

## REVIEWS

### AFRICAN FRESH WATERS

Crisman, T. L., L. J. Chapman, C. A. Chapman, and L. S. Kaufman (eds.). 2003. *Conservation, Ecology, and Management of African Fresh Waters*. University Press of Florida, Gainesville, FL, USA. US\$34.95 (paper), US\$75.00 (cloth), ISBN 0-8130-2597-4.

The book by Crisman et al. attempts to give an overview of the broad range of issues affecting the conservation and management of African surface waters while maintaining an ecological perspective. Given the diversity of African waters and the size of Africa, this is an ambitious if not audacious undertaking for a single book, but the editors are to be complimented for recognizing the need for such a book.

Africa is the second largest continent and might be considered one of the oldest—in terms of pride of place on the globe, it has been in nearly its present position since Gondwanaland broke up. As a consequence of its geological immobility, it can be conveniently thought of as a high plateau of relatively low relief dissected by several very old drainage systems that spill off the plateau. This geologic stability has been interrupted in the past 10 million years by development of the rift valley systems in eastern Africa, which has led to the formation of two of the largest, deepest, and most ancient lakes on the planet, Tanganyika and Malawi. Despite the presence of 25% of earth's surface freshwater in the East African lakes, Africa is, in fact, a dry continent. It is second only to its wandering continental cousin, Australia, in aridity, and Africa's Sahara is the largest desert in the world. Rainfall is highly seasonal over most of the continent. Even in areas with substantial rainfall, long dry seasons can make water a scarce resource.

Wetland scientists will not be surprised that, given the low relief and highly seasonal rainfall over most of the continent, wetlands are important, accessible reservoirs of fresh water, especially in dry seasons. The Victoria basin is the heartland of extensive papyrus wetlands, the most productive plant community on earth, but papyrus and many other wetland types are widespread. Perhaps less well-appreciated to those studying wetlands elsewhere is that the African wetlands are spectacular reservoirs of biodiversity. In addition, they provide critical resources, including often highly productive fisheries that can sustain riparian human populations through the long dry season when agriculture is dormant. Water scarcity and necessity

for resource users is a formula for aquatic environmental stress and a challenge for management especially for many impoverished national governments in Africa.

The book brings together the contributions of two separate symposia organized around the common theme of African surface waters. The first symposium was at the annual AAAS meeting in 1998, where a small group of experts from across Africa and North America came together to assess the current environmental status and management approaches to African waters. The second and larger symposium, held at the University of Florida in 2000, spanned the spectra from ecology through economics and from research to active management. The papers are divided into four parts. Part 1, the shortest with only two contributions, gives an historical perspective on the effects of climate on African waters and a detailed landscape history of the interaction of different cultures impacting small lakes west of Lake Victoria over the past 3000 years. These chapters emphasize the antiquity and dynamic environmental history of many African lakes, emphasizing that humans have been impacting these lakes for a very long time.

Part 2 consists of five chapters giving current regional perspectives on aquatic resource impacts and challenges to management. These are authored by very experienced scientists from across Africa. Strikingly, these regional perspectives lead to the emergence of a consistent set of aquatic stresses from east to west and north to south: deforestation, increasing consumptive and non-consumptive water use, eutrophication, species introductions, et al. The other omnipresent issue in these perspectives is water scarcity, even when there is plenty, because of the lack of infrastructure for distribution and treatment. It is estimated that 240 million Africans are at or below the minimal level of water use to support human habitation, and this number is growing. It is difficult for societies to progress economically when hours are spent every day just gathering minimal amounts of water to sustain and maintain households. Water will continue to be a top priority for development in Africa, and this book is ensured of relevance for the foreseeable future.

In part 3, the focus is on ecosystems and processes. Fisheries get the primary attention because of their importance to the economies and subsistence of riparian peoples. Ongoing processes such as deforestation and its affects on streams and rivers and eutrophication of