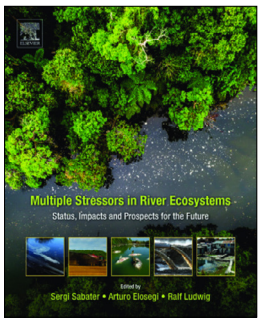
BOOK TITLE:
Multiple stressors in river ecosystems: Status, impacts and prospects for the future



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Understanding river ecosystems in the 'Anthropocene'

Considering the plethora of existing literature on environmental pressures facing running waters the world over, this well-written and well-illustrated book has no equal as a guide to navigating the challenges facing running waters in Africa and elsewhere, and marks an exciting step forward in discussing the management of freshwater resources in a global context. It is certain to make its mark in the canons of literature on this topic. I have already received queries from colleagues in freshwater management in South Africa and Zimbabwe as a direct result of their reading this book, yet it has only been available for a little over a year!

This first edition (hopefully not the last) of *Multiple Stressors in River Ecosystems* covers the key ecological factors and processes in rivers by dealing with the entirety of global stressors that affect running waters, whether they are small streams or large lowland rivers. The book was edited by renowned aquatic ecologist Sergi Sabater (Professor of Ecology, ICRA Catalan Institute for Water Research, Girona, Spain), stream ecologist Arturo Elosegi (Professor of Ecology, University of the Basque Country, Bilbao, Spain) and Ralf Ludwig (Professor of Physical Geography and Environmental Modeling, Ludwig Maximilian University, Munich, Germany). In addition to these esteemed editors, other extremely well-respected authors (e.g. Mažeika Sullivan, Jens Kiesel, Kelly Fouchy) were invited to broaden the thematic scope of the chapters.

At the beginning of the book, the editors carefully explain some of the definitions that are used throughout. These definitions are useful because some terms can be easily misconstrued in freshwater ecology, for example, 'stressor', 'receptor' and 'subsidy'. The overview in Chapter 1 provides the reader with a roadmap for all subsequent chapters. Chapter 2 unravels how climate change has further compounded and modified the effect of stressors commonly occurring in running waters (e.g. land use changes). One aspect that this chapter demonstrates is just how complex it is to assess the joint effects of stressors and climate change. Viewing this contribution in the context of climate change, the reader can begin to appreciate how climate change has affected running waters in South Africa and the world over. Subsequently, Chapters 3 to 5 explore how the abiotic factors of running water ecosystems – such as hydrology and geomorphology – impact native and invasive species and how all these factors are influenced by human activities. Chapters 7 to 13 provide a thorough review of the intensity and degree of prevailing combinations of multiple stressors in different parts of the world. Chapters 14 to 20 explain models, frameworks and experimental approaches to studying multiple stressors in running waters, including the availability of drinking water to humans. Chapter 20 ends with an elegantly written integrated perspective. In the concluding chapter, Chapter 21, there is an outline of research gaps, implications for science and society, and recommendations for researchers, managers and policymakers.

Inside every chapter the arrangement of the content is excellent, but navigating through chapters can be difficult, which can be attributed to the large number of issues that are covered. I found that searching through the book could be cumbersome and time consuming; unfortunately, a glossary of important terms is missing.

My greatest praise for this book lies in the use of appropriate and interesting case studies that identify multiple stressors in riverine systems in different parts of the world (e.g. China, New World, Australia and New Zealand). Despite the strengths and interest in this book, I was disappointed to find it underwhelming in its representation of African streams. While South African researchers such as Dr Gordon O'Brien, currently at the University of Mpumalanga, contributed an overview of the stressors that affect African lotic systems in Chapter 10, I feel the book would have benefitted from additional scientists from other parts of Africa making specific contributions relating to our continent. Additionally, I would have loved the book to delve into some of the stressors that come as a result of social and political issues in management of water resources, especially considering that this work only focused on the importance of socio-economic and policy factors from a European perspective (Chapter 19). However, it is worth noting that the section on economic valuation of water resources in Europe (Section 19.5) could be extrapolated to the African continent as well.

Given the amount of work and detail that it covers, I recommend *Multiple Stressors in River Ecosystems* to graduate students and environmental managers with knowledge of the basics of riverine ecology who are interested in studying or carrying out research on the pressures affecting lotic systems in the world. To my knowledge, there is no other available book that has attempted to take a global view of stressors on riverine systems. This is a very thought-provoking read that contains the latest key scientific knowledge of the pressures facing the ecology and management of running waters.