



## Book Review

### Marine Community Ecology and Conservation

M.D. Bertness, J.F. Bruno, B.R. Silliman, J.J. Stachowicz (Eds)

Sunderland, MA: Sinauer Associates Inc., 2014. 556 pp. ISBN 978-1-60535-228-2. Hardback: US\$109.95.

Over the last 50 years the study of marine community ecology has evolved from a little known and largely marginalized topic to a top-tier field of ecological science that has produced alarming, compelling and informative scientific discoveries that range from ocean acidification, sea star wasting disease to marine ecosystem services. In the second edition of *Marine Community Ecology and Conservation*, Bertness and co-editors provide an update of the dominant elements of marine community ecology as well as the now maturing science of our generation: conservation. The editors state that the book is intended to fill intellectual gaps and update readers on new developments in applied ecology in the oceans. The book targets upper-level undergraduate to graduate level users. We feel that the book achieves this goal and is a very useful resource for graduate-level readers. The text is divided into three main sections: A Historical Overview of Marine Community Ecology, Marine Community Types and Marine Community Conservation. Each section includes six to eight chapters by different authors that address dominant topics for each section.

The book differs from the earlier version, *Marine Community Ecology* (Bertness *et al.* 2001), in a few important ways. While the editors retained the original three main sections of Processes, Community Types and Conservation, the new edition includes four more chapters and provides a much more comprehensive treatment of conservation science as suggested by the changed title. Specifically, the Conservation section has been greatly expanded and includes new chapters that address Marine Ecosystem Services, Climate Change and Marine Restoration Ecology. There is also an excellent treatment of conservation throughout the book, generally towards the end of most of the chapters.

Further, this new edition provides a much more thoughtful and detailed synthesis of the science of marine community ecology, and the trends in marine communities,

especially through the opening chapter on a Short History of Marine Community Ecology. The Processes section includes chapters describing different ecological patterns (e.g. foundation species, biodiversity, biogeography, dispersal etc.) that shape the communities described in the next section. This organization makes for a much more logical and clear presentation of the role that processes play in marine community ecology, and the evolution to our current understanding of marine community patterns.

Overall, the latest work by Bertness *et al.* and authors is an excellent synthesis of contemporary marine community ecology science and conservation. The chapters are very well written, thorough and give the reader an excellent overview of the current state of research in each topic area. We offer the following critical observations of the book. Figures, in particular photos, are high quality and for the most part concise and informative. Quite a few of the flow chart-type figures, however, are less informative and the information contained in these could be better addressed in the text. A number of other figures could be omitted. The History chapter strikingly omits a number of well-known women founding scientists including Rachel Carson, Sylvia Earle, and more contemporary, Mia Tegner. There is also no mention of Native/First Nations communities – who are recognized world-wide as the first practitioners of marine community ecology. Surprisingly, the Mangroves chapter was dropped from the Community Types section in this new edition, and instead mangroves are given secondary billing within the Soft Sediment Communities chapter. By contrast, mangroves are ironically (and correctly) the dominant topic in the Marine Ecosystem Services chapter in the Conservation section. Given the stated importance of mangroves to the global field of marine ecology in the first edition and these two chapters in the second edition, it would have been appropriate to keep and update the stand-alone Mangroves chapter in the Community Types section.

While rare, there are a few instances where statements are made without data to support them. For example, there is a strongly worded and repeated proclamation of world-wide decline in kelp distribution in the Kelp Forest Ecology chapter, but the authors provide no data or analysis reference to support this global statement.

Further, kelp forest loss is not included in the Threats to Marine Ecosystems chapter, which brings the 'kelp global decline' position further into question. The Salt Marsh chapter relies too heavily on unpublished data for key concepts (e.g. grazers). We feel that this dependence on unpublished data is unnecessary to describe the well-developed and richly published field of salt marsh ecology, and inappropriate for a textbook.

We also noted a few important omissions. The Marine Restoration Ecology chapter should, but does not, define and delineate mitigation (no net loss of a marine community) and restoration (net gain of a marine community). Further, a number of the chapters could do a better job of addressing contemporary research priorities. For example, it would be appropriate to address plastics, netpens/aquaculture and oil spills (including deep-water spills). Finally, the Marine Restoration Ecology chapter would benefit from including other recent syntheses (e.g. McGraw & Thom 2011).

The overall cohesion of the book would benefit from cross-referencing between chapters, which is largely absent. For example, gradients are noted as intimately linked with physical processes in the Physical Context chapter, and physical processes are in turn noted as critical components in the Marine Dispersal Ecology and in the Conservation chapters. However, the treatments are independent; none of these chapters (or others) cite or build on the other. Similarly, key linkages between marine community types are overlooked in several chapters. For example, the Kelp Forest Community and the Planktonic chapters make no mention of the other, but both are dominant and very inter-related community types.

These critical observations aside, we offer that this *Marine Community Ecology and Conservation* does an excellent job of bringing forth the emerging science of conservation biology. As the editors note, we, as scientists, no longer have the luxury of removing ourselves from the challenges of conserving marine ecosystems and resources. If we are to be successful in stemming the trend of decline, we need to bridge quantitative marine ecology and management. This book, through a comprehensive treatment of the world's marine communities, provides such a bridge, and states a clear-headed and well-framed set of priorities for conservation management and research. The reader is led to think in depth about the key issues, challenges and next steps to further develop marine conservation ecology. Our collective next step is to translate thought into action. 'Successes in Conservation' would be an intriguing chapter for the next edition.

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## References

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- McGraw K, Thom R.M. (Eds) (2011) Special theme: protection and restoration: are we having an effect? *Ecological Restoration*, **29**, 2–7.