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It is not necessary to stress to the readers of this journal the importance of photosynthesis for the life on our planet. But perhaps due to our everyday human experience and perspective we often tend to identify photosynthesis only with the higher plants that surround us. We then forget that oceans cover almost 70 % of the surface of our planet. It is the aquatic photosynthesis that provides about half of the global primary production. The aquatic phytoplankton, microscopic photosynthetic algae and bacteria, are the major players that have fundamental and often decisive role in the global ecology of the oceans and whole Earth. However, on the other hand, photosynthesis is only one of the many fascinating processes occurring in the vast, deep, and often still unexplored oceans. Much of the ocean interior has never been seen by human eye and remains a source of new discoveries. For example, only recently a brand new environment around the deep sea vents was discovered and its ecology described. At the same time, large part of mankind depends on the marine environments as a source of food, materials, and living. The human influence on many marine ecosystems has in many areas reached limits of reversibility. Shores are polluted, stocks of commercial fish are decreasing, and intensive coastal aquacultures often cause negative environmental effects. The anthropogenic emissions of greenhouse gases are slowly changing temperature and pH of oceans and this influences not only the vulnerable coral reefs, but might disturb the whole system of oceanic circulation and thus multiply the changes in global climate. These are only few of the reasons why understanding of marine ecology should be one of our priorities.

The reviewed book is a textbook that covers in one volume the complex ecology of all marine environments. The textbook is aimed for advanced undergraduate courses in marine biology or marine ecology. It offers a balanced survey of marine ecology and introduces the major processes and systems that form the marine environment and examines the issues and challenges which surround its future conservation.

The book is divided into 15 individual chapters that are grouped into three major parts. Following the general introduction, the first part deals with the major processes of marine ecology and marine carbon cycle, *i.e.* with the primary and microbial production and the decomposition of organic matter. The primary photosynthetic production is described on fifty pages. The mechanism of photosynthesis is described only very briefly, but attention is given to processes of aquatic photosynthesis that have specific ecological importance – different photosynthetic pigments and their relation to the light field in water, the role of photoacclimation, the dependence of photosynthesis on light and inorganic nutrients, factors limiting photosynthetic growth, and methods how to measure primary production. The chapter on microbial production deals with the dynamics of microbial network, the role of respiration in the decomposition of organic matter, and the release of nutrients.

The second and most extensive part describes individual marine ecosystems: estuaries, rocky and sandy shores, the pelagic environment, continental shelf seabed, the deep sea, mangroves and seagrass meadows, coral reefs, and polar seas. Each of these chapters provides not only general description of environmental features of the ecosystem and their typical inhabitants and diversity, but also specific details on each of these major ecosystems.

The final part then deals with the impacts of human activity on marine ecosystems and discusses the most pressing environmental issues. Individual chapters are on fisheries, aquaculture, pollution, climate change, and marine conservation.

The textbook is clear and instructive, but still detailed enough to provide more than superficial insight into the subjects. Each chapter starts with the summary, the text is accompanied by glossary and number of instructional figures and tables. Supplementary text is added in the margins of the text and specific points are explained in detail in separate boxes. The textbook is well designed and structured, key points and terms are highlighted and cross-referenced so that they are explained in different chapters from different perspectives. I appreciate that the authors refer to the most recent literature and active websites. Full citations of these can be found at the end of the book so the reader can use them for further reading. However, the authors could give more attention to the proper compilation of information from these original sources. I found misleading values for the bacterial and phytoplankton growth rates in the table on p. 128. The errors were probably caused by wrong recalculation of the original data. But this does not diminish the attractiveness and quality of the textbook. A companion website offers freely downloadable images from the text that the teachers can use for preparation of lectures and a web link library of all web sites cited in the text for ease of access by students.

Marine Ecology: Processes, Systems, and Impacts will be of interest to all whose research involves any aspect of aquatic photosynthesis and will be invaluable for advanced undergraduates and postgraduates entering this area.

O. PRÁŠIL (*Třeboň*)