Angela Nicole Stiegler
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CURRENT POSITION

Postdoctoral Fellow John's Hopkins University September 2022 to Present

EDUCATION

University of California, Berkeley

Ph.D. Civil & Environmental Engineering August 2022
Advisor: David Sedlak
Dissertation: "Trace Organic Contaminant Removal in Subsurface Flow Treatment Wetlands"

M.S. Civil & Environmental Engineering, *GPA 4.00* May 2017
Water Quality Engineering

University of Maryland, College Park

B.S. Environmental Science & Technology, *GPA 3.99* May 2015
Minors: Soil Science, Sustainability Studies, Spanish Language

HONORS AND AWARDS

Outstanding Graduate Student Instructor Award	2020
National Science Foundation Engineering Research Center Perfect Pitch, *First Place*	2019
National Science Foundation Graduate Research Fellowship Program, *Honorable Mention*	2016, 2017
College of Agriculture and Natural Resources Outstanding Senior Award	2015
Maryland Section of the American Society of Agricultural and Biological Engineers, *Scholarship*	2014
Phi Kappa Phi and Phi Beta Kappa Honors Society	2013
University of Maryland Dean's Scholarship	2011

RESEARCH EXPERIENCE

Postdoctoral Fellow, John's Hopkins University September 2022- Present
Research Advisor: Carsten Prasse
Project: Fate and Transport of Unregulated Organic Contaminants in Biosolids

Graduate Student Researcher, University of California, Berkeley 2017-2022
Research Advisor: David Sedlak

- Evaluated mechanisms through which a field-scale subsurface flow constructed wetland removed trace organic contaminants and linked removal of persistent trace organic contaminants to redox conditions
- Identified plant uptake of trace organic contaminants in effluent-dominated streams as an overlooked terrestrial exposure pathway
- Evaluated the suitability of subsurface flow wetlands for the treatment of reverse osmosis (RO) concentrate from municipal wastewater reuse projects
- Provided subsurface flow wetland design guidance to improve the efficiency and safety of nature-based treatment systems based on mechanistic findings

RESEARCH EXPERIENCE (CONTINUED)

Undergraduate Research Assistant, University of Maryland 2014-2016
Research Advisor: Stephanie Lansing
- Assessed increased methanogenesis and decreased hydrogen sulfide generation in biogas produced from anaerobic digestion through the addition of various forms of Fe(III)
- Assisted in sample processing and collection for a variety of water quality analyses

Senior Capstone Team Lead, University of Maryland 2014-2016
Department of Environmental Science & Technology
- Determined the nutritional cause of growth inhibition and chlorosis *Phragmites australis subsp. americanus* grown under greenhouse conditions
- Published results in a peer reviewed journal

National Science Foundation Research Experience for Undergraduates Fellow 2014
Engineering Research Center for Reinventing the Nation's Urban Water Infrastructure (ReNUWIt)
- Evaluated the ability of restored riparian saltgrass to control erosion in an ecological rehabilitation zone in Sunland Park, NM

Biological Sciences Technician, U.S. Department of Agriculture 2013-2014
Sustainable Agricultural Systems Lab, Beltsville Agricultural Research Center
- Collected, processed, and analyzed biomass and soil samples for moisture content, nitrogen content, bulk density, etc. in support of research studies on cover crop science and sustainable agriculture

Undergraduate Independent Researcher, University of Costa Rica, Sede Occidente 2013
Plant taxonomy
- Identified plant species numbers and distribution and mounted herbarium samples to determine the baseline plant community at a lake restoration site
- Produced a technical paper for guidance of species removal and preservation

TEACHING & MENTORSHIP EXPERIENCE

Undergraduate Research Mentor, University of California Berkeley 2019-2022
- Guided undergraduate students in completing research for independent studies programs
- Trained undergraduates to perform safe laboratory work

Graduate Student Instructor, University of California, Berkeley 2020
Water Chemistry
- Led virtual discussion sections, review sessions and office hours
- Provided feedback on exam content

Ecological Engineering for Water Quality Improvement 2019
- Led laboratory sections, developed a new laboratory manual
- Guest lectured

Guest Lecturer, University of California, Berkeley 2019
Environmental Biological Processes

Research Experience for Undergraduates Mentor, ReNUWIt 2017, 2018, 2019, 2020
- Guided independent research conducted by four undergraduate students during summer sessions

TEACHING & MENTORSHIP EXPERIENCE (CONTINUED)

Teaching Assistant, University of Maryland, College Park 2015
Computer Aided Design in Ecology
- Created grading rubrics and graded student homework and assignments

Sustainability Advisor: Peer Educator, Office of Sustainability 2013-2014
- Introduced sustainability concepts to through guest lecturing to freshmen

LEADERSHIP & SERVICE

Chair, Gordon Research Seminar Environmental Sciences: Water Present - 2024
- Elected to organize the student and postdoc pre-conference seminar

Core Team Member, Transforming Shorelines Collaborative 2020-2022
- Worked with regional partners to implement horizontal levees and other nature-based water treatment systems throughout the SF Bay Area

President, ReNUWIt Student Leadership Council 2019-2020
- Conveyed student needs and concerns to faculty leadership and at ERC-wide meetings
- Led monthly student leadership calls to coordinate biweekly seminars, alumni network, swag
- Organized a virtual student research conference in summer of 2020

Executive Officer, ReNUWIt Student and Postdoc Committee for Diversity and Inclusion 2018-2019
- Obtained funding for and organized DEI-related seminars
- Constructed and distributed bimonthly newsletters
- Kept records and distributed notes of meetings

Lab Safety Coordinator, Sedlak Research Group 2017-2021
- Created a new student onboarding document
- Led safety inspections and created safety checklists

COMPETENCIES

Teaching: Undergraduate and Graduate Level Courses
Water Chemistry, Environmental Organic Chemistry, Soil Chemistry, Soil Science, Surface Chemistry, Ecological Engineering, Introductory Environmental Engineering Courses

Science Communication
- Award-winning oral communicator (Perfect Pitch) and skilled technical writer
- Art & design –use hand drawn and digital visuals to support presentations, designed first cover for the new open access ACS journal – *ACS Environmental Au*

Technical Skills
- Computer Programs: Microsoft Office, RStudio, Visual MINTEQ, Adobe Photoshop, Adobe Illustrator
- Analytical Tools: Water Chemistry Instrumentation (e.g., LCMS, ICPMS, IC, TOC/TN), Spectroscopy (e.g. XANES, XRF), Isotope-Ratio Mass Spectrometry

PEER-REVIEWED AND PUBLICATIONS IN PREPARATION

1. **Stiegler A. N.,** Cecchetti A. R., Sedlak, D. L. (2022) Plant Uptake of Trace Organic Contaminants in Effluent-Dominated Streams: An Overlooked Terrestrial Exposure Pathway. *Environmental Science & Technology Letters*. Under Review

2. **Stiegler A.N.,** Cecchetti, A.R., Scholes, R.C, and Sedlak, D.L. (2022) Persistent Trace Organic Contaminants are Rapidly Removed Through Biotransformation Under Sulfate and Fe(III)- Reducing Conditions in a Field-Scale Subsurface Treatment Wetland. *Manuscript to be submitted for publication in Environmental Science & Technology*

3. **Stiegler A.N.,** DeSalvo, A. Scholes, R.C, Cecchetti, A.R., and Sedlak, D.L. Removal of Nitrate and Trace Organic Contaminants from Reverse Osmosis Concentrate in Horizontal Levees. *Manuscript to be submitted for publication.*

4. Aidan R. Cecchetti, **Angela N. Stiegler**, Emily A. Gonthier, Siva R. S. Bandaru, Sirine C. Fakra, Lisa Alvarez-Cohen, and David L. Sedlak *Environmental Science & Technology* **2022** *56* (4), 2770-2782 DOI: 10.1021/acs.est.1c07512

5. Scholes, R. C., **Stiegler, A. N.**, Anderson, C. M., Sedlak, D. L. (2021). Enabling Water Reuse by Treatment of Reverse Osmosis Concentrate: The Promise of Constructed Wetlands. *ACS Environmental Au*, https://doi.org/10.1021/acsenvironau.1c00013

6. Brady, A. R., Vega, M. A., **Stiegler, A. N.,** Scholes, R. C., Riddle, K. N., Peel H. F., Sedlak, D. L., Sharp, J. O. (2021). Influent geochemistry and hydraulic residence influence microbial respiration and trace organic attenuation within saturated lignocellulose bioreactors. *In preparation*

7. Cecchetti, A. R., **Stiegler, A. N.,** Graham, K. E., & Sedlak, D. L. (2020). The horizontal levee: a multi-benefit nature-based treatment system that improves water quality and protects coastal levees from the effects of sea level rise. *Water Research X, 7*. https://doi.org/10.1016/j.wroa.2020.100052

8. Cecchetti, A. R., Sytsma, A., **Stiegler, A. N.,** Dawson, T. E., & Sedlak, D. L. (2020). Use of stable nitrogen isotopes to track plant uptake of nitrogen in a nature-based treatment system. *Water Research X*, *9*, 100070. https://doi.org/https://doi.org/10.1016/j.wroa.2020.100070

9. Willson, K. G., **Perantoni, A. N.,** Berry, Z. C., Eicholtz, M. I., Tamukong, Y. B., Yarwood, S. A., & Baldwin, A. H. (2017). Influences of reduced iron and magnesium on growth and photosynthetic performance of Phragmites australis subsp. americanus (North American common reed). *Aquatic Botany*, *137*, 30-38

INVITED TALKS

1. "Nature-Based Solutions for Nutrient Management"
   California Water Environment Association Annual Conference, Sacramento, CA 2022

2. "Nature-based wastewater treatment: Learning from the Oro Loma Horizontal Levee"
   San Francisco Regional Water Quality Control Board, Virtual 2021
   Alameda Creek Watershed Forum, Virtual 2021

3. "Reverse osmosis concentrate treatment in the Oro Loma horizontal levee: concentrating on cost efficiency"
   ReNUWIt ERC Annual Meeting, Virtual 2021

4. "Nature-based solutions: benefits beyond nutrient removal"
   The Water Research Foundation Nutrient Optimization Webinar, Virtual 2021

5. "Nature-based wastewater treatment: Learning from the Oro Loma Horizontal Levee"
   San Francisco Regional Monitoring Program Annual Meeting, Berkeley, CA 2019

CONFERENCE PRESENTATIONS

1. "Trace organic contaminant transformation in a horizontal levee: insights from the field-scale for optimal nature-based water treatment designs"
   Gordon Research Seminar: Environmental Sciences Water, Holderness, NH 2022

2. "Multi-contaminant removal in a horizontal levee: A natural approach to reverse osmosis concentrate treatment"
   American Chemical Society National Meeting, San Diego, CA 2022

3. "Trace organic contaminant transformation in a horizontal levee: the role of redox conditions"
   American Chemical Society National Meeting, Virtual 2020

4. "Plant uptake and transformation of pharmaceuticals in a novel treatment wetland configuration"
   American Chemical Society National Meeting, Orlando, FL 2019

5. "Oro Loma Horizontal Levee Project: The fate of nutrients and trace organic contaminants in a horizontal levee"
   Restore America's Estuaries National Summit, Long Beach, CA 2018

POSTERS

1. " Trace organic contaminant transformation in a horizontal levee: insights from the field-scale for optimal nature-based water treatment designs"
   Gordon Research Seminar & Conference, Holderness, NH 2022

2. "The Horizontal Levee: improving water quality while providing flood protection and habitat improvement"
   State of the Estuary, Oakland, CA 2017

3. "Estimating erosion control and sediment entrapment in monotypic saltgrass (Distichilis spicata) using rainfall simulation."
   University of Maryland AGNR Open House, College Park, MD 2014

4. "Enhancing biogas quality with Iron(III) additions to manure anaerobic digestion systems"
   American Ecological Engineering Society Annual Conference, Stillwater, OK 2015
   First place student poster