

Wetlands by William J. Mitsch and James G. Gosselink, John Wiley & Sons, Inc., 2007.
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by Patrick C. Garner, PLS, Wetland Scientist

Wetlands is simply the uncontested end-all and be-all reference in the wetlands science field. Although there are hundreds of books in print on the subject, none is as influential and none has been as critical to the success of this broad field of study. Authors Mitsch and Gosselink, both esteemed university professors, have now issued their fourth edition (a new edition has come out roughly every seven years). The new *Wetlands* covers topics as diverse as wetland delineation, world wetland systems, regulatory issues, wetland hydrology, human impacts and use, and functions and values of wetlands.

If there is one book that both professionals and interested citizens should have on their shelves, this is it. Owners of earlier versions will find that the current *Wetlands* is a very different text. The field of wetland science is constantly evolving and *Wetlands* reflects the latest science and law. Copiously illustrated (but without color), the current version is a massive rework, shortening the total number of pages by 35 percent, while expanding the sections on international wetland ecosystems and adding a critical chapter on climate change (using the latest 2007 IPCC reports).

Joseph Larson at the University of Massachusetts calls this, "The single best combination text and reference book on wetland ecology." It is certainly that, and with the latest revision, *Wetlands* becomes indispensable as a reference for both working professionals and for academics.

Do you want to understand the carbon cycle and gaseous transport in plants? Do you want to revisit whether using wetlands in wastewater treatment is efficacious? How about issues regarding changing coastal tides and projected sea level rise? Do you have lingering questions about why wetlands should be protected and are so controversial? All of these are covered in detail. In fact, the thoroughness of the text mandates its definition as a reference.

In addition the authors state, "There is little doubt that something significant is happening to our climate." The new chapter on climate change is a basic primer on the critical function that wetlands play worldwide. The authors note the increased change in extreme precipitation patterns, warmer temperatures and the probable effects of those changes on the release of methane, a major greenhouse gas.

They point out that wetlands store 20 to 25 percent of global methane. Further, they weigh the impacts to carbon sequestration from climate change--noting that wetlands store 20 to 30 percent of the world's carbon. The book emphasizes that altered patterns of precipitation will change not only the type and distribution of wetlands, but also the ability of riverine systems to maintain anadromous fish populations. Flood control and stormwater management assumptions may require new definitions, and physical infrastructure extensive reengineering.

The heavily reworked chapter on Values and Valuation of Wetlands weighs the "difficulty of comparing... the various values of wetlands against human economic" interests. Not avoiding the controversies of private land rights versus societal values of wetlands, the authors stress the need to "consider the value of a wetland as part of an integrated landscape." There is also

emphasis on known wetland values being among the highest of any ecosystem. When flood control, water drinking quality, recreation (which includes sports as diverse as water skiing and trout fishing) and coastline protection from storms—all values associated with wetlands—are cumulatively taken into account, wetland loss as a result of changing ecosystems and human impact is clearly an increasingly critical concern. The authors look at existing laws and regulations, and note that, if we are to maintain optimum resource protection, many of the current statutes may have to change to reflect changing climate patterns.

When I teach wetland seminars to either design professionals, wetland scientists or environmentalists in the conservation field, I am frequently asked, “What is the one wetland text that should be in my library?” Without hesitation I have always recommended *Wetlands*. The fourth edition is a revision that makes that recommendation even easier.

Although *Wetlands* will not be the only wetlands book on your library—for instance, it is not a detailed manual on hydric vegetation identification or a how-to text on delineating a wetland edge—its comprehensive approach to definition, evaluation and analysis of wetland ecosystems is unparalleled. Conveniently, the book contains several hundred references for further reading, as well as the latest research findings.

In conclusion, the authors have created a must-have text. Design professionals, wetland scientists and concerned citizens should all have well-thumbed copies of *Wetlands*. Mitsch and Gosselink have set a new standard with this latest, eminently readable revision.

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