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Susan Kane Driscoll, Ph.D.

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Professional Profile

Dr. Kane Driscoll is an aquatic toxicologist with over 30 years of experience in the application of risk assessment methods for evaluating the potential effects of environmental stressors. She specializes in exposure modeling and toxicity of contaminants, including metals, hydrocarbons associated with oil and gas, and persistent compounds such as polychlorinated biphenyls (PCBs).

Dr. Kane Driscoll has directed numerous risk assessments for a variety of industrial, utility, and governmental clients. She has extensive experience designing and conducting laboratory and field studies to support the development of technically defensible solutions to environmental problems. She has worked on projects related to oil spills, industrial releases, and injuries to aquatic and terrestrial resources. Dr. Kane Driscoll has conducted expert reviews for various industrial clients and trade associations related to claims of environmental fate and effects of commercial products, including various plastics and pavement coatings.

Dr. Kane Driscoll is a specialist in the field of sediment toxicology, and her original research and publications in the areas of bioavailability and toxicity of sediment-associated contaminants are widely cited. She has extensive knowledge of the technical basis and predictive ability of various sediment quality benchmarks and has co-authored guidance documents on emerging methods for assessing the potential exposure and toxicity of polycyclic aromatic hydrocarbons (PAHs) and other organic contaminants.

Academic Credentials & Professional Honors

Ph.D., Environmental Sciences, University of Massachusetts, Boston, 1994

B.S., Natural Resources, University of Rhode Island, 1981

Recognized in 2018 by the Society of Environmental Toxicology and Chemistry for a highly cited paper, “Microplastics as vectors for bioaccumulation of hydrophobic organic chemicals in the marine environment: A State-of-the-Science review,” which garnered the most downloads from that journal in the 12-month period from its date of publication.

Integrated Risk Assessment Paper of the Year for 2002 for “A Comparative Screening-Level Ecological and Human Risk Assessment for Dredged Material Management Alternatives in New York/New Jersey Harbor,” in the journal, Human and Ecological Risk Assessment.

Prior Experience

Senior Managing Scientist, Menzie-Cura & Assoc., Inc., 1997-2006

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Post-Doctoral Research Scientist, Bioavailability and Toxicity of Sediment-Associated Organic Contaminants, Virginia Institute of Marine Science, 1996-1997

Post-Doctoral Research Scientist, Bioavailability and Critical Body Burdens of Sediment-Associated PAHs, National Oceanic and Atmospheric Administration Great Lakes Environmental Laboratory, 1994-1996

Professional Affiliations

Society of Environmental Toxicology and Chemistry (member, editorial reviewer and former member of the Board of Directors for the North American Chapter)

Publications

Kane Driscoll SB, Gilmour CC, Brown SS, Nedrich S, Lotufo GR,Farrar JD, Steevens JA, Schwartz G, Sanders JP. Influence of activated carbon on the bioaccumulation of methylmercury from sediment by the amphipod Leptocheirus plumulosus. Environmental Toxicology and Chemistry 2025; 1–12. https://doi.org/10.1093/etojnl/vgaf259

Kane Driscoll KB, Ryan S, Small A, Dombrowski F. Employing site-specific sediment toxicity tests to develop remediation goals for polycyclic aromatic hydrocarbons at a manufactured gas plant site. Environmental Toxicology 2025; 1-10. https://doi.org/10.1093/etojnl/vgaf186

Burgess R, Parks A, Kane Driscoll SB, Kravitz M. Guidance for selecting the appropriate bioaccumulation model(s) for nonionic organic contaminants when assessing risk and remedial effectiveness at contaminated sediment sites. Ecological Risk Assessment Support Center Office of Research and Development U.S. Environmental Protection Agency, Cincinnati, OH 2024. EPA/600/R-24/086.

Burgess RM, Kane Driscoll SB, Bejarano AC, Davis CW, Hermens J, Redman AD, Jonker M. A review of mechanistic models for predicting adverse effects in sediment toxicity testing. Environmental Toxicology and Chemistry 2023; 43(8):1778–1794. https://doi.org/10.1002/etc.5789

Wade T, Kane Driscoll SB, McGrath J, Coolbaugh T, Liu Z, Buskey E. Exposure methodologies for dissolved individual hydrocarbons, dissolved oil, water oil dispersions, water accommodated fraction and chemically enhanced water accommodated fraction of fresh and weathered oil. Marine Pollution Bulletin 2022; 184:114085.

Sanders JP, McBurney A, Gilmour CC, Schwartz GE, Washburn S, Kane Driscoll SB, Brown SS, Ghosh U. Development of a novel equilibrium passive sampling device for methylmercury in sediment and soil porewaters. Environmental Chemistry 2020.

Kane Driscoll SB, Kulacki KJ, Marzooghi S. A review of the literature on potential effects of runoff from refined coal-tar-based sealant coating on aquatic organisms. Integrated Environmental Assessment and Management 2020; 16:17–27.

Burgess RM, Kane Driscoll SB, Burton GA, Ghosh U, Gschwend PM, Reible D, Ahn S, Thompson T. Laboratory, field, and analytical procedures for using passive sampling in the evaluation of contaminated sediments: user's manual. EPA/600/R-16/357. Feb 2017.

Menzie C, Kane Driscoll SB, Thompson T. RPM guide: integrating passive sampling methods into management of contaminated sediment sites: a guide for department of defense remedial project managers. ESTCP Project ER-201216, April 2016.

Ziccardi L, Edgington A, Hentz K, Kulacki K, Kane Driscoll SB. Microplastics as vectors for bioaccumulation of hydrophobic organic chemicals in the marine environment: a state-of-the-science

review. Environmental Toxicology and Chemistry 2016; 35:1667–1676.

Ghosh U, Kane Driscoll SB, Burgess RM, Jonker MTO, Reible D, Gobas F, Choi Y, Apitz SE, Maruya KA, Gala WR, Mortimer M, Beegan C. Passive sampling methods for contaminated sediments: Practical guidance for selection, calibration, and implementation. Integrated Environmental Assessment and Management 2014 April; 10(2):210–223.

Parkerton T, Maruya K, Lydy M, Landrum P, Peijnenburg W, Mayer P, Escher B, Ghosh U, Kane Driscoll SB, Greenberg M, et al. Guidance on passive sampling methods to improve management of contaminated sediments. Summary of a SETAC technical workshop. Pensacola (FL): Society of Environmental Toxicology and Chemistry (SETAC) 2013. [cited 2013 December 11]. Available from: http://www.setac.org/resource/resmgr/publications_and_resources/executivesummarypassivesampl.pdf.

Burgess RM, Kane Driscoll SB, Ozretich RJ, Mount DR, Reiley MC. Equilibrium partitioning sediment benchmarks (ESBs) for the protection of benthic organisms: procedures for the determination of the freely dissolved interstitial water concentrations of nonionic organics. U.S. Environmental Protection Agency Office of Research and Development National Health and Environmental Effects Research Laboratory December 2012; EPA/600/R-02/012.

McElroy AE, Barron MG, Beckvar N, Kane Driscoll SB, Meador JP, Parkerton TF, Preuss TG, Steevens JA. A review of the tissue residue approach for organic and organometallic compounds in aquatic organisms. Integrated Environmental Assessment and Management 2010; 7(1):50–74.

McArdle ME, Kane Driscoll SB, Booth PN. An ecological risk-based cleanup strategy for contaminated sediments in a freshwater brook. International Journal of Soil, Sediment and Water 2010; 3(2):1–24.

Kane Driscoll SB, McArdle ME, Plumlee MH, Proctor D. Evaluation of hexavalent chromium in sediment pore water of the Hackensack River, New Jersey, USA. Environmental Toxicology and Chemistry 2010; 29(3):617–620.

Kane Driscoll SB, McArdle ME, Menzie CA, Reiss M, Steevens JA. A framework for using dose as a metric to assess toxicity of fish to PAHs. Ecotoxicology and Environmental Safety 2010; 73:486–490.

McArdle M, Ziccardi L, Lowney Y, Kane Driscoll SB. Considerations for interpreting nanomaterial toxicity studies for use in environmental risk assessment. Proceedings, International Conference on the Environmental Implications and Applications of Nanotechnology, University of Massachusetts Amherst, 2009; 57–60.

Kane Driscoll SB, Amos BC, McArdle ME, Menzie CA, Coleman A. Predicting sediment toxicity at former manufactured gas plants using equilibrium partitioning benchmarks for PAH mixtures. Soil & Sediment Contamination 2009; 18(3):307–319.

Kane Driscoll SB, Burgess RM. An overview of the development, status, and application of equilibrium partitioning sediment benchmarks for PAH Mixtures. Human and Ecological Risk Assessment 2007; 13:2:286–301.

Kane Driscoll SB, Amos CB, McArdle ME, Southworth B, Menzie CA, Coleman A. Use of equilibrium partitioning sediment benchmarks (ESBs) to predict toxicity of PAH contaminated sediments. Electric Power Research Institute (EPRI), Palo Alto, CA, 2005; 1010371.

Kane Driscoll SB, Amos CB, McArdle ME, Southworth B, Menzie CA, Coleman A. Sediment biotoxicity at former MGP and coking sites. Electric Power Research Institute (EPRI), Palo Alto, CA; New York State Electric & Gas Corporation, Binghamton, NY; Central Hudson, Poughkeepsie, NY; and PSEG Services, LLC, Newark, NJ, 2004; 1011168.

Kane Driscoll SB, McArdle ME, M.S., Menzie CA, Thompson T, Mortensen L, Fitzpatrick A. Using

polycyclic aromatic hydrocarbons in sediments for judging toxicity to aquatic life: volume I and II, EPRI final report. Electric Power Research Institute (EPRI), Palo Alto, CA, 2003; 1005280.

Kane Driscoll SB, Wickwire WT, Cura JJ, Vorhess DJ, Butler CL, Williams LW, Moore DW, Bridges TS. A comparative screening-level ecological and human health risk assessment for dredged material management alternatives in New York/New Jersey Harbor. Human and Ecological Risk Assessment 2002; 8(3):603–626.

Vorhees DJ, Kane Driscoll SB, Von Stackelberg K, Cura JJ, Bridges TS. An evaluation of sources of uncertainty in a dredged material assessment. Human and Ecological Risk Assessment 2002; 8(2):369–389.

Kane Driscoll SB, Menzie CA, Burton GA, Williams J, Coleman A. Review of toxicology of PAHs in invertebrate aquatic organisms. EPRI Final Report. Electric Power Research Institute (EPRI), Palo Alto, CA, 2001; 1006594.

Landrum PF, Tigue EA, Kane Driscoll SB, Gossiaux DC, Van Hoof PL, Gedeon ML, Adler M. Bioaccumulation of PCB congeners by Diporeia spp.: Kinetics and factors affecting bioavailability. Journal of Great Lakes Research 2001; 27(2):117–133.

Cura, J, Kane Driscoll SB, Lacey R, McArdle ME, Menzie CA. Assessing ecological risks of PAH-contaminated sediments. In: Sediments Guidance Compendium. Electric Power Research Institute (EPRI), Palo Alto, CA, 2001; 1005216.

Kane Driscoll SB, Schaffner SC, Dickhut RM. Toxicokinetics of fluoranthene to the amphipod, Leptocheirus plumulosus, in water-only and sediment exposures. Marine Environmental Research 1998; 45(3):269–284.

Kane Driscoll SB, Landrum PF. A comparison of equilibrium partitioning and critical body residue approaches for predicting toxicity of sediment associated fluoranthene to freshwater amphipods. Environmental Toxicology and Chemistry 1997; 16(10):2179–2186.

Kane Driscoll SB, Harkey GA, Landrum PF. Accumulation and toxicity of fluoranthene in sediment bioassays with freshwater amphipods. Environmental Toxicology and Chemistry 1997; 16(4):742–753.

Kane Driscoll SB, Landrum PF, Tigue EA. Accumulation and toxicity of fluoranthene in water only bioassays with freshwater amphipods. Environmental Toxicology and Chemistry 1997; 16(4):754–761.

Harkey GA, Kane Driscoll SB, Landrum PF. Effect of feeding in 30-day bioaccumulation assays using Hyalella azteca in fluoranthene-dosed sediment. Environmental Toxicology and Chemistry 1997; 16(4):762–769.

Kane Driscoll SB, McElroy AE. Elimination of sediment-associated benzo[a]pyrene and its metabolites by polychaete worms exposed to 3-methylcholanthrene. Aquatic Toxicology 1997; 39(1):77–91.

Kane Driscoll SB, McElroy AE. Bioaccumulation and metabolism of benzo[a]pyrene in three species of polychaete worms. Environmental Toxicology and Chemistry 1996; 15:1401–1410.

Book Chapter

Menzie C, Kane Driscoll SB, Kierski M, Morrison AM. Advances in Risk Assessment in Support of Sediment Risk Management. pp. 107-130. In: Processes, Assessment and Remediation of Contaminated Sediments. Reible DD (ed), SERDP ESTCP Environmental Remediation Technology, Vol. 6, 2014.

Selected Proceedings, Conferences, and Symposia

Ho K, Kane Driscoll SB, Burgess R. Session Chair. Understanding the ecological effects of nanoplastics in aquatic environments. Society of Environmental Chemistry and Toxicology. Pittsburgh, PA, November 13-17, 2022.

Kane Driscoll SB, Kulacki K. A review of potential effects of plastic leachate on aquatic organisms. Society of Environmental Chemistry and Toxicology Europe, Copenhagen, Denmark, May 15-19, 2022.

Kane Driscoll SB, Schierz A, McGrath A, Kierski M. Use of ex situ passive samplers to measure bioavailable polycyclic aromatic hydrocarbons in sediments. Society of Environmental Chemistry and Toxicology Europe, Virtual Conference, May 3-6, 2021.

Kane Driscoll SB. Uncertainty in assessing the potential toxicity of oil is influenced by variability in test conditions. Gulf of Mexico Research Institute Contributions to Dispersant Science Agenda Synthesis Workshop, Virtual, November 16-20, 2020.

Kane Driscoll SB, Sanders J, Kulacki K, Farrar D, Gilmour C, Brown S. Effects of activated-carbon-based amendments on the bioavailability of methylmercury from marsh sediments to aquatic invertebrates. Battelle Conference on the Remediation and Management of Contaminated Sediments, New Orleans, LA, February 14, 2019.

Sanders JP, Kane Driscoll S, Ghosh U, McBurney A, Gilmour C, Schwartz G, Farrar D, Brown S. Development and testing of a novel passive sampler for methylmercury in sediment and soil porewaters. Battelle Conference on the Remediation and Management of Contaminated Sediments, New Orleans, LA, February 14, 2019.

Kane Driscoll SB, Schierz A, Ahn A, McGrath J, Romer J, Clock J. Use of ex situ passive samplers to measure freely dissolved PAHs in sediments at a manufactured gas plant site. Battelle Conference on the Remediation and Management of Contaminated Sediments, New Orleans, LA, February 14, 2019.

Farrar JD, Kane Driscoll SB, Gilmour C, Brown SS. Development of a *Leptocheirus plumulosus* Bioassay to measure the bioavailability and bioaccumulation of methylmercury in an oligohaline estuarine environment. Battelle Conference on the Remediation and Management of Contaminated Sediments, New Orleans, LA, February 14, 2019.

Kane Driscoll SB, Kulacki K, Farrar D, Gilmour C, Brown S. Assessing the effects of carbon-based amendments on the bioavailability of methylmercury from marsh sediments to aquatic invertebrates. 39th Annual Meeting of SETAC North America, Sacramento, CA, November 4-8, 2018.

Kane Driscoll SB, Ahn S, Schierz A, McGrath A, Clock J. Romer J. Use of Ex Situ Passive Samplers to Measure Freely Dissolved PAHs in Sediments at a Manufactured Gas Plant Site. 39th Annual Meeting of SETAC North America, Sacramento, CA, November 4-8, 2018.

Kane Driscoll SB, Williams L. Fish natural history and species selection. Plenary speaker for a Sediment-Fish-Human Exposure Workshop, Sediment Management Workgroup, Vicksburg, MS, May 29-31, 2018.

Kane Driscoll SB. Challenges and opportunities in remediating large, complicated contaminated sites. Invited panel presentation. Air & Waste Management Association 111th Annual Conference, Hartford, CT, 2018.

Burgess R, Kane Driscoll SB, Joyce A. Laboratory, field, and analytical procedures for using passive sampling in the evaluation of contaminated sediments: User's manual overview. 38th Annual Meeting of SETAC North America, Sacramento, CA, November 12-16, 2017.

Kane Driscoll SB, Kulacki K, Gilmour C, Farrar D, Lotufo G, Brown S. Laboratory methods for assessing the effects of activated carbon-based amendments on the bioavailability of mercury and methyl mercury to aquatic invertebrates. 13th International Conference on Mercury as a Global Pollutant, Providence, RI,

July 16-21, 2017.

Kane Driscoll SB, Whittlesey, Hauri J, Kulacki K, Schierz A, Morse T, Morrison AM, Yozzo K, McArdle M, Edgington A, Edwards M, Aldea M. The influence of mixing energy on the concentration, composition, toxicity, and relevance of laboratory toxicity tests. Gulf of Mexico Oil Spill and Ecosystem Science Conference, Tampa, FL, February 1-4, 2016.

Kierski M, Morrison AM, Kane Driscoll SB, Menzie C. A refined multi-Site model to estimate the toxicity of PAH-contaminated sediments at MGP sites. 36th Annual Meeting of SETAC North America, Salt Lake City, UT, November 1-5, 2015.

Kane Driscoll SB, Menzie C. Sediment bioavailability initiative: Development of standard methods for the use of passive samplers in management of contaminated sediment. 34th Annual Meeting of SETAC North America, Nashville TN, November 17-21, 2013.

Kierski M, Morrison AM, Kane Driscoll SB, Menzie CA. A multi-site model to estimate the toxicity of PAH-contaminated sediments at MGP sites. Platform presentation, 32nd Annual Meeting of SETAC North America, Boston, MA, November 13-17, 2011.

Morrison AM, Kane Driscoll SB, McArdle M, Menzie CA. Integrated environmental benefit analysis of sediment remediation thresholds. Platform presentation, 32nd Annual Meeting of SETAC North America, Boston, MA, November 13-17, 2011.

McArdle M, Fairbrother A, Kane Driscoll SB, Menzie C. Guidance for a weight-of-evidence approach to ecological risk assessments in British Columbia. 32nd Annual Meeting of SETAC North America, Boston, MA, November 13-17, 2011.

Kierski M, Morrison AM, Kane Driscoll SB, Menzie C. Use of receiver operating characteristic curve analysis to estimate ecological risk zones as part of an ecological risk assessment. 31st Annual Society of Environmental Toxicology and Chemistry (SETAC) Meeting, Portland, OR, November 7-11, 2010.

Kane Driscoll SB, McArdle ME, Montgomery C. Case studies of MassDEP findings on environmental risk characterizations. Co-presented a credited, 8-hour short course to Massachusetts Licensed Site Professionals Association, Westford, MA, April 27, 2010.

Kane Driscoll SB, McArdle ME, Montgomery C. Improve your understanding of ecological risk assessments to write a better RAO. Co-presented a credited, 4-hour short course to Massachusetts Licensed Site Professionals Association, Westford, MA, February 26, 2009.

Kane Driscoll SB, McArdle M, Booth P. Use of Solid Phase Microextraction (SPME) to assess the contribution of PAHs to toxicity of sediments at a former manufacturing plant. Battelle Sediment Conference, Jacksonville, FL, February 5, 2009.

Kane Driscoll SB, McArdle M, Menzie C. Assessing risk of metals in sediment: experience in applying the weight-of-evidence approach to aquatic sites contaminated with heavy metals. Sediment Management Work Group Spring Sponsor Forum, Kalamazoo, MI, April 29−30, 2008.

Kane Driscoll SB, McArdle M, Proctor D. Evaluation of hexavalent chromium in sediment pore water of the Hackensack River, New Jersey. 29th Annual Meeting of SETAC North America, Tampa, FL, November 2008.

Kane Driscoll SB, Gard NW, Ginn TC. Critical evaluation of the applicability of sediment effect concentrations for pcbs in site-specific ecological risk assessments. Battelle Sediment Conference, Jacksonville, FL, February 4, 2009.

Kane Driscoll SB, Amos CB, McArdle ME, Menzie CA, Coleman AJ. Use of site-specific equilibrium

partitioning benchmarks for polycyclic aromatic hydrocarbon mixtures to predict the toxicity of sediment at former manufactured gas plants. 28th Annual Meeting of SETAC North America, Milwaukee, WI, November 11-15, 2007.

Kane Driscoll SB. A methodology for deriving a dietary dose of PAHs that is protective of fish. Platform presentation, International Conference on Remediation of Contaminated Sediments in Savannah, GA, January 22-24, 2007. Session chair: "Bioavailability of Contaminants."

Kane Driscoll SB, McArdle ME, Burmistrov D, Reiss M, Steevens J. A methodology for deriving a dietary dose of PAHs that is protective of fish. 27th Annual Meeting of SETAC North America, Montreal, Canada, November 5-9, 2006.

Kane Driscoll SB, McArdle ME, Burmistrov D, Reiss M, Steevens J. A methodology for deriving a tissue concentration of cyclodiene pesticides that is protective of fish. 27th Annual Meeting of SETAC North America, Montreal, Canada, November 5-9, 2006.

Kane Driscoll SB, Reiss M, Steevens J. Development of a novel dose-based toxicity benchmark for exposure of fish to PAHs. 26th Annual Meeting of SETAC North America, Baltimore, MD, November 16-20, 2005.

Kane Driscoll SB, Reiss M, Steevens J. Development of a database of toxic doses of PAHs to fish. 18th Biennial Conference of the Estuarine Research Federation, Norfolk, VA, October 16-20, 2005.

Kane Driscoll SB, Menzie CA, McArdle ME, Coleman A. Application of site-specific equilibrium partitioning sediment benchmarks for PAH mixtures to manufactured gas plants. 25th Annual Meeting of SETAC North America, Portland, OR, November 14-18, 2004.

Kane Driscoll SB, McArdle ME, Menzie CA, Thompson T, Coleman A. Application of sediment quality guidelines for PAHs to manufactured gas plants. 2nd International Conference on Remediation of Contaminated Sediments, Venice, Italy, 2003.

Kane Driscoll SB, Bridges T, Cura JJ, McArdle M, Nelson M. A review of comparative risk assessment methods and their applicability to dredged material management decisions. 23rd Annual Meeting of SETAC North America, Salt Lake City, Utah, November 16-20, 2002.

Kane Driscoll SB. Sediment accumulation and toxicity of Fluoranthene to freshwater amphipods. Benthic Ecology Meeting, Columbia, SC, March 7-10, 1996.

Kane Driscoll SB, Landrum PF. Bioaccumulation and critical body burden of Fluoranthene in estuarine amphipods. Society of Environmental Toxicology and Chemistry, Washington, DC, 1996.

Kane Driscoll SB, Landrum PF. Toxicokinetics and critical body burdens of Fluoranthene in amphipod bioassays with *Hyalella azteca* and *Diporeia* sp. Invited talk, Society of Environmental Toxicology and Chemistry, Vancouver, BC, 1995.

Kane Driscoll SB, McElroy AE. A comparison of bioaccumulation and biotransformation of benzo[a]pyrene in three species of polychaete worms. Society of Environmental Toxicology and Chemistry, Houston, TX, 1993.

Kane Driscoll SB, McElroy AE. Biotransformation of benzo[a]pyrene by three species of polychaete. Society of Environmental Toxicology and Chemistry, Cincinnati, OH, 1992.

Project Experience

Dr. Kane Driscoll has been involved in numerous projects relating to analysis of potential exposure and risk to humans and ecological resources.

Natural Resource Damage Assessment

Provided analysis and technical support for the Deepwater Horizon NRDA in the Gulf of Mexico. Implemented the use of the Target Lipid Model to assess potential injury to aquatic organisms from exposure to PAHs and other contaminants in oil and dispersants. Participated in a review of a major NRDA case at the Bayway and Bayonne petroleum refinery in New Jersey, USA. Examined use of sediment and soil screening benchmarks to assess damage to ecological receptors.

Industrial Clients and Trade Associations

Private Client. Reviewed the scientific literature on the potential toxicity of floral foam microplastics as well as leachates from floral foam and other plastics on aquatic organisms. Prepared a white paper and summarized uncertainties related to the comparison of effects observed in laboratory studies to field conditions.

American Chemistry Council – Plastics Division: Did a state-of-the-science review on the potential for microplastics in the ocean to sorb contaminants (e.g., PCBs) from the environment, and the potential for exposure and effects on aquatic organisms, wildlife, and humans.

Pavement Coatings Technology Council: Reviewed literature on the potential for runoff of refined coal tar pavement coatings to cause toxicity to aquatic organisms.

Personal Care Products Council: Prepared a white paper on the fate of personal care product polymers in wastewater treatment plants.

Guidance Documents

Co-author of a guidance document for the U.S. Environmental Protection Agency and the U.S. Department of Defense on the use of passive samplers at contaminated sediment sites.

Revised EPA guidance on the development of site-specific Equilibrium Partitioning Sediment Benchmarks (ESBs) for PAHs that consider reduced partitioning and bioavailability of organic contaminants.

Lead a technical team in the revision of “Standard Guide for Determination of the Bioaccumulation of Sediment-Associated Contaminants by Benthic Invertebrates” (ASTM International E1688-00a).

Conducted a technical review for Environmental Professionals of Connecticut (EPOC) of the Connecticut Department of Environmental Protection’s proposed changes to Connecticut water quality standards.

Conducted research for the Electric Power Research Institute and its utility members on the application of the EPA equilibrium partitioning sediment benchmarks for PAH mixtures to contaminated sediments at manufactured gas plant (MGP) sites. Research examined influence of various forms of “black carbon,” including coal tars and coke, on reducing bioavailability and toxicity of PAHs in sediment to aquatic organisms.

Oil Spills

Deepwater Horizon: Analyzed data for hundreds of laboratory toxicity tests on the effects of various preparations of oil, with and without dispersants. Technical reviewer of associated publications.

Exxon Valdez: Conducted a comprehensive review of literature on the toxicity of oil to aquatic wildlife. Developed toxicity reference values for oil based on various approaches, including use of surrogate

compounds for oil fractions.

Superfund

Conducted effects assessment for the Hudson River Baseline Ecological Risk Assessment. Reviewed literature on effects of PCBs and dioxin-like compounds on fish and aquatic wildlife. Selected toxicity reference values for use in ecological risk assessment.

Technical consultant for an industrial client at the Berry's Creek Study Area Superfund site in New Jersey, USA. Project manager for a field pilot study on the use of activated carbon to reduce bioavailability of mercury and PCBs in marsh sediments. Co-developer of a risk-based method for cost allocation among responsible parties.

Technical reviewer of human health and ecological risk assessments for exposure to mercury at the Nyanza Superfund Site Operable Unit 4 - Sudbury River in Massachusetts. Project manager for field effort that used passive samplers to demonstrate reduced concentrations and bioavailability of hexavalent chromium in sediment pore water of the Hackensack River, New Jersey.

Risk Assessment and Remedial Investigations

Managed an ecological and human health risk assessment for a former automobile battery manufacturing site in Connecticut. Characterized potential exposure of human and ecological receptors to lead in surficial sediments of a tidal river. Designed field-sampling program and used site-specific exposure information to back-calculate health-protective concentrations of lead in sediment.

Managed a large field demonstration project for the Department of Defense using activated carbon to reduce bioavailability of PCBs and methyl mercury in sediments. Managed a review of the long-term trends in fish and shellfish monitoring data for the Massachusetts Water Resources Authority. Conducted a before-after-control-impact (BACI) statistical analyses to examine impacts from relocation of the treatment plant outfall.

Project manager for a net environmental benefit analysis (NEBA) to evaluate the costs and benefits of remediation options for a lead contaminated river.

Managed an extensive review of the available information on the toxicity of dioxin-like compounds to birds. Compiled a database of dose-response relationships that was used to develop a species sensitivity distribution for effects to avian species.

Prepared a technical review for EPA and the U.S. Army Corps of Engineers on approaches used to characterize the toxicity of mixtures of organic contaminants to fish.

Developed a comparative risk assessment framework for the U.S. Army Corps of Engineers that identifies characteristics of various placement and treatment alternatives for dredged materials that contribute to potential environmental risk.

Examined environmental impacts associated with the release of a plume of high pH groundwater from an industrial landfill. Assisted in the development of a sampling program to demonstrate that high pH groundwater was not mobilizing naturally occurring metals in soil.

Managed an ecological risk assessment for dioxin-contaminated soil associated with incinerator waste on the grounds of a former hospital in Washington, DC.

Managed an ecological and human health risk assessment for a RCRA site in Taunton, Massachusetts, USA. Designed extensive sampling and sediment toxicity testing program that demonstrated minimal impact to aquatic organisms and wildlife from exposure to PCBs, mercury, and dichlorobenzenes in surficial sediments.

Developing a novel approach for EPA and the U.S. Army Corps of Engineers to assess the toxic effects of dietary and water-borne doses of PAHs to fish. Reviewed literature, summarized data, developed a cumulative distribution of doses, and estimated protective dose levels.

Manufactured Gas Plant Sites

Coordinated the development of receiver operating characteristic (ROC) curve analyses to assess the relationship between concentrations of PAHs in sediment and toxicity for three MGP sites in Wisconsin.

Advisory Appointments

Select Advisory Activities

Gulf of Mexico Research Initiative. Invited to participate in an effort to synthesize knowledge learned about preparation of crude oil for toxicity testing since the Deepwater Horizon oil spill. Issues to be considered will include physical fate and natural processes related to petroleum releases, including evaporation, sea-air transfer, dissolution, sorption-desorption, deposition. Will also evaluate the various procedures for preparation of water accommodated fractions (WAFS) and chemically enhanced water accommodated fractions (CEWAFS), and issues related to the comparability of WAF and CEWAF experiments and field conditions.

Sediment Management Workgroup. Invited to lead and participate in various workshops related to assessment and management of contaminated sediment, including methods for defining reference and background conditions, as exposure modeling for fish.

SETAC-Sponsored Technical Workshop. Steering committee member and invited participant in "Guidance on Bioavailability/Bioaccessibility Measurements using Passive Sampling Devices (PSDs) and Partitioning-Based Approaches for Management of Contaminated Sediments" Cosa Mesa, CA. November 2012.

SETAC-Sponsored Technical Workshop. Invited participant in "The Tissue Residue Approach for Toxicity Assessment: Invertebrates and Fish" Leavenworth, WA, June 7–12 2007.

Deposition & Trial Testimony

Testified on two occasions before the Committee on Environment and Natural Resources of the Maine State Legislature regarding a proposed Act Concerning Pavement Sealing Products. Testified on behalf of the Pavement Coatings Technology Council regarding the potential for adverse effects of runoff from refined coal tar sealants to aquatic organisms.

Supported the preparation of expert and rebuttal reports for Foley Hoag in Ecuador v. Columbia International Court of Justice in relation to claims of cross-boundary impacts associated with the use of herbicides.