

Exponent®
Engineering & Scientific Consulting

Rick Bodishbaugh, Ph.D.

Senior Managing Scientist | Ecological and Biological Sciences
Bellevue
+1-425-922-5423 | bodishr@exponent.com

Professional Profile

Dr. Rick Bodishbaugh has 22 years of consulting experience, specializing in sediment assessment, ecological risk assessment (ERA) in aquatic and terrestrial systems, and natural resourced damage assessment (NRDA). With primary graduate training in aquatic toxicology and biochemistry, his diverse project experience includes technical leadership of site investigations and resource injury assessments at sites across the country.

Dr. Bodishbaugh has extensive experience with both litigation defense and negotiated settlement of natural resource damage liability, and has provided expert reports and deposition testimony in NRDA cases. Specific areas of technical expertise include fish and wildlife toxicity assessment, resource/habitat equivalency analysis (REA/HEA) for scaling of natural resource injuries, bioavailability of chemical contaminants in aquatic and terrestrial ecosystems.

Originally trained as a chemical engineer, he also has 4 years of experience as a geophysical and geochemical engineer in the international offshore oil and gas industry, and is trained and experienced in geophysical surveying and reservoir geology. Dr. Bodishbaugh also has formal training in marine biochemistry, molecular biology, and bioremediation principles.

Dr. Bodishbaugh is experienced in evaluating the effects of contaminated soil, groundwater, surface water, and sediments on ecological receptors. He has conducted assessments of chemical risk at dozens of sites for energy, petrochemical, pulp and paper, manufacturing, and mining industry clients. He is intimately familiar with federal, regional, and various state guidance and standards of practice for ERA under common regulatory frameworks, and has extensive face-to-face negotiation experience with federal and state regulatory agency technical staff across the U.S. He is also experienced in evaluating and interpreting field bioaccumulation and laboratory toxicity bioassay data for use in assessing ecological risk. He is well versed in the environmental toxicology and assessment of metals and persistent organic pollutants, especially PCBs and PAHs.

Dr. Bodishbaugh is experienced in providing technical support in a litigation context. He has extensive NRDA experience, and has helped clients develop defensive and settlement strategies for NRDA claims by federal, state, and tribal trustees at sites in Alaska, California, Florida, Indiana, Kansas, Louisiana, Missouri, New Jersey, New York, Oklahoma, Texas, Washington, and the U.S. Virgin Islands. He is an expert in the application of REA and HEA, including applications for assessment of groundwater injury. He has worked closely with client legal teams to assess and critically evaluate the technical merits and costs of natural resource liability and settlement options, and has represented industry clients in both formal and informal trustee negotiations, to arrive at rational injury assessments and cost effective, restoration-based compensation options. He has provided deposition testimony on NRD liability for east and west coast clients, and has contributed to numerous expert reports for NRD cases.

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Academic Credentials & Professional Honors

Ph.D., Aquatic Toxicology, Duke University, 1995

B.S., Chemical Engineering, University of Tulsa, 1985

Professional Affiliations

American Chemical Society

Society of Environmental Toxicology and Chemistry

Publications

Pastorok RA, Noftsker C, Iannuzzi TJ, Ludwig DF, Barrick RC, Ruby MV, Bodishbaugh DF. Natural remediation of polynuclear aromatic hydrocarbons and other petroleum hydrocarbons. In: Natural Remediation of Environmental Contaminants: Its Role in Ecological Risk Assessment and Management. Swindoll M, Stahl Jr RG, Ells SJ (eds), SETAC General Publications Series, Society of Environmental Toxicology and Chemistry, SETAC Press, Pensacola, FL, pp. 159-198, 2000.

Bodishbaugh DF. Acute toxicity mechanisms and quantitative structure-activity relationships of alkylphenol polyethoxylate surfactants in fish. Dissertation. Duke University, Durham, NC, 1995.

Bonaventura C, Bonaventura J, Bodishbaugh DF. Environmental bioremediation: Approaches and processes. In: Ecotoxicity and Human Health: A Biological Approach to Environmental Remediation. Bloom AD and de Serres FJ (eds) CRC Press, Boca Raton, FL, 1995.

Bonaventura C, Bonaventura J, Bodishbaugh DF. Environmental bioremediation: Applications and new horizons. In: Ecotoxicity and Human Health: A Biological Approach to Environmental Remediation. Bloom AD and de Serres FJ (eds) CRC Press, Boca Raton, FL, 1995.

Selected Presentations

Ginn T, Bodishbaugh DF. Key issues for use of habitat equivalency analysis in scaling compensatory restoration projects. Presentation at SETAC Annual Meeting, Portland, OR, November 2004.

Bodishbaugh DF, Moore ML, Godtfredsen KL. Congener composition of environmental PCB mixtures: An empirical analysis. Presentation at SETAC Annual Meeting, Austin, TX, November 2003.

Bodishbaugh DF. Toxicity endpoint extrapolation for characterization of ecological risk: Which method is right? Invited presentation at SETAC Annual Meeting, San Francisco, CA, November 1997.

Bodishbaugh DF. Toxicity assessment for calculation of ecological risk: The deterministic vs. probabilistic approaches to endpoint extrapolation. Presentation at SETAC Annual Meeting, Washington, DC, November 1996.

Bodishbaugh DF. In vitro studies of acute toxicity mechanisms and structure-activity relationships of nonionic surfactants in fish. Presentation at SETAC Annual Meeting, Denver, CO, November 1994.

Project Experience

Natural Resource Damage Assessment

Deepwater Horizon Oil Spill. Consulting expert for assessments involving potential injuries to benthic

habitats in the Gulf of Mexico. Technical lead on assessment of potential injury to deep water reef communities and scaling of natural resource injury to diverse offshore resources for development of restoration based compensation alternatives.

St. Croix Alumina Site. (U.S. Virgin Islands). Technical support for expert testimony in the case: Commissioner of the Department of Planning and Natural Resources, Alicia V. Barnes, et al. v. Virgin Islands Alumina Company et al. District Court of the Virgin Islands, Division of St. Croix, Civil Case No. 2005-0062.

Bayway and Bayonne Refineries (New Jersey). Evaluation of marine, wetland, and terrestrial communities at the refinery sites. Developed HEA models used in expert testimony at trial, prepped client legal team on HEA and other NRDA issues during deposition and trial phases. New Jersey Department of Environmental Protection and Administrator, New Jersey Spill Compensation Fund v. Exxon Mobil Corporation, Superior Court of New Jersey, Law Division/Union County.

Parker-Hannifin Plant Site (New Jersey). Authored expert report on NRDA liability for groundwater contamination at manufacturing facility.

Jasper County Superfund Site (Missouri). Technical lead for settlement negotiations with federal and state trustees for legacy mining site contamination at complex, multi-party sites in southwestern Missouri.

Tar Creek Superfund Site (Oklahoma). Technical support for expert testimony concerning injuries to terrestrial plant communities resulting from mining wastes for the case: The Quapaw Tribe of Oklahoma et al. v. Blue Tee Corp, et al. United States District Court, Northern District of Oklahoma, Case No. 03-CV-0846-CVE-PJC.

Tri-State Mining District (Kansas, Missouri, and Oklahoma). Developed habitat-based injury assessment for NRDA liability at multiple sites as part of bankruptcy proceedings.

Koppers site in Texarkana (Texas). Assessment of aquatic injuries and developed restoration settlement package for client. Developed HEA models used for restoration-based negotiated settlement.

Lower Duwamish Waterway Superfund Site (Washington). Claim related to releases of PCBs in the estuarine environment and potential injuries to fish, benthic, and bird resources. Participated in settlement negotiations with state, federal, and tribal trustees, and design of restoration-based compensatory projects.

Familiar with NOAA, DOI, and various state trustee guidance and standard NRDA methods. Experienced in emerging NRDA issues, such as evaluation of groundwater resource damages, resource scaling in sensitive habitats, allocation at complex industrial sites, and allegations involving wood waste.

Developed client-customizable HEA computational tools for real-time evaluation of injury and restoration alternatives. Provided technical support and strategy in preparation for and during legal negotiations between industry clients and trustees on NRD settlements.

Developed and provided scientific rationale for cost-effective HEA-based restoration alternatives to avoid an expensive and arbitrary cash settlement. Presented and defended NRDA alternatives and technical justifications to trustees during face-to-face settlement negotiations.

Ecological Risk Assessment

San Diego Bay Sediment Sites (California). Ongoing sediment investigations at multiple sites focusing on PCB and metal contamination. Analysis of sediment data to assess extent and source of contamination, risk-based analysis of data, benthic community triad assessment using California Sediment Quality Objective methods.

NASSCO Shipyard (California). Mediation support to resolve sediment remediation issues in response to a cleanup and abatement order. Issues involved the amount of dredging and other remediation required to reduce aquatic and human health risks at the site and the scope of post-remedial monitoring.

United Heckathorn Superfund Site (California). Ongoing support of sediment investigation and supplemental remedy selection to address recontamination of marine waterway with DDT 20 years after original remedy.

General Motors Bedford Foundry (Indiana). Performed ERA for PCB contamination over 20 miles of watershed in southern Indiana. Designed and provided field supervision of sampling program, ecological exposure and food web modeling, negotiation of resource restoration to address NRDA liability during remediation.

Stanford Linear Accelerator Center (California). Performed ERA for PCB and lead contamination at Stanford University research facility in Palo Alto.

General Motors Saginaw Foundries (Michigan). Performed ERA for two active refinery sites undergoing RCRA Corrective Actions and CERCLA Remedial Investigations. Designed and provided field supervision of sampling program, performed ecological exposure and food web modeling.

Tennessee Gas Pipeline (Southeast U.S.). Performed ERA for PCB contamination at natural gas pipeline compressor stations in 6 southeastern states. Roles included negotiation of scope with U.S. EPA, oversight of field data collection, risk and food web exposure modeling, and presentation of findings.

Koppers Site (Kentucky). Conducted field sampling and ERA for off-site contamination at active wood treatment facility in southern Kentucky.

Blackhawk Mine (Kentucky). Negotiated scope with state agency and conducted ERA for metals contamination at mining site.

Alaska Pulp Mills (Alaska). Performed ERA and preliminary NRDA support for two decommissioned pulp mill sites in southeastern Alaska.

Conducted or supervised ERAs for numerous industrial facilities where a combination of organic and inorganic contaminants were risk drivers. Sites have included pipelines, foundries, refineries, petrochemical plants, wood preservative sites, manufactured gas plant sites, shooting ranges, pulp mills, landfills, shipyards, mining sites, research facilities, and munitions plants. State-of-the-art approaches for ecological screening assessments, receptor exposure modeling, toxicity assessment, and chemical hazard characterization were integrated to form rational, science-based site assessments.

Conducted extensive bioavailability and bioaccumulation assessments for organic and inorganic contaminants in aquatic systems to provide higher tiers of assessment at complex sites where conventional bulk sediment assessment failed to produce feasible remedial alternatives. Successfully implemented habitat assessment and bioavailability analysis as tools to focus the scope of ecological risk assessments and make site assessment manageable.

Conducted ERAs of PCB contamination for numerous industrial clients. Contamination scenarios evaluated include direct product discharges and indirect transport of product to soil, groundwater, and surface water, including sensitive habitats. Industrial sites evaluated include pipeline facilities, heavy manufacturing facilities, and landfills. Developed site-specific food web modeling approaches to the assessment of risk from PCBs, and negotiated technical approaches to assessment with state and federal regulatory agencies. Reviewed and critiqued recent research developments and helped design original research into environmental toxicity of PCBs.

Developed, supported, and negotiated site-specific approaches to the assessment of metals toxicity at mining sites where natural mineralization and physical disturbance make bulk concentration a poor

indicator of exposure and risk from site activities.

Litigation Support

Testified in deposition on general and site-specific NRDA issues on liability insurance case for a pulp and paper industry client in Alaska.

Testified in deposition on potential groundwater injuries at a manufacturing facility in New Jersey.

Authored and contributed to expert reports on NRDA issues submitted to state and federal courts on several NRD cases across the country.

Reviewed literature and served as an expert technical consultant for client legal teams, and authored affidavits on aquatic toxicity and biodegradation issues in support of active litigation concerning client product liability.

Conducted ERA and NRDA training for client legal staff.

Aquatic Toxicology Research and Consulting

Designed and conducted aquatic toxicity investigations using a variety of in vivo and in vitro techniques and test species, including studies on the toxicity mechanisms and structure-activity relationships of surfactant chemicals, detergents, and oil spill dispersants to fish.

Provided oversight for client-supported independent research used to establish the value of potential restoration projects.

Participated in the design of chronic dietary exposure studies to assess risk of endangered salmon species to PCBs and PAHs in estuarine sediments.

Served as technical consultant on potential endocrine disruptor effects of chemicals and client operations. Conducted training for client technical staff.

Deposition & Trial Testimony

Alaska Pulp Company v. AIG, U.S. District Court, Western District of Washington. Deposition 2000.

NJDEP, et al. v. Parker-Hannifin, et al., Superior Court of New Jersey, Law Division, Middlesex County, Docket No. MID-L-286-06. Deposition 2008.