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GEORGE, D. GLEN, J. GWUNFRYN JONES, PAVEL PUNČOCHÁŘ, COLIN S. REYNOLDS, AND DAVID W. SUTCLIFFE. 1998. **Management of lakes and reservoirs during global climate change.** Kluwer Academic. 323 p. + xii. US\$143. ISBN 0-7923-5055-3.

I enthusiastically agreed to review this book, hoping to find analyses and information for Europe and Asia comparable to that resulting from the American Society of Limnology and Oceanography's recent symposium on a similar topic (see *Limnology and Oceanography* 41(5), 1996, and *Hydrologic Processes* vol. 11, 1997), which focused largely on freshwaters in North America.

The volume began auspiciously enough, with a summary by T. Davies et al. of long-term climate in Europe and linkages to atmospheric and ocean temperatures and circulation in the North Atlantic (the North Atlantic Oscillation). For some climatic parameters there are over 150 years of hard data; time series analyses of these data would form an excellent basis for analyzing the many long-term limnological data sets that have been collected at several European sites. Unfortunately, not a single subsequent chapter capitalized on this opportunity. Although several papers relate limnological changes to seasonal weather patterns, there is no reference to the limnological effects of longer-term climatic trends. This disconnection between the volume's advertised theme (climate change) and the actual content struck me as very strange, indeed.

Of the six papers that had "weather" in their titles, Colin Reynolds' review of the effects of weather on seasonal plankton dynamics was the most interesting. The paper of Tim Kratz et al. on the synchronization of limnological events in populations of lakes that experience the same weather is also useful; it convincingly demonstrates that many limnological variables respond in similar ways in all lakes within a single region. The rest of the papers were forgettable. Some had the word "climate" in their titles, but no reference to it in the text. A few had long-term data, but the authors did not link these to climatic variation. Others referred to increased water renewal (or flushing) times, but made no mention of the damping of interannual variation in chemical concentrations in lakes that these changes inevitably cause. The least useful were papers that presented routine monitoring data for varying time spans, without any reference to either climate or lake management.

The analytical chapters near the end of the book do not give a truly global perspective. To do so would require more than a single paper from North America. Moreover, several countries that are famous for having fine long-term limnological records that could and should be related to climatic variations (e.g., Norway and Sweden) are unrepresented in the volume. Finally, and perhaps most curiously, the looming water crisis in the mid-East is not mentioned anywhere.

Apart from the few good papers mentioned above, I cannot recommend this book—its price (\$143US!) is too high, its information and idea content too low, and there are more useful sources of information on the subject. Reading it put me in a depressed mood. Of all natural resources, freshwater will be the most critically affected by the many-pronged assault of population growth, industrialization, climate warming, air pollution, and deficient land-use practices. In one way or another, freshwater crises will affect almost all areas of the world in the next few decades. If this volume represents the current state of understanding of the linkages between climate change

and freshwater globally, then God help us! The main contribution of this volume is, ironically, to underline the urgent need to organize the best limnological talent in the world to produce a truly comprehensive overview of the effects of climate change on freshwater.

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KUNZIG, ROBERT. 1999. **The restless sea.** W. W. Norton. 336 p. \$US24.95. ISBN 0-393-04562-5.

ASLO is the professional home of limnologists and oceanographers. Our vigorous meetings and the preeminence of L&O testify to the logic and strength of this union. Nevertheless, as in any marriage, some subjects that preoccupy one partner are virtually unknown to the other. This is not surprising, given that limnologists and oceanographers work on ecosystems which are so different in spatial scale and age, and that are inhabited by different organisms. As a limnologist and ASLO member for >30 years, I speak from experience: Reading this wonderful little book made me realize that until I became editor of L&O last year I consistently turned a blind eye to some of the most interesting material that had appeared in the journal.

In very accessible language, Kunzig explains a great variety of oceanographic subjects that were previously only vague blips on my radar screen. A small sampling includes: marine snow, *Synechococcus/Prochlorococcus*, the iron hypothesis, *Pfeisteria*, the ubiquity and importance of jellies, hydrothermal vent communities, seafloor spreading, thermohaline circulation of the oceans, the codfish crisis, and the role of oceans in global climate change. He does a particularly nice job of placing each topic in its historical context, affording fascinating glimpses of colleagues such as Alice Allredge, Sallie Chisholm, Henry Stommel, Farooq Azam, John Martin, and Wally Broecker. Oceanographers will immediately recognize that these people do (or once did—Martin and Stommel are no longer alive) very different things. It is rare that a book can make a compelling story out of such disparate elements.

The author is the European editor of *Discover* magazine and he writes superbly. The only flaw (to my eye; others may justifiably disagree) are the introductory and concluding chapters, which contain a bit too much "gee-whiz" cosmology (from the big bang through how it will all end) for my taste. On the other hand, I particularly admired the excellent index and carefully selected bibliography.

Although strictly marine, this book is very much in the spirit of L&O as it covers things ranging from physical oceanography to microbes to geochemistry. It is a really good read, and makes what we do sound like fun! It will appeal to all ASLO members, but I particularly recommend it to limnologists as a painless way to come up to speed on subjects that their salty cousins are buzzing about. A similar book about inland waters is badly needed.

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