

**Strategies for Restoring River Ecosystems:  
Sources of Variability and Uncertainty  
in Natural and Managed Systems**

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# **Strategies for Restoring River Ecosystems: Sources of Variability and Uncertainty in Natural and Managed Systems**

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## Preface

Another book about river restoration? Isn't your bookshelf sufficiently burdened with recent works on this topic? Why would we add to the already voluminous literature and what could we say about aquatic restoration that has not been said before?

Basically, we undertook this project because there has been a real awakening to the variability in ecosystems and a keen interest in dealing effectively with policy uncertainties, both of which bear on restoration actions. The science of aquatic restoration is at least a century old, but the industry of aquatic restoration is much more recent. Most restoration programs are modest, yet some are extremely ambitious and expensive; multi-*billion* dollar aquatic restoration projects are well underway in the Pacific Northwest, central California, and southern Florida. With that kind of investment on the line, project managers rightfully insist there should be very good reasons to believe that what is being implemented will actually work. But there are no real guarantees. Only the weight of scientific evidence, combined with the insight and experience of project biologists and engineers, and the dedication of policy makers influence the ultimate outcome of river restoration.

Early in our planning stages we met with the authors of one chapter. During the meeting the discussion turned to dam removal—a very hot topic in some North American river basins. One author observed that if dams were removed, and despite our best predictions, “there will be surprises.” That comment sums up the reason for this book. Nature is full of surprises, and so are public policies. We cannot escape surprises but we can work to understand ecological variability and policy uncertainties, and we can put that knowledge to use in designing robust river restoration programs. We hope the following chapters will provide some help regarding these difficult issues and thus earn the book a place on your crowded bookshelf.

