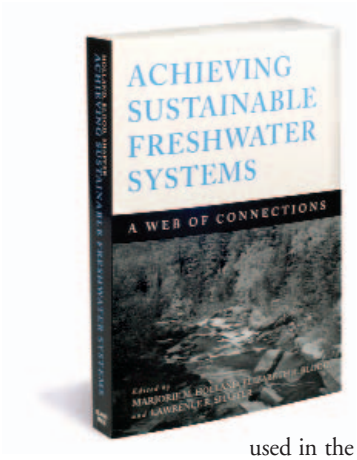


## Achieving Sustainable Freshwater Systems: A Web of Connections

*Edited by Marjorie M. Holland, Elizabeth R. Blood, and Lawrence R. Shaffer*

Washington, DC:Island Press, 2003.
312 pp. ISBN: 1-55963-928-8, $65 cloth.
ISBN: 1-55963-929-6, $30 paper.

This book collects chapters written by participants in a conference honoring the opening of the University of Mississippi's Center for Water and Wetland Resources. It is therefore natural that the examples used in the book—such as the fascinating account of the management history of the Cache River Basin—focus on wetlands of the southern United States and especially the Lower Mississippi River and its tributaries. These examples provide a nice geographic complement to earlier studies of adaptive ecosystem management on the Columbia and Colorado rivers, Walters' *Adaptive Management of Renewable Resources* (1986) and Lee's *Compass and Gyroscope* (1993).

This is a scientific book, written for a scientific audience; it is a valuable reference source and would be a good choice for a graduate seminar in water resource management. Ecotoxicologists will especially enjoy the chapters on wetlands laws and policies, aquatic resources and human health, contaminant transport, and natural products. This is perhaps the first water management book that includes a discussion of conservation implications of endocrine disruption.

There are currently a couple of major ways to approach ecology. One approach, based on ideas of Eugene Odum, is the integrative perspective, which sees ecology as a unified whole. The other approach sees ecology as comprising several related but distinct perspectives. If the integrative approach is your cup of tea, then you will find great quotations for teaching and research. "Synthesis" and "integration" are two words that appear over and over again throughout the contributions. The synthesis is in the direction of understanding and application of ecosystem processes—energy flow and biogeochemical cycles.

In setting the stage for integrating the book, the editors' introduction provides three fundamental components, three wetland definitions, a holistic view, five characteristics of watersheds, a nice introduction to adaptive ecosystem management, and three organizing themes that project the tripartite division of the chapters that follow the first, which itself makes a comprehensive case for the importance of water as a natural resource. In the first set of chapters we find a knowledge base for water, wetlands, and watersheds. We are updated on environmental law, human health issues, and movement of contaminants in biogeochemical cycles. Readers are given access to new and important data, often from government reports. For example, I was surprised to learn that there are more marine "dead zones" than just those in the Caribbean and Lake Erie—that this is a global problem (as shown in Figure 4.3).

In the second "perspectives" section, Robert Wetzel, the "dean" of limnologists, makes a plea for the importance of understanding microbial metabolic processes in wetlands and then encourages scientists and managers to apply this understanding to ensure human survival. There is a comprehensive summary chapter on wetland biochemistry that brings readers up to speed with the rather complex chemistry and biology of freshwater mud. The final chapter in this section addresses the larger picture of biogeochemical cycles related to wetlands, and includes a unique discussion of natural products of wetland communities.

The third section of the book includes examples of adaptive management of wetlands, models for understanding complex wetland systems, and discussions of how wetland scientists interact with management agencies and the public.

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