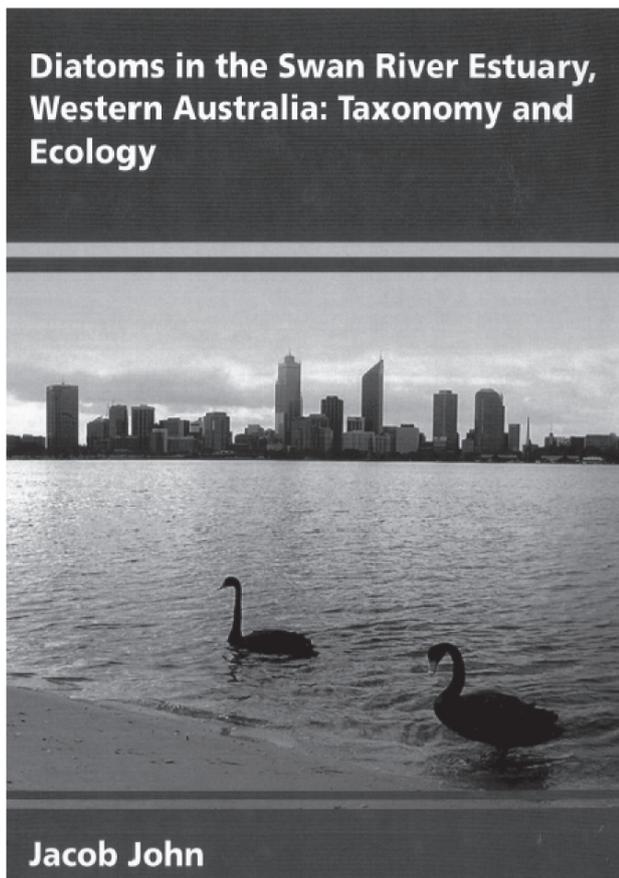


## Book Review

### Diatoms in the Swan River Estuary, Western Australia: Taxonomy and Ecology

**Diatoms in the Swan River Estuary, Western Australia: Taxonomy and Ecology** by Jacob John

Koeltz Scientific Books, Königstein, Germany 2012, 456 pages, 139 plates; hard cover. ISBN 978-3-87429-429-4



This book represents a revised edition of *The Diatom Flora of the Swan River Estuary Western Australia*, part of the *Bibliotheca Phycologia* series, first published in 1983 by the author. The original title was widely used around the world by students, academics and those working in regulatory and private organisations, proving a valuable taxonomic reference on estuarine diatoms. In subsequent years the book became out of print, after which obtaining a copy was extremely difficult. This revised volume entitled *Diatoms in the Swan River Estuary, Western Australia: Taxonomy and Ecology*, contains updated information, figures and taxonomic notes, and is a welcome edition for diatom enthusiasts. The book is well presented, with over 456 pages in hardcopy format, quality binding and large font size. It is easily navigated, comprising Introduction, Materials and Methods,

followed by five brief chapters on the Swan River, and a taxonomic section, which provides the bulk of the text and figures. There are some typographical errors and formatting inconsistencies scattered throughout, the most obvious of which is the repetition of four paragraphs on page 5, although these may be easily rectified by the author in an updated edition. The index of diatom taxa at the rear of the book is considered useful for those referring to the book primarily as a taxonomic resource.

The diatom descriptions that make up the majority of the book are based on studies from the Swan River by the author, which began in the late 1970s and continued intermittently to 2012. These studies represent an increased sampling effort from the original edition, which was limited to work carried out in the early 1980s. The front two sections of the book contain the Introduction, with background on the Swan River, and the Material and Methods for the studies. Descriptions of sample sites (and an associated map) are included, detailing the 10 frequently sampled stations located along the Swan and Canning Rivers in the upper and lower reaches of the system. Collection techniques and diatom processing, analysis and identification procedures are also provided in the methods, noting the additional collection of samples that form part of the revised edition of the book. There is a summary of the physico-chemical data collected during the 1980s, with water quality data presented as an Appendix. A brief synopsis of the diatom data and reference material is placed at the end of the Materials and Methods, outlining the taxa most frequently encountered, and common bloom-forming species observed in the Swan River.

Following these sections, Chapters 1 to 5 are new additions to the revised volume. Chapters 1 to 3 examine the ecology of the Swan River Estuary, based on various studies conducted in the 1980s and 1990s, supported by ample tables and figures. They focus on seasonal succession patterns of phytoplankton, in particular planktonic diatoms, with the distribution pattern of epiphytic diatoms also investigated. Controlling factors influencing algal assemblages in the Swan are the hydrological regime, which in turn affects salinity and nutrient concentrations, considered the driving factors for shifts in species distribution. In Chapters 4 and 5, changes to the Swan over the last 30 years are examined, and the challenges that lie ahead to maintain the health of the river are outlined. These two chapters focus on hydrology, ecology, land use and the problems associated with urbanisation and industrialisation along the edges of the Swan. Historical impacts have led to land degradation, salinisation, sedimentation and excessive nutrient input, causing nuisance blooms of dinoflagellates and cyanobacteria. To combat these problems, regulatory bodies (including the Swan River Trust) and community groups have taken interactive approach to developing and implementing management strategies for the river. The author briefly concludes with

potential restoration and monitoring measures for the Swan in Chapter 5, ending on a positive note, on the roles diatoms may play in assessing the river's health going forward. Chapters 1 to 5 are considered valuable to broaden the reader's knowledge on the river and algal distribution patterns. However there is a sense that at times, the material presented interrupts the general flow of the revised edition, and therefore may have been better served as a separate, published volume.

The taxonomy of diatoms from the Swan River Estuary begins on page 52 and provides the results to the studies outlined in the introduction and methods. As a result, this part of the book may have been better placed directly following these sections. The author states the classification system adhered to and the format that ensues, in order to use the taxonomic descriptions as intended. Taxa are presented in alphabetical order by genera, accompanied by morphological descriptions, and information on distribution and habitat. Since the first edition of the book was published, there have been substantial revisions in diatom taxonomy, with the author attempting to accommodate much of the recent changes. This is reflected in the number of genera described, consisting of 114 genera and 365 taxa, in comparison to the first volume, which described 74 genera and 358 diatom taxa. While the taxonomic nomenclature has been updated, the majority of the descriptions remain the same, complete with several new additions, proving testament to the quality of the original descriptions. Along with the taxonomic notes, more than

100 diatom figures (plates) are presented, in many cases comprising more than one image per taxon. While many of these were included in the first edition of the book, several high quality scanning electron microscopy (SEM) images have been added, and these highlight the complex morphology of diatoms. With much of the book focused on diatom taxonomy and nomenclature, an introduction to diatom morphology would have been valuable, although notes highlighting key morphological features are associated with many of the SEM images.

Overall, *Diatoms in the Swan River Estuary, Western Australia: Taxonomy and Ecology* makes a substantial contribution to diatom research in Western Australia. The book will no doubt have widespread appeal for those with an interest in estuarine ecology, aquatic ecology and water management. It is highly recommended for individuals affiliated with universities, regulatory authorities and environmental consultancies, where algology and diatom taxonomy are at the forefront. This volume will make an attractive and welcome addition to any diatom reference library in Australia and around the globe.

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