



CURRICULUM VITAE

Current Research Interests

Data-driven policymaking and advocacy; Using land system science to create solutions for resource management; Strategies for circular bio-economies with renewable resources; Policymaking from an industrial ecology perspective

University Education

2022-2023 Mitchell Scholar & MPP Candidate, University College Dublin – Dublin, Ireland

MPP Environmental Policy track. Sponsored by the U.S. – Ireland Alliance George Mitchell Scholarship (commonly named the “Irish Rhodes”).

2022 – B.S. Geographic & Environmental Sciences ,

B.A Liberal Studies in Public Policy & Industrial Ecology, University of Louisville – Louisville, Kentucky, USA

Minor in Political Science (pre-law)

Undergraduate Cumulative GPA: 3.7/4.0

2018- Western Kentucky University Gatton Academy of Science & Mathematics

Certificate of Graduation, Track in Biology/Ecology

Professional Certifications

Certificate of Applied Geospatial Technology, University of Louisville, Department of Geographic & Environmental Sciences

Senior Policy Fellow, Commonwealth Policy Coalition, University of Louisville Chapter

University Appointments

2020-22 NSF Teaching Assistant Grant, University of Louisville – GEOG 558 Geographic Information Sciences

2021 Climate Action Committee & Plan Co-Author, University of Louisville

2021-23 Strategic Planning for Student Research Engagement, L3 Committee, Student Centre for Engaged Learning Sub Committee leader, University of Louisville Institutional Research

Research Grants

University of Louisville Honors Student & Faculty Committee: Grant for research consulting study based in Calca, Peru to advise new collaboration to avoid local crop water scarcity in the Vilcanota-Urubamba basin. A working paper was created for communication to interdisciplinary researchers to inform collaborative grant applications the following year focused on integrating university research and crop water balances with local water system decision-making. (\$3k for 2022)

University of Louisville Etscorn Research Scholarship: Fellowship used to support environmental field studies, and studying commercialization methods for new low-cost water sampling technology of bacteria to inform stream restoration. Work also included study of environmental law and advancement of new sampling technology in the water quality monitoring policies in Kentucky and New York. (\$2.5k for 2021)

2021 Research Opportunity Program, University of Louisville: Award for student & faculty-mentored work (SROP). Remote sensing study of broader hydrological trends in the Andes using Thornthwaite Water Balance in R. (\$4.5k for 2021).

2019 University of Louisville Grawemeyer Scholarship: Scholarship to finance tuition and housing at the University, dependent on independent research completion. Independent research was conducted with UofL Conn Center for Renewable Energy. Included study on public policy design to promote a more sustainable bioeconomy with byproducts of the bourbon industry including anaerobic digestion of stillage wastes. Additional field study on assessment of Appalachian *Sphagnum* peat moss as a renewable biocoal candidate through torrefaction and densification, permitted by KY Nature Preserves Commission.

2018 Kentucky State University Aquaculture Research Center: Western KY University/Gatton Academy Research Internship Grant allowing for work as a visiting researcher to Kentucky State University. Studied development of systems for sustainable aquaculture development integrated with anaerobic digestion. Study focused on an aquaculture nutrition gap to sustainable cycles between aquaculture, vermiculture with CORS systems, and renewable biogas. (\$3.5k for 2018)

Academic Publications

(Pending) Kessler, Samuel C. (2022) "Analysis of Satellite Data to Detect Risk of Irrigation Water Scarcity and Guide Integrated Water Management Efforts in The Incan Sacred Valley of Peru". University of Louisville Institutional Repository, Department of Geographic & Environmental Sciences Approved Senior Theses. (Review Committee: Dr. Forrest Stevens, Thesis Advisor; Dr. Andrea Gaughan, Second Reader; Dr. John Hale, Capstone Reviewer Dept. Liberal Studies)

Kessler, Samuel C. (2021) "Novel Pilot Development of a Closed-Loop Sustainable System Between Biogas Renewable Energy, Distilling, and Aquaculture by Vermiculture of Stillage Wastes," *The Cardinal Edge*: Vol. 1 , Article 15, University of Louisville Institutional Repository. Available at: <https://ir.library.louisville.edu/tce/vol1/iss1/15>

Conference Presentations/Publications:

Kessler, S. , Ingram, J. , and Barnett R. (2019-2021) Advancement in Sediment Bag Methods for Fecal Contamination Profiling in Streams. Presented at: 2019 KY/TN Water Professionals Conference, 2020 Kentucky Academy of Science Annual Meeting, 2021 Ohio River Basin Consortium for Research and Education.

Kessler, S. (2020). "How a Low-Cost Method for Cumulative Water-Sampling shows need for improvement of Legal public-contact Standards in the United States". University of Louisville Institutional Repository, Grawemeyer Colloquium Papers, 2020 Grawemeyer Colloquium. Available at: <https://ir.library.louisville.edu/gcp/vol2020/iss/2/>.

Kessler, S. , Kumar, V. , Rossi, W. , Andemichael, H. (2018). Applicability of Waste-Reared *Hermetia illucens* as an ingredient in the diet of Nile Tilapia. *Proceedings of the World Aquaculture Society: Aquaculture America 2018, Las Vegas NV*, p. 243

Technical Works

Samuel Kessler and Peter Cinotto/United States Geological Survey. (2022) US Patent Application 17531292: PARTICULATE-BASED CUMULATIVE CONTAMINANT SAMPLING DEVICE. United States Patent & Trademark Office. *Patent-Pending, submitted by Attorney James M. Mitchell, US Department of the Interior.

Policy Papers

Policy Briefs:

Kessler, Samuel C. (2022) "Support New Business to Solve Old Problems with Kentucky's Keystone Waste from Bourbon & Brewing," *Commonwealth Policy Papers*: Vol. 1: Iss. 1, Article 2. Available at: <https://ir.library.louisville.edu/cpp/vol1/iss1/2>

Mattingly, Julia; Belcher, Sarah; and Kessler, Samuel C. (2022) "A Geographically Targeted Approach for a Preceptor Tax Incentive Using Primary Care Health Professional Shortage Areas (HPSAs)," *Commonwealth Policy Papers*: Vol. 1: Iss. 1, Article 1. Available at: <https://ir.library.louisville.edu/cpp/vol1/iss1/1>

Legislative Draft Documents:

Kessler, Samuel C. (2022) "Draft State Legislation: A novel policy system of income & refundable property tax credits for sustainable use of "keystone" stillage and spent grain wastes to stop pollution and surge business growth," *Commonwealth Policy Papers*: Vol. 1: Iss. 1, Article 3. Available at: <https://ir.library.louisville.edu/cpp/vol1/iss1/3>

Kessler, Samuel C. and Gabhart, Austin (2022) "Draft State Legislation: Agricultural Energy Net Metering & Power Purchasing," *Commonwealth Policy Papers*: Vol. 1: Iss. 1, Article 5. Available at: <https://ir.library.louisville.edu/cpp/vol1/iss1/5>

Kessler, Samuel C. (2022) "Draft Federal Legislation: Agricultural Economic Empowerment Zones," *Commonwealth Policy Papers*: Vol. 1: Iss. 1, Article 6. Available at: <https://ir.library.louisville.edu/cpp/vol1/iss1/6>