Aquatic Toxicology and Hazard Assessment

Seventh Symposium

Cardwell/Purdy/Bahner editors

(1) STP 854

This document is copyrighted material.

Alaska Resources Library and Information Services (ARLIS) is providing this excerpt in an attempt to identify and post all documents from the Susitna Hydroelectric Project.

This book is identified as APA no. 2722 in the Susitna Hydroelectric Project Document Index (1988), compiled by the Alaska Power Authority.

It is unable to be posted online in its entirety. Selected pages are displayed here to identify the published work.

The book is available at call number QH545.W3S95 1983 7th in the ARLIS Susitna collection.

AQUATIC TOXICOLOGY AND HAZARD ASSESSMENT: SEVENTH SYMPOSIUM

A symposium sponsored by ASTM Committee E-47 on Biological Effects and Environmental Fate Milwaukee, Wisc., 17–19 April 1983

ASTM SPECIAL TECHNICAL PUBLICATION 854
Rick D. Cardwell, Envirosphere Company,
Rich Purdy, 3M Company, and Rita Comotto
Bahner, Association of Official Analytical
Chemists, editors

ASTM Publication Code Number (PCN) 04-854000-16



Contents

Introduction	1
METHODS DEVELOPMENT, REFINEMENT, AND EVALUATION	
Evaluation of Filamentous Algae as Biomonitors of Metal Accumulation in Softwater Lakes: A Multivariate Approach— R. C. BAILEY AND P. M. STOKES Discussion	5 25
Cyanophage Assay as a New Concept in the Study of Environmental Toxicity—M. P. KRAUS	27
Diets for Ceriodaphnia reticulata Life-Cycle Tests—T. J. NORBERG AND D. I. MOUNT	42
Effect of Diet on the Sensitivity of Daphnia magna to Linear Alkylbenzene Sulfonate—M. J. TAYLOR	53
A Study of the Reliability of Daphnia Acute Toxicity Tests— P. A. LEWIS AND C. I. WEBER	73
Short-Cut Chronic Toxicity Estimates Using Daphnia magna— w. j. adams and b. b. heidolph Discussion	87 102
A New Aquatic Bioassay Technique Using Wyeomyia smithii, the Pitcher-Plant Mosquito—DANIEL STRICKMAN	104
Effects of Small Fish Predation on Microcosm Community Bioassays—M. C. HARRASS AND F. B. TAUB	117
Factors Affecting Growth and Survival of the Asiatic Clam, Corbicula sp., under Controlled Laboratory Conditions—D. D. DAUBLE, D. S. DALY, AND C. S. ABERNETHY	134

Method for Early Life-Stage Toxicity Tests Using Three Atherinid Fishes and Results with Chlorpyrifos—L. R. GOODMAN,	
D. J. HANSEN, D. P. MIDDAUGH, G. M. CRIPE, AND	
J. C. MOORE	145
Discussion	154
Use of Biochemical Measurements to Detect Pollutant-Mediated	
Damage to Fish—J. M. NEFF	155
Discussion	181
Evaluation of Chemicals and Chemical Wastes	
Effect of Iron and Zinc Interaction on Algal Communities—	
. WUNCHENG WANG	187
Comparison of System Design and Reproducibility to Estimate Bioconcentration of Di-n-hexylphthalate by Daphnia magna—	
S. P. GLOSS AND G. R. BIDDINGER	202
Sediment Microbial Activity Tests for the Detection of Toxicant	
Impacts—G. A. BURTON, JR., AND G. R. LANZA	214
Comparative Toxicity of Whole and Liquid Phase Sewage Sludges to	
Marine Organisms—J. A. FAVA, J. J. GIFT,	
A. F. MACIOROWSKI, W. L. MCCULLOCH, AND	
H. J. REISINGER II	229
An Approach to Sewage Sludge Bioaccumulation Potential Tests—	
A. F. MACIOROWSKI, W. L. MCCULLOCH, AND J. A. FAVA	253
A Method of Assessing the Toxicity of Contaminated Freshwater	
Sediments—G. A. LEBLANC AND D. C. SURPRENANT	269
Phoxocephalid Amphipod Bioassay for Marine Sediment Toxicity—	
R. C. SWARTZ, W. A. DEBEN, J. K. P. JONES,	
J. O. LAMBERSON, AND F. A. COLE	284
Discussion	306
A Statistical Test Procedure for Effluent Toxicity Screening—	
P. D. MOWERY, J. A. FAVA, AND L. W. CLAFLIN	308
Isolation and Chemical Characterization of Petroleum Refinery	
Wastewater Fractions Acutely Lethal to Daphnia magna—	
C. H. REECE AND S. L. BURKS	319

William Louis Andrew Children

Assessing Impacts of Wastes on Aquatic Ecosystems

Biological Implications of the Management of Waste Materials: The Importance of Integrating Measures of Exposure, Uptake, and	
Effects—A. J. MEARNS	335
An Overview of Biological Effects Testing in Puget Sound, Washington: Methods, Results, and Implications— P. M. CHAPMAN, R. N. DEXTER, R. M. KOCAN, AND	
E. R. LONG Discussion	344 363
Using the Natural Detoxification Capacities of Marine Organisms to Assess Assimilative Capacity—D. A. BROWN, S. M. BAY, AND R. W. GOSSETT	366
Implications of Waste Disposal in Coastal Waters on Fish	
Populations—F. A. CROSS, D. S. PETERS, AND W. E. SCHAAF	383
Extrapolating from the Laboratory to the Field: How Uncertain Are You?—G. W. SUTER II, L. W. BARNTHOUSE, J. E. BRECK,	
R. H. GARDNER, AND R. V. O'NEILL Discussion	400 413
BIOAVAILABILITY	
A Model for Predicting the Influence of Suspended Sediments on the Bioavailability of Neutral Organic Chemicals in the Water	
Compartment—c. A. STAPLES, K. L. DICKSON, J. H. RODGERS, JR., AND F. Y. SALEH	417
Aquatic Safety Assessment of Chemicals Sorbed to Sediments— W. J. ADAMS, R. A. KIMERLE, AND R. G. MOSHER	429
The Role of Sediment Organic Matter on Sorption-Desorption Reactions and Bioavailability of Mercury and Cadmium in an Intertidal Ecosystem—R. J. BRETELER AND F. I. SAKSA	454
Effect of Physicochemical Form on Copper Availability to Aquatic Organisms—F. L. HARRISON	469
Bioavailability of Trace Metals in Natural Waters—J. R. O'DONNEL,	40-
B. M. KAPLAN, AND H. E. ALLEN Discussion	485 501

Biological Degradation of Complex Iron Cyanides in Natural Aquatic Systems—K. L. CHERRYHOLMES, W. J. CORNILS, D. B. MCDONALD, AND R. C. SPLINTER	502
National Water Quality Criteria	
Are the "Guidelines for Deriving Numerical National Water Quality Criteria for the Protection of Aquatic Life and Its Uses" Based on Sound Judgments?—C. E. STEPHAN	515
How Representative Are the Data Sets Used to Derive National Water Quality Criteria?—GREG SEEGERT, J. A. FAVA, AND P. M. CUMBIE	, 527
Aquatic Hazard Evaluation Principles Applied to the Development of Water Quality Criteria—R. A. KIMERLE, A. F. WERNER, AND W. J. ADAMS	538
Role of Phytotoxicity Tests in the Derivation of Numerical National Water Quality Criteria—wuncheng wang	548
Evaluation of a Site-Specific Water Quality Criterion for Pentachlorophenol Using Outdoor Experimental Streams— s. f. hedtke and j. w. arthur Discussion	551 563
Use of Statistical Information to Improve Compatibility Between the Various Components of the Water Quality Based Approach— N. A. JAWORSKI AND D. I. MOUNT Discussion	565 573
Summary	
Summary	577
Index	581

-, 5%

100