

Long-Term Dynamics of Lakes in the Landscape synthesizes two decades of research conducted by the North Temperate Lakes Long-Term Ecological Research (LTER) program at the University of Wisconsin-Madison. Analyses reveal how climatic variability, invading exotics, acid rain, internal lake processes, and humans affect interannual and interdecadal lake dynamics. The book pioneers concepts on the importance of lake position in the hydrologic landscape, the coherent dynamics of adjacent and distant lakes, the dynamic biogeography of lakes as islands, and comparison of lakes with disparate ecosystems such as deserts and forests.

Two whole lake experiments are described: experimental acidification at Little Rock Lake and the response of Lake Mendota to a natural experiment involving agricultural and urban development. Readers will learn the benefits of doing long-term ecological research, and limnologists will discover the richness of new information derived from studying suites of neighboring lakes across time.

ABOUT THE EDITORS

John J. Magnuson, an aquatic ecologist and Emeritus Professor of Zoology and Limnology at the University of Wisconsin-Madison, led the North Temperate Lakes LTER and directed the Center for Limnology until 2000.

Timothy K. Kratz, a Senior Scientist at the Center for Limnology, directs the Trout Lake Station, a field site of the North Temperate Lakes LTER program.

Barbara J. Benson, an Associate Scientist at the Center for Limnology, leads information management for the LTER site and provides leadership at network level.

“Previously individual lakes have been studied over time and lakes in different places have been compared. This book integrates these space and time scales for the first time, resulting in a powerful analysis of the landscape-level mechanisms that drive the dynamics of freshwater lakes.” – *Paul G. Risser, Chancellor, Oklahoma System of Higher Education and Chair, LTER National Advisory Board*

“This book is an important milestone and essential reading for those interested in long-term (decadal) ecological research. It chronicles the development, implementation, evolution, application and evaluation of the Long Term Ecological Research program of temperate lakes in Wisconsin, U.S.A. The influence of landscape position in determining lake condition and coherence is explored in detail as well as the relative importance of nutrient enrichment, climate change, acidification, and invading species as agents of ecological change in lake systems.” - *S. Ivan Heaney, formerly at the Freshwater Biological Association, Ambleside, England and the Aquatic Sciences Research Division, Department of Agriculture, Northern Ireland*

"The Wisconsin LTER project has greatly increased our understanding of the intricate interactions between lakes and their catchments, and how they respond to climate change." - *D. W. Schindler, Killam Memorial Chair in Ecology, University of Alberta*