

Charles Shaw

Associate Scientist



Education and Credentials

B.S., Biology, Gordon College,
Wenham, Massachusetts, 2014

Continuing Education and Training

Hazardous Waste Operations and
Emergency Response 40-Hour
Certification (2018; refresher
2020)

Hazardous Waste Operations and
Emergency Response Supervisor
8-Hour Certification (2020)

First Aid and CPR certified (2018)

Professional Profile

Mr. Charles Shaw is a biologist focused on ecological risk assessment and spatial analysis of data. He is experienced in ecological sample collection, data processing and analysis in the statistical software R, and map creation and spatial data evaluation using ArcGIS.

Mr. Shaw has worked on numerous field sample collections involving a wide range of media, including surface water, soil, sediment, aquatic and terrestrial macroinvertebrates, small mammals, and birds. He has also assisted in writing a variety of reports, including baseline ecological risk assessments, human health risk assessments, and field sampling plans.

Relevant Experience

Paper Mill Remedial Investigation, Montana—Collected small mammal, benthic macroinvertebrate, and sediment samples. Processed, packed, and shipped samples for laboratory analysis. Assisted in post-fieldwork data processing and analysis in R, Excel, and GIS. Contributed to writing of post-sampling reports. Project objective was to determine environmental impact of a now defunct paper mill operation.

Pulp Mill, Maine—Obtained bulk surface water samples from mill effluent and the receiving river, and sample blanks for background analysis. Samples were used for conducting aquatic bioassays to inform the development of site-specific water quality criteria. Analyzed data and presented findings in written report and figures.

PCB Litigation, Multiple Sites—Contributed to the production of expert reports for litigation. Generated figures in ArcGIS for both visual presentation and special data analytics purposes. Evaluated data for completeness, determined gaps in data, and performed other quality control tasks. Used R to create figures and tables displaying data in intuitive and effective ways.

Former Wood Treatment Facility, Springfield, Missouri—Reviewed documents from numerous regulatory organizations to compile a list of water and sediment contaminant screening levels. Searched online mapping programs and imported data on waterbodies near site to assist with post-sampling risk assessment.



Human Health and Ecological Risk Assessment for Former Sawmill, Montana—Contributed to a large baseline risk assessment to address releases of pentachlorophenol, carcinogenic PAHs, petroleum hydrocarbons, and dioxins and furans during historical operations at a former wood treatment facility. Evaluated human health endpoints for exposure to impacted soils and groundwater related to residential, commercial, recreational, and agricultural land uses and summarized resulting cancer risks and noncancer hazards in EPA’s RAGS, Part D format. Conducted screening level assessment and qualitative review of risk to numerous ecological receptors, including horses.

Natural Resource Damage Assessment at Former Manufacturing Site, Virginia—Conducted library research. Identified, reviewed, and scanned documents regarding historical river pollution and factory effluent. This information was then converted to a searchable file format, evaluated, and sorted. Conducted habitat evaluation in ArcGIS and created figures displaying this information in R.

Natural Resource Damage Assessment, Mining Site, Western United States—Provided technical support consultation for natural resource damage claim involving injuries to surface water and terrestrial habitats allegedly related to releases from mining activities. Constituents of concern include selenium and other metals associated with mining. Roles included research and figure creation in both ArcGIS and R.

Natural Resource Damage Assessment, Asbestos Mining Site, Western United States—Assisted in investigation of a potential natural resource damage claim involving alleged injuries to aquatic and terrestrial habitats from releases of hazardous substances related to asbestos mining activities. Assisting with technical assessment of toxicological effects and estimates of injury and service losses of key aquatic and terrestrial receptors.

Pre-design Investigation, Centredale Manor Restoration Project Superfund Site, Rhode Island—Used GIS to prepare maps representing contaminant concentrations, area features, and sampling locations. Built a map file to display relative levels of contamination through visually intuitive means. Assisted with drafting of health and safety plan and quality assurance project plan for field sampling effort. Participated in field efforts to collect fish tissue, benthic macroinvertebrates, surface water, and flow information. Processed and analyzed data in R and GIS after the fieldwork was completed as well as assisted in the writing of reports.

Site-Specific Remediation Plan Design for Feasibility Study, Confidential Location—Conducted quality assurance review of numerous documents and tables. Updated risk tools with latest remediation information and verified accuracy of results. Built and edited GIS figures to assist with remediation planning.

Ecosystem Modeling for Aquatic Food Webs, Europe—Completed numerous runs of AQUATOX modeling program to determine chemical effect on aquatic plants. Also completed a quality check of an R program that joined and modeled laboratory results of same study.



Lower Passaic River Superfund Site, New Jersey—Converted large data set of multiple sampling event locations into graphical display using GIS and prepared report figures. Conducted quality assurance review of project data and documents related to sediment contamination along the Passaic River. Performed analysis and quality control work in R. Generated figures and graphs, and organized data.

Pesticide Use Profiles, Tule Lake and Lower Klamath National Wildlife Refuges, California—Assisted Bureau of Land Management and U.S. Fish and Wildlife Service to evaluate impacts of agricultural application of a wide range and multiple classes of pesticides. Reviewed scientific literature to compile ecological risk information for each pesticide on a large number of receptors. Learned and employed AgDrift and TREX software to evaluate risk to avian, mammalian, and aquatic receptors.

Berry's Creek Superfund Site, the Meadowlands, New Jersey—Contributed to the human health risk assessment evaluating PCBs and mercury at the site. Provided quality assurance support for the human health and ecological risk assessments. Conducted multiple field surveys of Berry's Creek, including aquatic fauna and marsh invertebrate sampling. Responsible for sample processing, tracking, and coordination of sample shipment to analytical laboratory.

San Jacinto River Waste Pits Superfund Site Phase I Pre-design Investigation, Channelview, Texas—Worked on a soil investigation to assess dioxin contamination from upland and other areas of a former paper mill waste disposal site. Work included collecting and logging soils, processing soil core samples, coordinating with field staff, and assisting in the writing of a completion report.

Former Wood Treating Facility CERCLA Site, Meridian, Mississippi—Field lead for terrestrial and aquatic invertebrate sampling event in environments surrounding a former wood treatment facility. Supported project by writing field sampling plans, coordinating with subcontractors, and providing data summaries during and after collection. Responsible for sample processing, tracking, and coordination of sample shipment to analytical laboratory.

Radiological Risk Assessment for a Former Uranium Mine, Arizona—Assisted in the ecological and human health risk assessment to support the evaluation of former uranium mining areas in Cameron, Arizona. Radium and non-radiological metals were evaluated. Determined exposure point concentrations, evaluated bioaccumulation, and determined wildlife and human risk exposure using statistical software R and online EPA calculators.

Lyme Disease Prevalence Study, Massachusetts—Trapped small mammals and collected tick and tissue samples from specimens. Analyzed samples in laboratory for presence of Lyme disease to determine human health risk in study area.

Coy Wolf Population Study, Massachusetts—Baited fur catches with coyote attractant scents to obtain fur samples. Selected sites and set up camera traps for visual observation to better understand population information.

