

Claire Hruby, Ph.D.
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EDUCATION:

2015 Ph.D. Iowa State University, Ag and Biosystems Engineering Department (Environmental Science)
2002 M.S. Iowa State University, Department of Geological and Atmospheric Sciences (Geology)
1998 B.S. Wesleyan University, Department of Earth and Environmental Sciences

EMPLOYMENT:

August 2023 - present Drake University - Assistant Professor of Environmental Science and Sustainability

Spring 2025 ENSS 042 – Principles of Geology
ENSS 150 – Biogeochemical Cycles and Lab

Fall 2024 ENSS 111 – Hydrology and Lab
FYS 032 – What’s in Your Water?

2023-2024 ENSS 035 - One Earth, Global Environmental Science
ENSS 138 - Water Resources and Policy
FYS 032 - Legends of Lava
ENSS 042 – Principles of Geology
ENSS 115 – Soil and Water Monitoring with Lab

2003 – 2023 Iowa Department of Natural Resources - Research Geologist (Geologist 3)

First housed in the Iowa Geological Survey, then in the GIS Section of the Land Quality Bureau, then in the Water Monitoring and Assessment Section of the Water Quality Bureau of the Environmental Services Division: Duties included groundwater and surface water monitoring and risk assessment, policy development, geophysical investigations, karst evaluation, data management, mapping, education and outreach.

2003 –2022 Drake University - Adjunct Instructor

*Spring 2022 - ENSP 41: Principles of Geology
Fall 2014 - ENSP 35: One Earth, Introduction to Environmental Science
2003 - 2008 - ENSP 41: Principles of Geology with lab*

2010 Iowa State University

Instructor: [TSM 424 - Impacts of Agriculture on Water Quality](#)

2002 – 2003 Grinnell College

Adjunct Instructor for Env-111: Introduction to Geology with lab (2 semesters)

2000 – 2002 Iowa State University

*Teaching Assistant: Introductory Geology Lab and Recitation, Sedimentology, Environmental Geochemistry, Glacial Geology, Historical Geology Lab
Graduate Assistant: Gravel Exploration, Bedrock Mapping, Water Monitoring*

PUBLICATIONS:

- 2025** Heffron, Joe, Stokdyk, Joel, Firnstahl, Aaron, Cook, Rachel, **Hruby, Claire**, and Mark Borchardt, 2025. Detection of viral, bacterial, and protozoan pathogens and microbial source tracking markers in paired large- and small-volume water samples. *Environmental Science and Technology*, manuscript submitted 15 May, 2025.
- 2025** Dilparic, Daria, Graesch, Matthew, **Hruby, Claire**, and Joseph A. Charbonnet, 2025. PFAS in Iowa Drinking Water Sources: Chemical and Geospatial Patterns. *Science of the Total Environment*, 977, 15 May 2025, 179397. <https://doi.org/10.1016/j.scitotenv.2025.179397>
- 2024** Burch, Tucker; Stokdyk, Joel; Firnstahl, Aaron; Opelt, Sarah; Cook, Rachel; Heffron, Joseph; Brown, Amanda; **Hruby, Claire**; Borchardt, Mark, 2024. Quantitative microbial risk assessment with microbial source tracking for mixed fecal sources contaminating recreational river waters, Iowa, USA. *ACS ES&T Water*, 2024, 4, 7, 2789-2802. <https://doi.org/10.1021/acsestwater.3c00652>
- 2023** **Hruby, Claire E.**, Graesch, Matthew, McCoid, Corey, and James Warren, 2023. Iowa DNR PFAS Summary – March 2023. Iowa DNR Technical Report, DOI: [10.13140/RG.2.2.33209.75368](https://doi.org/10.13140/RG.2.2.33209.75368)
- 2021** Thompson, Darrin A., **Hruby, Claire E.**, Vargo, John D., and R. William Field, 2021. Occurrence of neonicotinoids and sulfoxaflor in major aquifer groups in Iowa. *Chemosphere*, DOI: [10.1016/j.chemosphere.2021.130856](https://doi.org/10.1016/j.chemosphere.2021.130856)
- 2019** Jones, Christopher S., Drake, Chad W., **Hruby, Claire E.**, Schilling, Keith E., and C. F. Wolter, 2019. Livestock manure driving stream nitrate. *Ambio*, DOI: 10.1007/s13280-018-1137-5
- 2018** **Hruby, Claire**, Soupir, Michelle L., Moorman, Thomas B., Pederson, Carl, and Rameshwar S. Kanwar, 2018. Salmonella and Fecal Indicator Bacteria Survival in Soils Amended with Poultry Manure, *Water Air and Soil Pollution*, 229(2). DOI: 10.1007/s11270-017-3667-z
- 2016** **Hruby, Claire**, Soupir, Michelle L., Moorman, T.B., Shelley, Mack C., and Rameshwar S. Kanwar, 2016. Effects of tillage and poultry manure application rates on Salmonella and fecal indicator bacteria concentrations in tiles draining Des Moines Lobe soils, *Journal of Environmental Management*, 171:60-69.
- 2015** **Hruby, C.E.**, Libra, R.D., Fields, C.L., Kolpin, D.W., Hubbard, L.E., Borchardt, M.R., Spencer, S.K., Wichman, M.D., Hall, N., Schueller, M.D., Furlong, E.T., and P.J. Weyer, 2015. 2013 Survey of Iowa Groundwater and Evaluation of Public Well Vulnerability Classifications for Contaminants of Emerging Concern, Iowa Geological Survey Technical Information Series 57, http://s-iihr34.iihr.uiowa.edu/publications/uploads/2015-06-23_11-06-38_tis-57.pdf, 107p.
- 2002** **Hruby, C. E.**, and Beresnev, I. A., 2002. Empirical corrections for basin effects in stochastic ground-motion prediction. *EOS, Transactions of the American Geophysical Union*, 83, F1061.
- 2002** Beresnev, Igor A., **Hruby, Claire E.**, and Caroline A. Davis, 2002. The use of multi-electrode resistivity imaging in gravel prospecting, *Journal of Applied Geophysics*, 49 (2002), 245-254.

PRESENTATIONS

- 2025 Harkin on Wellness Conference:** April 16, 2025.
- 2025 Polk County Conservation Volunteer Monitoring Meeting:** January 13, 2025.
- 2024 Iowa Water Summit:** Whose poop is in the water? A microbial source tracking deep dive, October 8, 2024, at the Izaak Walton League Center in Des Moines, Iowa.
- 2024 Sisters of Charity Water Pollution Seminars:** Water quality issues in Iowa and their impacts, Oct. 3, 2024, Dubuque, Iowa.
- 2024 Iowa State University Department of Earth, Atmosphere, and Climate Seminar:** Orgo for Geos: Former ISU geology grad students on a quest to find PFAS in Iowa, with Matthew Graesch (Iowa DNR), Sept. 28, 2024 at ISU.
- 2024 Iowa Water Conference:** Using genetic tools to better understand Iowa's microbial water quality issues, Sept. 11, 2024 in Coralville, Iowa.
- 2024 Watershed Management Association Lunch & Learn:** Understanding recreational risks from microbial contaminants in Polk County waters, July 30, 2024 via zoom.
- 2024 Project AWARE:** Understanding recreational risks from microbial contaminants in Iowa, July 9, 2024.
- 2024 ICON Partner Jurisdiction Roundtable:** Understanding recreational risks from microbial contaminants in Polk County streams, May 22, 2024.
- 2024 Iowa State University Environmental Science Graduate Symposium:** Assessing recreational risks from pathogen monitoring and source tracking in Polk County streams, April 12, 2024 at Iowa State University Alumni Center.
- 2024 ICON Water Trails/Great Outdoors Foundation/Polk County Conservation meeting:** Understanding recreational risks from microbial contaminants in Polk County streams, April 5, 2024, via zoom.
- 2024 Raccoon River Watershed Association – Life in the Raccoon – Spring Conference:** Understanding recreational risks from microbial contaminants in Polk County streams, March 8, 2024, at DMACC Urban Campus.
- 2023 Iowa Nature Summit:** Supporting local data-driven efforts to improve water quality and public health. Nov. 16, 2023, at Drake University.
- 2023 Central Iowa Source Water Research Assessment:** PFAS in drinking water and recreational water sources in the Raccoon and Des Moines River watersheds. Sept. 18, 2023, online meeting.
- 2023 Central Iowa Source Water Research Assessment:** Using pathogen assessment and microbial source tracking to quantify risk of infection and identify sources of fecal contamination in recreational waterways in Polk County. July 17, 2023, online meeting.

STUDENT PRESENTATIONS

- 2025 RRWA – Jaden Waterhouse**

2025 DUCURS – Poster Session, April 10, 2025

April Cunningham, Ethan Wing, Rylee Beardsworth, Corinne Sidebottom, Taylor Bunton, Leif Klarqvist, Jaden Waterhouse, and Maya Jean Elting

2025 CIMS – Alex Colby

GRANTS & FUNDING

2025 Polk County Conservation – Beaver Creek Pathogen Assessment Continuation (\$18,000 over 3 years): Grant to continue microbial risk assessment including two years of monitoring for pathogens and source tracking targets.

2025 Roy J. Carver Charitable Trust Award – Water Quality Lab upgrade (\$175,000)

2025 Great Outdoors Foundation – Brenton Slough (\$140,250 over 10 years)

2025 Iowa Department of Natural Resources – Little Sioux River (\$14,995 over 1 year): Grant to summarize existing water quality conditions of the Little Sioux River in NW Iowa and to assess sources of fecal contamination.

2024 Iowa Department of Natural Resources – Lake Darling (\$15,000 over 1 year): Grant to evaluate internal loading of phosphorus and sources of microbial contamination in Lake Darling.

2024 Great Outdoors Foundation – SW Iowa Grant (\$161,880 over 5 years): Grant to evaluate effectiveness of grade-stabilization practices to reduce erosion and flooding in SW Iowa.

2024 Drake University Faculty Development Grant (\$2500 one semester): Collaboration with Dian Nostikasari to create database and interactive GIS platform for communicating environmental data with the public.

2024 Raccoon River Watershed Association Grant (\$2500 over 1 year): Funding for two students to conduct microbial source tracking during the 2024 recreation season in the Raccoon River following precipitation or spill events.

2024 Walnut Creek Watershed Management Authority Grant (\$10,000 over 1 year): Funding for students to conduct microbial source tracking during the 2024 recreation season in the Walnut Creek watershed.

2024 Polk County Conservation Board – ISCO Management (\$20,000 over 1 year): Funding to maintain and deploy automated samplers (ISCOs) to acquire high frequency microbial data in response to precipitation events.

2024 Polk County Conservation Board - Lead and Antimony (\$7,500 until November 2024): Sampling and health risk assessment from heavy metals in soils, water, and mushrooms at Chichauqua Trap Shooting Range.

PROJECTS:

2023 - 2025 Central Iowa Source Water Research Assessment: Participant in 2-year assessment of water quality in the Raccoon and Des Moines River watersheds. Funded by Polk County. Press Release - <https://www.polkcountyiowa.gov/sp/board-of-supervisors/board-of-supervisors-news-and-press-releases/polk-county-launches-central-iowa-source-water-research-assessment/>

- 2020 - present** **ICON Water Trails Risk Assessment:** Collaboration with Polk County Conservation Board and the USGS/USDA Laboratory for Infectious Diseases in the Environment to quantify risk of gastrointestinal infections from recreational exposures on five streams in Central Iowa.
- 2014 – 2023** **Iowa Groundwater Quality Monitoring Coordination:** Duties included strategic planning, budgeting and contract management, grant writing, sampling, quality assurance, database management, statistical analysis and reporting of results. Specialization in assessment of emerging contaminants, such as PFAS, and microbial pathogens. Annual summary reports can be found on the Iowa DNR's Ambient Groundwater Monitoring website: <http://www.iowadnr.gov/Environmental-Protection/Water-Quality/Water-Monitoring/Groundwater>
- 2016 – present** **Pathogen Monitoring and Risk Assessment at Public Beaches:** Ongoing research to better understand the risks to public health from microbial pathogens in recreational waters. Partnering with researchers at the Laboratory for Infectious Diseases in the Environment (Marshfield, WI) to determine the levels of pathogens in public waters throughout the recreation season, develop site-specific risk assessments, plan for risk communication, and inform watershed improvement activities.
- 2014 – 2017** **Iowa Stream Mitigation Method team leader:** Tasked with developing a draft method for evaluating compensatory mitigation for impacts to jurisdictional streams. Involves highly technical discussions of stream functions and restoration practices, legal interpretation of Clean Water Act guidelines, stakeholder outreach, and cooperation with an Interagency Review Team composed of representatives from the US Army Corps of Engineers, EPA, US Fish & Wildlife Service, NRCS, and the Iowa DOT. Part of IDNR's efforts at improving statewide capacity for [river restoration](#).
- 2010 – 2015** **Doctoral Research:** Three-year field study on the impacts of poultry manure application rates and tillage practices on transport of nutrients, bacteria, and hormones to tile waters.
- 2008 – 2010** **Brushy Creek Watershed Project:** Collaboration with Des Moines Water Works, Iowa Soybean Association, Carroll County NRCS, DNR Field Office #4, and producers to improve water quality in the Brushy Creek Watershed using funding from the Watershed Improvement Review Board.
- 2008 – 2009** **Frozen Ground Rules:** Worked with Animal Feeding Operations (AFO) program staff, stakeholders, and legislators to develop rules restricting the application of manure on frozen or snow-covered ground. Work included assessing available research and regulations in other states, drafting rules, creating education materials, and organizing and attending six public comment meetings around the state.
- 2005 - present** **AFO Database:** Participated in all stages of database development from initial grant writing, presentation at the IOWAccess Revolving Fund, stakeholder meetings, business requirement development, testing, data migration, administration, and user training. Data are now publicly available: <https://geodata.iowa.gov/dataset/animal-feeding-operations>.
- 2003 - present** **Geological review of manure storage facilities:** Review of proposed operations with respect to potential for surface and groundwater contamination and rule requirements, especially for earthen manure storage structures and sites in karst. Worked with GIS specialists to create the [AFO Siting Atlas](#), an interactive mapping site designed to help producers make decisions about AFO siting and management.
- 2002 – 2006** **Shallow Geophysical Investigations:** Used Ground Penetrating Radar (GPR), seismic refraction, and [resistivity](#) techniques, paired with drilling, to investigate subsurface geological formations,

including sinkholes, bedrock depth, geometry of sand-and-gravel resources, levee stability, and soil and water contamination.

1994 – 2002 **Volcanology and Seismology:** Undergraduate research devoted to understanding magma mixing through trace-element geochemistry of Nisyros and Santorini volcanoes in Greece. Master’s research focused on seismic wave amplification in the Los Angeles Basin of California. Additional coursework related to culture, plate tectonics, earthquake and volcanic hazards in Iceland as a Fulbright scholar.

C. PROFESSIONAL ACTIVITIES/SERVICE

Fall 2025	Arts & Sciences Council, member
2024-2025	Central Iowa Mineralogical Society (CIMS), member
May 2024	Waterborne Pathogens Focus Group (USDA Ag Research Service)
2023-2025	Raccoon River Watershed Association, member, board member
2023-2024	Movement Infrastructure Working Group hosted by Prairie Rivers of Iowa
2023-2025	Iowa Cancer Consortium member
2022-2025	Pesticides and Public Health Working Group member
2017-2025	Iowa Groundwater Association, Board Member
October 2023	Judge for the Iowa Water Conference Student Poster Session
2023 - 2025	Polk County Water Quality Snapshot sampling (each spring and fall)