

Overview

ASTM Committee E-47 on Biological Effects and Environmental Fate held its Sixth Symposium on Environmental Toxicology and Risk Assessment in Orlando, FL during April 15-18, 1996. This symposium was the 23rd associated with Committee E-47 and this is the 25th Special Technical Publication (STP) originating from the symposiums. (See Appendix I for a complete list of STPs.) The focus of the symposium was the use of modeling in developing risk assessments for a variety of environmental situations. The symposium was a success in spite of travel restrictions which have become a recurring problem for many of our participants. The symposium opened with a plenary session, and over the course of three days had 10 platform sessions, a poster session, a hosted luncheon with a guest speaker and a workshop. This STP reflects the symposium in that the first section entitled "Modeling Perspectives" has six papers which relate to the use of modeling in risk assessments. Moreover, as the reader of this STP will notice, various aspects of modeling are included in the sections "Ecological Risk Assessment" and "Human Health Risk Assessment". In fact, many papers in these three sections could easily have been grouped differently.

The plenary session was titled "Planning the Perfect Risk Assessment" and focused on several aspects that risk managers should consider when conducting a risk assessment. The speakers discussed four primary topics: 1) when is risk assessment the right tool?; 2) communication of risk assessment; 3) model selection and problem analysis; and 4) data quality and uncertainty.

The issue of risk communication was a topic that came up many times during the three days of the symposium; from the dais, during subcommittee meetings, and during informal discussions. The interest in, and the recognition of the need for standardization in risk communication, resulted in the formation of a new subcommittee under E-47: E47.14 on "Balancing and Communicating Environmental Risk Management Decisions". This new subcommittee had their first formal gathering seven months later during the fall E-47 Committee meeting prior to the 1996 Society of Environmental Toxicology and Chemistry annual symposium in Washington, DC. E47.14 promises to be an active subcommittee.

A first for E-47 at this symposium was the workshop, "ASTM Standards for Measuring the Toxicity and Bioaccumulation of Sediment-associated Contaminants with Invertebrates". This introductory workshop was attended by 40 individuals and was designed for individuals with minimal experience in conducting sediment toxicity or bioaccumulation tests. The objectives of the course were to: (1) describe procedures for conducting whole-sediment toxicity and bioaccumulation tests with freshwater, estuarine, and marine invertebrates; (2) provide an overview of a proposed standard guide for conducting sediment toxicity tests with luminescent bacteria; and (3) discuss approaches for data interpretation. The workshop was coordinated by Christopher G. Ingersoll, Ph.D. (Midwest Science Center, USGS-BRD, Columbia, MO) and instructors included: Michael D. Johns, Ph.D. (EVS Environmental Consultants, Seattle, WA), Nile E. Kemble (Midwest Science Center, USGS-BRD, Columbia, MO), Donald J. Reish, Ph.D. (California State University, Long Beach, CA),

and Philippe E. Ross, Ph.D. (The Citadel, Charleston, SC).

The luncheon, held on Wednesday, was an excellent opportunity to hear about an issue of regional significance in Florida - the Everglades. The speaker, Wiley M. Kitchens, Ph.D. from the USGS, Florida Caribbean Science Center, Gainesville, FL presented a slide tour/overview of the Everglades. His presentation, "The Everglades: The Ecosystem and Its Restoration Issues" with both scenic and technical slides, gave an excellent overview of how the Everglades degraded to its current status and the changes that are being implemented to improve its condition. In our field, it is a rare but wonderful experience to have a person not only speak about the problems but to also discuss the improvements and successes!

As evidenced by the plenary session, the number of platform sessions and posters, and the new subcommittee activity, risk assessment has become a growing focus of Committee E-47. The same is true of this STP. Three of the five sections - Modeling Perspectives, Ecological Risk Assessment, and Human Health Risk Assessment - focus on the diverse topic of risk assessment. Papers have discussions covering a wide spectrum of risk assessment topics including the intricacies of various models, the application of models in conducting risk assessments, and procedures for conducting risk assessments. Topics include both environmental and human health risk assessment in all three media - soil, air, and water.

While risk assessment may be the primary topic of this STP, two other major areas, Biomarkers and Toxicology, were well represented at the symposium and within the pages of this STP. The study of biomarkers is still a growing field and as such was a well-attended session at the symposium. The STP has five papers from the symposium which represent the state of the art in technique and application of biomarkers. The Toxicology section, "Toxicology - Aquatic, Plant, Sediment, and Soil", as its title shows, contains several papers describing new or modified procedures which will ultimately provide information useful to the ASTM standardization process. Other papers focus on the utility of data generated using different approaches. This information will be of use as standards and guides evolve.

We have many individuals to acknowledge for both the symposium and the STP. We would like to thank the session chairs who recruited speakers and organized sessions which provided the basis for the papers that are included in this STP: Plenary, Gregory R. Biddinger, Ph.D. (Exxon Company USA, Houston, TX); Sediment Toxicology, Nile E. Kemble (USGS-BRD, Midwest Science Center, Columbia, MO); Risk-Based Strategies and Models, Tim LeGore (Westinghouse Hanford Company, Richland, WA); Phototoxicology and Plant Toxicology, Bruce M. Greenberg, Ph.D. (University of Waterloo, Waterloo, ON); Community Dynamics and Ecotoxicology from Individual-Based Modeling Perspectives, Thomas G. Hallam, Ph.D. (University of Tennessee, Knoxville, TN) and S.A.L.M. Kooijam, Ph.D. (Vrije University, Amsterdam); Exposure Assessment, Joan G. Tell, Ph.D. and Annette Guiseppi-Elie, Ph.D. (Exxon Biomedical Sciences, Inc., East Millstone, NJ); Biomarkers, Marsha C. Black, Ph.D. (University of Georgia, Athens, GA) and Diane S. Henshel, Ph.D. (Indiana University, Bloomington, IN); Environmental Monitoring and Modeling, Jerome M. Diamond, Ph.D. (Tetra Tech, Inc., Owings Mills, MD); Policy and Perspectives in Ecological Risk Assessment, Charles A. Pittinger, Ph.D. (Procter & Gamble Co., Cincinnati, OH) and Joseph W. Gorsuch (Eastman Kodak Company, Rochester, NY); Aquatic Toxicology, Timothy J. Canfield (USGS-BRD, Midwest Science Center, Columbia, MO); Human Health Risk Assessment, Lenora P. Midgley, Ph.D. (R&R Technologies, Inc., Salt Lake City, UT) and the poster session Brian A. Wade, (ALA Environmental, Inc, Gainesville, FL) and Gail

symposia may focus on specific or unique environmental issues, the urgency and importance of risk assessment, and all the various attributes of the assessment, will remain an important topic for some time to come. Some groups have questioned the role of ASTM in developing standard guides for professional judgment and evaluation within risk assessment. The ASTM consensus building process allows the opportunity for input by every member on every procedure. Ultimately, the development of guides and standards provides a basis for individuals to make a judgment. Without consistency in techniques, judgments and evaluations are without foundation. We believe this STP, and the symposium upon which it is based, are key parts of that consensus process. Techniques and procedures will be added to, modified, and qualified based on information from this symposium and the consensus-building process will continue.

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