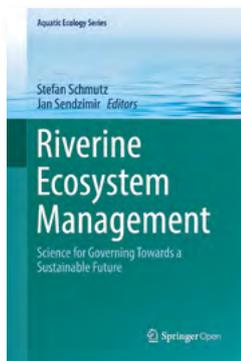


News and Notes

Riverine Ecosystem Management. Science for Governing Towards a Sustainable Future



A newly published open-access book surveys the frontier of scientific river research and provides examples to guide management towards a sustainable future of riverine ecosystems. The book is dedicated to those interested in the natural and social sciences and elements of governance that will support the sustainable management of rivers and aquatic ecosystems. Elements of nature

and society interact to determine the integrity and trajectory of social-ecological systems (SES) such as riverine ecosystems.

This book opens the door to these topics in four steps. It begins by explaining why a book dedicated to river management and science is needed at this point. In the second part, it outlines the history of some of the major developments that challenge the integrity of SESs worldwide. In the third part, it describes several of the principal tools used to study as well as manage SES. Tools to measure the degree of degradation of an SES include indicators of biological integrity, ecosystem health, and resilience. Tools to assess and manage the trajectory of an SES include the DPSIR and adaptive management.

Rivers are among the most threatened ecosystems of the world. For more than a century, river science has evolved to define these threatening trends and the mechanisms that cause them. What has emerged, while still incomplete, is a picture of imposing complexity, especially for managers, policy makers, and any concerned citizens interested in addressing these threats. This book surveys the frontier of scientific research and provides examples to guide management toward a sustainable future of riverine ecosystems. Principal structures and functions of the biogeosphere of

rivers are explained; key threats are identified, and effective options for restoration and mitigation are provided.

Rivers increasingly suffer from pollution, water abstraction, river channelization, and damming. Fundamental knowledge of ecosystem structure and function is necessary to understand how human activities interfere with natural processes and what interventions are feasible to rectify this. The specifics of such management leverage points become clear through elucidation of cause-effect relationships, especially how socioeconomic drivers create pressures on rivers and how those pressures alter ecosystem functions and impact fauna and flora.

Modern water legislation strives for sustainable water resource management and protection of important habitats and species. However, decision-makers would benefit from more profound understanding of ecosystem degradation processes and of innovative methodologies and tools for efficient mitigation and restoration. This becomes especially important for threats where current policies are ineffective, and both policy and management must support research that identifies solutions.

The book provides best-practice examples of sustainable river management from on-site studies, European-wide analyses, and case studies from other parts of the world. It will be of interest to researchers (graduate and post-graduate) in the fields of aquatic ecology, river system functioning, conservation and restoration, to institutions involved in water management, and to water-related industries.

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