

CONTENTS

Editor	v
Contributors	vii-ix
Introduction to Lake Ecosystem Ecology: A Global Perspective	xiii

LAKE ECOSYSTEMS: STRUCTURE, FUNCTION AND CHANGE

Lakes as Ecosystems	<i>W M Lewis</i>	1
Ecological Zonation in Lakes	<i>W M Lewis</i>	11
Littoral Zone	<i>J A Peters and D M Lodge</i>	18
Benthic Invertebrate Fauna, Lakes and Reservoirs	<i>D L Strayer</i>	27
Trophic Dynamics in Aquatic Ecosystems	<i>U Gaedke</i>	41
Eutrophication of Lakes and Reservoirs	<i>V Istvánovics</i>	47
Paleolimnology	<i>J P Smol</i>	56
Effects of Climate Change on Lakes	<i>W F Vincent</i>	65
Modeling of Lake Ecosystems	<i>L Håkanson</i>	71

HYDRODYNAMICS AND MIXING IN LAKES

Biological-Physical Interactions	<i>C S Reynolds</i>	79
Mixing Dynamics in Lakes Across Climatic Zones	<i>S MacIntyre and J M Melack</i>	86
Density Stratification and Stability	<i>B Boehrer and M Schultze</i>	96
Small-Scale Turbulence and Mixing: Energy Fluxes in Stratified Lakes	<i>A Wüest and A Lorke</i>	107
The Benthic Boundary Layer (in Rivers, Lakes, and Reservoirs)	<i>A Lorke and S MacIntyre</i>	115
Currents in Stratified Water Bodies 1: Density-Driven Flows	<i>F Peeters and R Kipfer</i>	124
Currents in Stratified Water Bodies 2: Internal Waves	<i>L Boegman</i>	133
Currents in Stratified Water Bodies 3: Effects of Rotation	<i>J P Antenucci</i>	153
Currents in the Upper Mixed Layer and in Unstratified Water Bodies	<i>F J Rueda and J Vidal</i>	162
Meromictic Lakes	<i>K M Stewart, K F Walker, and G E Likens</i>	177

LAKES AND RESERVOIRS OF THE WORLD

Origins of Types of Lake Basins	<i>D K Branstrator</i>	191
Geomorphology of Lake Basins	<i>B Timms</i>	203
Reservoirs	<i>C Nilsson</i>	211
Abundance and Size Distribution of Lakes, Ponds and Impoundments	<i>J A Downing and C M Duarte</i>	220
Saline Inland Waters	<i>M J Waiser and R D Robarts</i>	230
Antarctica	<i>J C Prisco and C M Foreman</i>	241
Arctic	<i>G W Kling</i>	253
Africa: North of Sahara	<i>M Ramdani, N Elkhiafi, and R J Flower</i>	265
Africa: South of Sahara	<i>O V Msiska</i>	276
Asia	<i>B Gopal and D Ghosh</i>	290
Australia and New Zealand	<i>J D Brookes and D P Hamilton</i>	302
Europe	<i>G A Weyhenmeyer, R Psenner, and L J Tranvik</i>	313
North America	<i>W H Renwick</i>	323
South America	<i>M E Llamas and H E Zagarese</i>	332

LAKES AND RESERVOIRS: POLLUTION, MANAGEMENT AND SERVICES

Shallow Lakes and Ponds	<i>M Meerhoff and E Jeppesen</i>	343
Lake Management, Criteria	<i>A C Cardoso, G Free, P Nöges, Ø Kaste, S Poikane, and A Lyche Solheim</i>	354
Lake and Reservoir Management	<i>E Jeppesen, M Søndergaard, H S Jensen, and A-M Ventäla</i>	376
Effects of Recreation and Commercial Shipping	<i>J E Vermaat</i>	391
Biomanipulation of Aquatic Ecosystems	<i>L-A Hansson and C Brönmark</i>	396
Vector-Borne Diseases of Freshwater Habitats	<i>V H Resh</i>	403
Conservation of Aquatic Ecosystems	<i>R Abell, S Blanch, C Revenga, and M Thieme</i>	412
Aquatic Ecosystem Services	<i>K E Limburg</i>	422
International Water Convention and Treaties	<i>A T Wolf</i>	428
Index		437