

## PREFACE

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Climate changes and global warming occurring on earth are now a widely recognized phenomena within the public and scientific communities. They will likely modify marine life dramatically as we now know it. One critical question regarding these changes is whether they occurred because of human intervention, or due to natural events on earth, or a combination of both. Irrespective of the source of these changes, it is our responsibility to understand and properly control these events so as to diminish potential or irreversible damage in the marine environment. The goal of this project, *Seaweeds and Their Role in Globally Changing Environments* was to emphasize the role of marine macroalgae, the so-called seaweeds, within the context of global changes occurring on planet Earth.

This book concentrates on the diverse aspects of the expected effects of global changes on seaweeds. First, a general overview of current changes in the oceans is given including the legal aspects associated with these modifications. While responses to global changes occur first on a species level, ultimately the modifications will arise on a community and global ecosystem levels. These aspects are discussed in Part 2. Then, Part 3 addresses short- and long-term seaweed ecophysiological responses to environmental abrupt changes, which forces marine plants to make sudden adjustments rather than adaptation processes that have occurred during millions of years of evolution. Specific and detailed aspects of seaweed responses to the UV rays are given in Part 4. Applied aspects of seaweeds follow in Parts 5 and 6. Here, the reader will find insights of potential uses of seaweeds in the future, and expected effects on seaweed cultivation practices worldwide as dictated by the globally occurring changes in the marine environment. Theoretical approaches of marine plants utilization in the future as related to modified environments are shown in Part 7. Global changes influence almost all aspects of human life, becoming daily worries/issues within the general public and scientific community. The need to enroll synergistic forces to address the problems derived from global changes and their environmental effects is apparent. Therefore, we have considered pertinent to also include spiritual/religious approaches to

the issue, which are quite unique in the scientific literature. These aspects are analyzed towards the end of the book and may allow to those readers interested in such aspects of life as well.

The book begins with rather pessimistic overviews of anthropogenic and natural effects on the marine environment. Although predictions may be quite devastating, contributions presented by experts show much optimistic pictures of how the marine macroalgae will look like in terms of their ecological communities and adaptation strategies. Further, seaweeds will have a much more significant role in controlling environmental stresses caused by global change. Thus, the reader will be transferred through various levels of comprehension both scientifically and encouragingly as to how will seaweeds be viewed in the near future.

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