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Paul Boehm, Ph.D.

Principal Scientist | Environmental and Earth Sciences
Burlington
pboehm@exponent.com

Professional Profile

As an environmental scientist and strategic advisor on environmental issues, Dr Boehm has conducted investigations for, consulted with, and advised industrial, legal, and government clients on scientific matters involving regulatory issues and legal claims associated with chemical contaminants in the environment. The main pillars of his professional work include analyzing and explaining the environmental distributions and fates hazardous chemical and petroleum releases, and ecological effects from chemical exposures. His work also includes the evaluation risks and damages due to climate change factors and extreme weather events.

Dr. Boehm is a leading practitioner and a recognized expert in the fields of natural resource damage assessments (NRDA) for oil spills and contaminated sites; maritime environmental incidents; natural gas geochemistry; and the environmental and forensic chemistry of crude and refined petroleum; polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), and other organic chemicals; and natural gas geochemistry. His practice also directly involves the environmental fate and transport of chemicals as well as exposure and impact assessment.

Dr. Boehm's consulting work has focused both historical legacy and contemporary chemical releases and migration from facilities including: oil refineries, fuel terminals, pipelines, and offshore platforms; manufactured gas plants (MGPs); integrated steel mills; pulp and paper mills; other active and legacy manufacturing sites; and natural gas storage fields. Many of his projects involve aspects of historical reconstruction of chemical releases; chemical fingerprinting; divisibility and apportionment; allocation at CERCLA and OPA multiparty sites; and chemical exposure and injury assessment.

His extensive knowledge of the strategic application and practice of environmental chemistry and forensics has contributed to the published literature and to legal matters on source identification, fate, and transport of PAHs, PCBs, other chlorinated organics, solvents (TCE, PCE), stable isotopes, and metals. He was one of the early and formative practitioners in the area of petroleum fingerprinting.

Dr. Boehm is well-known internationally in the field of aquatic and marine pollution, especially matters involving coastal and urban areas. His scientific consulting work over 44 years has been interwoven with oil spill scientific assessments in relation to: emergency response, NRDA, as well as civil and criminal complaints arising from these matters. He has investigated and published extensively on the fate and effects of many major oil spills around the world (e.g., Amoco Cadiz; Haven; Ixtoc 1; Exxon Valdez; Arabian Gulf War spill; BP - Deepwater Horizon). In the NRDA practice area he has also been engaged in numerous cases at CERCLA and state sites, where he has provided expert technical support on exposure and ecological injury assessment; the determination of baseline or background; divisibility and apportionment of contamination, including the applicability of CERCLA's "petroleum exclusion."

Dr. Boehm is an experienced consulting and testifying expert on a range of legal matters involving environmental claims: apportionment and allocation; NRDA; remediation and insurance cost recovery;

toxic torts; class action cases; and maritime cases under the Clean Water Act and MARPOL. Dr. Boehm has published extensively in scholarly journals, is an associate editor of two prestigious journals, and has been appointed to serve on several national panels on environmental/marine pollution and has served on several National Research Council panels.

Academic Credentials & Professional Honors

Ph.D., Oceanography, University of Rhode Island, 1977

M.S., Oceanography, University of Rhode Island, 1973

B.S., Chemical Engineering, University of Rochester, 1970

Prior Experience

Research Leader, Vice President, and Oil and Gas Market Manager, Battelle Science and Technology Inc. (Battelle Memorial Institute), 2001-2004

Corporate Vice President (1991-2001), Managing Director (1999-2001), and Director (1989-1999), Environmental, Health, and Safety Division, Arthur D. Little, Inc., (ADL), Cambridge, 1989-2001

Senior Research Scientist and Geochemistry Section Manager, Battelle Memorial Institute (BMI), Duxbury, MA, 1983-1989

Principal Scientist, Energy Resources Company (ERC0), 1976-1983

Professional Affiliations

American Chemical Society — ACS

Society of Environmental Toxicology and Chemistry — SETAC

Association for Environmental Health and Sciences Foundation - AEHS

International Society of Environmental Forensics — ISEF

American Society for Testing and Materials — ASTM

American Bar Association (associate member)

Publications

Complete listing: http://scholar.google.com/citations?user=eyAmbYEAAAAJ&hl=en

Boehm PD, Haddad RI . The Oil Spill Science Triad: Viewpoint on the Coexistence and Optimization of Models, Laboratory Tests, and Empirical Field Observations and Data for Natural Resource Damage Assessments , In International Oil Spill Conference, vol. 2021, no. 1, p. 667037. 2021.

Murray KJ, Shea, D, Boehm PD. Development of a computational method to quantify the partitioning of polycyclic aromatic hydrocarbons in seawater into dissolved and droplet forms, Marine Pollution Bulletin 153, 110955 (2020)

Cook LL, Drollette BD, Edwards MR, Benton LD, Boehm PD. A data-driven framework for defining stages

of oil weathering, Marine Pollution Bulletin 154 (2020) 111091

Boehm PD. Organic chemicals and marine environmental quality research: A tribute to James G. Quinn, Marine Pollution Bulletin 155 (2020) 111101

Kytomaa HK, Boehm P, Osteraas J, Haddad B, Hacker J, Gilman L, Jampole E, Murphy P, and Souri S. An integrated method for quantifying and managing extreme weather risks and liabilities for industrial infrastructure and operations. Process Safety Progress. 2019; e12087. https://doi.org/10.1002/prs.12087

Murray KJ, Boehm PD, Prince RC. The importance of understanding transport and degradation of oil and gasses from deep sea blowouts (Chap. 6). In: Murawski SA, Ainsworth C, Gilbert S, Hollander D, Paris CB, Schlüter M, Wetzel D (eds) Deep oil spills - Facts, Fate and Effects. Springer, Cham. 2020

M. Edwards, J. Pietari, L. Cook, and P. Boehm, “Treatment of Non-Detects Can Lead to Inaccurate Forensic Conclusions,” pp. 181–191.in Detection Limits in Air Quality and Environmental Measurements, ed. M. J. Brisson ASTM International, West Conshohocken, PA:, 2019, http://doi.org/10.1520/STP1618201801163

Kytomaa H, Boehm P, Osteraas J, Haddad R, Hacker J, Gilman L, Jampole E, Murphy P, Souri S. A Non-Stationary Approach to Conducting Site-Specific Integrative Risk Management Assessments at Industrial Facilities at Risk from Extreme Weather Events, American Institute of Chemical Engineers 2019 Spring Meeting and 15th Global Congress on Process Safety New Orleans, LA March 31 - April 3, 2019

Boehm PD. The science of natural resource damage assessments: Dilemma or oxymoron. ABA SEER Superfund and Natural Resource Damages Litigation Committee Newsletter, Vol 13, 3, p3-6 American Bar Association, 2018.

Benton L, Cook L, Haddad B, Boehm P. Lessons learned: The case for data optimization for oil spills, ABA SEER Superfund and Natural Resource Damages Litigation Committee Newsletter, Vol 13, 1, p16-18, American Bar Association (2018)

Boehm PD, Pietari, P, Cook, LL, Saba, T (2018): Improving rigor in polycyclic aromatic hydrocarbon source fingerprinting, Environmental Forensics, DOI: 10.1080/15275922.2018.1474287

Saba T, Boehm PD. Determination of the applicability of CERCLA's petroleum exclusion at contaminated sites - Focus on metals. Environmental Forensics 2018; 19(1):27-38.

Murray K, Boehm P. Towards an understanding of the evolution (fate and transport) of the 2010 Deepwater Horizon Oil Spill. In: Proceedings of the 2017 International Oil Spill Conference, Vol 2017, No 1.

Morrison AM, Edwards M, Buonagurio J, Cook L, Murray K, Boehm P. Assessing the representativeness and sufficiency of water samples collected during an oil spill. In: Proceedings of the 2017 International Oil Spill Conference, Vol 2017, No 1.

Benton L, Cook L, Haddad B, Boehm P. Lessons learned: the case for data optimization between response and NRDA. In: Proceedings of the 2017 International Oil Spill Conference, Vol 2017, No 1.

Murray K, Brown J, Cook L, Boehm P. Fingerprinting of weathered oil residues in sediments from the Deepwater Horizon Oil Spill: The importance of multiple lines of investigation. In: Proceedings of the 2017 International Oil Spill Conference, Vol 2017, No 1.

Cook L, Benton L, Brown J, Boehm P. Weathering of MC252 oil from release to shoreline: stages of weathering. In: Proceedings of the 2017 International Oil Spill Conference, Vol 2017, No 1.Aldea M, Edwards M, Pietari J, Boehm P. Cautions on the treatment of non-detect results for environmental forensics. Environmental Forensics 2016; 17(4):3110318.

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Boehm P, Morrison AM, Semenova S, Kashuba R, Ahnell A, Monti C. A comprehensive model for oil spill liability estimation. Society of Petroleum Engineers, SPE-179301-MS, SPE International Conference and Exhibition on Health, Safety, Security, Environment, and Social Responsibility, 11-13 April, Stavanger, Norway http://dx.doi.org/10.2118/179301-MS

Boehm PD, Murray KJ, Cook LL. Distribution and Attenuation of Polycyclic Aromatic Hydrocarbons in Gulf of Mexico Seawater from the Deepwater Horizon Oil Accident, Environmental Science and Technology 50 (2), 584-592, 2016.

Boehm PD, Murphy BL. Applications of Environmental Forensics. In: Introduction to Environmental Forensics. Murphy BL, Morrison RD (eds), pp. 3-20, Elsevier Ltd. Academic Press, 2015.

Shields WJ, Saba T, Boehm PD, Pietari J. Congeners: A forensics analysis. In: Introduction to Environmental Forensics. Murphy BL, Morrison RD (eds), pp. 347-393, Elsevier Ltd. Academic Press, 2015.

O'Reilly KT, Ahn S, Pietari J, Boehm PD Use of Receptor Models to evaluate sources of PAHs in sediments, Polycyclic Aromatic Hydrocarbons, 2015; 35:41-56.

Boehm PD, Page DS, Brown JS, Neff JM, Gundlach E. Long-Term Fate and Persistence of Oil from the Exxon Valdez Oil Spill: Lessons Learned or History Repeated? International Oil Spill Conference Proceedings: Vol. 2014, No. 1, pp. 63-79.

O'Reilly K, Pietari J, Boehm P. Parsing pyrogenic PAHs: Forensic chemistry, receptor models, and source control policy. Integrated Environmental Assessment and Management 2014; 10:279-285.

Boehm PD, Ginn TC. The science of natural resource damages assessments. Environmental Claims Journal 2013; 25:185-225.

Boehm PD, Gundlach ER, Page DS. The phases of an oil spill and scientific studies of spill effects. In: Oil in the Environment: Legacies and Lessons of the Exxon Valdez Oil Spill. Wiens J (ed), pp. 37-56, Cambridge University Press, 2013.

Boehm PD, Neff JM, Page DS. Oil in the water column. In: Oil in the Environment: Legacies and Lessons of the Exxon Valdez Oil Spill. Wiens J (ed), pp. 57-77, Cambridge University Press, 2013.

Page DS, Boehm PD, Brown, JS, Gundlach ER, Neff JM. Fate of oil on shorelines. In: Oil in the Environment: Legacies and Lessons of the Exxon Valdez Oil Spill. Wiens J (ed), pp. 116-143, Cambridge University Press, 2013.

Gundlach ER, Page DS, Neff JM, Boehm PD. Shoreline biota. In: Oil in the Environment: Legacies and Lessons of the Exxon Valdez Oil Spill. Wiens J (ed), pp. 241-262, Cambridge University Press, 2013.

Boehm PD, Carragher PD. Location of natural oil seep and chemical fingerprinting suggest alternative explanation for deep sea coral observations, Proceedings, National Academy of Sciences, 2012. www.pnas.org/cgi/doi/10.1073/pnas.1209658109

Saba T, Boehm PD. Use of natural gas compositional tracers to investigate gas migration from a gas storage field. Environmental Geosciences 2012; 19:1-12.

O'Reilly, KO, Pietari J, Boehm PD. A forensic assessment of refined tar-based sealers as a source of polycyclic aromatic hydrocarbons in urban sediments. Environmental Forensics 2012; 13:185-196.

Saba T, Boehm PD. CERCLA's petroleum exclusion and the use of chemical forensic methods. ABA Superfund and NRD Litigation Committee Newsletter 2011; 6(2).

O'Reilly, KO, Brown JS, Jaana Pietari, J Boehm P. Establishing the chemical footprint of potential injury from petroleum product releases at fuel terminals. Proceedings, 2011 International Oil Spill Conference, American Petroleum Institute, Washington, DC, 2011.

Boehm PD, Cook, LL, Murray KJ. Aromatic hydrocarbon concentrations in seawater: Deepwater Horizon Oil Spill. Proceedings, 2011 International Oil Spill Conference, American Petroleum Institute, Washington, DC, 2011.

Boehm PD, Page DS, Neff JM, Brown JS. Are sea otters still being exposed to subsurface oil residues from the Exxon Valdez oil spill? Marine Pollution Bulletin 2011; 62:581-589.

Neff JM, Page DS, Boehm PD. Exposure of sea otters and harlequin ducks in Prince William Sound, Alaska, to shoreline oil residues 20 years after the Exxon Valdez oil spill. Environmental Toxicology and Chemistry 2011; 30:659-672.

O'Reilly K, Pietari J, Boehm P. Comment on "PAHs Underfoot: Contaminated Dust from Coal-Tar Sealcoated Pavement is Widespread in the U.S." Environmental Science and Technology 2011; 45:3185-3186.

Saba T, Boehm PD. Congener-based analysis of the weathering of PCB Aroclor 1242 in paper mill sludge. Chemosphere 2011; 82:1321-1328.

Saba T, Boehm PD. Quantitative PCB congener and homologue profile comparisons. Environmental Forensics 2011, 12:134-142.

Menzie CA, Cantor R, Boehm P. Business planning for climate change: Identifying vulnerabilities and planning for changes in water, temperature, sea level, natural resources, health effects, and extreme events. Environmental Claims Journal 2011; 23(3-4):190-198.

Menzie C, Cantor R, Boehm P, Bailey JR. An approach to business vulnerability and risk assessments related to Climate Change. SPE Paper Number SPE-127083-PP, 2010, Proceedings, SPE International Conference on Health, Safety and Environment in Oil and Gas Exploration and Production, Society of Petroleum Engineers, Rio de Janeiro, Brazil, April 12-14, 2010.

Boehm PD. Addition by Division: Apportioning liability using environmental forensics. In Toxic Torts and Environmental Law Seminar, New Orleans, LA, 2010: 105-199.

Page DS, Boehm PD, Neff JM. Comment on "Unlike PAHs from Exxon Valdez Crude Oil, PAHs from Gulf of Alaska Coals are not Readily Bioavailable." Environmental Science and Technology 2010; 44.

Boehm PD, Page DS, Neff JM. Comments on the misuse of SPMDs in recent articles by Springman et al. (2008a, b) and Short et al. (2008). Marine Environmental Research 2009; 67:262-267.

Boehm PD, Page DS, Brown JS, Neff JM, Bragg JR, Atlas RM. Distribution and weathering of crude oil residues on shorelines 18 years after the Exxon Valdez spill. Environmental Science and Technology 2008; 42:9210-9216.

Boehm PD, Page DS. Exposure elements in oil spill risk and natural resource damage assessments: A review. Human and Ecological Risk Assessment 2007; 13:2:418-448.

Boehm PD, Page DS, Neff JM, Johnson C. Potential for sea otter exposure to remnants of buried oil from the Exxon Valdez oil spill. Environmental Science and Technology 2007; 41:6860-6867.

Boehm PD, Neff JM, Page DS. Assessment of polycyclic aromatic hydrocarbon exposure in the waters of Prince William Sound after the Exxon Valdez oil spill: 1989-2005. Marine Pollution Bulletin 2007; 54:339-

356.

Bence AE, Page DS, Boehm PD. Advances in forensic techniques for petroleum hydrocarbons: The Exxon Valdez experience. In: Petroleum Forensics. Elsevier, 2006.

Burns WA, Mudge SM, Bence TD, Boehm PD, Brown JS, Page DS, Parker KR. Source allocation by least-squares hydrocarbon fingerprint matching. Environmental Science and Technology 2006; 40(21).

Boehm PD. Polycyclic aromatic hydrocarbons. In: Environmental Forensics—A Contaminant Specific Approach. Elsevier, 2006.

Neff JM, Bence AE, Parker KR, Page DS, Brown JS, Boehm PD. Bioavailability of polycyclic aromatic hydrocarbons from buried shoreline oil residues 13 years after the Exxon Valdez oil spill: A multispecies assessment. Environmental Toxicology and Chemistry 2006; 25:947-961.

Nielsen D, Ginn T, Ziccardi L, Boehm PD. Study: Proposed offshore gulf LNG terminals will have minor effects on fish populations. Oil and Gas Journal 2006; 104.

Page DS, Brown JS, Boehm PD, Bence AE, Neff JM. A hierarchical approach measures the aerial extent and concentration levels of PAH-contaminated shoreline sediments at historic industrial sites in Prince William Sound, Alaska. Marine Pollution Bulletin 2006; 52:367-379.

Boehm PD, Maxon CL, Newton FC, Brown JS, Galperin Y. Aspects of polycyclic aromatic hydrocarbons in offshore sediments in the Azeri sector of the Caspian Sea. In: Offshore Oil and Gas Environmental Effects Monitoring: Approaches and Technologies. Armsworthy SL, Cranford PJ, Lee K (eds), Battelle Press, Columbus, OH, 2005.

Boehm PD, Page DS, Brown JS, Neff JM, Bence AE. Comparison of mussels and semi-permeable membrane devices as intertidal monitors of polycyclic aromatic hydrocarbons at oil spill sites. Marine Pollution Bulletin 2005; 50:740-750.

Page DS, Boehm PD, Brown JS, Neff JM, Burns WA, Bence AE. Mussels document loss of bioavailable polycyclic aromatic hydrocarbons and the return to baseline conditions for oiled shorelines in Prince William Sound, Alaska. Marine Environmental Research 2005; 60:422-436.

Boehm PD, Page DS, Brown JS, Neff JM, Burns WA. Polycyclic aromatic hydrocarbons in mussels from Prince William Sound, Alaska, document the return to baseline conditions. Environmental Toxicology and Chemistry 2004; 12:2916-2929.

Douglas GS, Burns WA, Bence AE, Page DS, Boehm PD. Optimizing detection limits for the analysis of petroleum hydrocarbons in complex environmental samples. Environmental Science and Technology 2004; 38:3958-3964.

Boehm PD, Neff JM, Brown JS, Page DS, Burns WA, Maki AW, Bence AE. The chemical baseline as a key to defining continuing injury and recovery of Prince William Sound. pp. 275-283. Proceedings, 2003 Oil Spill Conference, American Petroleum Institute Publication No. I 4730 B. API, Washington, DC, 2003.

Emsbo-Mattingly S, Boehm PD. Identifying PAHs from manufactured gas plant sites. Technical Report No. 1005289. EPRI, Palo Alto, CA, 2003.

Neff JM, Boehm PD, Kropp R, Stubblefield WA, Page DS. Monitoring recovery of Prince William Sound, Alaska, following the Exxon Valdez oil spill: Bioavailability of PAH in offshore sediments. pp. 299-305. Proceedings, 2003 International Oil Spill Conference, American Petroleum Institute Publication No. I 4730 B. API, Washington, DC, 2003.

Page DS, Bence AE, Burns WA, Boehm PD, Brown JS, Douglas GS. The role of petroleum geochemistry

in defining oil spill recovery: Examples from the Exxon Valdez spill in Prince William Sound, Alaska. Proceedings, 2003 International Oil Spill Conference, American Petroleum Institute Publication No. I 4730 B. API, Washington, DC, 2003.

Page DS, Boehm PD, Stubblefield WA, Parker KR, Gilfillan ES, Neff JM, Maki AW. Reply to: Rice SD, Carls MG, Heintz RA, Short JW. Comment on ‘‘Hydrocarbon composition and toxicity of sediments following the Exxon Valdez oil spill in Prince William Sound, Alaska, USA'' by Page et al. Environmental Toxicology and Chemistry 2003; 22(11):2539-2540.

Boehm PD, Burns WA, Page DS, Bence AE, Mankiewicz PJ, Brown JS, Douglas GS. Total organic carbon, an important tool in a holistic approach to hydrocarbon fingerprinting. Environmental Forensics 2002; 3:243-250.

Page DS, Bence AE, Burns WA, Boehm PD, Brown JS, Douglas GS. Holistic approach to hydrocarbon source allocation in the subtidal sediments of Prince William Sound embayments. Environmental Forensics 2002; 3:331-340.

Page DS, Boehm PD, Stubblefield WA, Parker KR, Gilfillan ES, Neff JM, Maki AW. Hydrocarbon composition and toxicity of sediments following the Exxon Valdez oil spill in Prince William Sound, Alaska. Environmental Toxicology and Chemistry 2002; 21:1421, 1438-1450.

Page DS, Gilfillan ES, Boehm PD, Neff JM, Stubblefield WA, Parker KR, Maki AW. Sediment toxicity measurements in oil spill injury assessment: A study of shorelines affected by the Exxon Valdez oil spill in Prince William Sound, Alaska. Proceedings, First International Conference on Remediation of Contaminated Sediments, Venice, Italy, October 10-11, 2001. Pellei M, Porta A, Hinchee RE (eds), pp. 137-146, Battelle Press, Columbus OH, 2002.

Boehm PD, Loreti CP, Rosenstein AB, Rury PM. A guide to polycyclic aromatic hydrocarbons for the non-specialist. Publication Number 4714. American Petroleum Institute, Washington, DC, 2001.

Boehm PD, Page DS, Burns WA, Bence AE, Mankiewicz PJ, Brown JS. Resolving the origin of the petrogenic hydrocarbon background in Prince William Sound, Alaska. Environmental Science and Technology 2001; 35(3):471-479.

Emsbo-Mattingly SD, McCarthy KJ, Uhler AD, Stout SA, Boehm PD, Douglas GS. Identifying and differentiating high and low temperature tars at contaminated sites. Contaminated Soil, Sediment Water, June/July Issue, 2001.

Emsbo-Mattingly S, McCarthy KS, Uhler AD, Stout SA, Boehm PD. Sources of wood, coal, and petroleum tars. Contaminated Soil, Sediment Water, Special Edition, Spring 2001.

Uhler AD, Stout SA, Hicks, J.E., McCarthy KS, Emsbo-Mattingly S, Boehm PD. Advanced 3-D data analysis: Tools for visualization and allocation. Contaminated Soil, Sediment Water, Special Edition, April/May 2001.

Emsbo-Mattingly S, Uhler AD, Stout SA, McCarthy KS, Douglas GS, Brown JS, Boehm PD. Polycyclic aromatic hydrocarbon (PAH) chemistry of MGP tar and source identification in sediment. pp. 1-1 to 1-41. In: Sediments Guidance Compendium. Report No. 1005216. Electric Power Research Institute, Palo Alto, CA, 2001.

Gilfillan ES, Page DS, Neff JM, Parker KR, Boehm PD. A 10-year study of shoreline conditions in the Exxon Valdez spill zone, Prince William Sound, Alaska. pp. 559-567. Proceedings, 2001 Oil Spill Conference, American Petroleum Institute, Washington, DC, 2001.

Page DS, Gilfillan ES, Stubblefield WA, Boehm PD, Parker KR, Maki AW. Oil weathering and sediment toxicity in shorelines affected by the Exxon Valdez oil spill in Prince William Sound, Alaska. pp. 551-557.

Proceedings, 2001 International Oil Spill Conference, American Petroleum Institute, Pub. 4686B, Washington, DC, 2001.

Stout SA, Uhler AD, Boehm PD. Recognition of and allocation among sources of PAH in urban sediments. Environmental Claims Journal 2001; 13(4):141-158.

Bence AE, Burns WA, Mankiewicz PJ, Page DS, Boehm PD. Comment on PAH refractory index as a source discriminant of hydrocarbon input from crude oil and coal in Prince William Sound, Alaska, by Hostettler FD, Rosenbauer RJ, Kvenvolden KA. Organic Geochemistry 2000; 31(9):931-938.

Boehm PD, Douglas GS, Brown JS, Page DS, Bence AE, Burns WA, Mankiewicz PJ. Comment on natural hydrocarbon background in benthic sediments of Prince William Sound, Alaska: Oil vs. coal. Environmental Science and Technology 2000; 34(10):2064-2065.

Gilfillan ES, Page DS, Neff JM, Parker KR, Boehm PD, Maki AW. 1999 shoreline conditions in the Exxon Valdez oil spill zone in Prince William Sound. pp. 281-294. Proceedings, 23rd Arctic and Marine Oil Spill Program (AMOP) Technical Seminar. Environment Canada, Vancouver, 2000.

Page DS, Boehm PD, Douglas GS, Brown JS, Bence AE, Burns WA, Mankiewicz PJ. Mass balance constraints on the sources of the petrogenic hydrocarbon background in offshore sediments of Prince William Sound and the Gulf of Alaska. pp.1-9. Proceedings, 23rd Arctic and Marine Oil Spill Program (AMOP) Technical Seminar. Environment Canada, Vancouver, 2000.

Boehm PD, Metzger BH. Thinking "green" in emerging markets. Chemical Engineering Progress 1999; 95(1):69-72.

Page DS, Boehm PD, Douglas GS, Bence AE, Burns WA, Mankiewicz PJ. Pyrogenic polycyclic aromatic hydrocarbons in sediments record past human activity: A case study in Prince William Sound Alaska. Marine Pollution Bulletin 1999; 38:247-260.

Page DS, Gilfillan ES, Neff JM, Stoker SW, Boehm PD. 1998 shoreline conditions in the Exxon Valdez oil spill zone in Prince William Sound. pp. 119-126. Proceedings, 1999 International Oil Spill Conference. Beyond 2000-Balancing Perspectives. American Petroleum Institute, Washington, DC, 1999.

Turton DJ, Boehm PD, Gouveia DA. Managing the environmental data of a spill event. Proceedings, 1999 International Oil Spill Conference. Beyond 2000-Balancing Perspectives. American Petroleum Institute, Washington, DC, 1999.

Boehm PD, Page DS, Gilfillan ES, Bence AE, Burns WA, Mankiewicz PJ. Study of the fates and effects of the Exxon Valdez oil spill on benthic sediments from two bays in Prince William Sound, Alaska. 1. Study design, chemistry, and source fingerprinting. Environmental Science and Technology 1998; 32:567-576.

Brown JS, Boehm PD, Douglas GS. Approaches to chemical fingerprinting of fossil fuel residues in tissues. Proceedings, 21st Annual Conference on Analysis of Pollutants in the Environment. U.S. Environmental Protection Agency, Washington, DC, 1998.

Page DS, Boehm PD, Douglas GS, Bence AE, Burns WA, Mankiewicz PJ. Petroleum sources in the western Gulf of Alaska/Shelikoff Strait Area. Marine Pollution Bulletin 1998; 36:1004-1012.

Page DS, Boehm PD, Douglas GS, Bence AE, Burns WA, Mankiewicz PJ. Source of polynuclear aromatic hydrocarbons in Prince William Sound, Alaska, USA, subtidal sediments. Environmental Toxicology and Chemistry 1998; 17:1651-1652.

Boehm PD, Douglas GS, Burns WA, Mankiewicz PJ, Page DS, Bence AE. Application of petroleum hydrocarbon chemical fingerprinting and allocation techniques after the Exxon Valdez oil spill. Marine Pollution Bulletin 1997; 34:599-613.

Page DS, Boehm PD, Douglas GS, Bence AE, Burns WA, Mankiewicz PJ. An estimate of the annual input of natural petroleum hydrocarbons to seafloor sediments in Prince William Sound, Alaska. Marine Pollution Bulletin 1997; 34:744-749.

Brown JS, Boehm PD, Hardenstine JH, Douglas GS. The North Cape oil spill assessment: PAHs not equal to oil. Proceedings, Arctic and Marine Oilspill Program (AMOP) Technical Seminar. Environment Canada, pp. 167-179.Ottawa, Ontario, 1997.

Robilliard GA, Boehm PD, Amman MJ. Ephemeral data collection guidance manual with emphasis on oil spill NRDAs. Proceedings, 1997 International Oil Spill Conference, American Petroleum Institute, Washington, DC, 1997.

Boehm PD, Mankiewicz PJ, Hartung R, Neff JM, Page DS, Gilfillan ES, O'Reilly JE, Parker K. Characterization of mussel beds with residual oil and the risk to foraging four years after the Exxon Valdez oil spill. Environmental Toxicology and Chemistry 1996; 15:1289-1303.

Boehm PD, Marples AE, Metzger BH. An environmental road map for entering emerging markets. PRISM 1st Quarter. Arthur D. Little, Inc., 1996.

Page DS, Boehm PD, Douglas GS, Bence AE, Burns WA, Mankiewicz PJ. The natural petroleum hydrocarbon background in subtidal sediments of Prince William Sound, Alaska, USA. Environmental Toxicology and Chemistry 1996; 15(8):1266-1281.

Boehm PD, Costa HJ. Bioavailability of sediment oil residues four years following the Martinez spill. Proceedings, 1995 Oil Spill Conference. API, Washington, DC, 1995.

Boehm PD, Douglas GS, Brown JS. Advanced chemical fingerprinting for oil spill identification and natural resource damage assessments. pp. 967-969. Proceedings, 1995 Oil Spill Conference. API, Washington, DC, 1995.

Boehm PD, Douglas GS, Loreti CP. Managing the NRDA process: Challenges in establishing causation and injury. Presented at Toxic Substances in Water Environment: Assessment and Control, Cincinnati, OH, May 14-17, 1995.

Boehm PD, Galvani P, O'Donnell P. Scientific and legal conundrums in establishing injury and causation. pp. 31-60. In: Natural Resource Damages: A Legal, Economic, and Policy Analysis. National Legal Center for the Public Interest, Washington, DC, 1995.

Boehm PD, Page DS, Gilfillan ES, Stubblefield WA, Harner EJ. Shoreline ecology program for Prince William Sound, Alaska, following the Exxon Valdez oil spill: Part 2—Chemistry and toxicology. In: Exxon Valdez Oil Spill: Fate and Effects in Alaskan Waters. Wells PG, Butler JN, Hughes JS (eds). American Society for Testing and Materials, Philadelphia, PA, 1995.

Gilfillan ES, Page DS, Harner EJ, Boehm PD. Shoreline ecology program for Prince William Sound, Alaska, following the Exxon Valdez oil spill: Part 3 - Biology. In: Exxon Valdez Oil Spill: Fate and Effects in Alaskan Waters. Wells PG, Butler JN, Hughes JS (eds). American Society for Testing and Materials, Philadelphia, PA, 1995.

Gilfillan ES, Suchanek TH, Boehm PD, Harner EJ, Page DS, Sloan NA. Shoreline impacts in the Gulf of Alaska region following the Exxon Valdez oil spill. In: Exxon Valdez Oil Spill: Fate and Effects in Alaskan Waters. Wells PG, Butler JN, Hughes JS (eds). American Society for Testing and Materials, Philadelphia, PA, 1995.

Page DS, Boehm PD, Douglas GS, Bence AE. Identification of hydrocarbon sources in the benthic sediments of Prince William Sound and the Gulf of Alaska following the Exxon Valdez oil spill. In: Exxon

Valdez Oil Spill: Fate and Effects in Alaskan Waters. Wells PG, Butler JN, Hughes JS (eds). American Society for Testing and Materials, Philadelphia, PA, 1995.

Page DS, Gilfillan ES, Boehm PD, Harner EJ. Shoreline ecology program for Prince William Sound, Alaska, following the Exxon Valdez oil spill: Part I-Study design and methods. In: Exxon Valdez Oil Spill: Fate and Effects in Alaskan Waters. Wells PG, Butler JN, Hughes JS (eds). American Society for Testing and Materials, Philadelphia, PA, 1995.

Sauer TC, Boehm PD. Hydrocarbon chemistry analytical methods for oil spill assessments. Technical Report Series 95-032, Marine Spill Response Corporation, Washington, DC, 1995.

Frosch RA, Boehm PD, Bolton PA, Diamond PM, Horn SA, Nichols JA, Owens EH, Paine RT, Spaulding ML, Teal JM, Carson R. Review of the interagency oil pollution research and technology plan: Final report of the Committee on Oil Spill Research. National Academy of Sciences, Washington, DC, 1994.

Boehm PD, Gilfillan ES, Page DS, Stubblefield WA. Application of the sediment "Triad" approach to a major oil spill assessment: The Exxon Valdez oil spill. Proceedings, 14th Annual Meeting of the Society of Environmental Toxicology and Chemistry, Houston, TX, 1993.

Brown J, Boehm PD. The use of double-ratio plots of polynuclear aromatic hydrocarbon (PAH) alkyl homologues for petroleum source identification. Proceedings, 1993 Oil Spill Conference. American Petroleum Institute, Washington, DC, 1993.

Page DS, Boehm PD, Douglas GS, Bence AE. Identification of hydrocarbon sources in the benthic sediments of Prince William Sound and the Gulf of Alaska following the Exxon Valdez oil spill. p. 45. Proceedings, 16th Arctic and Marine Oil Spill Program (AMOP) Technical Seminar, Calgary, Alberta, Canada, June 7-9, 1993.

Sauer TC, Brown JS, Boehm PD, Aurand DV, Michel J, Hayes M. Hydrocarbon source identification and weathering characteristics of intertidal and subtidal sediments along the Saudi Arabian coast after the Gulf War oil spill. Marine Pollution Bulletin 1993; 27:117-134.

Sauer TC, Brown JS, Rigatti MJ, Bleczinski CF, Kronick AT, Gamble PD, Boehm PD. ROPME Sea oil spill nearshore geochemical processes study. Volume 2. Hydrocarbon chemistry analytical results for year 1 (1992). MSRC Technical Report Series 93 002.2. Marine Spill Response Corporation, Washington, DC, 1993.

Steinhauer MS, Boehm PD. The composition and distribution of saturated and aromatic hydrocarbons in nearshore sediments, river sediments, and coastal peat of the Alaskan Beaufort Sea: Implications for detecting anthropogenic inputs. Marine Environmental Research 1992; 33:223-253.

Crecelius EA, Trefry JH, Steinhauer MS, Boehm PD. Trace metals in sediments from the Inner Continental Shelf of the western Beaufort Sea. Environmental Geology and Water Sciences 1991; 18:71-79.

Leblanc LA, Boehm PD. Monitoring hydrocarbons and trace metals in Beaufort Sea sediments and organisms: Implications for oil spill monitoring. Proceedings, 14th Arctic and Marine Oil Spill Conference, Vancouver, BC, 1991.

Requejo AG, Brown JS, Boehm PD, Sauer TC. Lignin geochemistry of North American coastal and continental shelf sediments. Organic Geochemistry 1991; 17:649-662.

Sauer TC, Boehm PD. The use of defensible analytical chemical measurements for oil spill natural resource damage assessments. pp. 363-369. Proceedings, 1991 International Oil Spill Conference. American Petroleum Institute, Washington, DC, 1991.

Boehm PD. Offshore oil and gas production effluents related to Alaskan OCS activities: Composition, transport, and accumulation. In: Proceedings, Workshop on the Determination of Unreasonable Environmental Degradation in Alaskan Marine Waters, U.S. Department of the Interior, Anchorage, AK, 1990.

Neff JM, Boehm PD, Haas L, Kinney PJ. Petroleum hydrocarbons in the water column of Prince William Sound Alaska. pp. 426-443. In: Oils Spills: Management and Legislative Implications. Spaulding ML, Reed M (eds). American Society of Civil Engineers, New York, NY, 1990.

Boehm PD. Overview of the biogenic and anthropogenic hydrocarbon distributions in sediments along the north Atlantic Margin. pp. 52-58. Proceedings, North Atlantic Submarine Canyons Workshop, U.S. Department of the Interior, Minerals Management Service, Herndon, VA, 1989.

Sauer TC, Brown JS, Requejo AG, Boehm PD. Evaluation of an organic chemical method for drilling fluid determination in Outer Continental Shelf sediments. pp. 775-796. In: Drilling Wastes. Engelhardt FR, Ray JP, Gillam AH (eds). Elsevier Applied Science, New York, NY, 1989.

Sauer TC, Durell GS, Brown JS, Redford D, Boehm PD. Concentrations of chlorinated pesticides and PCBs in microlayer and seawater samples collected in open-ocean waters off the U.S. East Coast and in the Gulf of Mexico. Marine Chemistry 1989; 27:235-257.

Uhler A, Steinhauer W, Durell G, Freitas S, Boehm PD. Findings of tributyltin, dibutyltin and monobutyltin bivalves from selected U.S. Coastal waters. Environmental Toxicology and Chemistry 1989; 48:974-980.

Boehm PD, Brown JS, Requejo AG. The fate and partitioning of hydrocarbon additives to drilling muds as determined in laboratory studies. pp. 545□575. In: Drilling Wastes in the Environment. Engelhardt et al. (eds). Elsevier Science, Ltd., London, 1988.

McAullife CD, Boehm PD, Foster JC, Overton, EB, Page DS. Monitoring chemical fate of spilled oil. Oil Spill Studies: Measurement of Environmental Effects and Recovery. Gould JR (ed.), American Petroleum Institute, Washington, DC, pp. 18-56, 1988.

Werme C, Boehm P, Cooke M, Oberacker D, Jackson M, Redford D. Assessing potential effects of incinerating organic wastes at sea: Development and field testing of the Marine Biological Assessment Sampler. Marine Pollution Bulletin 1988; 19:602-604.

Boehm PD. Transport and transformation processes regarding hydrocarbon and metal pollutants in offshore sedimentary environments. pp. 233-286. In: Long Term Environmental Effects of Offshore Oil and Gas Development. Boesch DF, Rabalais NN (eds). Elsevier Applied Science, NY, 1987.

Boehm PD. Status of the habitat: Chemical considerations—organic chemistry. pp. 61-76. In: Boston Harbor and Massachusetts Bay: Issues, Resources, Status, and Management. Brown B (ed). U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Washington, DC, 1987.

Boehm PD, Steinhauer MS, Green DR, Fowler B, Humphrey B, Fiest DL, Cretney WS. Comparative fate of chemically dispersed and beached crude oil in subtidal sediments of the arctic nearshore. Arctic 1987; 40 (Suppl. 1):133-148.

Cretney WJ, Green DR, Fowler BR, Humphrey B, Fiest DL, Boehm PD. Hydrocarbon biogeochemical setting of the Baffin Island oil spill experimental sits. I, Sediments. Arctic 1987; 40:51-55.

Farrington JW, Boehm PD. Natural and pollutant organic compounds. Chapter 5.6. In: Georges Bank. Backus PH (ed). M.I.T. Press, 1987.

Mageau C, Englehardt FR, Gilfillan ES, Boehm PD. Effects of short-term exposure to dispersed oil in Arctic invertebrates. Arctic 1987; 40(Suppl):162-171.

Owens EH, Harper JR, Robson W, Boehm PD. Fate and persistence of crude oil stranded on a sheltered beach. Arctic 1987; 40 (Suppl. 1):109-123.

Sauer TC Jr., Requejo AG, Brown JS, Ayers, Jr. RC, Boehm PD. Application of analytical pyrolysis and cupric oxide oxidation to characterization of nonextractable organic constituents on drilling fluids and sediments. Proceedings, Symposium on Chemical and Biological Characterization of Sludges, Sediments, Dredge Spoils, and Drilling Muds, Philadelphia, PA, 1987.

Boehm PD, Requejo AG. Overview of the recent hydrocarbon measurements from Atlantic and Gulf Coast outer continental shelf environments. Estuarine, Coastal and Shelf Science 1986; 23:29-58.

Requejo AG, Brown JS, Boehm PD. Lignin geochemistry of sediments from the Narragansett Bay estuary. Geochimica et Cosmochimica Acta 1986; 50:2707-2717.

Boehm PD, Drew S, Dorsey T, Yarko J, Mosesman N, Jefferies A, Pilson D, Fiest D. Organic pollutants in New York Bight suspended particulates. pp. 251-279. In: Wastes in the Ocean, Nearshore Waste Disposal, Volume 6. Ketchum B, Capuzzo J, Burt W, Duedall I, Park K, Kester D (eds), John Wiley and Sons, 1986.

Carr RS, Neff JM, Boehm PD. A study of the fate and effects of chemically and physically dispersed oil on benthic marine communities using large-scale continuous-flow exposures systems. In: Pollution and Physiology of Marine Organisms. Vernberg FJ, Vernberg W, Calabrese A, Thurberg FP (eds), Charleston: University of South Carolina Press, 1986.

Boehm PD, Steinhauer W, Requejo A, Cobb D, Duffy S, Brown J. Comparative fate of chemically dispersed and untreated oil in the Arctic: Baffin Island Oil Spill studies 1980-1983. Proceedings, 1985 Oil Spill Conference (Prevention, Behavior, Control, Cleanup), February 25-28, 1985, Los Angeles, CA. Washington DC: American Petroleum Institute, pp. 561-569, 1985.

Carr RS, Neff JM, Boehm PD. Large-scale continuous flow exposure systems for studying the fate and effects of chemically and physically dispersed oil on benthic marine communities. p. 64. Proceedings, 1985 Oil Spill Conference (Prevention, Behavior, Control, Cleanup), Los Angeles, CA, February 25-28, 1985. American Petroleum Institute, Washington, DC.

Neff JM, Boehm PD, Haensly WE. Petroleum contamination and biochemical alterations in oysters (Crassostrea gigas) and plaice (Pleuronectes platessa) from bays impacted by the Amoco Cadiz crude oil spill. Marine Environmental Research 1985; 17:281-283.

Requejo AG, Boehm PD. Characterization of hydrocarbons in a subsurface oil-rich layer in the Sargasso Sea. Marine Environmental Research 1985; 17:45-64.

Gundlach E, Kana TW, Boehm PD. Modeling spilled oil partitioning in nearshore and surf zone areas. Proceedings, 1985 Oil Spill Conference, American Petroleum Institute, Washington DC, pp. 379-383, 1985.

Engelhardt FR, Gilfillan ES, Boehm PD, Mageau C. Metabolic effects and hydrocarbon fate in arctic bivalves exposed to dispersed petroleum. Marine Environmental Research 1985; 17(2-4):245-259.

Requejo AG, Brown JS, Boehm PD. Thermal degradation products of nonvolatile organic matter as indicators of anthropogenic inputs to estuarine and coastal sediments. In: Marine and Estuarine Geochemistry. Siglec AC, Hattori A (eds), Lewis Publishers, Chelsea, MI, 1985.

Boehm PD. Aspects of the saturated hydrocarbon geochemistry of recent sediments in the Georges Bank region. Organic Geochemistry 1984; 7:11-23.

Boehm PD. The comparative fate of chemically dispersed and untreated oils in an arctic nearshore environment. In: Oil Spill Chemical Dispersants: Research, Experience, and Recommendations, STP 840. Tom E. Allen (ed), American Society for Testing and Materials, Philadelphia, pp. 338-360, 1984.

Boehm PD, Farrington JW. Aspects of the polycyclic aromatic hydrocarbon geochemistry of recent sediments in the Georges Bank Region. Environmental Science and Technology 1984; 18:840-845.

Boehm PD, Steinhauer W, Cobb D, Duffy S, Brown J. Chemistry 2: Analytical biogeochemistry - 1983 study results. Baffin Island Oil Spill Working Report 83-2. Ottawa: Environmental Protection Service, 139 pp, 1984.

Engelhardt FR, Mageau C, Gilfillan ES, Boehm PD. Effects of acute and long-term exposure to dispersed oil in benthic invertebrates. Proceedings, Arctic Marine Oil Spill Technical Seminar, Environment Canada, Ottawa, pp. 367-392, 1984.

Boehm PD. Chemical contaminants in Northeast United States marine sediments. NOAA Technical Report NOS 99. NOAA/NOS, Rockville, MD, 1983.

Boehm PD. Coupling of organic pollutants between the estuary and continental shelf and the sediments and water column in the New York Bight Region. Can J Fish Aquat Sci 1983; 40(Suppl. 2):262-276.

Boehm PD. Long-term fate of crude oil in the Arctic nearshore environment - the BIOS experiments. Proceedings, 1983 6th Arctic Marine Oilspill Program Technical Seminar. Edmonton, Alberta: Environmental Protection Service, pp. 280-291, 1983.

Boehm PD, Fiest DL. Ocean dumping of dredged material in the New York Bight: Organic chemistry studies. pp. 151-168. In: Wastes in the Ocean, Vol. II: Dredged Material Disposal in the Ocean. Kester DR, Ketchum BH, Duedall IV, Park PK (eds). John Wiley and Sons, NY, 1983.

Boehm PD, Fiest DL, Kaplan I, Mankiewicz P, Lewbel GS. A natural resources damage assessment study: The Ixtoc 1 blowout. pp. 507-515. Proceedings, 1983 Oil Spill Conference. American Petroleum Institute, Washington, DC, 1983.

Gundlach ER, Boehm PD, Marchand M, Atlas RM, Ward DM, Wolfe DA. Fate of Amoco Cadiz oil. Science 1983; 221:122-129.

Boehm PD, Barak JE, Fiest DL, Elskus AA. A chemical investigation of the transport and fate of petroleum hydrocarbons in littoral and benthic environments: The Tsesis oil spill. Marine Environmental Research 1982; 6:157-188.

Boehm PD, Fiest DL. Subsurface distributions of petroleum from an offshore well blowout: The Ixtoc 1 blowout, Bay of Campeche. Environmental Science and Technology 1982; 16:67-74.

Boehm PD, Fiest DL, Hausknecht K, Barbash J, Perry G. Investigation of the transport and fate of petroleum hydrocarbons from the Ixtoc 1 blowout in the Bay of Campeche—Sampling and analytical approaches. pp. 129-160. In: Energy and Environmental Chemistry, Volume 1: Fossil Fuels. Keith LH (ed), Ann Arbor Science, Ann Arbor, MI, 1982.

Boehm PD, Fiest DL, Mackay D, Paterson S. Physical-chemical weathering of petroleum hydrocarbons from the Ixtoc 1 spill blowout; chemical measurements and a weathering mode. Environmental Science and Technology 1982; 16:498-505.

Anderson S, Boehm P, Fiest D, Howard R, Lewbel C, Pilson D, Wait A. IXTOC Oil Spill Assessment. A final report for the U.S. Department of the Interior, Bureau of Land Management Gulf of Mexico OCS Office, New Orleans, LA. Vol. I - NTIS No. PB82-197781; Vol. II - NTIS No. PB82-197799; Vol. III - NTIS No. PB82-197773; Set - NTIS No. PB82-197765. Contract No. AA851-CTO-71. Prepared by

ERCO/Energy Resources Co. Inc. 447 pp, 1982.

Haensly WE, Neff JM, Sharp JR, Morris AC, Bedgood MF, Boehm PD. Histopathology of Pleuronectes platessa from Aber Wraçh and Aber Benoit, Brittany, France: Long-term effects of the Amoco Cadiz crude oil spill. Journal of Fish Diseases 1982; 5(5):365-391.

Atlas RM, Boehm PD, Calder JA. Chemical and biological weathering of oil from the Amoco Cadiz oil spillage within the littoral zone. Estuarine, Coastal and Marine Science 1981; 12:589-608.

Patton JS, Rigler MW, Boehm PD, Fiest DL. Ixtoc 1 oil spill: Flaking of surface mousse in the Gulf of Mexico. Nature 1981; 290:235-238.

Boehm PD. Evidence for the decoupling of dissolved particulate and surface microlayer hydrocarbons in northwestern Atlantic Continental Shelf waters. Marine Chemistry 1980; 9:255-281.

Johansson S, Larson U, Boehm PD. The Tsesis oil spill: impact on the pelagic ecosystem. Marine Pollution Bulletin 1980; 11:284-293.

Linden O, Elmgren R, Boehm P. Impact of the Tsesis oil spill on the coastal ecosystem of the Baltic Sea. AMBIO 1980; 8:244-253.

Linden O, Elmgren R, Boehm P. The Tsesis oil spill: Its impact on the coastal ecosystem of the Baltic Sea. Ambio 1979; 9(6):268-276.

Boehm PD, Steinhauer WG, Fiest DL, Mosesman N, Barak JE, Perry GH. A chemical assessment of the present levels and sources of hydrocarbon pollutants in the Georges Bank region. pp.333-341. Proceedings, 1979 International Oil Spill Conference, Prevention, Behavior, Control, Cleanup. American Petroleum Institute, Washington, DC, 1979.

Boehm PD, Quinn JG. Benthic hydrocarbons of Rhode Island Sound. Estuarine, Coastal and Marine Science 1978; 6:471-494.

Boehm PD. The transport and fate of hydrocarbons in benthic environments. Dissertation, University of Rhode Island, 1977.

Boehm PD, Quinn JG. 1977. The persistence of chronically accumulated hydrocarbons in the hard shell clam, Mercenaria mercenaria. Marine Biology 1977; 44:227-233.

Boehm PD, Quinn JG. The effect of dissolved organic matter in sea water on the uptake of mixed individual hydrocarbons and Number 2 fuel oil by a marine filter-feeding bivalve (Mercenaria mercenaria). Estuarine, Coastal and Marine Science 1976; 4:93-105.

Boehm PD, Quinn JG. The solubility behavior of No. 2 fuel oil in seawater. Marine Pollution Bulletin 1974; 5:101-104.

Boehm PD, Quinn JG. Solubilization of hydrocarbons by the dissolved organic matter in sea water. Geochimica et Cosmochimica Acta 1973; 37.

Boehm PD, Haddad RI . The Oil Spill Science Triad: Viewpoint on the Coexistence and Optimization of Models, Laboratory Tests, and Empirical Field Observations and Data for Natural Resource Damage Assessments , In International Oil Spill Conference, vol. 2021, no. 1, p. 667037. 2021.

Boehm PD, Haddad RI . The Oil Spill Science Triad: Viewpoint on the Coexistence and Optimization of Models, Laboratory Tests, and Empirical Field Observations and Data for Natural Resource Damage Assessments , In International Oil Spill Conference, vol. 2021, no. 1, p. 667037. 2021.

Project Experience

PAH Forensics and Apportionment

- Gowanus Canal Superfund site: consulting on PAH forensics and historical reconstruction of contamination
- Portland Harbor (Portland, OR) contaminated sediments (PAH): testifying expert in allocation and apportionment of petroleum contamination from fuel terminals
- Hylebos Waterway (Tacoma, WA): testifying expert (PAH sources and forensics) for defense on apportionment of contamination on remediation cost recovery case
- Ashland WI Superfund site (Ashland, WI): testifying expert (PAH sources and forensics) for plaintiff related to apportionment of contamination on remediation cost recovery case
- Gas Works Park (Seattle, WA): Consulting expert for City of Seattle on PAH sources

PCB and Chlorinated Compounds

- Testifying expert on exposure and ecological health regarding San Diego Bay litigation (California)
- Testifying expert on exposure and ecological health regarding the Duwamish River litigation (Washington)
- Testifying expert on exposure and ecological health regarding the Spokane River litigation (Washington)
- Expert in chlorinated solvents (TCE, PCE, TCA) case at manufacturing facility concerning release date(s) and sources (Illinois)
- Testifying expert on PCB fingerprinting and source determination case in the Duwamish River (Washington)
- Consulting expert on PCB matters concerning paper mill inputs to Kalamazoo River (Michigan)
- Mohawk River Hazardous Waste Site Delisting: testifying expert on PCB site delisting petition (New York State)

Natural Resource Damage Assessment

- Environmental Functional Team - provided consulting and training to Chevron response and NRDA teams since 1992
- Deepwater Horizon oil spill: consulting on environmental and NRDA matters (Gulf of Mexico)
- Exxon Valdez: testifying expert for defense on NRDA, reopener, environmental forensics, and chemical persistence issues (Alaska)
- Testifying expert on NRDA claim: St Croix Alumina Site (St Croix, USVI)
- NRDA at Bayway and Bayonne refineries: testifying expert for defense on contamination reconstruction, chemical forensics , and groundwater (New Jersey)
- PAH and petroleum expert on fuels: terminal NRDA case regarding extent of sediment contamination in Penobscot River (Maine)

Oil Spills: Non-NRDA

- Consultant and testifying expert on Prestige oil spill case (Spain) related to fate modeling and shoreline impacts (New York; Spain)
- Technical Review Panel, PPSC Contract, Kuwait National Focal Point for the Kuwait Environmental Remediation Program, set up in Response to UNCC Decision 258
- Hurricane Katrina Class Action: testifying expert for defense on environmental matters regarding oil spill transport, fate, and impacts (Louisiana)
- Supertanker Oily Water Separator Discharge: chemical expert for defense on criminal action under MARPOL regarding alleged oil discharge (California)

Manufactured Gas — MGP-Sites

- Consulting expert on Gowanus Canal Superfund Sites
- Testifying expert on Ashland Wisconsin MGP Site – chemical forensics and apportionment of PAHs
- Testifying expert for third party defendant on PAH sources on case alleging disposal of manufactured gas plant (MGP) wastes in residential area (Rhode Island)
- Consulting expert on cost allocation of petroleum and related contamination at fuel terminal/manufactured gas plant (MGP) site in Astoria OR
- Testifying expert on MGP site in concerning characterization of multiple coal tar sources and contribution to sediments (Washington)
- Testifying or Consulting Expert (Petroleum Refineries and Sites)
- Apportionment and cost allocation at major U.S. refinery: testifying expert for defense on petroleum products contamination reconstruction and chemical forensics (Pennsylvania)
- Testifying expert for defense on Superfund site regarding applicability of petroleum exclusion to site issues (Oklahoma)
- Testifying expert for defense on apportionment at historical petroleum refinery (Oklahoma)
- Expert on chemical fingerprinting of fuels in the investigation of the timing of fuel releases at multiparty service station site (Texas)
- Testifying expert on fuel oil contamination release and age-dating of hydrocarbon contamination at residential site (Long Island, NY)
- Arbitration (Institute for Conflict Prevention and Arbitration): testifying expert in allocation and apportionment of petroleum contamination (diesel fuels, gasoline) at fuel terminal (Michigan)

Petroleum Refineries and Sites

- Apportionment and cost allocation at major U.S. refinery: testifying expert for defense on petroleum products contamination reconstruction and chemical forensics (Pennsylvania)
- Testifying expert for defense on Superfund site regarding applicability of petroleum exclusion to site issues (Oklahoma)
- Testifying expert for defense on apportionment at historical petroleum refinery (Oklahoma)
- Expert on chemical fingerprinting of fuels in the investigation of the timing of fuel releases at multiparty service station site (Texas)

- Testifying expert on fuel oil contamination release and age-dating of hydrocarbon contamination at residential site (Long Island, NY)
- Arbitration (Institute for Conflict Prevention and Arbitration): testifying expert in allocation and apportionment of petroleum contamination (diesel fuels, gasoline) at fuel terminal (Michigan)

Toxic Tort Claims

- Medical exposure: testifying expert for defense on chemical characterization and dose reconstruction on hydraulic fluids exposure case-For Duke University (North Carolina)
- Gasoline release and drinking water contamination: testifying expert on fate and transport matters on pipeline release in Jackson, Wisconsin

Natural Gas and Storage Fields

- Natural Gas Storage Field Geochemical Fingerprinting (Tioga Field): geochemical expert for operator on sources of natural gas in drinking water wells (Pennsylvania)
- Natural Gas Storage Field Geochemical Fingerprinting (Cunningham Field): geochemical testifying expert on natural gas storage field cases involving field expansion and damages (Kansas)
- Natural Gas Storage Field Geochemical Fingerprinting (Elk Basin): geochemical testifying expert for plaintiffs on natural gas escape case (Wyoming)

Metals

- Expert on a Superfund site for one responsible party to determine divisibility of mercury contamination and remediation costs (Massachusetts)
- Assessment of sources of arsenic and other metals at Superfund sites (Oklahoma)
- Determination of lead and lead isotopes in gasoline contaminated site (Texas)

LNG

- LNG: Co-PI for study of environmental impacts of open loop vaporizers on Gulf of Mexico fisheries (for Center for LNG)

Advisory Appointments

Associate Editor, Marine Pollution Bulletin, Elsevier

Associate Editor, Environmental Forensics Journal, Taylor and Francis

National Academy of Sciences/National Research Council committee member on panels addressing marine monitoring systems and design, and oil spill research and development

National Blue Ribbon Panel, 106-Mile Site Monitoring Program (EPA, NOAA)

World Business Council for Sustainable Development—Delegate, Climate Change

Chief EH&S Officer's Council, The Conference Board

Board of Directors, Marine Programs Advisory Council, University of Rhode Island

Peer Reviewer: Environmental Science and Technology; Chemosphere, Marine Pollution Bulletin, Environmental Toxicology and Chemistry

Editorial Board (Former), Marine Environmental Research, Elsevier, Ltd.

Member, Technical Advisory Group for Marine Programs, Secretary of Environmental Affairs, Commonwealth of Massachusetts