Preface

This book reports on a large, eight-year research program at The Ohio State University to develop estimates of the benefits and costs of various water quality, infrastructure, scenic and historic river corridor impacts and improvements as a guide to economic analysis and public policy on river and related watershed restoration. The research is focused on evaluation of rivers in the Great Lakes region of the United States and involves a team of environmental economists, an ecological engineer and an aquatic biologist. When the various corridor impact or improvement benefits or values broadly conceived are expressed in a common economic metric and compared to their full economic costs, one has a basis for assessing river corridors in an economic development, welfare economic and public policy context.

Rivers have the potential to play an important role in the development of an economically depressed region by providing water supply, transportation, waste assimilation, and a wide array of recreation and tourism activities. The earliest civilizations were developed along rivers for the rich farmland along their banks and easy transportation. Irrigation of farmlands and water-powered industry were followed by large dams and locks for irrigation, residential and industrial water supply, recreation boating and fishing, hydroelectric power and barge transportation of products. Rivers as a source of waste disposal are increasingly in conflict with water supply, recreation and tourism, and major intra- and inter-country conflicts exist over the use rights to large river systems. Thus, the river corridor system or basin appears to be an important, but relatively underutilized focus for economic analysis and public policy.

Treatment costs, hedonic pricing, contingent valuation, benefit transfer and capture estimation, aquatic biology, and hydrodynamic-ecologic simulation models and methods are developed to value river corridor impacts. Impacts include household waste, pesticides, industrial toxics, gravel mining and agricultural run-off as well as improvements such as household waste treatment, dredging of toxics, zoning, greenways, dam removals, dam and lock upgrades, bike trails, towpaths, ramps and other recreational infrastructure. Some important innovations are introduced for codification of river supply and demand factors, testing for scope, context, and sequence effects in contingent valuation method (CVM) mail surveys, combining
revealed and stated preference techniques, utilizing structured elicitation groups for assessing constructed vs static preferences, benefit transfer including recalibrated transfer functions, benefit capture including the linking of first-stage hedonic pricing and property tax/revenue models, distribution impacts and equity weighting for contaminated river segments, and integration of economic, ecologic, and aquatic models for assessing dam removal.

Finally, using codification, and benefit transfer techniques, the authors classify rivers particularly in the Great Lakes region of the US into major types and attempt to generalize some of the key findings from these research efforts to those prototype rivers. This should provide an analytical and public policy assist for both professional and citizen groups concerned about methods for valuing river systems, degradation, and the restoration of rivers, particularly as catalysts for economic development. The methods and results should have important implications for river systems in the Great Lakes region of the US as well as for Europe and other temperate, developed regions of the world.