedial strategies for Baltic Sea management are discussed and an "optimal" strategy motivated and presented, which challenges the HELCOM strategy that was accepted by the Baltic States in November 2007. The strategy advocated in this book would create more than 7000 new jobs, the total value of the fish production would be about 1600 million euro per year plus 1000 million euro per year related to the willingness-to-pay to combat the present conditions in the Baltic Sea. Our strategy would cost about 370 million euro whereas the HELCOM strategy would cost about 3100 million euro per year. The "optimal" strategy is based on a defined goal - that the water clarity in the Gulf of Finland should return to what it was 100 years ago.
Proceedings of the Third Baltic Symposium on Marine Biology, Helsinki/Helsingfors, June 11th-17th, 1973 Olsen & Olsen
This edited volume presents a comprehensive and coherent interdisciplinary analysis of challenges and possibilities for sustainable governance of the Baltic Sea ecosystem by combining knowledge and approaches from natural and social sciences. Focusing on the Ecosystem Approach to Management (EAM) and associated multi-level, multi-sector and multi-actor challenges, the book provides up-to-date descriptions and analyses of environmental governance structures and processes at the macro-regional Baltic Sea level. Organised in two parts, Part 1 presents in-depth case studies of environmental governance practices and challenges linked to five key environmental problems - eutrophication, chemical pollution, overfishing, oil discharges and invasive species. Part 2 analyses and compares governance challenges and opportunities across the five case studies, focusing on governance structures and EAM implementation, knowledge integration and science support, as well as stakeholder communication and participation. Based on these cross-case comparisons, this book also draws a set of general conclusions on possible ways of improving the governance of the Baltic Sea by promoting what are identified as vital functions of environmental governance: coordination, integration, interdisciplinarity, precaution, deliberation, communication and adaptability.
Marine Genetics Springer
The atlas presents a unique set of abundance data to describe the spatial, depth, size, and temporal distribution of demersal and pelagic fish species over an extensive marine area, together with accounts of their biology. A large number of pictures, graphs and distribution maps illustrate the text. By largely avoiding - or at least explaining - scientific terms and providing extensive references, the book should be useful for both laymen and scientists. The quantitative information on some 200 fish taxa is derived from 72,000 stations fished by research vessels during the period 1977-2013. The area covers the northwest European shelf from west of Ireland to the central Baltic Sea and from Brittany to the Shetlands. Although the surveys extend beyond the shelf edge, only taxa reported at least once in waters less than 200 m are included. Typical deep-water species and typical fresh-water species are excluded. We hope this publication will contribute to gaining a better understanding of the ocean ecosystems.
Ecosystems and Living Resources of the Baltic Sea Olsen & Olsen
This book presents all Malacostracan cructaceans occurring in the Baltic Sea in water salinity from 2 to 15 psu. The Baltic sea is very special due to its low salinity and characteristic fauna. For each of the 58 species the systematic position, the origin and distribution in European waters are given, and the environmental preferences, the role in the food web and human economy described. The book describes the history of the Baltic sea and the occurrence of crustaceans in its history against the terms of hydrological conditions, explaining why in the Baltic sea only part of all marine crustaceans occur. The book is richly illustrated with photographs and beautiful pictures of animals specifically prepared for this book.
Recommendations for Marine Biological Studies in the Baltic Sea Springer Science & Business Media
Based on a fifty-year study conducted by the Leibniz Institute for Baltic Sea Research, this book brings together a comprehensive summary of their observations and findings. Written by well-known experts, this revealing book concentrates on long-term changes in the Baltic Sea?which can be extrapolated to shed light on the environmental problems of other shelf seas, brackish seas, and large estuaries?thereby contributing to our understanding of water exchange processes, eutrophication, and climatic impacts at the forefront of international concern.
Ecosystem of the Gulf of Riga Between 1920 and 1990 Springer Science & Business Media

This is the first comprehensive science-based textbook on the biology and ecology of the Baltic Sea, one of the world’s largest brackish water bodies. The aim of this book is to provide students and other readers with knowledge about the conditions for life in brackish water, the functioning of the Baltic Sea ecosystem and its environmental problems and management. It highlights biological variation along the unique environmental gradients of the brackish Baltic Sea Area (the Baltic Sea, Belt Sea and Kattegat), especially those in salinity and climate. pt;font-family:"Arial","sans-serif"; color:#262626">The first part of the book presents the challenges for life processes and ecosystem dynamics that result from the Baltic Sea’s highly variable recent geological history and geographical isolation. The second part explains interactions between organisms and their environment, including biogeochemical cycles, patterns of biodiversity, genetic diversity and evolution, biological invasions and physiological adaptations. In the third part, the subsystems of the Baltic Sea ecosystem – the pelagic zone, the sea ice, the deep soft sea beds, the phytobenthic zone, the sandy coasts, and estuaries and coastal lagoons – are treated in detail with respect to the structure and function of communities and habitats and consequences of natural and anthropogenic constraints, such as climate change, discharges of nutrients and hazardous substances. Finally, the fourth part of the book discusses monitoring and ecosystem-based management to deal with contemporary and emerging threats to the ecosystem’s health.
Marine Benthic Vegetation Springer
The Baltic Sea