

Contents

Acid Rain Ecotoxicity	1
Vincent Felten, Guillaume Tixier and François Guérolé	
Active Biomonitoring	15
Victor Wepener	
Amphibian Ecotoxicology	21
Andrée Gendron	
Antifouling Agents and Associated Ecotoxicity	39
Emilien Pelletier	
Aquatic Biomarkers	49
Carole Cossu-Leguille and Paule Vasseur	
Aquatic Ecotoxicology of Veterinary Antibiotics and Pharmaceuticals	67
Marley Waiser	
Aquatic Immunotoxicity	79
Pauline Brousseau and Michel Fournier	
Aquatic Macrophytes in Ecotoxicology	89
Mark L. Hanson	
Aquatic Mesocosms in Ecotoxicology	99
Thierry Caquet	
Artificial Mussels	109
Rudolf S. S. Wu and Tai Chu Lau	
Assessing Ecological Risks at Contaminated Sites	115
Matthew L. Graham, Victoria E. Renner, E. Agnes Blukacz-Richards, Miles Constable and Roger Santiago	

Bacteria in Ecotoxicology: Microtox Basic	125
B. Thomas Johnson	
Bacteria in Ecotoxicology: Recombinant Luminescent Bacteria	137
Gérald Thouand and Marie José Durand	
Beluga Whales and Ecotoxicity	151
Daniel Martineau	
Benthic Community Ecotoxicology	169
Lee Grapentine	
Bioavailability of Contaminants	181
Catherine Gourlay-Francé and Marie-Hélène Tusseau-Vuillemin	
Biodegradability in Ecotoxicology	191
Pascal Poupin	
Biological Test Methods in Ecotoxicology	197
Lisa N. Taylor and Rick P. Scroggins	
Biology-Based and Population Dynamics Modeling in Ecotoxicology	205
Alexandre Péry and Rémy Beaudouin	
Biomarkers in Fish Ecotoxicology	211
David M. Janz	
Biomarkers of Ecological Relevance in Ecotoxicology	221
Catherine Mouneyrac and Claude Amiard-Triquet	
Biotic Ligand Model	237
Peter G. C. Campbell and Claude Fortin	
Bivalves in Ecotoxicology	247
François Gagné and Thierry Burgeot	
Cell Lines in Aquatic Toxicology	259
Xiaowei Zhang, John P. Giesy and Markus Hecker	
Compliance and Enforcement Toxicity Testing	269
Kenneth G. Doe and Paula M. Jackman	
Contaminated Sediment Core Profiling	281
Mark G. Cantwell	
Cyanotoxins and Their Environmental Significance	287
Ian R. Falconer	

Diatoms in Ecotoxicology	295
Timothée Debenest, Jérôme Silvestre and Eric Pinelli	
Ecological Risk Assessment	305
Matthew L. Graham, Victoria E. Renner and	
E. Agnes Blukacz-Richards	
Ecological Stoichiometry	317
Michael Danger and Florence Maunoury-Danger	
Ecotoxicity of Explosives	327
Guilherme R. Lotufo	
Ecotoxicity of Taste and Odor Compounds.	337
Sue B. Watson	
Ecotoxicogenomics	353
Heather Osachoff and Graham van Aggelen	
Ecotoxicological Risk Assessment and Management of Tire Wear Particles	363
Göran Dave	
Ecotoxicology: Historical Overview and Perspectives	377
Jean-François Férand	
Effect-Directed Analysis in Ecotoxicology	387
Werner Brack	
Emerging Issues in Ecotoxicology: Characterization of (Metallic) Nanoparticles in Aqueous Media	395
Kevin J. Wilkinson	
Emerging Issues in Ecotoxicology: Pharmaceuticals and Personal Care Products (PPCPs)	407
Jeanne Garric	
Emerging Issues in Ecotoxicology: Persistent Organic Pollutants (POPs)	429
Ludek Blaha and Ivan Holoubek	
Environmental Research Needs (in Ecotoxicology) in Relation to Public Policies	437
Eric Vindimian	
Environmental River Biofilms as Biological Indicators of the Impact of Chemical Contaminants.	443
Aurélie Villeneuve, Bernard Montuelle, Stéphane Pesce and	
Agnès Bouchez	

Environmental Teratogenesis	457
Justin Conley and Sean Richards	
Environmental Transformation of Organic Substances in the Context of Aquatic Ecotoxicology	467
Claude Casellas, Serge Chiron, Hélène Fenet and Elena Gomez	
Estrogenic Endocrine-Disrupting Chemicals	477
Johannes Cornelius Swart and Edmund John Pool	
Eutrophication	491
Christiane Hudon	
Evaluating Impacts of Multiple Stressors on Aquatic Ecosystems Using Isobolic Models	499
Alexa C. Alexander and Joseph M. Culp	
Evolutionary Toxicology	511
Dominique Turcotte and André J. Talbot	
Flow Cytometry Applications in Aquatic Toxicology	521
Jenny Stauber and Merrin Adams	
Forensic Ecotoxicology	533
Tracy K. Collier	
Genetically Modified Organisms in the Environment	539
Bin Zhu, Mélanie Douville and François Gagné	
Genotoxicity of Contaminants: Amphibian Micronucleus Assays	547
Florence Mouchet and Laury Gauthier	
Genotoxicity of Contaminants: Comet Assay	559
Alain Devaux and Sylvie Bony	
Green Chemistry and Ecotoxicology	569
István T. Horváth and John P. Giesy	
 Volume 2	
Harmful Algal Blooms	575
Sue B. Watson and Lewis Molot	
Histopathological Approaches in Ecotoxicology	597
Michael Wai-Lun Chiang and Doris Wai-Ting Au	
Hydra in Ecotoxicology	615
Carrie Ginou and Douglas Holdway	

Impacts of Land Contaminants on Aquatic Ecosystems	623
John A. Smink and Stephen J. Klaine	
In Situ Bioassays in Ecotoxicology	635
Benoît J. D. Ferrari, Olivier Geffard and Arnaud Chaumot	
Knowledge Translation and Knowledge Brokering in Ecotoxicology	643
Alex T. Bielak	
Landfill Leachate Ecotoxicity	649
Sylvia Waara	
Macroinvertebrate Ecotoxicity Testing (MET)	671
Adrienne J. Bartlett and Warren Norwood	
Metal Speciation in Aquatic Ecotoxicology	687
Christian Gagnon and Bernard Vigneault	
Microbial Assay for Risk Assessment (MARA)	699
Kirit Wadhia	
Microbial Bioremediation of Aquatic Environments	709
Maria Soledad Goñi-Urriza, Cristiana Cravo-Laureau and Robert Duran	
Microbiotests in Ecotoxicology	721
Christian Blaise	
Mixture Effects in Ecotoxicology	729
Nathalie Chèvre and Vincent Gregorio	
Modes of Action of Chemical Pollutants	737
Beate I. Escher	
Monitoring of Oil-Degrading Bacteria by Stable Isotope Probing	751
Caroline Sauret and Jean-François Ghiglione	
Nanomaterials in the Environment	767
Stephen J. Klaine, Aaron Edgington and Brandon Seda	
New Perspectives in Assessing the Effects of Endocrine-Disrupting Chemicals in Fish	781
Daniel G. Cyr, Kyung Hoon Lee, David J. Marcogliese and Thomas Sanderson	
Oceans and Human Health	797
Juli M. Trtanj, Jonathan R. Davis and Tracy K. Collier	

Optical Sensors for Detection of Cyanobacteria	805
Blahoslav Marsalek and Pavel Babica	
Parasites and Ecotoxicology: Fish and Amphibians	815
David J. Marcogliese and Laure Giamberini	
Parasites and Ecotoxicology: Molluscs and Other Invertebrates	827
Laure Giamberini, Laetitia Minguez and David J. Marcogliese	
Phototoxicity in Ice	845
Ludek Blaha	
Phytoremediation in Ecotoxicology	851
Rachel Dosnon-Olette and Philippe Eullaffroy	
Phytotoxicology: Contaminant Effects on Markers of Photosynthesis	855
Philippe Eullaffroy	
Phytotoxicity of Engineered Nanomaterials (ENMs)	865
Anne-Noëlle Petit	
POCIS Passive Samplers in Combination with Bioassay-Directed Chemical Analyses	873
Hélène Budzinski and Marie-Hélène Dévier	
Pollution Acclimation, Adaptation, Resistance, and Tolerance in Ecotoxicology	883
Sylvie Biagianti-Risbourg, Séverine Paris-Palacios, Catherine Mouneyrac and Claude Amiard-Triquet	
Polychaetes in Ecotoxicology	893
Claude Amiard-Triquet, Catherine Mouneyrac and Brigitte Berthet	
Protozoans in Ecotoxicology	909
Grzegorz Nalecz-Jawecki	
Pulse Exposure in Ecotoxicology	917
Nathalie Chèvre and Nathalie Vallotton	
Quality Assurance in Ecotoxicology: The Why's and How's	927
Georges Férand and Jean-François Férand	
Quantitative Structure-Activity Relationship (QSAR) in Ecotoxicology	945
Anna Lombardo, Onofrio Schifanella, Alessandra Roncaglioni and Emilio Benfenati	
Rapid Tests for Community-Level Risk Assessments in Ecotoxicology	957
Ben J. Kefford	

REACH Legislation in Ecotoxicology	967
Chiara Perazzolo and Erwan Saouter	
Rotifers in Ecotoxicology	973
Roberto Rico-Martínez, Ignacio Alejandro Pérez-Legaspi, Juan Carlos Arias-Almeida and Gustavo Emilio Santos-Medrano	
Science-Policy Linkages in Ecotoxicology	997
Karl Schaefer	
Sediment Ecotoxicity	1003
G. Allen Burton Jr.	
Sediment Quality Guidelines	1015
Graeme E. Batley and Stuart Simpson	
Sediment Toxicity Identification Evaluation	1025
Robert M. Burgess and Kay T. Ho	
Sentinels (Biomonitoring) of Trace Metals in Freshwaters	1037
Landis Hare	
Sewage Treatment Plant Effluents and Endocrine Disruption Issues	1047
Patrick Kestemont and Sophie Depiereux	
Species at Risk (SPEAR) Biomonitoring Indicators	1063
Ralf Bernhard Schäfer and Matthias Liess	
Standardization of Ecotoxicological Tests: The Process	1073
Lisa N. Taylor and Rick P. Scroggins	
Statistics for Analyzing Ecotoxicity Test Data	1081
Leana Van der Vliet and Christian Ritz	
Stimulatory Responses, Hormesis, and Essentiality, in Ecotoxicology	1097
Ben J. Kefford and Liliana Zalizniak	
Test Batteries in Ecotoxicology	1105
Guillermo Repetto	
Toxicity of Urban Stormwater	1129
Jiri Marsalek, Guillaume Tixier, Quintin Rochfort, Lee Grapentine and Michel Lafont	
Toxicity Reduction Evaluation (TRE)	1147
Lesley Novak and Keith Holtze	

Toxic Units (TU) Indicators	1161
Peter C. von der Ohe and Dick de Zwart	
Trophic Transfer of Trace Elements	1171
Landis Hare	
Water Quality Guidelines for the Protection of Aquatic Ecosystems	1177
Dayanthi Nuwegoda and Golam Kibria	
Index	1197