James V. Holmes, MS

Principal Associate/Scientist, Vice President

Key Qualifications

Mr. Holmes is an environmental scientist who has worked on natural resource damage assessments (NRDAs), contaminant fate and transport analyses, surface and groundwater assessments, ecological effects assessments, and natural resource restoration planning since 1991. He has assessed habitat and groundwater damages at chemical manufacturing sites, refineries, mine sites, and nuclear sites throughout the country. Mr. Holmes has managed NRDA activities for Abt Associates at dozens of sites nationwide, where he has worked on pre-assessment screens, assessment plans, preliminary evaluations of injuries and damages, injury quantification, habitat equivalency analyses (HEAs), resource equivalency analyses (REAs), and geographic information systems (GIS) spatial analysis. His research has focused on hydrograph separation in stormflow, geochemical mixing models, and sources of acid mine drainage. In addition, Mr. Holmes has extensive field experience in flow measurement and water, soil, and sediment sampling.

Education

MS, Dartmouth College, Earth Sciences, 2001

BA, Middlebury College, Environmental Biology, 1990

Expertise

- NRDA
- Hydrology/Hydrogeology
- Hydrochemistry
- Contaminant fate and transport
- Remote sensing of oil
- Site restoration

Relevant Experience and Technical Accomplishments

Principal Associate/Scientist, Vice President, Abt Associates (formerly Stratus Consulting), Boulder, CO (2016–present); Vice President (2014–2016); Principal (2011–2013); Managing Scientist (2008–2011); Senior Scientist (2006–2008); Senior Associate (2004–2006); Contractor (1999–2000). Mr. Holmes is the co-leader of the environmental science and NRDA practice in the Environment and Natural Resources Division at Abt Associates. He has developed methods for evaluating natural resource injuries and damages and presented these methods at professional conferences. He has taught NRDA methods to natural resource trustees in the U.S. and internationally. He has also served as a testifying expert on NRDAs in federal court and in multiple New Jersey district court cases.

Selected Projects

Natural Resource Damage Assessment, *Deepwater Horizon* Oil Spill, Gulf of Mexico (2010–2016)
For: National Oceanic and Atmospheric Administration, U.S. Department of Justice, U.S. Fish and Wildlife Service, and the State of Louisiana.

Project manager for several tasks, including coordination of initial Trustee Council meetings, assistance for technical working groups, work plan review, fate and transport of surface oil; and co-manager of toxicology work. Co-author of oil fate and transport chapter of the Programmatic Damage Assessment and Restoration Plan (PDARP) for the Trustees.

Natural Resource Damage Assessment, Sauget Industrial Complex, Sauget, Illinois (2009–present)
For: State of Illinois

Project manager for groundwater assessment at this industrial site. Managing all aspects of injury assessment, damage determination, restoration planning, and case strategy.

Natural Resource Damage Assessment, South Shore St. Croix, U.S. Virgin Islands (2009–2014)
For: Virgin Islands Department of Public and Natural Resources

Co-author of expert report on natural resource injuries and damages at a refinery and a defunct alumina processing facility. Assessed habitat injuries and damages resulting from red mud (alumina tailings) releases. Assessed impacts of releases on marine resources, including oversight of marine sampling. Assisted with groundwater assessment. Provided expert testimony in deposition on natural resource injuries and damages.

Natural Resource Damage Assessments, New Jersey (2008–2012)
For: New Jersey Department of Environmental Protection

Project manager for several assessments at contaminated sites in New Jersey. Analyzed groundwater contaminant plumes and terrestrial habitat impacts. Calculated natural resource damages based on the cost of equivalent groundwater restoration/protection using groundwater equivalency technique for estimating damages.

Natural Resource Damage Assessment, Coeur d'Alene Basin, Idaho (1994–1995; 2004–2010)
For: U.S. Department of the Interior, U.S. Department of Agriculture, the Coeur d'Alene Tribe, and U.S. Department of Justice

Project manager for collection and analysis of water quality and fish population data in 2007, 2008, and 2009. Co-author of annual data summary reports. Summarized adverse effects of cadmium, lead, and zinc releases on aquatic ecosystems in the Coeur d'Alene Basin. Collected and analyzed surface water, soils, and habitat data for the first phase of the NRDA in the 1990s.

Natural Resource Damage Assessment, Former Indian Refinery, Lawrenceville, Illinois (2006–2010)
For: State of Illinois

Project manager for the cooperative NRDA at this former oil refinery. Involved in all aspects of injury assessment, HEA, restoration planning, case strategy, and settlement negotiations. Helped design a tool for determining injury to biota from polycyclic aromatic hydrocarbons in soil. Created a GIS-based tool for quantifying the spatial extent of injury. Wrote the Assessment Plan and the Report of Assessment.

Natural Resource Damage Assessment, Hanford Nuclear Site, Washington (2008–2009)
For: U.S. Department of Energy, U.S. Fish and Wildlife Service, National Oceanic and Atmospheric Administration, State of Washington, State of Oregon, Yakama Nation, Nez Perce Tribe, and Confederated Tribes of the Umatilla Indian Reservation

Project manager for initial phase of the Hanford cooperative NRDA. Presented multi-day NRDA training for Trustees. Helped Trustees establish framework for approaching NRDA at one of the largest contaminated sites in the world. Developed conceptual site models to assist in the planning of injury assessment.

Natural Resource Damage Assessments, ASARCO Bankruptcy Proceedings (2006–2009)
For: U.S. Department of Justice, State of Colorado, State of Montana, and State of Washington

Participated in NRDA for several ASARCO properties, including Arkansas River/California Gulch, Colorado; Upper Blackfoot Mining District, Montana; Tacoma Smelter, Washington; and Ray Mine/Hayden Smelter, Arizona. Developed approach for quantifying surface water injury at California Gulch. Authored Preassessment Screen and co-authored expert report on estimated injuries and damages in the Upper Blackfoot area. Developed GIS-based model to determine the spatial extent of injury and coauthored the final expert report for Tacoma Smelter. Co-authored expert report on estimated injuries and damages to aquatic and riparian resources in the middle Gila River reach near Hayden, Arizona. ASARCO settled each of these cases in 2009.

Natural Resource Damage Assessment, Rocky Mountain Arsenal, Colorado (2006–2008)
For: State of Colorado

Project manager for NRDA at the Rocky Mountain Arsenal. Coordinated and coauthored the Assessment Plan for quantifying injuries to groundwater and wildlife and determining damages at the site. Presented information about the NRDA to the public and to the local city council. Coordinated site hydrogeology team in quantifying the extent of groundwater contaminant plumes over time. Worked with toxicologists to define the adverse effects of contaminant releases on wildlife.

Natural Resource Damage Assessment: Blackbird Mine Site, Idaho (1992–1995)
For: State of Idaho, National Oceanic and Atmospheric Administration, U.S. Forest Service

Assessed biological and physical effects of mine drainage on fish populations. Conducted in-situ caged fish bioassays to assess the impacts of mine runoff on young-of-year trout. Conducted fluorometric dye tracing studies to determine travel time of contaminant pulses. Assisted with the design and implementation of large-scale water quality sampling during spring runoff.

Natural Resource Damage Assessment: Clark Fork River Basin, Montana (1991–1994)
For: State of Montana

Assessed physical and biological injuries to natural resources from mining-related activities. Designed and managed water sampling projects and quantified floodplain habitat devegetated by tailings releases. Quantified baseline conditions and identified pathways of injury. Analyzed chemical data and prepared reports on the results of the determination and quantification of injuries to aquatic resources.

Remedial Investigation/Non-time Critical Removal Action: Ely and Elizabeth Mines, Vermont (1999–2004)
For: U.S. Environmental Protection Agency and U.S. Army Corps of Engineers – New England District

Project leader for hydrology and hydrochemistry work at Vermont copper mines. Conducted mine runoff studies, established acid mine laboratory, installed flow measurement devices with integrated telemetry, and collected storm runoff using rain-triggered automated samplers. Determined metals loading in storm flow and wrote runoff characterization reports.

Additional Professional Experience

- Research Hydrologist/Geochemist, U.S. Army Corps of Engineers, Cold Regions Research Laboratory, Hanover, NH (2001–2004)
- Graduate student, Dartmouth College, Department of Earth Sciences, Hanover, NH (1998–2001)
- Program Manager, RealNetworks, Seattle, WA (1995–1998)
- Associate, Hagler Bailly, Boulder, CO, 1992–1995; Research Associate (1991–1992)
- Water Quality Technician, Vermont Department of Environmental Conservation, Waterbury, VT (1989–1990)

Selected Publications and Presentations

Sun, S., C. Hu, L. Feng, G.A. Swayze, J. Holmes, G. Graettinger, I. MacDonald, O. Garcia, and I. Leifer. 2016. Oil slick morphology derived from AVIRIS measurements of the *Deepwater Horizon* oil spill: Implications for spatial resolution requirements of remote sensors. *Marine Pollution Bulletin* 103(1–2):276–285. doi: 10.1016/j.marpolbul.2015.12.003.

MacDonald, I.R., O. Garcia-Pineda, A. Beet, S. Daneshgar Asl, L. Feng, G. Graettinger, D. French-McCay, J. Holmes, C. Hu, F. Huffer, I. Leifer, F. Mueller-Karger, A. Solow, M. Silva, and G. Swayze. 2015. Natural and unnatural oil slicks in the Gulf of Mexico. *Journal of Geophysical Research: Oceans* 120:8364–8380. doi: 10.1002/2015JC011062.

Holmes, J. 2012. Natural Resource Damages Assessment and the *Deepwater Horizon* Oil Spill. Invited presenter at the Spring Training Conference of the Western States Project (Regional Environmental Enforcement Association), Boise, ID, May 3.

Holmes, J. 2011. *Deepwater Horizon* Natural Resource Damage Assessment: A Brief Overview. Invited presenter at the 36th Annual Meeting of the National Association of Environmental Professionals, Denver, CO, April 28.

Holmes, J. and J.T. Edson. 2011. Rocky Mountain Arsenal: Chemical Weapons, Cyclodiene Pesticides, and the Making of an Urban Wildlife Refuge. Platform presented at SETAC North America 32nd Annual Meeting, Boston, MA, November 17.

Edson, J.T., J.V. Holmes, J.E. Elliott and C.A. Bishop. 2011. The Rocky Mountain Arsenal: From environmental catastrophe to urban wildlife refuge. Chapter 4 in *Wildlife Ecotoxicology: Forensic Approaches*, J.E. Elliott, C.A. Bishop, and C.A. Morrissey (eds.). Springer, NY. pp. 93–151.

Holmes, J. 2010. Natural Resource Damages. Invited presenter at the Spring Training Conference of the Western States Project (Regional Environmental Enforcement Association), Garden Grove, CA, April 21–23.

Holmes, J., A. Maest, and J. Peers. 2008. Quantifying Groundwater Injury and Service Loss in Natural Resource Damage Assessment. Invited platform presenter at the International Conference on Soils, Sediments and Water, Amherst, MA, October 20–23.

Peers, J., J. Holmes, D. Beltman, B. Whetsell, T. Heavisides, and T. Rettig. 2008. Framework for Service Loss Estimation Using Contaminant Data. Platform presented at SETAC North America 29th Annual Meeting, Tampa, FL, November 16–20.

Holmes, J., C.E. Renshaw, and X. Feng. 2001. Modeling Hydrology and Hydrochemistry Downstream of Copper Mine Tailings. Poster presented at the Meeting of the American Geophysical Union, Boston, MA, May 29–June 2.

Lipton, J., W.D. Shaw, J. Holmes, and A. Patterson. 1995. Short communication: Selecting input distributions for use in Monte Carlo simulations. *Regulatory Toxicology and Pharmacology* 21:192–198.

Litigation Experience and Testimony

St. Croix South Shore Natural Resource Damage Assessment. Expert report and deposition testimony in the matter of Commissioner of the Department of Planning and Natural Resources, Alicia V. Barnes, in Her Capacity as Trustee for Natural Resources of the Territory of the United States Virgin Islands and the Government of the Virgin Islands v. Century Aluminum Company, et al., Case No. 1:05-cv-62. (2012)

Buzby Landfill Natural Resource Damage Assessment. Expert report and deposition testimony in the matter of New Jersey Department of Environmental Protection, et al. v. General Electric Co., et al., Docket No. CAM-L-003338-07. (2010–2011)

Factory Lane Site Natural Resource Damage Assessment. Expert report and deposition testimony in the matter of New Jersey Department of Environmental Protection, et al. v. Bayer CropScience Inc., et al., Docket No. MID-L-5790-07. (2010)

Exxon Mobil/ST Services Terminal Natural Resource Damage Assessment. Expert report and deposition testimony in the matter of New Jersey Department of Environmental Protection, et al. v. Exxon Mobil Corporation, et al., Docket No. GLO-L-1063-07. (2010)

Hercules Aqualon Natural Resource Damage Assessment. Expert report in the matter of New Jersey Department of Environmental Protection, et al. v. Hercules Incorporated, et al., Docket No. MID-L-8749-07. (2009)

Upper Blackfoot Mining District Natural Resource Damage Assessment. Expert report in re: ASARCO LLC Chapter 11 Bankruptcy, Case No. 05-21207. (2007)