

**Seaweed Biology, C. Wiencke and K. Bischof, Editors Ecological Studies Vol. 219 Springer, Heidelberg, Dordrecht, London, (2012). 507 pp., USD 239.00, ISBN: 978-3-642-28450-2**

It is now 30 years ago since C. Lobban and M. Wynne published their famous text book "The Biology of Seaweeds". Since that time science in seaweed biology has made important progress and new questions emerged. The major challenge for seaweed research is the future development of marine macrophytes under global change conditions which are accompanied not only by rising temperatures, but also by increased water motion, changed ratios of UV/PAR and altered pH and CO<sub>2</sub> availability. 2010 the book entitled "Seaweeds and their Role in Globally Changing Environments by an israelian editorial team (A. Israel et al.) was published also by Springer. The reader is asking why Springer is publishing two books which seem to cover the same field in such a short period. The question is even more striking when the reader becomes aware that some chapters with similar focus (e.g. the effect of solar light/UV on macrophyte physiology) is written by the same author. One reason may be that the focus of both books is different or the perspective of the present day challenges differs between the two editorial teams. The book from 2010 is clearly focussed on the changing environment due to CO<sub>2</sub> rise and global marine pollution. It concentrates more on biofuel, mari-culture and biotechnological potential, whereas the recent volume has a clear focus on basic science: how does the abiotic environment change the physiology of the seaweeds, what are the impacts of the changing environment on biotic interactions between bacteria, parasites and invasive species and on the macrophyte biodiversity. The new book is divided in four parts. The first is dedicated to the physiological acclimation processes to the abiotic environment (light, temperature, nutrients, salinity

and reactive oxygen). Part two deals with biotic interaction which is a really new field stimulated by the recent progresses in chemical ecology. Part three gives an overview on structure and function of the world's seaweed system. Part 4 deals with the effects of global change on global seaweed biogeography, ocean acidification, ozone effects and the control of seaweed blooms. To my knowledge this book is the only updated comprehensive information about structure and function of the global seaweed system, presenting new information about biodiversity changes in the polar region as well as in Southern Hemisphere or in tropical coastal regions. Also the chapters dealing with the biotic interactions of seaweeds with grazers, endophytes or parasites present a really new field which is not available elsewhere in such a condensed and comprehensive manner as in this new book. The final part 5 consists only of one chapter covering all applied aspects of seaweeds and gives more a condensed overview than detailed analysis of the present state of the art.

Nevertheless, both Springer books share some topics, e.g. the effects of climate change. The israelian editor does not see a "need for a reducing the greenhouse effect and states that there is presently a false panic alarm because the past has always shown that nature had time to react and to counteract the global warming". However, the reader does not get any information which verifies this statement. In contrast, in the recent book I. Bartsch gives detailed information based on clue references which temperature increase is already documented and which trends in which region can be expected. Based on these facts the reader gets a clear picture of the scenarios which can be anticipated. I was really fascinated to read how differentially the estuaries, the coastal areas and the polar regions will potentially react on climate change. The conclusions of the papers in the recent book are critically formulated and based on a broad knowledge of the literature.

The book is science oriented and a very good source book for students who look for an overview in seaweed biology. The chapters are written in a concise manner, however, the chapters are in my understanding too much “text-oriented” and did not include at least one figure or scheme to visualize the information. This is even more surprising because at this price level (about 240 US \$) graphic support can be expected. A second point of weakness I have noticed in the reference lists. Although all chapters contain in the average 100 citations per paper and traditional key papers should be kept in mind, I found in some chapters outdated papers, whereas recent progress was not sufficiently taken into account. In a book which claims to contain “novel insights”, I was surprised that in some chapters only 20% of the references listed are published after 2007. Also the chapters are not well balanced. E.g. in some cases the physiology of macrophytes is compared with higher plants, whereas in others the knowledge on land plants is completely left out. For younger readers this might lead to misunderstandings.

In conclusion, this is a valuable book which shows an extended view on recent seaweed biology. For those who are interested in basic science this book is the primary choice. Those who are interested in more applied macrophyte marine biotechnology will find more information in the israelian edition.

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