

Rivers for Life: Managing Water for People and Nature

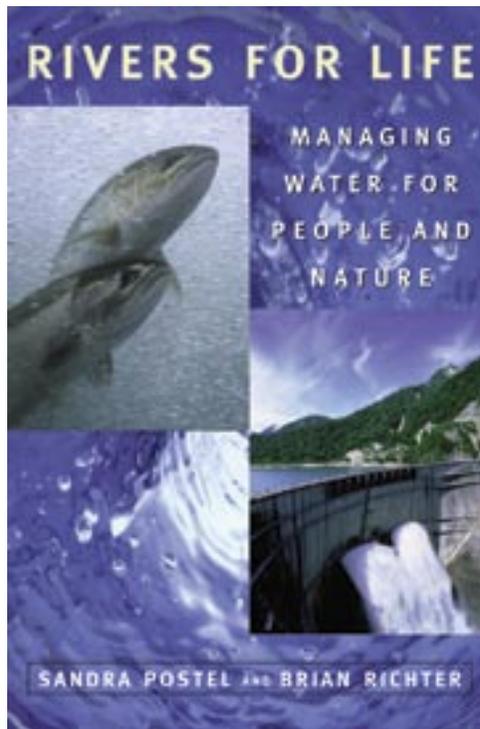
by Sandra Postel and Brian Richter, Island Press, \$25

Reviewed by **Steven W. Carothers, Ph.D.**
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Island Press, known for solution-oriented environmental documentaries, has teamed with two experts in the field of river research to present a global view on the deterioration of and efforts to restore riverine ecosystems. This book should be in the hands of every scientist or interested lay person who is drawn to rivers and concerned for the health of the planet. With extensive footnotes and bibliography, it impartially and convincingly documents how preserving or restoring extreme high and low flows is critical not only to uncounted species that depend on water fluctuations in natural river systems, but for the survival and long-term health of human societies.

The introductory chapter provides some astonishing facts about the physical and biological nature of changes that have taken place in rivers world-wide in little more than a century. For example: there are over 800,000 dams of all sizes; 77 percent of the large rivers in the northern one-third of the world are blocked by dams; and 25 percent of the world's sediment flux is captured in reservoirs. Perhaps the most incredible fact, originating from peer-reviewed literature, pertains to anthropogenic impacts on global geodynamics: the weight of impounded waters in the northern hemisphere has caused Earth to tilt slightly with a resultant increase in the rotation speed of the planet.

Chapter 2 provides an excellent review of the history of development of instream flow models (IFIM, PHABSIN), and their inadequacy in prescribing flow conditions necessary to sustain the life of an ecosystem. This chapter asks society to give back to rivers, for the benefit of all,



a substantial amount of water currently taken. The most intriguing revelation in this section is the relatively unknown story of current river research in South Africa and Australia. Though late in entering the field of river restoration and the debate on methodological evaluations, scientists in these countries have come up with some very effective solutions for servicing ecological functions while supplying human needs.

In Chapter 3, the authors forcefully assert that society's current approach to managing rivers is not working. They are hopeful that recasting the rules of river use and management (which has to happen) will improve the situation, but they also acknowledge that this will not be simply accomplished. Governments must reshape laws and policies forged in earlier times when the prevailing concern was economic return, not ecosystem sustainability. Ensuring both riverine biodiversity and long-term quality of human life can only be realized by protecting sufficient flow under laws of public domain. The chapter also reviews opportunities for protecting and restoring flows through federal and

state laws and policies that are as yet underutilized.

Chapter 4 describes science and policy efforts that have been or are being made for securing "ecological" flows in a number of riverine systems. The chapter details The Nature Conservancy's efforts to track river restoration projects in 230 river basins and examines such efforts in Australia, South Africa, Puerto Rico, and the continental United States. Some impressive success stories are documented, yet of the 800,000 dams world-wide, fewer than 300 have been removed in the last 30 years, mostly in the United States.

A number of examples where governments failed to protect the health of river ecosystems and consequently the societies they serve are provided in Chapter 5. River changes detrimental to long-term biodiversity and quality of human life are mainly due to loss of flow. However, the authors maintain that "Scientists, economists, and policy analysts, often working together, have shown that preserving or restoring some degree of natural flow in river systems and the natural functions of watersheds can provide greater net benefits to society than investing in the more conventional technological benefits or development approach to water management."

In the epilogue, the authors discuss behavioral and societal changes necessary for recovery and restoration of rivers and quality of life. I personally doubt that societies will be able or willing to adapt to the natural cycles, slow population growth, decommmodify water as private property, or allocate sufficient water to nature, but I hope I'm wrong. Nonetheless, this is a thoroughly researched and well-written book, replete with information, one that will for years be the place to start any literature review on altered riverine ecosystems.

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