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(she/her)

Ishita Shrivastava, Ph.D.

Senior Environmental Engineer

Dr. Shrivastava is a senior environmental engineer with expertise in environmental fluid mechanics, contaminant fate and transport, and numerical modeling. At Gradient, she applies her expertise to a wide variety of projects involving contaminant fate and transport in surface water and groundwater, risk assessment, and site assessment and remediation. She has provided numerical modeling and analytical support to projects with a range of contaminants, including per- and polyfluoroalkyl substances (PFAS), polychlorinated biphenyls (PCBs), hydrocarbons, chlorinated solvents, and metals. Prior to joining Gradient, Dr. Shrivastava worked as a postdoctoral associate at the Massachusetts Institute of Technology (MIT), where she developed an inverse modeling framework to assess sources of PCB contamination in an estuary. In her doctoral research, she investigated outfalls for the disposal of industrial effluents in shallow coastal waters using a combination of laboratory experiments and numerical modeling.

Areas of Expertise

- Fluid Dynamics
- Contaminant Fate & Transport
- Numerical Modeling
- Environmental Forensics
- Risk Assessment

Education

- Ph.D., Environmental Fluid Mechanics, Massachusetts Institute of Technology (MIT)
- B.Tech., Civil Engineering, Indian Institute of Technology Bombay

Selected Projects

Superfund Site Cost Allocation: Evaluated the nature and distribution of contaminants, including PCBs, PAHs, and dioxins/furans at a complex sediment site. Used sediment transport and environmental forensics analyses to characterize sources of contamination in support of equitable cost allocation.

PFAS Fate and Transport: Evaluated potential sources and transport of PFAS in groundwater for multiple litigation cases concerning PFAS in drinking water. Reviewed site-specific data on PFAS usage and historical operations, fate and transport characteristics of PFAS compounds, and environmental data to determine potential impacts on groundwater and surface water.

Chemical Transport Modeling: Modeled chemical transport in an estuary using a hydrodynamic model (DYNHYD). Evaluated impacts from potential sources by comparing modeled concentration distributions from various industrial sources with measurements.

Sustainability Analysis of Corrective Action Alternatives: Developed an interactive decision tool to assess the relative performance of corrective action alternatives at coal combustion residual (CCR) sites using sustainability principles.

Coal Ash Regulatory Comment: Critiqued US EPA's proposed rule, risk assessment, and regulatory impact assessment for legacy CCR surface impoundments (SIs) and coal combustion residual management units (CCRMUs). Critiques were provided as technical comments submitted to US EPA.

Selected Publications

Shrivastava, I; Reid, K. 2023. "I'm glad you asked: What is the difference between the TCLP and LEAF leaching methodologies, and what are their appropriate uses and applications?" *ASH at Work* 2:46-47.

Rominger, JT; **Shrivastava, I.** 2022. "Microplastics transport in the environment." *Gradient Trends - Risk Science & Application* 83:3-4. Winter.

Shrivastava, I; Lai, ACH; Adams, EE. 2022. "Numerical model for unidirectional diffuser in a crossflow." *J. Hydraul. Eng.* 148(7):04022010.

Shrivastava, I; Adams, EE; Al-Anzi, B; Chow, AC; Han, J. 2021. "Confined plunging liquid jets for dilution of brine from desalination plants." *Processes* 9:856.

Chow, AC; **Shrivastava, I;** Adams, EE; Al-Rabaie, F; Al-Anzi, B. 2020. "Unconfined dense plunging jets used for brine disposal from desalination plants." *Processes* 8:696.

Shrivastava, I; Adams, EE. 2019. "Mixing of tee diffusers in shallow water with crossflow: A new look." *J. Hydraul. Eng.* 145(4): 04019006.

Shrivastava, I; Adams, EE. 2019. "Pre-dilution of desalination reject brine: Impact on outfall dilution in different water depths." *J. Hydro-Environ. Res.* 24:28-35.