

BOOK REVIEW

Planktonic Algae

RED TIDE ORGANISMS IN JAPAN. Edited by Y. Fukuyo, H. Takano, M. Chihara & K. Matsuoka. 1990. Uchida Rokakuho Publ. Co., Tokyo. ¥13,390 (approx. US\$100). 407 pp., illustrated.

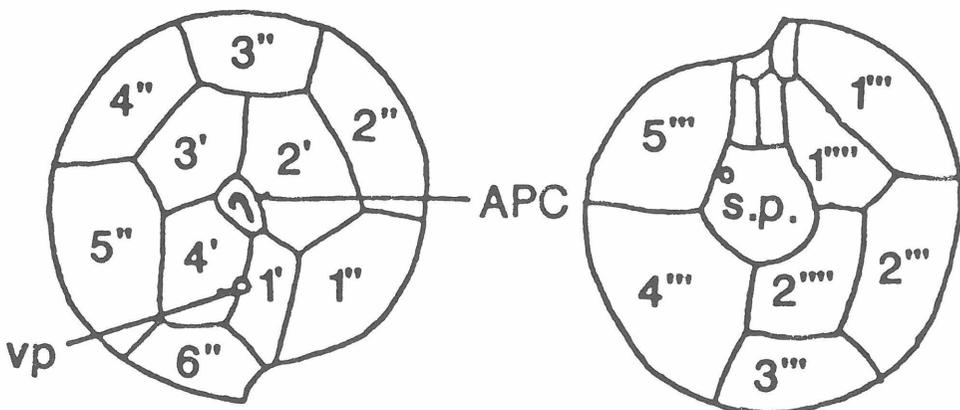
Red tides are dense concentrations of unicellular, planktonic algae, which often cause health or environmental problems. Some species are toxic and cause paralytic shellfish poisoning and other illnesses when humans eat animals that have filtered the algae from the water. Other species are not toxic but may become so dense that they use up all the oxygen in the water and kill fish. Yet other red tides, such as "Sanvitores Blood" in Guam (see article in June '91 issue), are apparently harmless.

The most notorious algae in red tides are dinoflagellates, but in recent years other types of algae have proven toxic or troublesome. *Red Tide Organisms in Japan* presents a very broad range of planktonic algae, including not only the abundant bloom-forming species, but also many associated algae. The book is thus virtually a manual on phytoplankton, and much more widely useful than the restrictive title suggests. Since Japanese islands extend into warm waters tropical species are represented as well as temperate spe-

cies. Some species are primarily benthic rather than planktonic (e.g., *Gambierdiscus toxicus*, *Scrippsiella hexapraeicingula*, and *Nitzschia longissima*) but may be washed up into the plankton. The editors have even thrown in a few freshwater "red tide" organisms (e.g., *Anabaina flos-aquae*). But although the book is very broad as a treatment of red tide organisms, it is by no means a complete flora of the plankton—nor is it intended to be.

The bulk of the book describes dinoflagellates and diatoms, but other algal classes include Cyanophyceae (8 spp.), Cryptophyceae (2 spp.), Raphidophyceae (9 spp.), Chrysophyceae (6 spp.), Haptophyceae (4 spp.), Euglenophyceae (8 spp.), Prasinophyceae (5 spp.), and Chlorophyceae (1 sp.). There are even two protozoa, including *Mesodinium rubrum* which has photosynthetic endosymbionts.

Each taxon is presented on a two-page spread, with generally excellent illustrations, mostly light and scanning-electron micrographs. Thecal plate analyses are shown for some of the dinoflagellates. Unfortunately, the figure captions are only in Japanese, in contrast to the practise in many Japanese journals, and in spite of the fact that a diagnostic description of each taxon is given in English.



Thecal plate analysis of *Alexandrium tamarense*, a cause of paralytic shellfish poisoning. From *Red Tide Organisms in Japan*.

The Japanese text gives not only a description of the alga but also notes on taxonomic and other significant studies on the species. The references for each species include the original description and nomenclatural changes, plus other works.

The English texts are generally good, but a few slips evaded the copy-editor's pen. ("Although *Mesodinium* belongs to Protozoa in animal kingdom, it feeds nothing any more and living by photosynthesis of the symbiotic alga." [p. 399])

Each species description was written by one or more of the 23 authors, who are sometimes the original authors of the species (e.g., *Alexandrium affine* [Inouye et Fukuyol] Balech; *Nitzschia rectilonga* Takano). Some classes were written by many authors, others by one author: Minoru Saitô and Isao Inouye wrote the short sections on euglenoids and prasinophytes, respectively, and Hideaki Takano wrote all of the 85 diatom descriptions.

New toxic blooms continue to occur, and some species not yet classified as toxic may yet prove troublesome. *Nitzschia pungens*, described here, was recently identified as the cause of an outbreak of paralytic shellfish poisoning in eastern Canada (the first known toxic diatom bloom).

This book should be in the libraries of aquarists and water quality managers world wide, and is particularly useful in Micronesia where the planktonic algae are poorly known and have not yet been monographed.

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Marianas Woody Plants

TREES AND SHRUBS OF THE NORTHERN MARIANA ISLANDS. Lynn Raulerson and Agnes Rinehart. Coastal Resources Management, Commonwealth of the Northern Islands, Saipan, MP 96950. 1991. 120 pp, illus. approx. \$15. Softcover.

Notwithstanding its title, this book covers all the Mariana Islands. All but one of these trees and shrubs occur on Guam. This full color guide is a welcome addition to the books on the terrestrial plants, especially as earlier floras (which included also the grasses and herbs) are long out

of print. Ben Stone's formal *Flora of Guam*, published in *Micronesica*, volume 6 (1970) is now dated and was not for the amateur naturalist. Many names have changed as a result of studies by Fosberg, Stone, and others. Moore & McMakin's *Plants of Guam*, published by UOG College of Agriculture & Life Sciences in 1979 was similar to the present work in format, but again is unavailable. Thus, if you want a book about the native vegetation of Guam or the Northern Marianas, this is the only one you can buy.

Raulerson and Rinehart make a powerful team and have produced a book of the highest quality. The botany is based on Raulerson's extensive knowledge of the local plants, developed over years of building up the herbarium and carrying out environmental impact surveys in the islands. The photos display Rinehart's skill and have been given excellent color printing. (We look forward to their "Ferns and Orchids of Guam," completed and awaiting publication.)

Each species is given half a page of description, including common names in English, Chamorro and Carolinian, and half a page of photos. This layout is similar to Moore & McMakin's book, but a significant difference is that Raulerson & Rinehart usually include two photos: one a more general shot, the other a detail of flowers or fruits and leaves.

The book begins with a very brief overview of plant communities in the CNMI. The book is evidently aimed at visual identifications (the "picture-matching" school), but the species pages are arranged taxonomically rather than by habitat/community (contrast Moore & McMakin). There are no keys. The descriptions include notes on habitat and uses as well as a word picture of the plant in straightforward English. A glossary explains the essential specialty words.

Anyone who has an interest in the local plants—from natural history fans to golf club managers—will be pleased to have this book. Given its very high quality and need for this book, it is a pity that the CNMI did not make plans for wide and continued availability. My advice, if you think you want this book, is to get it *now*. Check Guam bookstores.

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