

# Environmental Toxicology and Risk Assessment

**RECENT ACHIEVEMENTS  
IN ENVIRONMENTAL  
FATE AND TRANSPORT**

NINTH VOLUME

FRED T. PRICE,

KEVIN V. BRIX, AND

NANCY K. LANE, EDITORS



**STP 1381**

STP 1381

***Environmental Toxicology and Risk  
Assessment: Recent Achievements  
in Environmental Fate and  
Transport: Ninth Volume***

*Fred T. Price, Kevin V. Brix, and Nancy K. Lane, editors*

ASTM Stock Number: STP1381



ASTM  
100 Barr Harbor Drive  
West Conshohocken, PA 19428-2959

ISBN: 0-8031-2861-4  
ISBN:1071-720x

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# Foreword

This publication, *Environmental Toxicology and Risk Assessment: Recent Achievements in Environmental Fate and Transport: Ninth Volume*, contains papers presented at the symposium of the same name held in Seattle, Washington, on 19–21 April, 1999. The symposium was sponsored by ASTM committee E-47 on Biological Effects and Environmental Fate. The symposium Chairman was Fred T. Price, Booz-Allen & Hamilton, Inc.

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# Overview

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The Ninth Symposium on Environmental Toxicology and Risk Assessment: Recent Achievements in Environmental Fate and Transport was held on 19–21 April 1999 in Seattle, Washington. The symposium was sponsored by the American Society for Testing and Materials (ASTM) Committee E-47 on Biological Effects and Environmental Fate. The symposium was composed of nine sessions:

- Plenary Session
- Environmental Monitoring
- Aquatic Toxicology
- Risk Assessment I
- Measuring Cultural Impacts
- Reception with Posters
- Risk Assessment II
- Natural Resource Damage Assessment Panel
- Sediment Toxicology

While the symposium's theme centered on recent achievements in environmental fate and transport, the plenary session focused on several issues of interest to the northwestern region of the United States. This publication is comprised of eighteen papers based on papers presented at the symposium. The manuscripts were peer reviewed and revised based on reviewers' comments.

The plenary session addressed issues of balancing forest environmental concerns and cultural considerations with logging operations in risk assessment. An example of this discussion and an excellent overview is provided in the paper by Young, entitled "Commentary on Cultural Considerations in Risk Assessment: An Ethical Responsibility". The theme of cultural impact was continued in the session on measuring cultural impact. An example of this session is provided in the paper by Harper, entitled, "Measuring Risks to Tribal Community Health and Culture."

The two sessions on risk assessment are well represented in this volume, as are the sessions on toxicology and environmental monitoring. Part of the theme of this symposium was recent advances, which are reflected in papers such as, "New Approaches for Toxicity Identification Evaluation of Hydrophobic Organic Contaminants in Sediments," by McElroy, and "Computer Tracking Method for Assessing Behavioral Changes in the Nematode *Caenorhabditis Elegans*," by Williams.

The panel on Natural Resource Damage Assessment and the special poster session on risk-based corrective actions for ecological resources were well attended, resulting in lively and fruitful discussions. Unfortunately, the formats were not conducive to the production of manuscripts for this volume and are, thus, not represented here.

ASTM Committee E-47 is committed to providing timely and useful information on a variety of subjects on Biological Effects and Environmental Fate. The editors hope that the blend of more traditional technical subjects, such as aquatic and sediment toxicology, and the regionally important subjects, like measuring cultural impacts and environmental logging, will prove to be interesting and useful to the reader.

*Fred T. Price*

Booz-Allen and Hamilton Inc., McLean, Virginia.  
Symposium chairman and editor

*Nancy Lane*

Lane Environmental, Richland, WA.  
Symposium co-chairman and editor

*Kevin V. Brix*

Parametrix, Inc., Kirkland, WA.  
Symposium co-chairman and editor

ISBN 0-8031-2861-4