

**JEFFREY M. GIDDINGS, Ph.D.**  
**Principal Consultant**  
**Compliance Services International**

**SUMMARY OF EXPERIENCE**

**PROFESSIONAL EXPERIENCE**

Over 30 years of research, testing, and consulting in environmental toxicology and ecological risk assessment in North America and Europe. Experience with pesticides, pharmaceuticals, industrial chemicals, petroleum products, and consumer products. Since 1994, specialized in ecological risk assessment and endangered species assessment of pesticides. Previously, principal investigator and ecotoxicology group leader at a national research laboratory, performing basic and applied environmental research for federal agencies. Study director and senior scientist at a large environmental contract laboratory, conducting and managing ecotoxicological studies with fish, algae, aquatic invertebrates, terrestrial plants, soil invertebrates, and insects. Developed techniques for design and application of experimental ecosystems (mesocosms and microcosms); managed large field study group conducting studies for pesticide registration. Designed and managed whole effluent testing and ambient toxicity testing programs. Participated in numerous large-scale ecological risk assessments of pesticides, rodenticides, marine antifoulants, pharmaceuticals, and industrial chemicals. Recent activities have focused on endangered species assessment of pesticides.

**CREDENTIALS**

Ph.D. 1975 Aquatic Ecology, Cornell University, Ithaca, NY  
A.B. 1971 Biology, Cornell University, Ithaca, NY

**PROFESSIONAL AFFILIATIONS/APPOINTMENTS**

Member, Society of Environmental Toxicology and Chemistry. Editor of *SETAC News* (society newsletter), 1985-1999; Editor of *SETAC Globe* (international society newsletter), 2000-2003; Chair, Publications Advisory Council, 2003-2006; Past President of North Atlantic Regional Chapter.

Member, American Chemical Society.

**PROJECT EXPERIENCE**

- Ecological Risk Assessment

Conducted deterministic and probabilistic ecological risk assessments of pesticides, rodenticides, antifoulants, pharmaceuticals, and industrial chemicals. Participated on industry-sponsored expert panels conducting probabilistic risk assessments for atrazine, diazinon, chlorpyrifos, irgarol, and pyrethroid insecticides, all of which were published in peer-reviewed journals. Participated in EPA's Ecological Committee for FIFRA Risk

Assessment Methodology (ECOFRAM); chaired Aquatic Effects working group. Presented training courses in probabilistic risk assessment at international scientific meetings and for regulators and industry. On numerous occasions, presented oral and written comments on probabilistic risk assessment to the FIFRA Scientific Advisory Panel and to the EPA. Reviewed and provided formal comments on EPA risk assessments for individual pesticide registrants and industry groups.

- Endangered Species Assessment

Conducted endangered species assessments of pesticides on behalf of registrants for submission to EPA and others. Screening-level and refined assessment of potential for effects of chlorpyrifos on Pacific salmon and steelhead, reported in format identical to EPA Office of Pesticides salmonid determinations and specifically addressed in OPP's subsequent salmonid determination for chlorpyrifos. National assessment of atrazine for aquatic organisms and critical habitat; contributed to 11-volume submission that set the stage for much of the current approach to pesticide endangered species assessment. Litigation support; provided expert declarations on behalf of pesticide registrants in legal cases involving protection of endangered species. Conducted species-specific assessments for the California Red-Legged Frog in support of approximately 20 active ingredients, and participated in development of industry response to this and other endangered species lawsuits.

- Ecotoxicology

More than 30 years experience in ecotoxicological research, contract testing, and review and interpretation of toxicity data. Conducted research on algal toxicity test methods, comparative ecotoxicology of petroleum hydrocarbons, effluent testing, and indoor and outdoor experimental ecosystems at Oak Ridge National Laboratory. Study director and senior scientist at large contract laboratory; conducted studies with fish, algae, aquatic invertebrates, terrestrial plants, soil invertebrates, and insects, following regulatory guidelines and Good Laboratory Practice requirements. Experienced in design and application of exposure systems for testing volatile and insoluble materials. Extensive experience in review of ecotoxicological data, analysis and interpretation of results, compilation of toxicity databases, and analysis of trends in toxicity (such as Species Sensitivity Distributions).

- Aquatic Field Studies

Developed and applied methods for measuring effects of chemicals in experimental aquatic ecosystems (microcosms and mesocosms). Study director for numerous outdoor mesocosm studies with pesticides following EPA guidelines, as well as indoor and outdoor microcosm studies with pesticides for North American and European pesticide registrants. Participated in development of international guidelines for model ecosystem studies. Organized and co-chaired SETAC workshop on use of microcosms for pesticide registration; organized and chaired SETAC Aquatic Model Ecosystem Advisory Committee. Participant in European workshops on higher-tiered tested systems; lead author of *Community Level Aquatic System Studies – Interpretation Criteria* (CLASSIC) workshop report. Reviewed and interpreted results of ecological field studies with atrazine, synthetic pyrethroids, and other pesticides to incorporate findings into higher-tier ecological risk assessments.

## **PROFESSIONAL EMPLOYMENT**

### **Principal Consultant (2006 – Present)**

#### **Compliance Services International (CSI) – Rochester, MA**

Conducts and manages projects for CSI's clients, especially endangered species assessment and ecological risk assessment of pesticides. Assists other CSI consultants as needed. Fosters and maintains client relations, develops new projects, and assists with marketing and promotion of CSI. Maintains high professional profile through workshops, task groups, publications, and scientific organizations.

### **Senior Consultant/Program Manager (2004-2006)**

#### **Parametrix, Inc. - Rochester, MA**

Manage and conduct ecological risk assessments of chemicals, especially pesticides; consult with pesticide registrants on endangered species issues. Identify and implement strategic initiatives to broaden the services of the Company. Maintain active presence in professional organizations. Mentor mid-level and junior staff in technical expertise, marketing, and professional development.

### **Principal Consultant (2001-2004)**

#### **The Cadmus Group, Inc. - Rochester, MA**

Manage and conduct ecological risk assessments of chemicals, especially pesticides, for corporate clients. Develop new business opportunities in Europe and North America. Present professional training courses on probabilistic ecological risk assessment to industry, government, and academia. Participate in workshops, expert panels, and professional organizations with interests in ecological risk assessment. Serve on internal task force for corporate strategic planning.

### **Senior Environmental Consultant (1997-2001)**

#### **Springborn Laboratories, Inc. - Wareham, MA**

Help meet special client needs involving the development, analysis, and interpretation of environmental data. Perform ecological risk assessments of agrochemicals, pharmaceuticals, and specialty chemicals. Develop environmental profiles of products to support product stewardship initiatives. Oversee testing programs that go beyond standard registration requirements. Serve as study director for special projects. Participate in development of new technical capabilities and customized testing procedures. Engage in a broad range of professional activities outside the company, such as workshops, panels, technical meetings, and professional organizations; works with Department Managers to improve laboratory operations and develop new business. Serve as Study Director on special programs.

### **Senior Program Manager and Technical Director (1995-1997)**

#### **ENSR, Environmental Toxicology Services - Woods Hole, MA**

Manage and conduct ecological risk assessments of chemicals and contaminated sites. Design and conduct product stewardship programs for chemical industry. Develop new business in product testing and ecological risk assessment. Technical resource for ecology and ecotoxicology throughout the company. Promote integration of toxicology services into projects of other business units. Help junior scientists develop scientific competence and professional skills.

**Director of Science and Communication (1993-1995)**  
**Springborn Laboratories, Inc., Environmental Sciences Division -Wareham, MA**

Manage and conduct ecological risk assessments of chemicals and contaminated sites. Develop and manage field and laboratory programs in support of ecological risk assessment of contaminated sites. Design and conduct product stewardship programs for specialty chemicals, petroleum and lubricants, and other products. Responsible for business development in ecological risk assessment, hazardous waste programs, and product stewardship. Direct the Report Production Unit issuing 1,000 reports per year. Oversee data services: information retrieval, statistical analysis, modeling, data analysis, data validation, computer support.

**Senior Program Manager (1985-1993)**  
**Springborn Laboratories, Inc. - Wareham, MA**

Responsible for the design, planning and management of ecological effects testing programs combining laboratory and field assessment techniques. Research objectives include the development and application of microcosm, mesocosm, and field test systems for evaluating the environmental hazards of pesticides and other toxic chemicals. Duties include development of appropriate testing strategies, supervision of analytical and biological staff performing research, data interpretation, and reporting of results. Responsible for protocol preparation and deliberation with clients and regulatory agencies.

**Ecotoxicology Group Leader, Environmental Sciences Division (1975-1985)**  
**Oak Ridge National Laboratory - Oak Ridge, Tennessee**

Conducted basic and applied research on ecological effects and environmental fate of toxic chemicals, synthetic oils, and process wastewaters. Directed professional and technical staff in laboratory and field programs to assess effects of chemicals and effluents on freshwater ecosystems. Managed aquatic toxicity testing laboratory with 4 technical specialists. Specialized in development and interpretation of methods for measuring effects of toxicants on aquatic population interactions and ecosystem properties.

**PUBLICATIONS**

**Giddings, J.M.**, T.A. Anderson, L.W. Hall Jr., A.J. Hosmer, R.J. Kendall, R.P. Richards, K.R. Solomon, W.M. Williams. 2005. *A Probabilistic Aquatic Ecological Risk Assessment of Atrazine in North American Surface Waters*. SETAC Press, Pensacola, FL, USA.

Balcomb, R., J.R. Hoberg, and **J.M. Giddings**. 2002. Fate and toxicity of the algicide Irgarol 1051: a marine microcosm study. *Bulletin of Environmental Contamination and Toxicology* 69:696-703.

**Giddings, J.M.**, T.C.M. Brock, W. Heger, F. Heimbach, S.J. Maund, S.M. Norman, H.-T. Ratte, C. Schäfers and M. Strelöke (eds.). 2002. *Community-Level Aquatic System Studies Interpretation Criteria*. Proceedings from the CLASSIC workshop. SETAC Press, Pensacola, FL, USA.

Reinert, K.H., **J.M. Giddings** and L. Judd. 2002. Effects Analysis of Time-Varying or Repeated Exposures in Aquatic Ecological Risk Assessment of Agrochemicals. *Environmental Toxicology and Chemistry* 21(9):1977–1992.

Maund, S.J., K.Z. Travis, P. Hendley, **J.M. Giddings** and K.R. Solomon. 2001. Probabilistic risk assessment of cotton pyrethroids: V. Combining landscape-level exposures and ecotoxicological effects data to characterize risks. *Environmental Toxicology and Chemistry* 20(3):687-692.

**Giddings, J.M.**, K.R. Solomon, and S.J. Maund. 2001. Probabilistic risk assessment of cotton pyrethroids: II. Aquatic mesocosm and field studies. *Environmental Toxicology and Chemistry* 20(3) 660-668.

Solomon, K.R., **J.M. Giddings** and S.J. Maund. 2001. Probabilistic risk assessment of cotton pyrethroids: I. Distributional analysis of laboratory aquatic toxicity data. *Environmental Toxicology and Chemistry* 20(3):652-659.

**Giddings, J.M.**, L.W. Hall and K.R. Solomon. 2000. An ecological risk assessment of diazinon from agricultural use in the Sacramento-San Joaquin River Basins, California. *Risk Analysis* 20:545-572.

Hall, L.W. and **J.M. Giddings**. 2000. The need for multiple lines of evidence for predicting site-specific ecological effects. *Human and Ecological Risk Assessment* 6:679-710.

**Giddings, J.M.**, D. Salvito and A.E. Putt. 2000. Acute toxicity of 4-amino musk xylene to *Daphnia magna* in laboratory water and natural water. *Water Research* 34:3686-3689.

Hall, L.W., **J.M. Giddings**, K.R. Solomon and R. Balcomb. 1999. An ecological risk assessment for the use of Irgarol 1051 as an algaecide for antifouling paints. *CRC Critical Reviews in Toxicology* 29:367-437.

Giesy, J.P., K.R. Solomon, J.R. Coates, K.R. Dixon, **J.M. Giddings** and E.E. Kenaga. 1999. Chlorpyrifos: ecological risk assessment in North American environments. *Reviews of Environmental Contamination and Toxicology* 160:1-129.

**Giddings, J.M.** and L.W. Hall, Jr. 1998. The aquatic ecotoxicology of triazine herbicides. pp. 347-356 in L. Ballantine, J. McFarland and D. Hackett (eds.), *Triazine Herbicides: Risk Assessment*. American Chemical Society, Washington, DC, USA.

Gledhill, W.E. and **J.M. Giddings**. 1998. Ecological impact of anionic surfactants under use conditions in the Philippines. Report No. 13682-6100. Springborn Laboratories, Inc., Wareham, Massachusetts.

**Giddings, J.M.**, R.C. Biever and K.D. Racke. 1997. Fate of chlorpyrifos in outdoor pond microcosms and effects on growth and survival of bluegill sunfish. *Environmental Toxicology and Chemistry* 16:2353-2362.

**Giddings, J.M.**, R.C. Biever, M.F. Annunziato and A.J. Hosmer. 1996. Effects of diazinon on large outdoor pond microcosms. *Environmental Toxicology and Chemistry* 15:618-629.

Solomon, K.R., D.B. Baker, R.P. Richards, K.R. Dixon, S.J. Klaine, T.W. La Point, R.J. Kendall, C.P. Weisskopf, **J.M. Giddings**, J.P. Giesy, L.W. Hall, Jr. and W.M. Williams. 1996. Ecological

risk assessment of atrazine in North American surface waters. *Environmental Toxicology and Chemistry* 15:31-76.

Biever, R.C., **J.M. Giddings**, M.A. Kiamos, M.F. Annunziato, R. Meyerhoff and K. Racke. 1994. Effects of chlorpyrifos on aquatic microcosms over a range of off-target spray drift exposure levels. *Brighton Crop Protection Conference C Pests and Diseases C 1994*, pp. 1367-1372.

**Giddings, J.M.**, R.L. Helm, and F.J. deNoyelles. 1994. Large-scale microcosms as tools for ecological assessments of pesticides. pp. 191-198 In: I.R. Hill, F. Heimbach, P. Leeuwangh, and P. Matthiessen (eds.), *Freshwater Field Tests for Hazard Assessment of Chemicals*. Lewis Pub., Boca Raton, Florida.

**Giddings, J.M.** 1994. Sampling and analysis of the test chemical in microcosms and mesocosms. pp. 151-158 In: I.R. Hill, F. Heimbach, P. Leeuwangh, and P. Matthiessen (eds.), *Freshwater Field Tests for Hazard Assessment of Chemicals*. Lewis Pub., Boca Raton, Florida.

Howick, G.L., **J.M. Giddings**, and F.J. deNoyelles. 1993. Earthen ponds vs. fiberglass tanks as venues for assessing the impact of pesticides on aquatic environments: a parallel study with sulprofos. pp. 321-336. In: R.L. Graney, J.H. Kennedy, and J.H. Rodgers (eds.), *Aquatic Mesocosm Studies in Ecological Risk Assessment*. Lewis Pub., Boca Raton, Florida.

**Giddings, J.M.**, R.C. Biever, R.L. Helm, G.L. Howick, and F.J. deNoyelles. 1993. The effects of Guthion (azinphos methyl) in mesocosms. pp. 469-485. In: R.L. Graney, J.H. Kennedy, and J.H. Rodgers (eds.), *Aquatic Mesocosm Studies in Ecological Risk Assessment*. Lewis Pub., Boca Raton, Florida.

Howick, G.L., **J.M. Giddings**, F. DeNoyelles, Jr., L.C. Ferrington, Jr., W.D. Kettle and D. Baker. 1992. Rapid establishment of test conditions and trophic-level interactions in 0.04-hectare earthen pond mesocosms. *Environ. Toxicol. Chem.* 11:107-114.

**Giddings, J.M.** 1992. Mesocosm studies and other aquatic field studies with pesticides. pp. 297-307. In W.Y. Garner, M.S. Barge, and J.P. Ussary (eds.), *Good Laboratory Practice Standards: Applications for Field and Laboratory Studies*. American Chemical Society, Washington, DC.

**Giddings, J.M.** and J.H. Rodgers, Jr. (eds.). 1992. *Workshop on Aquatic Microcosms for Ecological Assessment of Pesticides*. Report of a workshop held at Wintergreen, Virginia, October 6-11, 1991. SETAC Foundation for Environmental Education, Pensacola, FL.

**Giddings, J.M.** 1986. Protecting aquatic resources: an ecologist's perspective. pp. 97-104. In: R.M. Poston and R. Purdy (eds.), *Aquatic Toxicology and Environmental Fate: Ninth Volume*. ASTM STP 921. American Society for Testing and Materials, Philadelphia, Pennsylvania.

**Giddings, J.M.** 1986. A microcosm procedure for determining safe levels of chemical exposure in shallow-water communities. pp. 121-134. In: J. Cairns, Jr. (ed), *Community Toxicity Testing*. American Society for Testing and Materials, Philadelphia, Pennsylvania.

**Giddings, J.M.**, and P.J. Franco. 1985. Calibration of laboratory bioassays with results from microcosms and ponds. pp. 104-119. In: T.P. Boyle (ed.), *Validation and Predictability of*

*Laboratory Methods for Assessing the Fate and Effects of Contaminants in Aquatic Ecosystems.* ASTM STP 865. American Society for Testing and Materials, Philadelphia, Pennsylvania.

**Giddings, J.M.**, S.E. Herbes, and C.W. Gehrs. 1985. Releases of Coal Liquefaction Products in Inland Waters. ORNL/TM-9535. Oak Ridge National Laboratory, Oak Ridge, Tennessee.

**Giddings, J.M.**, S.E. Herbes, and C.W. Gehrs. 1985. Coal liquefaction products. *Environ. Sci. Technol.* 19:14-18.

Southworth, G.R., S.E. Herbes, P.J. Franco, and **J.M. Giddings**. 1985. Persistence of phenols in aquatic microcosms receiving chronic synthetic fuel inputs. *Water, Air and Soil Pollut.* 24:283-296.

**Giddings, J.M.**, P.J. Franco, S.M. Bartell, R.M. Cushman, S.E. Herbes, L.A. Hook, J.D. Newbold, G.R. Southworth, and A.J. Stewart. 1985. *Effects of Contaminants on Aquatic Ecosystems: Experiments with Microcosms and Outdoor Ponds. A Synthesis Report.* ORNL/TM-9536. Oak Ridge National Laboratory, Oak Ridge, Tennessee.

**Giddings, J.M.**, P.J. Franco, R.M. Cushman, L.A. Hook, G.R. Southworth, and A.J. Stewart. 1984. Effects of chronic exposure to coal-derived oil on freshwater ecosystems. II. Experimental ponds. *Environ. Toxicol. Chem.* 3:465-488.

Franco, P.J., **J.M. Giddings**, S.E. Herbes, L.A. Hook, J.D. Newbold, W.K. Roy, G.R. Southworth, and A.J. Stewart. 1984. Effects of chronic exposure to coal-derived oil on freshwater ecosystems I. Microcosms. *Environ. Toxicol. Chem.* 3:447-463.

Millemann, R.E., W.J. Birge, J.A. Black, R.M. Cushman, K.L. Daniels, P.J. Franco, **J.M. Giddings**, J.F. McCarthy, and A.J. Stewart. 1984. Comparative acute toxicity to aquatic organisms of components of coal-derived synthetic fuels. *Trans. Amer. Fish. Soc.* 113:74-85.

Griest, W.H., **J.M. Giddings**, and J.A. Klein. 1983. *Effects of Hydrotreatment on the Properties of Coal-Derived Liquid Products: A Status Report.* ORNL/TM-8836. Oak Ridge National Laboratory, Oak Ridge, Tennessee.

**Giddings, J.M.** 1983. Assessing the effects of contaminants on the structure and function of aquatic ecosystems. pp. 245-258. In: C.W. Francis and S.I. Auerbach (eds.), *Environment and Solid Wastes: Characterization, Treatment, and Disposal.* Butterworth, Woburn, Massachusetts.

Bartell, S.M., R.H. Gardner, R.V. O'Neill, and **J.M. Giddings**. 1983. Error analysis of predicted fate of anthracene in a simulated pond. *Environ. Toxicol. Chem.* 2:19-28.

**Giddings, J.M.**, A.J. Stewart, R.V. O'Neill, and R.H. Gardner. 1983. An efficient algal bioassay based on short-term photosynthetic response. pp. 445-459. In: W.E. Bishop, R.D. Cardwell, and B.B. Heidolph (eds.), *Aquatic Toxicology and Hazard Assessment: Sixth Symposium.* ASTM STP 802. American Society for Testing and Materials, Philadelphia, Pennsylvania.

**Giddings, J.M.** 1983. Microcosms for assessment of chemical effects on the properties of aquatic ecosystems. pp. 45-94. In: J. Saxena (ed.), *Hazard Assessment of Chemicals - Current Developments. Vol. II.* Academic Press, New York.

Adams, S.M., and **J.M. Giddings**. 1982. Review and evaluation of microcosms for assessing effects of stress in marine ecosystems. *Environ. Internat.* 7:409-418.

**Giddings, J.M.** 1982. *Summary of Research on Coal Liquefaction Product Spills*. ORNL/TM-7966. Oak Ridge National Laboratory, Oak Ridge, Tennessee.

Cushman, R.M., D.K. Brown, N.T. Edwards, **J.M. Giddings**, and B.R. Parkhurst. 1982. Ecotoxicity of coal gasifier solid wastes. *Bull. Environ. Contam. Toxicol.* 28:39-45.

**Giddings, J.M.** 1982. Effects of the water-soluble fraction of a coal-derived oil on pond microcosms. *Arch. Environ. Contam. Toxicol.* 11:735-748.

**Giddings, J.M.**, and J.N. Washington. 1981. Coal liquefaction products, shale oil, and petroleum: acute toxicity to freshwater algae. *Environ. Sci. Technol.* 15:106-108.

**Giddings, J.M.** 1981. Toxicity of shale oil to freshwater algae: comparisons with petroleum and coal-derived oils. pp. 189-199. In: W.H. Griest, M.R. Guerin, and D.L. Coffin (eds.), *Health Effects Investigation of Oil Shale Development*. Ann Arbor Science, Ann Arbor, Michigan.

**Giddings, J.M.** 1981. Methods for measuring effects of chemicals on aquatic population interactions. pp. 141-160. In: A.S. Hammons (ed.), *Ecotoxicological Test Systems*. ORNL-5709. Oak Ridge National Laboratory, Oak Ridge, Tennessee.

**Giddings, J.M.** 1981. Methods for measuring effects of chemicals on aquatic ecosystem properties. pp. 79-103. In: A.S. Hammons (ed.), *Ecotoxicological Test Systems*. ORNL-5709. Oak Ridge National Laboratory, Oak Ridge, Tennessee.

**Giddings, J.M.** 1981. Laboratory tests for chemical effects on aquatic population interactions and ecosystem properties. pp. 23-91. In: A.S. Hammons (ed.), *Methods for Ecological Toxicology. A Critical Review of Laboratory Multispecies Tests*. Ann Arbor Science, Ann Arbor, Michigan.

**Giddings, J.M.** 1981. Assessment and policy requirements of multispecies toxicology testing procedures. pp. 11-18. In: A.S. Hammons (ed.), *Ecotoxicological Test Systems*. ORNL-5709. Oak Ridge National Laboratory, Oak Ridge, Tennessee.

**Giddings, J.M.**, B.R. Parkhurst, C.W. Gehrs, and R.E. Millemann. 1980. Toxicity of a coal liquefaction product to aquatic organisms. *Bull. Environ. Contam. Toxicol.* 25:1-6.

**Giddings, J.M.**, and G.K. Eddlemon. 1980. Aquatic studies. pp. 15-170. In: W.F. Harris (ed.), *Microcosms as Potential Screening Tools for Evaluating Transport and Effects of Toxic Substances*. EPA-600/3-80-042. U.S. Environmental Protection Agency, Washington, D.C.

**Giddings, J.M.** 1980. Types of aquatic microcosms and their research applications. pp. 248-266. In: J.P. Giesy (ed.), *Microcosms in Ecological Research*. CONF-781101. U.S. Department of Energy, Washington, D.C.

**Giddings, J.M.** 1980. Four-hour algal bioassays for assessing the toxicity of coal-derived materials. pp. 104-116. In: P.L. Levins, J.C. Harris and K.D. Drewitz (eds.), *Second Symposium on Process Measurements for Environmental Assessment*. EPA 600/9-80-018. U.S. Environmental Protection Agency, Washington, D.C.

**Giddings, J.M.** 1980. Field experiments. pp. 315-331. In: F.S. Sanders (ed.), *Strategies for Ecological Effects Assessment at DOE Energy Activity Sites*. ORNL/TM-6873. Oak Ridge National Laboratory, Oak Ridge, Tennessee.

O'Neill, R.V., and **J.M. Giddings**. 1979. Population interactions and ecosystem function: phytoplankton competition and community production. pp. 103-123. In G.S. Innis and R.V. O'Neill (eds.), *Systems Analysis of Ecosystems*. International Co-operative Publishing House, Fairland, Maryland.

**Giddings, J.M.**, B.T. Walton, G.K. Eddlemon, and K.G. Olson. 1979. Transport and fate of anthracene in aquatic microcosms. pp. 312-320. In: A.W. Bourquin and P.H. Pritchard (eds.), *Microbial Degradation of Pollutants in Marine Environments*. EPA-600/9-79-012. U.S. Environmental Protection Agency, Washington, D.C.

**Giddings, J.M.**, and G.K. Eddlemon. 1979. Some ecological and experimental properties of complex aquatic microcosms. *Int. J. Environ. Stud.* 13:119-123.

**Giddings, J.M.** 1979. Acute toxicity to *Selenastrum capricornutum* of aromatic compounds from coal conversion. *Bull. Environ. Contam. Toxicol.* 23:360-364.

Draggan, S.J., and **J.M. Giddings**. 1978. Testing toxic substances for protection of the environment. *Sci. Total Environ.* 9:63-74.

**Giddings, J.M.** and G.K. Eddlemon. 1978. Photosynthesis/respiration ratios in aquatic microcosms under arsenic stress. *Water, Air and Soil Pollut.* 9: 207-212.

**Giddings, J.M.**, and G.K. Eddlemon. 1977. The effects of microcosm size and substrate type on aquatic microcosm behavior and arsenic transport. *Arch. Environ. Contam. Toxicol.* 6:491-505.

**Giddings, J.M.** 1977. Chemical composition and productivity of *Scenedesmus abundans* in nitrogenlimited chemostat culture. *Limnol. Oceanog.* 22:911-918.

#### **PRESENTATIONS:**

“*Probabilistic risk assessment of pesticides — is it working?*” Society of Environmental Toxicology and Chemistry, The Hague, Netherlands, May 2006.

“*Uncertainty analysis in pesticide registration — is it working?*” Society of Environmental Toxicology and Chemistry, Baltimore, MD, November 2005.

“*A probabilistic model of rodenticide exposure to non-target predators and scavengers.*” Society of Environmental Toxicology and Chemistry, Lille, France, May 2005.

“*Risk assessment model for predators and scavengers exposed indirectly to a rodenticide.*” Society of Environmental Toxicology and Chemistry, Lille, France, May 2005.

“*Fate and effects of Irgarol 1051 in marine microcosms.*” Society of Environmental Toxicology and Chemistry, Portland, Oregon, November 2004.

*“A probabilistic model of rodenticide exposure to non-target predators and scavengers.”* Society of Environmental Toxicology and Chemistry, Portland, Oregon, November 2004.

*“Probabilistic risk assessment model for predators and scavengers exposed indirectly to a rodenticide.”* 2nd National Invasive Rodent Summit, Ft. Collins, Colorado, October 2004.

*“Water accommodated fractions of gasoline: predicting concentrations and toxicity.”* Society of Environmental Toxicology and Chemistry, Austin, Texas, November 2003.

*“Integrating dose-response with species sensitivity distributions.”* Society of Environmental Toxicology and Chemistry, Austin, Texas, November 2003.

*“Exposure duration and effects of atrazine on aquatic plant communities in mesocosms”* Society of Environmental Toxicology and Chemistry, Austin, Texas, November 2003.

*“Tiered probabilistic risk assessment of deltamethrin in aquatic environments.”* Society of Environmental Toxicology and Chemistry, Hamburg, Germany, April 2003.

*“SETAC Pellston workshop on application of uncertainty analysis to the ecological risks of pesticides–aquatic effects and risk characterization case study.”* Society of Environmental Toxicology and Chemistry, Salt Lake City, Utah, November 2002.

*“Tiered probabilistic risk assessment of deltamethrin in aquatic environments.”* Society of Environmental Toxicology and Chemistry, Salt Lake City, Utah, November 2002.

*“Conceptual models for aquatic risk assessment of pesticide runoff and spray drift.”* Society of Environmental Toxicology and Chemistry, Salt Lake City, Utah, November 2002.

*“Aquatic ecological risk assessment of atrazine a tiered, probabilistic approach following ECOFRAM recommendations.”* Society of Environmental Toxicology and Chemistry, Madrid, Spain, May 2001.

*“What aquatic microcosm and mesocosm studies tell us about the ecological risks of atrazine.”* Society of Environmental Toxicology and Chemistry, Nashville, Tennessee, November 2000.

*“Aquatic ecological risk assessment of atrazineCa tiered, probabilistic approach following ECOFRAM recommendations.”* Society of Environmental Toxicology and Chemistry, Nashville, Tennessee, November 2000.

*“Expressing the outcome of probabilistic assessments of aquatic risk associated with pesticides.”* Society of Environmental Toxicology and Chemistry, Nashville, Tennessee, November 2000.

*“Extrapolation factors, levels of concern, and additional toxicity testing in the early stages of a pesticide risk assessment.”* Society of Environmental Toxicology and Chemistry, Nashville, Tennessee, November 2000.

*“Implications of pesticide exposure duration and recovery for aquatic toxicity and risk assessment.”* Society of Environmental Toxicology and Chemistry, Nashville, Tennessee, November 2000.

*“Technical Workshop: Regulatory evaluation of aquatic microcosm studies with pesticides.”* SETAC Europe, Brighton, UK, May 2000.

*“Short Course: Probabilistic ecological risk assessment for pesticides.”* SETAC-Europe, Brighton, UK, May 2000.

*“Complex aquatic communities in indoor microcosms: a tool for higher-tier risk assessment of chemicals.”* SETAC-Europe, Brighton, UK, May 2000.

*“Short Course: Introduction to probabilistic ecological risk assessment for pesticides.”* Society of Environmental Toxicology and Chemistry, Philadelphia, Pennsylvania, November 1999.

*“Demonstration of the safety of an herbicide to non-target aquatic plants.”* Society of Environmental Toxicology and Chemistry, Philadelphia, Pennsylvania, November 1999.

*“Aquatic ecological risk assessment of pyrethroid insecticides: Tools for higher-tier analysis.”* 2<sup>nd</sup> Pan-Pacific Conference on Pesticide Science. Honolulu, Hawaii, October 1999.

*“Ecological impact of anionic surfactants under Philippine use conditions, Part II. Aquatic toxicology and ecological risk assessment.”* Technical Symposium on Detergent Surfactants in the Environment. Manila, The Philippines, September 1999.

*“Landscape-level approaches to exposure and risk assessments for pesticides.”* SETAC-Europe, Leipzig, Germany, May 1999.

*“Findings of the Ecological Committee on FIFRA Risk Assessment Methods: VI. Aquatic risk characterization and tiered risk assessment process.”* SETAC-Europe, Leipzig, Germany, May 1999.

*“Findings of the Ecological Committee on FIFRA Risk Assessment Methods: V. Aquatic effects assessment.”* SETAC-Europe, Leipzig, Germany, May 1999.

*“Predicting the aquatic toxicity of lubricants based on lubricant composition.”* SETAC-Europe, Leipzig, Germany, May 1999.

*“The need to consider ecological significance in risk assessment of pesticides.”* American Chemical Society, Anaheim, California, March 1999.

*“Mesocosms and microcosms: experiences with study designs and interpretation of results.”* IBC Conference on Pesticides in Surface Waters, London, England, March 1999.

*“Preliminary findings of the Ecological Committee on FIFRA Risk Assessment Methods: aquatic risk characterization and tiered risk assessment process.”* Society of Environmental Toxicology and Chemistry, Charlotte, North Carolina, November 1998.

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*"Limitations of laboratory toxicity data as a basis for ecological assessment of pesticides."* Workshop on Relevancy of Ecological Data to Pesticide Registration, Ecological Society of America, Knoxville, Tennessee, August 1994.

*"International harmonization of methods for aquatic field testing,"* Society of Environmental Toxicology and Chemistry, Lisbon, Portugal, March 1993.

*"Sampling and analysis strategies for the test chemical,"* European Workshop on Freshwater Field Tests, Potsdam, Germany, June 1992.

*"Large outdoor microcosms for ecological assessment of pesticides,"* Second Symposium on Environmental Toxicology and Risk Assessment, American Society for Testing and Materials, Pittsburgh, Pennsylvania, April 1992.

*"Contract ecotoxicology: science, regulation, and business,"* Cornell University, Ithaca, New York, March 1992.

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*"The exposure-response relationship for aquatic ecosystems exposed to pesticides,"* First Symposium on Environmental Toxicology and Risk Assessment, American Society for Testing and Materials, Atlantic City, New Jersey, April 1991.

*"The fate and effects of Guthion (azinphos methyl) in mesocosms,"* Society of Environmental Toxicology and Chemistry, Arlington, Virginia, November 1990.

*"Aquatic field studies for pesticide registration: the challenges of GLP,"* Society of Quality Assurance, Orlando, Florida, October 1990.

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*"Simultaneous display of treatment effects and statistical power in microcosm and mesocosm experiments,"* Twelfth Symposium on Aquatic Toxicology and Hazard Assessment, American Society for Testing and Materials, Reno, Nevada, April 1988.

*"Microcosms and mesocosms,"* Workshop on Aquatic Mesocosm Studies, National Agricultural Chemical Association, Washington, D.C., October 1986.

*"A microcosm procedure for determining safe levels of chemical exposure in shallow-water communities,"* Symposium on Community Toxicity Testing, American Society for Testing and Materials, Colorado Springs, Colorado, May 1985.

*"Patterns in the responses of littoral communities to chemical stress,"* Society of Environmental Toxicology and Chemistry Symposium, Arlington, Virginia, November 1984.

*"Protecting aquatic resources: an ecologist's perspective,"* Aquatic Toxicology - Eighth Symposium, American Society for Testing and Materials, Ft. Mitchell, Kentucky, April 1984.

*"Are pond-derived microcosms valid surrogates for natural littoral ecosystems?"* Society of Environmental Toxicology and Chemistry Symposium, Arlington, Virginia, November 1983.

*"Microcosms in ecotoxicology,"* Ecotoxicology (Ecology 5100), University of Tennessee, Knoxville, Tennessee, November 1983.

*"Field validation,"* Ecotoxicology (Ecology 5100), University of Tennessee, Knoxville, Tennessee, November 1983.

*“Coal liquefaction product spills in freshwater ecosystems: a preliminary environmental assessment,”* Pittsburgh Energy Technology Center, Pittsburgh, Pennsylvania, November 1982.

*“Chronic additions of a coal-derived oil to pond microcosms: fate of the oil and effects on the ecosystems,”* Society of Environmental Toxicology and Chemistry Symposium, Arlington, Virginia, November 1982.

*“Summary of Oak Ridge National Laboratory’s aquatic toxicity research on coal liquefaction,”* Columbia National Fisheries Research Laboratory, Columbia, Missouri, May 1982.

*“Assessing the hazards of synthetic oil spills using results of laboratory, microcosm, and field experiments,”* Society of Environmental Toxicology and Chemistry Symposium, Arlington, Virginia, November 1981.

*“Assessing the effects of contaminants on the structure and function of aquatic ecosystems,”* ORNL Life Sciences Symposium: Environment and Solid Wastes, Gatlinburg, Tennessee, October 1981.

*“Environmental research on coal liquefaction products,”* Office of Health and Environmental Research, U.S. Department of Energy, Washington, D.C., June 1981.

*“Ecological studies on oils from coal,”* Seminar on Current Topics in Environmental Toxicology, University of Tennessee, Knoxville, Tennessee, November 1980.

*“Toxicity of shale oil to freshwater algae: Comparisons with petroleum and coal-derived oils,”* Symposium on Health Effects Investigation of Oil Shale Development, Gatlinburg, Tennessee, June 1980.

*“Four-hour algal bioassays for assessing the toxicity of coal-derived materials,”* Symposium on Process Measurements for Environmental Assessment, Atlanta, Georgia, February 1980.

*“Pollution studies in aquatic microcosms,”* Third International Symposium on Aquatic Pollutants, Jekyll Island, Georgia, October 1979.

*“Types of aquatic microcosms and their research applications,”* Symposium on Microcosms in Ecological Research, Savannah, Georgia, November 1978.

*“Pond microcosms and their role in research on environmental contaminants,”* Environmental Engineering Seminar Series, Clarkson College, Potsdam, New York, October 1978.

*“Transport and fate of anthracene in aquatic microcosms,”* Workshop on Microbial Degradation of Pollutants in Marine Environments, Pensacola Beach, Florida, April 1978.

*“Two perspectives on nutrient limitation in algae,”* Department of Botany, University of Tennessee, Knoxville, Tennessee, November 1977.

*“Measurement of ecosystem properties in microcosms,”* Institute of Ecology, University of Georgia, Athens, Georgia, October 1977.

*"Some ecological and experimental properties of complex aquatic microcosms,"* American Institute of Biological Sciences, East Lansing, Michigan, August 1977.

*"Photosynthesis/respiration ratios in aquatic microcosms under arsenic stress,"* American Society of Limnology and Oceanography, East Lansing, Michigan, June 1977.

*"Effects of size and substrate type on the behavior of aquatic microcosms,"* American Institute of Biological Sciences, New Orleans, Louisiana, June 1976.