C. Lyn Watts

(315)294-4930 cwatts@umass.edu

EDUCATION

Expected 2026 **PhD University of Massachusetts at Amherst**
Department of Earth Geographic and Climate Sciences
Discipline: Hydrology
Advisor: Dr. Christine Hatch
Dissertation: Hydrologic Evolution at a Freshwater Wetland Restoration

2023 **M.S. University of Massachusetts at Amherst**
Department of Earth Geographic and Climate Sciences
Discipline: Hydrology
Advisor: Dr. Christine Hatch
Thesis: Mapping Groundwater Discharge Seeps with Thermal UAS Imaging on a Wetland Restoration Site

2017 **B.A. Smith College, Northampton MA**
Thesis: Sediment Transport Modeling of Paradise Pond, MA
Major: Geosciences
Minor: Global South Development Studies, Translation Studies
Advisor: Dr. Bob Newton
Thesis: Modeling Sediment Transport During Sluicing Events in Paradise Pond

TEACHING

INSTRUCTOR POSITIONS

Spring 2025 Visiting Instructor
Hydrology and Hydrogeology: GEOL 229
Department of Geology and Geography, Mount Holyoke College, South Hadley, MA
16 students, 4 credit hours

Spring 2023 Instructor
Hydrogeology (graduate and undergraduate students): GEOSCI 587
Department of Earth Geographic and Climate Sciences, University of Massachusetts Amherst
18 students, 5 credit hours

Fall 2022 Lab Instructor
The Earth: GEOSCI 101
Department of Earth Geographic and Climate Sciences, University of Massachusetts Amherst
20 students, 5 credit hours

TEACHING ASSISTANT POSITIONS

Fall 2023 - Spring 2024 GEOSCI 703/705: Geoscience Graduate Seminar
Department of Earth Geographic and Climate Sciences, UMass Amherst

Fall 2023 GEOSCI 319/519: Aqueous Environmental Geochemistry
Department of Earth Geographic and Climate Sciences, UMass Amherst

2020, 2021 GEOGRAPHY 110: Global Environmental Change
Department of Earth Geographic and Climate Sciences, UMass Amherst

Fall 2014 - Spring 2015 FYS 139: Biogeochemical Cycling in the Avery Brook Watershed
Smith College Geosciences, Northampton, MA

TEACHING AREAS
Hydrology
Geomorphology
Climate and Weather
Sedimentology
Water Pollution/Aqueous Geochemistry
Natural Hazards and Disasters

STUDENT MENTORSHIP
Alanna Hu (Mt Holyoke College ind. study, 2025), Daisy Ginsburg (ind. Study and CAFÉ Summer Scholar research assistant 2024 – 2025), Arlyn Reiken (Collaborative for Educational Services summer STEM Intern 2025), Ellie Gelinas (ind. Study Fall 2024 – Spring 2025), Natalia Ruiz (graduate research assistant, 2024 – 2025), Peyton Ewan (ind. Study 2023 – 2024), Eva Gerstle (ind. Study 2023 – 2024), Jace Etterman (ind. Study 2023-2024), Melissa Rymaszewski (CAFÉ Summer Scholar research assistant and ind. Study, 2023), Arunima Saktawat (ind. Study and Lee SIP Summer research assistant 2022 – 2023), Emma Cady (ind. Study and CAFÉ Summer Scholar research assistant, 2021-2022), Kayla Glenn (ind. Study, 2021 – 2022), Jeron LeBlanc (ind. Study 2021)

TEACHING TRAININGS
Fall 2024 "Inclusive Teaching and Equity in Education" Graduate School Teaching Academy, University of Massachusetts Amherst

RESEARCH

PUBLICATIONS
Watts, C.L., Hatch, C., Hu, A*. "Wetland Restoration impacts on groundwater mixing: an isotopic and thermal imagery analysis." *Hydrological Processes.* In prep.
*Undergraduate research collaborator

Elhaddad, H., Tran, D., **Watts, C.L.**** "Transitioning to Impact – Based Forecasting for Riverine Flood Models." In prep.
**Authors contributed equally, and are listed alphabetically.

Baruah, A., Dhital, S., Cohen, S., Tran, .D., Elhaddad, H., **Watts, C.L**., Devi, D., Chen, Y., Pruitt, C., 2025 "FIMserv v.1.0: A Tool for Streamlining Flood Inundation Mapping (FIM) Using the United States Operational Hydrological Forecasting Framework." *Environmental Modelling and Software* vol. 192 https://doi.org/10.1016/j.envsoft.2025.106581

Watts, C.L; Hatch, C.E. and Wicks, R., 2023 "Mapping Groundwater Discharge Seeps with Thermal UAS at a Wetland Restoration Site." *Frontiers in Environmental Science* - Environmental Informatics and Remote Sensing, Research Topic: Novel Approaches for Understanding Groundwater Dependent Ecosystems in a Changing Environment.
https://www.frontiersin.org/articles/10.3389/fenvs.2022.946565/full

PRESENTATIONS
Watts, C.L., Christine Hatch, 2025 "Using isotopes to track changes in water mixing in a wetland restoration, and the implications for restoration success" *Society of Wetland Science*

Watts, C.L., Gezovich, L., Arbolelea, A., Bagge, S., Gearson, J.H., 2024 "Determining Imminent Avulsion Risk on the Nechi River, Colombia" *American Geophysical Union*

Elhaddad, H., Tran, D., **Watts, C.L.*,** 2024 "Transitioning to Impact – Based Forecasting for Riverine Floods" *American Geophysical Union*
*Authors contributed equally, and are listed alphabetically

Watts, C.L., Hatch, C., Wicks, R. 2020 "Using Drones to Locate Groundwater for Wetland Restoration Projects" *Geological Society of America*

Hatch C., Valentine, N., Ito, E.T., **Watts, C.L**., Leblanc, J., Chase, A., Mcinnis, L., Cosh, M., Maxwell, M., 2020 "Special (Cranberry) Sauce: Glacial Geology, Lots of Water, Overcoming Farming Practice, and Time Lead Bogs Back to Wetlands" *Geological Society of America*

Leblanc, J., Hatch, C., Ito, E.T., **Watts, C.L.,** Wetzel, P., Mcinnis, L., 2020 "The Importance of Microtopography in Restored Wetland Ecosystems" *Geological Society of America*

Watts, C.L., and Newton, R., 2017 "Modeling Sediment Transport During Sluicing Events in Paradise Pond, Northampton, Massachusetts" *Northeast Geological Society of America Northeastern Section*

Watts, C.L., Domeshek, M.G., Sturtevant, E.W., Rojas, M., and Newton, R., 2016 "Sediment Sluicing to Manage Sediment Accumulation in Paradise Pond, Northampton, Massachusetts" *Geological Society of America Northeastern Section*

Domeshek, M., Ndama, M., Newton, R., Peek, M., Pratt, M., Rojas, M., Sturtevant, L., **Watts, L.,*** 2015 "Management of Sediment in Paradise Pond, Northampton, Massachusetts" *New England Graduate Student Water Symposium*
*** Poster Contest** 2015 Winner at New England Graduate Student Water Symposium

Brena, D.C., Lin, I., **Watts, C.L.,** Newton, R.M., Merritt, R.B., and Anderson, M.R., 2014 "Soil Mercury Accumulation in O Horizons from the Avery Brook Watershed, West Whately, Massachusetts" *Geological Society of America Northeastern Section*

RESEARCH EXPERIENCE

2024 - NECASC Graduate Research Assistant
Department of Earth Geographic and Climate Sciences, University of Massachusetts, Amherst, MA
Investigate the relationship between Atlantic White Cedar Swamp health and local hydrology to determine best management and regeneration practices for Atlantic White Cedar swamps in Nipmuc and Wampanoag territory.

2020 - 2024 McIntire – Stennis Graduate Research Assistant
Department of Earth Geographic and Climate Sciences, University of Massachusetts, Amherst, MA
Use distributed temperature sensing (DTS), drones, and stable isotopes to quantify groundwater discharge in a former commercial cranberry bog restored to a freshwater wetland and measure change over time.

2024 Summer Institute Fellow
National Water Center, Tuscaloosa, AL
Built a real time impact- based flood inundation forecast app (available on Github) with a small team that is deployable in any city in the United States.

2024 NSF Rivers of the Andes Field Training
EAFIT, Medellin, Colombia
Conducted geomorphic research on river avulsions in the Magdalena River valley and participated in intercultural exchange.

2021 NSF International Research Fellow
Agricultural Community Adaptations to Extreme Hydrometerological Events
CUAHSI International Research Experience, El Salvador
Characterized water supply rates of two small communities in El Salvador and assessed current community water needs using ethnographic and social science approaches.

2016 – 2017 Geoscience Honors Thesis

Smith College, Northampton MA
Title: Sediment Transport Model of Paradise Pond, MA
Modeled sediment accumulation and erosion behind the dam on Paradise Pond as a result of high flow events and actively managing the sluice gate.

2014 and 2015 Summer Undergraduate Research Fellowship
Smith College Northampton, MA
Title: Water Chemistry Survey of Barnes Aquifer, MA
Analyzed water samples from private wells for base cations, anions, As, Hg, dissolved organic carbon and pH.
Submitted contamination report to the Barnes Aquifer Protection Advisory Committee

AWARDS AND GRANTS

2025 CUAHSI Instrumentation Discovery Travel Grant ($1,950)
2025 Lee Allison Memorial Award ($1,000)
2024 Inclusion, Diversity and Equity Award (EGCS-IDEA) ($1,000)
2024 Sheila Seaman Student Research Fund ($650)
2024 Gloria Radke Award ($500)
2023 Hartshorn Memorial Scholarship ($1,200)
2022 SPATIAL Isotope Short Course NSF funding support ($2,350)
2022 Gloria Radke Award ($1,000)

SERVICE AND OUTREACH

UNIVERSITY SERVICE

2023 - **Diversity, Equity, and Inclusion Committee Member**
Earth Geographic and Climate Sciences, University of Massachusetts, Amherst
Contributed to successful application of the NSF funded AdvanceGEO Workplace Climate Program 2024
Participated in the working group to draft and adopt departmental code of ethics.

2023 - 2025 **Board member, Departmental Guest Lecture Series**
Earth Geographic and Climate Sciences, University of Massachusetts, Amherst
Welcomed weekly guest lecturers to the department, introduced them, assisted with technical difficulties, and organized food and drink for attendees. I support department efforts to invite a diverse range of speakers.

2022 – 2023 **Vice President, Geoscience Graduate Student Organization**
Earth Geographic and Climate Sciences, University of Massachusetts, Amherst
Organized meetings and community events for existing and incoming graduate students.

OUTREACH

2023 - 2025 **Summer Workshop Facilitator**
Girls Inc. Eureka
Designed and led workshops on field mapping and soils for middle and high school girls in STEM

2024 **Field Tour Facilitator**
Northeast Regional National Cooperative Soil Survey Conference

NON ACADEMIC WORK

2019 **Hydrology Assistant (Geoscientist in the Park)**
Chattahoochee River National Recreation Area, GA

Trained and managed water quality-oriented citizen science volunteers in conjunction with GA Adopt – A – Stream . Conducted stream site assessments to evaluate accessibility and safety for volunteers. Recruited and trained volunteers in basic chemical and bacterial water quality testing

2018 – 2019 **Lead Environmental Educator**
Christodora Winter Ecology Program, Bronx, NY
*I t*ranslated lesson plans and materials into Spanish, handled material purchases, and trained new educators. This included topics such as classroom management, conflict management (Discover, Introduce, make a plan), curriculum, classroom observation, complete onboarding (move into apartment, issuing equipment, etc.)

2018 **Outdoor Educator**
Christodora Mannis Education Center, Florida, MA
Wrote lesson plans and taught for an experientially driven curriculum to 7-12th grades. Lessons included: ecology, plant identification, forest succession, limnology, and macro invertebrate sampling. I also led week long backpacking and canoeing trips for high school students, facilitating peer leadership development.

2017 **Stream Steward**
Greene County Soil and Water Conservation district, Catskills, NY
Conducted a geomorphic stream feature inventory to assess localtions for future restoration projects. I also established and monitored vegetation plots at existing restoration sites. I led watershed and pollution demonstrations in local schools and at the county fair, and wrote articles for public audiences.

PROFESSIONAL DEVELOPMENT

2024 National Water Center Innovators Program Summer Institute
2024 Rivers of the Andes Field Training
2023 Clouds Summer School – Environmental Point Clouds Classification
2022 SPATIAL: Isotopes in Spatial Systems
2021 NSF IRES - International Research Experience for Students: agricultural community adaptations

SKILLS AND CERTIFICATIONS

Software: ArcGIS Pro, QGIS, Python, R Studio, AutoCAD, Pix4D, Photoshop, Illustrator, InDesign, Microsoft, suite, Agisoft Metashape
Laboratory proficiencies: ICP-OES, Hydra-C Hg, Ion Cromatograph, Loss on Ignition, Particle size analysis, core scanning, Picarro stable water isotope analysis
Field Proficiencies: Gauge core sampling, hand auguring, surface and groundwater well installation and sampling, RiverRay,ADCP, Total station, RTK GNSS,
Certifications: Wilderness First Aid and CPR/AED (WildMed, 11/21), FAA licensed drone pilot
Languages: English, Spanish

AFFILIATIONS AND MEMBERSHIPS

2025 - Society of Wetland Scientists
2025 - Sigma Xi
2020 - Living Observatory Researcher
2023 - Earth Science Women's Network
2023 - American Geophysical Union
2014 - Geologic Society of America

REFERENCES

Dr. Christine Hatch, Extension Professor
University of Massachusetts Amherst
627 North Pleasant St
Amherst, MA
chatch@geo.umass.edu

Dr. Bill Clement, Extension Associate Professor
University of Massachusetts Amherst
627 North Pleasant St
Amherst, MA
wclement@umass.edu

Dr. Michele Cooke, Professor
University of Massachusetts Amherst
627 North Pleasant St
Amherst, MA
cook@umass.edu