1. PERSONAL INFORMATION

Barret M. Wessel
Assistant Professor of Pedology

Department of Plant, Soil, and Microbial Sciences
Michigan State University
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EDUCATION

2020	University of Maryland, Dept. of ENST *Ph.D. in Soil and Watershed Science* Dissertation Subaqueous soils of Chesapeake Bay: Distribution, genesis, and the pedological impacts of sea-level alternations	College Park, MD
2020	University of Maryland, Historic Preservation Program *Graduate Certificate in Historic Preservation*	College Park, MD
2014	University of Maryland, Dept. of ENST *B.S. in Environmental Science and Technology* *Summa Cum Laude* Concentration in Ecological Technology Design Minor in Soil Science	College Park, MD
2012	Howard Community College *A.A. in Environmental Science* *High Honors*	Columbia, MD

PROFESSIONAL POSITIONS

June 2022-Present	Michigan State University, Dept. of PSM *Assistant Professor of Pedology* • Teach fundamentals of soil science (prepping upper-level courses in soil resources and soil judging for future semesters) • Research the science of teaching and learning in the earth and environmental sciences, particularly the impact of field experiences and professional development opportunities on student outcomes	East Lansing, MI
Aug. 2021-May 2022	U. of Mary Washington, Dept. of Earth & Env. Sci. *Visiting Assistant Professor of Hydrogeology* • Taught introductory courses in geology and environmental science, and upper-level Hydrogeology • Mentored undergraduate researchers	Fredericksburg, VA

Aug. 2020-July 2021 USDA-ARS Bowling Green, KY
Research Soil Scientist (postdoc)
- Developed runoff curve numbers for tile-drained soils in the Western Lake Erie Basin
- Modeled nutrient transport and fate using hydrological and soil data

Aug. 2017-Aug. 2020 University of Maryland, Dept. of ENST College Park, MD
National Science Foundation Graduate Research Fellow
- Surveyed subaqueous soils in the Rhode, West, and Big Annemessex Rivers
- Characterized soil mineralogy using x-ray diffraction and micromorphology

Aug. 2016-July 2017 University of Southern Denmark, Dept. of Biology Odense, Denmark
Fulbright Student Fellow
- Evaluated soils and biogeochemical changes in reclaimed land, and land after permanent submergence by seawater and freshwater
- Sequentially fractionated iron and sulfur, and characterized organic carbon

Jan. 2015-Aug. 2016 University of Maryland, Dept. of ENST, Pedology Lab. College Park, MD
Graduate Assistant
- Trailered, transported, launched, and operated various small boats
- Mapped geomorphology and evaluated changes over time using GIS

May 2014-Aug. 2014 UMCES, Chesapeake Biological Laboratory Solomons, MD
Maryland Sea Grant REU Fellow
- Installed and sampled riparian and hyporheic groundwater wells
- Identified factors driving iron flocculate formation in streams

June 2013-May2014 University of Maryland, Dept. of ENST College Park, MD
Field and Laboratory Technician
- Sampled and processed soil and soybean samples across MD and PA
- Refined field methods for measuring soil S and P

OTHER EDUCATIONAL AND PROFESSIONAL EXPERIENCES

2021 Unlearning Racism in the Geosciences (URGE) Remote
Departmental group co-organizer and participant

2016 University of Southern Denmark, Dept of ENST Odense, Denmark
Aquatic Microbial and Molecular Ecology, Short Course

2016-2020 University of Tübingen/University of Maryland Tübingen, Germany
Soils and Human Cultures during the Holocene Epoch, Collaborator
- Collaborated with German and American soil scientists and anthropologists
- Assisted at pedological and archaeological field sites throughout southern Germany, New Hampshire, and Maryland

2015-2020	Smithsonian Environmental Research Center *Visiting Scientist Appointment*	Edgewater, MD
	• Operate Smithsonian Institution boats and use facilities in support of my PhD research on Rhode and West Rivers	
2011	Jet Propulsion Laboratory *NASA Community College Aerospace Scholar*	Pasadena, CA

2. RESEARCH, SCHOLARLY, AND CREATIVE ACTIVITIES

ARTICLES IN REFEREED JOURNALS
h-index: 8 Google Scholar, 7 Scopus

Wessel, B.M., Rabenhorst, M.C., Needelman, B.A., (Soil Science Society of America Journal, under revision). Application and evaluation of a subaqueous soil-landscape conceptual model in the West River subestuary, Maryland.

Wessel, B.M., Kristensen, E., Rabenhorst, M.C., Sjøgaard, K.S., Treusch, A.H., (In preparation). Environmental consequences of polygenetic pedogenesis following the restoration of reclaimed land via flooding with fresh and marine water in Gyldensteen Strand, Denmark.

Wessel, B.M., Bolster, C.H., King, K.W., Shedekar, V.S., (**Journal of Hydrology**, accepted 5/2022). Validated rainfall-runoff curve numbers for tile-drained fields in the Western Lake Erie Basin.

Bolster, C.H., **Wessel, B.M.**, Vadas, P.A., Fiorellino, N.M., 2022. Sensitivity and uncertainty analysis for predicted soil test phosphorus using the Annual Phosphorus Loss Estimator model. **Journal of Environmental Quality** 51(2), 216-227.

Kaushal, S.S., Mayer, P.M., Likens, G.E., Reimer, J.E., Maas, C.M., Rippy, M.A., Grant, S.B., Hart, I., Utz, R.M., Shatkay, R.R., **Wessel, B.M.**, Maietta, C.E., Pace, M.L., Duan, S., Boger, W.L., Yaculak, A.M., Galella, J.G., Wood, K.L., Morel, C.J., Nguyen, W., Querubin, S.E.C., Sukert, R.A., Lowien, A., Houde, A.W., Roussel, A., Houston, A.J., Cacopardo, A., Ho, C., Talbot-Wendlandt, H., Widmer, J.M., Slagle, J., Bader, J.A., Chong, J.H., Wollney, J., Kim, J., Shepherd, L., Wilfong, M.T., Houlihan, M., Sedghi, N., Butcher, R., Chaudhary, S., Becker, W.D., 2022. Five state factors control progressive stages of freshwater salinization syndrome. **Limnology and Oceanography Letters**.

Wessel, B.M., Rabenhorst, M.C., Needelman, B.A., 2021. A subaqueous soil-landscape conceptual model to guide soil survey in Chesapeake Bay subestuaries. **Soil Science Society of America Journal** 85:1-14.

Kaushal, S.S., Likens, G.E., Mayer, P.M., Pace, M.L., Reimer, J.E., Maas, C., Galella, J.G., Utz, R., Duan, S., Kryger, J., Yaculak, A., Boger, W., Bailey, N., Haq, S., Wood, K.L., **Wessel, B.M.**, Park, C.E., Collison, D., Aisin, B., Gedeon, T., Chaudhary, S., Widmer, J., Blackwood, C., Bolster, C., Devilbiss, M., Garrison, D., Halevi, S., Kese, G., Quach, E., Rogelio, C., Tan, M., Wald, H., Woglo, S., 2021. Freshwater salinization syndrome: From emerging global problem to managing risks. **Biogeochemistry** 154, 255–292.

James, B., Miera, J., Henkner, J., Downey, S., Correa, F., Teuber, S., Knopf, T., Höpfer, B., Scherer, S., Michaelis, A., **Wessel, B.M.**, Beckman, H., Mack, S., Gibbons, K., Kühn, P., Scholten, T., 2021. Soils, landscapes, and cultural concepts of favour and disfavour within complex adaptive systems and ResourceCultures: Human-land interactions during the Holocene. **Ecology and Society** 26 (1):6.

Kaushal, S.S., Wood, K., Galella, J., Gion, A., Haq, S., Goodling, P., Haviland, K., Reimer, J., Morel, C., **Wessel., B.M.**, Nguyen, W., Hollingsworth, J., Mei, K., Leal, J., Widmer, J., Sharif, R., Mayer, P., Newcomer Johnson, T., Newcomb, K., Smith, E., Belt, K., 2020. Making 'chemical cocktails' – Evolution of urban geochemical processes across the periodic table of elements. **Applied Geochemistry** 119, 104632.

Duan, S., Mayer, P.M., Kaushal, S.S., **Wessel, B.M.**, Johnson, T., 2019. Regenerative stormwater conveyance (RSC) for reducing nutrients in urban stormwater runoff depends upon carbon quantity and quality. **Science of The Total Environment** 652, 134-146.

Kaushal Sujay, S., Likens, Gene E., Pace, Michael L., Haq, S., Wood, Kelsey L., Galella, Joseph G., Morel, C., Doody, Thomas R., **Wessel, B.**, Kortelainen, P., Räike, A., Skinner, V., Utz, R., Jaworski, N., 2019. Novel 'chemical cocktails' in inland waters are a consequence of the freshwater salinization syndrome. **Philosophical Transactions of the Royal Society B**: **Biological Sciences** 374(1764), 20180017.

Kaushal, S.S., Gold, A.J., Bernal, S., Newcomer Johnson, T.A., Addy, K., Burgin, A., Burns, D.A., Coble, A.A., Hood, E.W., Lu, Y., Mayer, P., Minor, E.C., Schroth, A.W., Vidon, P., Wilson, H.F., Xenopolous, M.A., Doody, T., Galella, J.G., Goodling, P., Haviland, K., Haq, S., **Wessel, B.**, Wood, K.L., Jaworski, N., Belt, K.T., 2018. Watershed 'chemical cocktails': forming novel elemental combinations in Anthropocene fresh waters. **Biogeochemistry** 141(3), 281-305.

Wessel, B.M., Galbraith, J.M., Stolt, M.H., Rabenhorst, M.C., Fanning, D.S., Levin, M.J., 2018. Soil taxonomy proposals for acid sulfate soils and subaqueous soils raised by the 8th International Acid Sulfate Soils Conference. **South African Journal of Plant and Soil** 35(4), 293-295.

Wessel, B.M., Fiola, J.C., Rabenhorst, M.C., 2017. Soil morphology, genesis, and monolith construction of an acid sulfate soil with silica-cementation in the US Mid-Atlantic Region. **Geoderma** 308, 260-269.

Wessel, B.M., Rabenhorst, M.C., 2017. Identification of sulfidic materials in the Rhode River subestuary of Chesapeake Bay. **Geoderma** 308(Supplement C), 215-225.

Williams, M.R., **Wessel, B.M.**, Filoso, S., 2016. Sources of iron (Fe) and factors regulating the development of flocculate from Fe-oxidizing bacteria in regenerative streamwater conveyance structures. **Ecological Engineering** 95, 723-737.

NON-REFEREED ARTICLES AND REPORTS

Wessel, B.M., 2019. How are soil scientists studying soils under water? Invited article for Soil Science Society of America Blog: Soils Matter, Get the Scoop! https://soilsmatter.wordpress.com/2019/08/15/how-are-soil-scientists-studying-soils-under-water/

Wessel, B.M., 2018. Restoring a dammed river with experimental flooding. In: K. Engelhardt, T. Watkins (Eds.), Parks in Science History. US National Park Service. https://www.nps.gov/articles/dams-grca.htm.

Wessel, B.M., Rabenhorst, M.C., 2016. Subaqueous soils and sulfidic materials of the Rhode River. In: M.C. Rabenhorst, D.S. Fanning, W.L. Daniels (Eds.), 8th International Acid Sulfate Soils Conference Field Tours Guidebook, College Park, MD, pp. 83-92.

Wessel, B.M., Rabenhorst, M.C., 2016. Subaqueous soil (SAS) mapping in the Rhode River, Report to the Smithsonian Environmental Research Center.

Wessel, B., 2015. Soil--genesis? Bulletin of the International Union of Soil Sciences 127, 109-110.

Wessel, B., M. Williams, 2014. Iron (Fe) flocculate in streams with and without regenerative stormwater conveyance (RSC) structures. Maryland Sea Grant Research Fellows, Final Student Papers Summer 2014.

INVITED PRESENTATIONS

Wessel, B.M., Bolster, C.H., King, K.W., Shedekar, V.S., 2021. Phosphorus transport modeling in Ohio using the Annual P Loss Estimator, Presentation of modeling work to OCP North America, Inc., Virtual, May 14.

Wessel, B.M., 2020. Oceanic pedology: Is there a depth too deep? Symposium on the Future of Pedology, Soil Science Society of America Annual Meeting, Virtual Meeting, November 9. Video: https://scisoc.confex.com/scisoc/2020am/meetingapp.cgi/Paper/127209

Wessel, B.M., 2019. Experimental flooding to restore a dammed river in the Grand Canyon, Inspire Session: National parks in the history of science, Ecological Society of America Annual Meeting, Louisville, KY, August 14.

Wessel, B.M., Rabenhorst, M.C., 2018. Coastal Zone Soil Survey and Our Future, USDA NRCS Coastal Zone Soil Survey Planning Workshop, Savannah, GA, January 8-12.

Wessel, B.M., 2017. Adventures abroad: My Fulbright experience in Denmark and beyond, Environmental Science and Technology Dept. Seminar Series, College Park, MD, Sept. 27.

Wessel, B.M., 2017. Preparing for graduate study during your Fulbright experience in the United States, Danish-American Fulbright Commission Pre-Departure Orientation (for Danish students), Copenhagen, Denmark, June 12.

INTERNATIONAL PRESENTATIONS

Wessel, B.M., Kristensen, E., Rabenhorst, M.C., Sjøgaard, K.S., Treusch, A.H., 2017. Classification issues in restored aquatic habitats on reclaimed land: sediments, subaqueous soils, or submerged soils?, SUITMA-9 Conference, Moscow, Russia. Oral.

Wessel, B.M., Rabenhorst, M.C., Koch, J., 2017. Chemically contaminated subaqueous soils: A challenge for Soil Taxonomy, SUITMA-9 Conference, Moscow, Russia. Poster.

Rabenhorst, M.C, **Wessel, B.M.**, Stolt, M.H., Lindbo, D., Monger, C., 2017. Should there be a "wet" soil order in Soil Taxonomy?, European Geosciences Union General Assembly, Vienna, Austria. Poster, presented by C. Monger.

Wessel, B.M., Levin, M.J., Fanning, D.S., Rabenhorst, M.C., 2016. Soil Taxonomy proposals for acid sulfate soils and subaqueous soils. In: C. van Huyssteen (Ed.), Proceedings of the 5th International Soil Classification Congress, Bloemfontein, South Africa, pp. 41. Oral.

Wessel, B.M., Williams, M.R., 2015. Factors responsible for the development of iron flocculate in streams with and without regenerative stormwater conveyance (RSC) structures. ASLO Aquatic Sciences Meeting, Granada, Spain. Poster.

VOLUNTEERED MEETING PRESENTATIONS

Wessel, B.M., Stewart, R., Duball, C., 2021. Soil health in subaqueous soils, Soil Science Society of America Annual Meeting, Salt Lake City, UT, November 10. Poster.

Bolster, C.H., **Wessel, B.M.**, 2020. Phosphorus transport modeling, Sustainable Phosphorus Alliance, Phosphorus Forum 2020, Virtual Meeting, October 1. Oral.

Wessel, B.M., Rabenhorst, M.C., 2019. Bootstrapping for subaqueous soil survey evaluation in Chesapeake Bay, Soil Science Society of America Annual Meeting: Symposium—Wetland Resilience in a Changing Climate, San Antonio, TX, November 13. Oral.

Park, C.E., **Wessel, B.M.**, Rabenhorst, M.C., 2019. A subaqueous soil survey: South River, Maryland, Soil Science Society of America Annual Meeting, San Antonio, TX, November 12. Poster.

Wang, C., Rabenhorst, M.C., **Wessel, B.M.**, 2019. Measuring porewater sulfide levels in benthic (subaqueous soil) environments in Chesapeake Bay, Soil Science Society of America Annual Meeting, San Antonio, TX, November 11. Poster.

Wessel, B.M., Rabenhorst, M.C., 2019. Development and evalutaion of a subaqueous soil survey and associated soil-landscape conceptual model, National Cooperative Soil Survey Conference, Narragansett, RI, June 11. Oral.

Wessel, B.M., Kristensen, E., Rabenhorst, M.C., 2019. Changing tides: Land reclamation and lagoon restoration in Gyldensteen Strand, Denmark, Soil Science Society of America Annual Meeting, San Diego, CA, January 6-9. Oral.

Wessel, B.M., Rabenhorst, M.C., 2019. Development and evaluation of a soil-landscape conceptual model for western shore subestuaries of Chesapeake Bay, Soil Science Society of America Annual Meeting, San Diego, CA, January 6-9. Oral.

Rabenhorst, M.C., **Wessel, B.M.**, 2019. Subaqueous soil assessment to support oyster aquaculture in Chesapeake Bay, Soil Science Society of America Annual Meeting, San Diego, CA, January 6-9. Oral.

Mayer, P., Duan, S., Kaushal, S.S., **Wessel, B.M.**, Johnson, T., 2018. Environmental trade-offs of stream restoration for managing stormwater and nutrients in urban ecosystems, American Geophysical Union Fall Meeting, Washington, DC, December 10. Oral.

Wessel, B.M., Rabenhorst, M.C., 2017. Soil-landscape relationships of the Rhode River bathyscape of Chesapeake Bay, Soil Science Society of America Annual Meeting, Tampa, FL, October 21-24. Oral.

Mayer, P., Duan, S., Kaushal, S.S., **Wessel, B.M.**, Johnson, T., 2017. Regenerative stormwater conveyance (RSC) as a restoration approach to nutrient management may depend upon carbon quantity, quality, and source, Ecological Society of America Annual Meeting, Portland, OR, August 9. Oral.

Wessel, B.M., Rabenhorst, M.C., 2016. An inventory of sulfidic materials in the subaqueous soils of the Rhode River estuary, 8th International Acid Sulfate Soils Conference, College Park, MD. Oral.

Fiola, J.C., **Wessel, B.M.**, Rabenhorst, M.C., 2016. Constructing and evaluating a monolith of an active acid sulfate soil with a duripan. 8th International Acid Sulfate Soils Conference, College Park, Maryland. Poster.

Rabenhorst, M.C., Balduff, D.M., Orr, R., Zurheide, P.K., **Wessel, B.M.**, 2016. IRIS (Indicator of Reduction In Soils) Technology for Assessing Sulfidization Processes in Subaqueous Soils. 8th International Acid Sulfate Soils Conference, College Park, MD. Poster.

Wessel, B.M., Rabenhorst, M.C., King, P.S., 2015. Stability, Sampling, and Subaqueous Soils of the Rhode River Estuary, Synergy in science: Partnering for solutions, Annual Meeting of the Soil Science Society of America, Minneapolis, MN. Oral. *Won 2nd place in Pedology Session graduate student competition.*

Wessel, B.M., Rabenhorst, M.C., Yonkos, L.T., Hartzell, S., 2015. Do chemically contaminated subaqueous soils present a challenge for classification?, Synergy in science: Partnering for solutions, Annual Meeting of the Soil Science Society of America, Minneapolis, MN. Poster.

Wessel, B.M., Williams, M.R., 2015. Regenerative stormwater conveyances: Novel ecosystems exhibiting iron flocculate formation may be altering metal biogeochemical cycles, 100th Annual Meeting of the Ecological Society of America, Baltimore, MD. Oral.

Wessel, B.M., Williams, M.R., 2014. Factors responsible for the development of Fe flocculate in streams with and without Regenerative Stormwater Conveyance (RSC) structures. Council on Undergraduate Research, Research Experiences for Undergraduates Symposium, Arlington, Virginia. Poster.

REGIONAL AND LOCAL MEETING PRESENTATIONS

Wessel, B.M., Rabenhorst, M.C., 2020. Statistically evaluating the Rhode River soil survey, Mid-Atlantic Hydric Soils Committee Meeting, Blacksburg, VA, January 9. Oral.

Wessel, B.M., Rabenhorst, M.C., 2019. A tale of two parent materials: Investigating Tertiary and Holocene soils in Chesapeake Bay, Department of Environmental Science and Technology, Soils Research Group, University of Maryland, College Park, MD, November 22. Oral.

Wessel, B.M. Rabenhorst, M.C., 2019. Subaqueous soil survey can support aquaculture and environmental management in Chesapeake Bay subestuaries, University of Maryland College of AGNR Cornerstone Event: Ensure a Clean and Healthy Chesapeake Bay, College Park, MD, October 29. Poster.

Wessel, B.M., Kristensen, E., Rabenhorst, M.C., 2019. Subaqueous soils across the pond, Mid-Atlantic Hydric Soils Committee Meeting, Elkins, WV, July 17. Oral.

Wessel, B.M., Rabenhorst, M.C., 2019. Some statistics for subaqueous soil survey, Department of Environmental Science and Technology, Soils Research Group, University of Maryland, College Park, MD, May 10. Oral.

Wessel, B.M., 2019. New directions for Pedologue, Mid-Atlantic Association of Professional Soil Scientists Business Meeting, Annapolis, MD, February 27. Oral.

Wessel, B.M., Rabenhorst, M.C., 2019. Bottom improvement for oyster aquaculture in Chesapeake Bay, Mid-Atlantic Hydric Soils Committee Meeting, Chesapeake, VA, January 17. Oral.

Wessel, B.M., Rabenhorst, M.C., 2018. Preliminary results of bottom management for oyster aquaculture in Big Annemessex River, Department of Environmental Science and Technology, Soils Research Group, University of Maryland, College Park, MD, October 19. Oral.

Wessel, B.M., Rabenhorst, M.C., 2018. Soil-landscape conceptual model development for western shore subestuaries of Chesapeake Bay. Joint NE-S Regional Cooperative Soil Survey Workshop, Summersville, WV, June 24-28. Oral.

Mayer, P., Duan, S., Kaushal, S.S., **Wessel, B.M.**, Johnson, T., 2018. Environmental trade-offs of stream restoration approaches for managing nutrients and metals in urban ecosystems, Pacific Northwest Chapter of the Society of Environmental Toxicology and Chemistry (PNW-SETAC), Corvallis, OR, March 8-10. Oral.

Wessel, B.M., Rabenhorst, M.C., 2018. Oyster aquaculture plot evaluation and improvement, Mid-Atlantic Hydric Soils Committee Meeting, Canastota, NY, August 23. Oral.

Wessel, B.M., Rabenhorst, M.C., 2018. Soil-landscape relationships in the Rhode River bathyscape of Chesapeake Bay, Mid-Atlantic Hydric Soils Committee Meeting, Newark, DE, January 18. Oral.

Wessel, B.M., Rabenhorst, M.C., 2017. A soil-landscape model for Chesapeake Bay's western shore, Department of Environmental Science and Technology, Soils Research Group, University of Maryland, College Park, MD, September 29. Oral.

Wessel, B.M., Rabenhorst, M.C., 2017. Something Danish this way comes: An update on Gyldensteen Strand, Department of Environmental Science and Technology, Soils Research Group, University of Maryland, College Park, MD, April 7. Oral.

Wessel, B.M., Rabenhorst, M.C., 2016. Denmark's drowned diorama: Soils, sediments, and sulfides in the Gyldensteen Strand, Department of Environmental Science and Technology, Soils Research Group, University of Maryland, College Park, MD, October 21. Oral.

Wessel, B.M., Rabenhorst, M.C., 2016. Everything you always wanted to know about tidal datums but were afraid to ask, Department of Environmental Science and Technology, Soils Research Group, University of Maryland, College Park, MD, April 15. Oral.

Wessel, B.M., Rabenhorst, M.C., 2016. Textures, triangles, and tables: A discussion on their history and development, Department of Environmental Science and Technology, Soils Research Group, University of Maryland, College Park, MD, February 26. Oral.

Wessel, B.M., Rabenhorst, M.C., 2015. Soils and sediments of the Rhode River, Department of Environmental Science and Technology, Soils Research Group, University of Maryland, College Park, MD, October 30. Oral.

Weil, R.R., **Wessel, B.M.**, 2014. Managing soil sulfur to increase protein quality and yields of soybeans in the Mid-Atlantic, Maryland Soybean Board Research Committee Annual Meeting, Denton, MD, February 18. Oral.

GRANTS

2018-2019	$29,450 – Evaluating subaqueous soil-landscape models for mapping and interpretations in Chesapeake Bay *Maryland Agricultural Experiment Station Competitive Grants Program* Co-PI with Martin C. Rabenhorst

2018-2019	$36,000 – Pedological approach to evaluating Chesapeake Bay sediments for suitability for oyster aquaculture *Maryland Industrial Partnerships Program* Subcontract on University of Maryland Center for Environmental Science proposal (Co-Investigator) PI: Don Meritt / Mike Roman
2016	$50,000—Mobilization of phosphorus and trace metals from Regenerative Stormwater Conveyance systems during base-flow conditions *Environmental Protection Agency Region 3, National Response Center* (Co-Investigator) PI: Shuiwang Duan
2015	$10,750 – Subaqueous soil mapping in the Rhode River *Smithsonian Environmental Research Center (SERC-TMON)* (Co-Investigator) PI: Martin C. Rabenhorst

SCHOLARSHIPS, PRIZES, AND AWARDS

2021 – $1000 Henry Lin Travel Award
2020 – $500 Love of Learning Award, Phi Kappa Phi Honor Society
2019 – Outstanding Graduate Student Award, Department of ENST, University of Maryland
2019 – $400 Goldhaber Travel Grant, University of Maryland Graduate School
2018 – $5000 National Science Foundation, Graduate Research Internship Program Award
2018 – 1st place in Soil Science Society of America photo contest "Tools and people at work" category
2018 – $500 Maryland Senatorial Scholarship
2018 – $500 Love of Learning Award, Phi Kappa Phi Honor Society
2017 – $500 International Conference Student Support Award, University of Maryland Graduate School
2017 – $2000 Hopkins Graduate Scholarship
2016 – NSF Graduate Research Fellowship (GRFP), Geosciences: Geomorphology
2016 – Fulbright Student Research Fellowship, Denmark
2016 – $600 Goldhaber Travel Grant, University of Maryland Graduate School
2016 – $500 Love of Learning Award, Phi Kappa Phi Honor Society
2016 – $1267 International Graduate Research Fellowship
2015 – $2500 Phi Kappa Phi Chapter Scholarship
2015 – $1000 NSF BIO-REU Travel Scholarship
2015 – $500 Love of Learning Award, Phi Kappa Phi Honor Society
2015 – Phi Kappa Phi Student Vice President Leadership Summit Award, Salt Lake City, UT
2015 – Dean's Fellowship, College of Agriculture and Natural Resources
2014 – Undergraduate Researcher of the Year Award (1 of 8), University of Maryland
2014 – Philip Merrill Presidential Scholar, University of Maryland
2013 – Society for Ecological Restoration Student Conference Scholarship
2012 – Marinich Scholar Award, Howard Community College
2010-2012 – National Science Foundation S-STEM Scholarship, Howard Community College

3. TEACHING

COURSES

EESC 315 Hydrogeology, Spring 2022
- Upper level course with lab, field, and lecture components, 8 students

EESC 120 — Principles of Environmental Sustainability, Spring 2022
- Second semester course in environmental science with lab, ~50 students

URES 197 — Undergraduate Research in Earth and Environmental Science, Spring 2022
- Mentored two undergraduate students on research projects
  - One focused on application of the Clean Water Act to contaminated land in Fredericksburg, VA, including groundwater sampling for organic contaminants
  - One focused on long-term water quality trends in Abel Lake drinking water reservoir

EESC 110 — Our Dynamic Earth, Fall 2021
- Introductory course in physical geology with lab, ~20 students

EESC 120 — Environmental and Ecological Systems, Fall 2021
- Introductory course in environmental science, ~50 students

ENST 301/302/303/309 — Field Soil Morphology (Soil Judging), Fall 2018, 2019, and Spring 2019, 2020
Teaching Assistant (Assistant Coach)
- Assisted in teaching field methods in describing and interpreting soils
- Total of 10 students each semester
- Won 1st in 2018 Regional Competition, 1st in 2019 National Competition, and 1st in 2019 Regional Competition

ENST 200 — Introduction to Soil Science, Teaching Assistant, Fall 2015
Teaching Assistant
- Independently taught two laboratory sections, ~50 students total
- Led a field trip for each section

GUEST LECTURES

ENST 702, Professional Development in the Environmental Sciences, Spring 2022 (UMD)
- Led class discussion on the job search and contract negotiations

ENVS 490G, Environmental Pedology, Fall 2021 (UL Lafayette)
- Introduced upper-level soil science students to subaqueous soils and oceanic pedology

Soil Judging, Fall 2020 (Virginia Tech)
- Demonstrated how to distinguish pedogenic from non-pedogenic soil colors for iron oxides in the Mid-Atlantic region

ENST 414, Soil Morphology, Fall 2017, 2018, 2019 (UMD)
- Engaged students in opening and interpreting sediment cores in the laboratory

ENST 430, Wetland Soils, Spring 2016, 2018 (UMD)
- Lecture and discussion on subaqueous soils

4. SERVICE

PROFESSIONAL

2022 – Nominee for Chair Elect of the Urban and Anthropogenic Soils Division of the Soil Science Society of America.

2020 – Participated in Congressional Visits Day for the Soil Science Society of America, visiting 4 Senate and 4 House offices in Congress to explain my research and advocate for research funding, Washington, DC, March 2-3.

2020-2022 – Member of Soil Science Society of America Committee S205.1, Council on History, Philosophy, and Sociology of Soil Science.

2019 – Moderated session titled "Technical presentations", National Cooperative Soil Survey Conference, Narragansett, RI, June 11.

2019 – Co-organized and co-moderated cross-divisional symposium titled "Where land meets sea: The interdisciplinary frontier of coastal and subaqueous soils and sediments", Soil Science Society of America Meeting, San Diego, CA, January 7.

- Obtained a competitive $2000 award to fund symposium and invite three speakers

2019 – Co-organized and co-moderated topical session titled "The wettest wetlands: Coastal and subaqueous soils and sediments", Soil Science Society of America Meeting, San Diego, CA, January 7. 9 oral presentations.

2018-Present – Assistant Editor for Pedologue, Newsletter for the Mid-Atlantic Association of Professional Soil Scientists

2018 – Selected attendee to NSF Coastlines and People (CoPe) scoping workshop, Sept. 26-28

- Contributed to workshops/panels to help guide NSF priorities

2018 – Invited alumni volunteer to the Philadelphia Fulbright Enrichment Seminar, May 23-27

2016 – Co-led a field tour interpretive discussion of an acid sulfate soil developed in gold mine tailings, 5th International Soil Classification Congress, Bloemfontein, South Africa.

2016 – Led a field tour presentation on subaqueous soils and sulfidic materials of Rhode River, 8th International Acid Sulfate Soils Conference, College Park, MD, July 20.

REVIEWING ACTIVITIES

2022 – 1 article reviewed for *Geoderma*, 1 for *Environmental Monitoring and Assessment*

2021 – 3 articles reviewed for *SSSAJ*, 1 for *Agrosystems, Geosciences & Environment*, 1 for *Geoderma*

2020 – 1 article reviewed for *SSSAJ*, 1 for *Geoderma*

2019 – 2 articles reviewed for *SSSAJ*

2018 – 1 article reviewed for *Geoderma*

2017 – 1 article reviewed for *Geoderma*

UNIVERSITY

2020 – Graduate Student Faculty Meeting Representative, Spring semester

2018-19 – President, Graduate Association for Tech. & Environmental Science, University of Maryland

- Received commendation from department chair for contributing to curriculum development

2015-2020 – President, Phi Kappa Phi Student Chapter, University of Maryland

2015 – Graduate Student Government, Environmental Science and Technology Representative

2014 – Search committee member for Dean of the College of Agriculture and Natural Resources

2014 – Undergraduate Senator for College of Agriculture and Natural Resources, University Senate