

**CLASSIC BOOKS OF OCEANOGRAPHY AND MARINE BIOLOGY: AN  
ANNOTATED BIBLIOGRAPHY. I. MARINE BOTANY**

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**Introduction**

Library collections require constant evaluation and management. We conceived of this bibliography project out of a desire to have readily available tools to assist in these processes. It is primarily intended to serve librarians when assessing the strengths and weaknesses of a monographic marine science research collection. To produce an authoritative product, we have asked known experts in the marine science library field to author one or more sections of this bibliography.

The bibliography will be a modular publication to be extended and updated with ease. Each chapter will cover a major topic of oceanography and marine biology. Most will contain numerous sub-sections, reflecting the important areas of each field. Regional publications will be excluded from the topic chapters and gathered into a separate chapter. The subject outline and regional divisions are shown in Figure 1.

In general, each chapter will present a thorough listing of the monographs on a particular subject. Monograph is defined broadly to include government reports, monographic series, and special issues of journals. Occasionally, a chapter editor will include a journal article if considered core to the topic. We do not intend to be comprehensive; rather, we anticipate identifying the core and classic works in a field while describing contemporary works on emerging research trends. Additionally, some items included may not have current scientific value; these will be included because they are considered landmark publications with significant historical value.

Each chapter editor will be asked to identify three to five monographs that represent the “core of the core” and these will be compiled into what we consider the basic collection for any marine science library. For those building collections from scratch or reviewing a collection, these titles will be considered essential.

#### *Format of Contributed Chapters*

The contributors, in a brief introduction to each chapter, will address the following.

- Describe the topic.
  - Discuss recent and persistent research trends.
  - Explain relationships to other chapters if appropriate.
- Describe the time period.
- Explain the organization of the citations. This may be alphabetical or chronological.
- Describe the contributor’s qualifications.

#### *Format of the Citations*

Citations will follow the style of the IAMSLIC Proceedings. Journal and book titles should be italicized and given in full. Out-of-print items must be so indicated.

##### Book:

Crandall, J. V. 1946. *The story of Pacific salmon*. Portland, Or., Binfords & Mort. Out-of-print.

##### Conference Proceedings:

Markham, J.W. & Duda, A.L. 1994. *Preserving the Past, Looking to the Future: Proceedings of the Annual Conference of The International Association of Aquatic and Marine Science Libraries and Information*. Fort Pierce, FL.: IAMSLIC.

##### Monographic series:

Harrison, F.W. & Kohn, A.J. (Editors) 1994. *Microscopic Anatomy of Invertebrates, Volume 5: Mollusca*. New York: Wiley-Liss.

##### Journals:

*Phycologia*. Odense: International Phycological Society, [1961-], ISSN 0031-8884

##### Web sites:

National Coastal Data Development Center. *Coastal Risk Atlas*. [<http://www.ncddc.noaa.gov/cra>] Accessed July 2002.

Annotations may be lengthy as they are intended to both describe the nature of the publication as well as the reasons it is considered a classic.

**Figure 1. Organization of Bibliography**

- Marine biology
  - Systematics/zoology
  - Marine botany
  - Phytoplankton
  - Bacteria, viruses
  - Zooplankton
  - Invertebrates
  - Fish
  - Birds
  - Mammals
  - Marine ecology
  - Energy flow (chains and webs)
  - Fisheries interactions
  - Habitats/communities
- Oceanography
  - Physical
  - Descriptive
  - Movement of water
  - Ocean-atmosphere interface
  - Seawater
  - Marine chemistry
  - Atmospheric chemistry
  - Dissolved gases
  - Micronutrients
  - Primary production
  - Photosynthesis
  - Marine geology
  - Descriptive studies
  - Sea floor
  - Ocean margins
  - Sediments
  - Processes
  - Continental drift and plate tectonics
  - Paleoceanography
- Marine science
  - Aquaculture/mariculture
  - Applied technologies
  - Navigation
  - Fishing
- Regional studies
  - Antarctic
  - Atlantic coastal

## **Contributed Chapter Classics of Marine Botany**

**James W. Markham**

### Introduction

Marine botany deals with the plants that grow in the ocean or in marine intertidal areas. These plants are almost all marine algae. The only other plants found in some of these areas are various species of seagrasses, which are flowering plants. Most research, courses and treatises dealing with marine botany concentrate on algae and tend to ignore seagrasses. Works dealing with seagrasses are not included in this compilation of the classics of marine botany.

Marine algae include macroalgae, or seaweeds, and microalgae, or phytoplankton. Although marine microalgae are plants, and thus a part of marine botany, the study of phytoplankton is largely a different discipline from the study of seaweeds, and so, works on microalgae are also excluded from this compilation of marine botany classics. This compilation considers the classic works on marine macroalgae, which are divided into three major groups, the Red Algae (Rhodophyta), the Brown Algae (Phaeophyta) and the Green Algae (Chlorophyta). These three groups are classified as separate Divisions (by contrast, all flowering plants are in the same Division). They have fundamental differences in structure and reproduction, as well as their distinctive pigmentation. Publications that divided marine algae into these basic groups are among the early classics of marine botany.

The discipline has progressed from the early recognition in the 18<sup>th</sup> century that algae are different from other plants, to the classification of the major groups of algae and then worldwide exploration with description of many new species in the 19<sup>th</sup> century. In the 20<sup>th</sup> century, work on taxonomy and distribution continued, and as the composition of the local algal flora became better known in many places, it was possible to turn to ecological, physiological, and genetic studies. However, a survey of recent literature indicates that even in 2002, there is continuing active research on marine algae dealing with taxonomy, reproduction, anatomy, and geographical distribution.

The classics of marine botany consist primarily of two types of publications: general treatises on algae, or more specifically marine algae; and comprehensive treatments of the algal flora of particular geographic areas. They all represent significant advances in the understanding of the discipline and have been widely cited and used. Most are monographs, but some very significant early works were actually articles in journals,

### Methods

Various methods are being used to compile this list of classics of marine botany. The initial list includes those titles that this author encountered repeatedly in courses, lectures, reading and conversations during years of study and research in the discipline.

The list has been expanded by perusal of the bibliographies included in several of the classics, as well as reviews in some of these same books on the history of the discipline and its classic works up to that point. The third approach has been to send a message to the listserver ALGAE-L asking current researchers in marine botany, nearly all of whom subscribe to ALGAE-L, to send lists of what they consider the classics. There are many potential titles for this list, and work is expected to continue for some time before a definitive list is presented. At this time we present only a few titles.

#### The Compiler

The author of this review has 8 years of graduate study on macroalgae at University of Washington, University of Oslo, and University of British Columbia, and earned M.Sc. and Ph.D. degrees in Marine Botany. This was followed by 12 years of postdoctoral research on seaweeds in British Columbia, Nova Scotia, Oregon and Helgoland, Germany, before he became a biology and aquatic sciences librarian.