



# Win Cowger

ENVIRONMENTAL SCIENTIST

Moore Institute for Plastic Pollution Research

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Win is working to use science, data, and software to tackle the global challenges of plastic pollution and waste.

## Education

### University of California, Riverside

Riverside, CA, USA

PHD. ENVIRONMENTAL SCIENCE SOIL AND WATER

2017 → 2021

- (3.62 GPA)

### Iowa State University

Ames, IA, USA

BS ENVIRONMENTAL SCIENCE

2013 → 2015

- (3.93 GPA) & Honors Program Graduate

### Hawkeye Community College

Waterloo, CA, USA

ASSOCIATE OF ARTS IN LIBERAL ARTS

2011 → 2013

- (4.0 GPA)

## Employment

### Moore Institute for Plastic Pollution Research

Long Beach, CA, USA

RESEARCH SCIENTIST

October 2021 → Current

- Leading research on plastic pollution, applying for grants, publishing peer reviewed papers, collecting field and lab based data.

### University of California at Riverside

Riverside, CA, USA

GRADUATE STUDENT RESEARCHER

July 2017 → October 2021

- I research plastic pollution, specifically source allocation of plastic pollution with an emphasis on fluvial transport dynamics. I collect field data, conduct lab experiments, write grants, orchestrate collaborations, present at conferences, and develop process-based models. I apply my science to real-world problems by collaborating closely with nonprofit and government groups to develop my research priorities.

### 5 Gyres

California, USA

CONTRACT DATA SCIENTIST

June 2017 → September 2020

- I analyze and compile large datasets to answer questions about mismanaged waste for 5 Gyres Institute. Some examples of questions are: What are the most common types of litter in the United States and Where are hotspot sources and sinks of plastic pollution to the marine environment in South East Asia?

### Plant Prudent

Ames, IA, USA

FOUNDING MEMBER LINK: ([HTTP://ARCG.IS/0Y9NB](http://arCG.is/0Y9NB))

February 2017 → August 2018

- I founded a small business focused on developing web based tools to help people grow plants wisely. Our beta tool is out now which helps Iowa land owners determine the most suitable species of trees to plant on their land based on soil type.

### Prudenterra

Ames, IA, USA

SENIOR GIS ANALYST

February 2016 → September 2017

- I research the feasibility of utilizing advanced GIS functions for Prudenterra, a company that specializes in sustainable agriculture and conservation consulting. Promoted to Senior GIS Analyst on July 2017 and hours cut to 5 hours or less per week during graduate school. I lead a small team of GIS analysts.

### Cradle to Grave Farms

Sioux Falls, SD, USA

ORGANIC FARM ENVIRONMENTAL SPECIALIST

February 2016 → December 2016

- Provided technical GIS and environmental management planning assistance to an organic hop, barley, honey, chicken, and tomato farm. Directly managed hop and tomato fields and chickens.

## Conservation Corps of Minnesota and Iowa

Midwest, USA

CREW LEADER

February 2016 → December 2016

- I led a team of 5 conservation workers that traveled around the Midwest. We worked with professionals in Fish and Wild Life Service, The Nature Conservancy, National Parks Service, and various state and county conservation agencies. I coordinated projects, submitted time sheets, project reports, and expense reports. My crew controlled invasive plant species with power tools and herbicide, built board walks, maintained fences, and mapped work using GPS and GIS. I volunteered for a one-month disaster relief effort where I built a phone application for FEMA to quickly find resources for survivors.

## Conservation Corps of Minnesota and Iowa

Iowa, USA

CREW MEMBER

May 2015 → December 2015

- Worked with the Polk County Conservation Board to upkeep parks by removing invasive species using power tools and/or herbicide, built trails and stairs, and harvested prairie seeds. I volunteered for a disaster relief effort for two weeks where I was the database manager for the volunteer reception center.

## Iowa State University

Ames, IA, USA

RESEARCH ASSISTANT

January 2014 → May 2015

- Supervised by Dr. Soupir & Dr. Cademartiri, Worked with a similar freedom to a graduate student to develop a chemical assay for quantifying bacteria in water and developed a device to concentrate bacteria from fresh water sources. Worked in a biological lab doing colony counts, growth curves, and filtration. Worked in a chemical lab creating chemical combinations, testing pH, and working with enzymes.

## Iowa State University

Ames, IA, USA

TUTOR

September 2013 → December 2013

- ASC Tutor in Algebra, Geometry, and Calculus. Tutored college and high school math courses in Algebra, Geometry, and Calculus to groups ranging from 1-5 people.

# Service

## UNIVERSITY

### University of California Riverside

Riverside, CA, USA

GRADUATE STUDENT ASSOCIATION MEMBER

June 2019 → September 2021

- Graduate student association member in my department. Expanded inclusivity, diversity, and transparency within our department and advocated for the graduate students.

### Iowa State University

Ames, IA, USA

PRESIDENT OF THE SOIL AND WATER CONSERVATION CLUB

December 2013 → December 2014

- Led meetings, and planned activities and speakers. Presented with a groundwater flow model to children and professionals to teach the basics of groundwater flow.

### Iowa State University

Ames, IA, USA

MAGAZINE EDITORIAL COMMITTEE MEMBER

August 2013 → May 2014

- Contacted authors, edited their submissions, and found sponsors for magazine Getting into Soil and Water.

### Iowa State University

Ames, IA, USA

CALS AMBASSADOR

September 2013 → May 2015

- Led tours for the College of Agriculture and Life Sciences to prospective students. Planned training and social events for the Ambassador group.

## NONPROFIT

### Recycle My Battery

New Jersey, USA

ADVISER

June 2022 → Current

- Advise on strategies for preventing batteries from getting into the environment.

### Code for Sacramento

Sacramento, CA, USA

PROJECT SPONSOR

September 2021 → Current

- I advise the Code for Sacramento group on how to create software for progressing knowledge and management actions on trash and microplastics.

### Moore Institute for Plastic Pollution Research

Long Beach, CA, USA

BOARD MEMBER

September 2020 → Current

- I am a board member for the institute serving this institute that focuses on plastic pollution research.

### National Cleanup Day

USA

SCIENCE ADVISER

December 2019 → Current

- Advise on the availability and use of data for reporting about the problem of litter pollution and cleanup.

## 5 Gyres

RESEARCH ADVISER

- Assist with research priorities, writing manuscripts, and developing software tools.

California, USA

June 2018 -> Current

## Longest Swim

METHODS ADVISER

- Advised on methods for ocean litter monitoring during a swim across the pacific ocean.

North Pacific Ocean

2018

## Lets Do It World

DATA SCIENCE AND IT ADVISER

- I guide data management, data collection, and emerging IT for Let's Do It World. I advised creating the World Waste Platform, a data sharing and visualization platform for all waste data worldwide.

Tallin, Estonia

September 2017 -> June 2020

## GOVERNMENT ORGANIZATIONS

### Open Research Europe

GATEWAY ADVISER

- I am a Gateway Adviser to Open Research Europe, a scientific publisher that is free to publish in and free to view. Promoting their efforts on Social Media.

Europe

June 2022 -> Current

### US Congress

WRITTEN TESTIMONY

- Assisted in the drafting of a written testimony to the US congress on plastic pollution.

Washington, DC, USA

2021

### California EPA

REGULATION ADVISER

- Reviewed definition of microplastics for regulation in drinking water.

California, USA

2019

### US EPA

METHODS ADVISER

- Reviewed trash monitoring methods for an EPA workgroup.

USA

2018

### TeamMates

MENTOR

- Mentored a fifth-grader once a week to encourage him to be the best that he could be.

Waterloo, IA, USA

October 2012 -> May 2013

## PROFESSIONAL SOCIETIES

### SoCal SETAC

BOARD MEMBER

- On the board of directors for Southern California SETAC Chapter.

California, USA

September 2022 -> Current

### Thriving Earth Exchange, AGU

SCIENCE PARTNER

- Worked with AGU to mentor a workgroup composed of city officials and nonprofit groups, on how to collect data on trash in streams to inform management and policy making. Gave hands-on field training and data analysis services.

Pinole, CA, USA

January 2021 -> Current

### Thriving Earth Exchange, AGU

SCIENCE PARTNER

- Worked with AGU to mentor a nonprofit group, Shenandoah Green, on how to collect microplastic data. Visited them in Staunton, VA to give hands-on field training.

Staunton, CA, USA

May 2019 -> June 2020

## REVIEWING FOR JOURNALS

### Environmental Science and Pollution Research (1)

### Applied Spectroscopy (2)

### Science of the Total Environment (4)

### Environmental Science and Technology (7)

### Environmental Science and Technology Letters (3)

**Environmental Research Letters (2)**

**Journal of Open Source Software (1)**

**Frontiers in (1)**

**ACS Omega (1)**

**Nature Scientific Reports (1)**

**Analytical Chemistry (1)**

**ASCE (1)**

**Microplastics and Nanoplastics (1)**

**Water Research (1)**

## SOCIETY MEMBERSHIPS

**Geological Society of America**

USA  
2022 -> Current

**Society for Applied Spectroscopy**

2020 -> 2021

**American Geophysical Union**

USA  
2018 -> Current

**SETAC North America**

North America  
2018 -> 2021

**SETAC Southern California**

Southern California, USA  
2018 -> Current

## WORKING GROUPS

**Institute for Global Environmental Strategies**

Japan  
2022

REVIEWER

- Reviewed a Training Needs Assessment report on microplastic monitoring in Sri Lanka.

**American Geophysical Union**

Washington DC, USA  
August 2022 -> Current

REVIEWER

- Reviewing the Thriving Earth Exchanges policies and procedures.

**California EPA**

California, USA  
2022

FACILITATOR

- California Water Data Challenge 3 day event on microplastics data portals.

**Pacific Northwest Microplastic Consortium**

Pacific Northwest, USA  
2020 -> Current

TEAM MEMBER

- Participate in biannual meetings about microplastics research progress.

**Microplastics Methodology Working Group**

California, USA  
2019 -> Current

TEAM MEMBER

- Developing standard operating procedures and writing review manuscripts for microplastic pollution.

**Trash Monitoring Work Group**

California, USA  
2019 -> Current

SUBGROUP CO-LEAD

- Led a group of government employees, private professionals and nonprofit groups to develop tools for improving the quality and utility of trash data.

## Ocean Protection Council

ACTION ITEM CO-LEAD

California, USA

2018 → Current

- Led action items for Ocean Protection Council to improve chemical analysis of trash and develop databases.

## United Nations

REVIEWER

China

2018

- Reviewed a litter methodology on an expert panel with the United Nations in China.

## Southern California Coastal Water Research Project

Southern California, USA

TEAM MEMBER

2017 → 2022

- Bight 2018 Trash Monitoring Team Planning and implementation of the regional trash monitoring in streams around Southern California.

# Publications

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## PEER-REVIEWED ARTICLES

### Microplastics and Nanoplastics

CORRESPONDING AUTHOR LINK: ([HTTPS://DOI.ORG/10.1186/S43591-022-00035-1](https://doi.org/10.1186/s43591-022-00035-1))

2022

- Hapich, H., Cowger, W., Gray, A. et al. Trash Taxonomy Tool: harmonizing classification systems used to describe trash in environments. *Micropl.&Nanopl.* 2, 15 (2022).

### Water Research

Southern California, USA

COAUTHOR

2022

- Koutnik, V. S., Leonard, J., Brar, J., Cao, S., Glasman, J. B., Cowger, W., Ravi, S., & Mohanty, S. K. (2022). Transport of microplastics in stormwater treatment systems under freeze-thaw cycles: Critical role of plastic density. *Water Research*, 222, 118950.

### Journal of Hydrology: Regional Studies

Ventura California, USA

COAUTHOR

2022

- Jumps, N., Gray, A. B., Guilinger, J. J., & Cowger, W. C. (2022). Wildfire impacts on the persistent suspended sediment dynamics of the Ventura River, California. *Journal of Hydrology: Regional Studies*, 41, 101096.

### Earth-Science Reviews

COAUTHOR

2022

- Waldschläger, K., Brückner, M. Z. M., Carney Almroth, B., Hackney, C. R., Adyel, T. M., Alimi, O. S., Belontz, S. L., Cowger, W., Doyle, D., Gray, A., Kane, I., Kooi, M., Kramer, M., Lechthaler, S., Michie, L., Nordam, T., Pohl, F., Russell, C., Thit, A., ... Wu, N. (2022). Learning from natural sediments to tackle microplastics challenges: A multidisciplinary perspective. *Earth-Science Reviews*, 228, 104021.

### Frontiers of Environmental Science & Engineering

Canada

COAUTHOR LINK: ([HTTPS://DOI.ORG/10.3389/FENVS.2022.912107](https://doi.org/10.3389/FENVS.2022.912107))

2022

- Jenkins, T., Persaud, B. D., Cowger, W., Szigeti, K., Roche, D. G., Clary, E., Slowinski, S., Lei, B., Abeynayaka, A., Nyadjro, E. S., Maes, T., Thornton Hampton, L., Bergmann, M., Aherne, J., Mason, S. A., Honek, J. F., Rezanezhad, F., Lusher, A. L., Booth, A. M., ... Van Cappellen, P. (2022). Current State of Microplastic Pollution Research Data: Trends in Availability and Sources of Open Data. *Frontiers of Environmental Science & Engineering in China*, 10.

### Environmental Research Letters

Southern California, USA

2022

- Cowger, W., Gray, A., Hapich, H., Osei-Enin, J., Olguin, S., Huynh, B., Nogi, H., Singh, S., Brownlee, S., Fong, J., Lok, T., Singer, G., & Ajami, H. (2022). Litter origins, accumulation rates, and hierarchical composition on urban roadsides of the Inland Empire, California. *Environmental Research Letters: ERL*, 17(1), 015007.

### Analytical Chemistry

FIRST AUTHOR

2021

- Win Cowger, Zacharias Steinmetz, Andrew Gray, Keenan Munno, Jennifer Lynch, Hannah Hapich, Sebastian Primpke, Hannah De Frond, Chelsea Rochman, Orestis Herodotou. Microplastic Spectral Classification Needs an Open Source Community: Open Specy to the Rescue! 2021. *Analytical Chemistry*.

### Environmental Science and Technology

FIRST AUTHOR

2021

- Win Cowger, Andrew Gray, James Guilinger, Brandon Fong, Kryss Waldschläger. Concentration Depth Profiles of Microplastic Particles in River Flow and Implications for Surface Sampling. 2021. *Environmental Science and Technology*.

### Applied Spectroscopy

FIRST AUTHOR

2020

- Win Cowger, Andy M. Booth, Bonnie M. Hamilton, Clara Thaysen, Sebastian Primpke, Keenan Munno, Amy L. Lusher, et al. 2020. Reporting Guidelines to Increase the Reproducibility and Comparability of Research on Microplastics. *Applied Spectroscopy* 74 (9): 1066–77.
- Win Cowger, Andrew Gray, Silke H. Christiansen, Hannah DeFrond, Ashok D. Deshpande, Ludovic Hemabessiere, Eunah Lee, et al. 2020. Critical Review of Processing and Classification Techniques for Images and Spectra in Microplastic Research. *Applied Spectroscopy* 74 (9): 989–1010.

## Environmental Research

Germany

COAUTHOR

2020

- Waldschläger, Kryss, Maximilian Born, Win Cowger, Andrew Gray, and Holger Schüttrumpf. 2020. Settling and Rising Velocities of Environmentally Weathered Micro- and Macroplastic Particles. Environmental Research, September, 110192.

## Applied Spectroscopy

COAUTHOR

2020

- Primpke, Sebastian, Silke H. Christiansen, Win Cowger, Hannah De Frond, Ashok Deshpande, Marten Fischer, Erika Holland, et al. 2020. EXPRESS: Critical Assessment of Analytical Methods for the Harmonized and Cost Efficient Analysis of Microplastics. Applied Spectroscopy, April, 3702820921465.

## Environmental Pollution

Iowa, USA

FIRST AUTHOR

2019

- Cowger, W., Gray, A. B., & Schultz, R. C. (2019). Anthropogenic litter cleanups in Iowa riparian areas reveal the importance of near-stream and watershed scale land use. Environmental Pollution, 250, 981-989.

## BOOK CHAPTERS

### IWA Publishing

FIRST AUTHOR

2019

- Cowger, W., Gray, A. B., Eriksen, M., Moore, C., & Thiel, M. (2019). Evaluating wastewater effluent as a source of microplastics in environmental samples. MICROPLASTICS IN WATER AND WASTEWATER, 109.

## CONFERENCE PROCEEDINGS

### ACM Sigspatial

Riverside, CA, USA

COAUTHOR

2019

- Kang, Y., Zhao, Z., Magdy, A., Cowger, W., & Gray, A. (2019, November). Scalable Multi-resolution Spatial Visualization for Anthropogenic Litter Data. In Proceedings of the 27th ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems (pp. 560-563).

### IEEE

Riverside, CA, USA

COAUTHOR

2019

- Zhao, Z., Kang, Y., Magdy, A., Cowger, W., & Gray, A. (2019, April). A Data-Driven Approach for Tracking Human Litter in Modern Cities. In 2019 IEEE 35th International Conference on Data Engineering Workshops (ICDEW) (pp. 69-73). IEEE.

## DISSERTATION

### UC Riverside

Riverside, CA, USA

FIRST AUTHOR

2021

- Cowger W, 2021, Watershed Transport Processes of Anthropogenic Litter, University of California Riverside

## THESIS

### Iowa State University

Ames, IA, USA

FIRST AUTHOR

2015

- Cowger W, Schultz R. 2015. The Bhagsu Clean Watershed Project, Iowa State University, Honors Program, Honors Project Records, RS 3/3/3, Special Collections Department, Iowa State University Library.

## INVITED EDITORIALS

### Cleanup News

USA

FIRST AUTHOR LINK: ([HTTPS://WWW.CLEANUPNEWS.ORG/HOME/LITTER-HURTS-HUMANS-TOO](https://www.cleanupnews.org/home/litter-hurts-humans-too))

2020

- Win Cowger, 3 Ways Littering Hurts Humans Too. Cleanup News. 2020.

### Cleanup News

USA

FIRST AUTHOR LINK: ([HTTPS://WWW.CLEANUPNEWS.ORG/HOME/5-PLASTIC-POLLUTION-MYTHS-DEBUNKED](https://www.cleanupnews.org/home/5-plastic-pollution-myths-debunked))

2020

- Win Cowger, 5 Myths About Plastic Pollution Debunked. Cleanup News. 2020.

### Iowa State University

Ames, IA, USA

FIRST AUTHOR

2015

- Win Cowger, A letter from the President in Getting into Soil and Water Magazine, 2015

### Conservation Corps of Minnesota and Iowa

Ames, IA, USA

FIRST AUTHOR

2015

- Win Cowger, Minnesota and Iowa Conservation Corps Blogger, 2015

## ACKNOWLEDGEMENT ON PUBLICATIONS

## Break Free From Plastic

BREAK FREE FROM PLASTIC. BRAND AUDIT 2020. 2020. LINK:

([HTTPS://WWW.BREAKFREEFROMPLASTIC.ORG/WP-CONTENT/UPLOADS/2020/12/BFFP-2020-BRAND-AUDIT-REPORT.PDF](https://www.breakfreefromplastic.org/wp-content/uploads/2020/12/BFFP-2020-BRAND-AUDIT-REPORT.PDF))

California, USA

2020

## Syracuse University

KATHRYN MUNSTER, AN ANALYSIS OF CITIZEN SCIENCE AND ITS EFFECTS ON MARINE PLASTIC POLLUTION, 2019.

UNDERGRADUATE THESIS, SYRACUSE UNIVERSITY.

Syracuse, NY, USA

2019

## Environment International

COFFIN S, DUDLEY S, TAYLOR A, WOLF D, WANG J, LEE I, ET AL. COMPARISONS OF ANALYTICAL CHEMISTRY AND BIOLOGICAL ACTIVITIES OF EXTRACTS FROM NORTH PACIFIC GYRE PLASTICS WITH UV-TREATED AND UNTREATED PLASTICS USING IN VITRO AND IN VIVO MODELS. ENVIRON INT. 2018 DEC 1;121:942–54.

Riverside, CA, USA

2018

## 5 Gyres

5 GYRES ET AL., BAN LIST 2.0, 2018. LINK:

([HTTPS://WWW.BREAKFREEFROMPLASTIC.ORG/WP-CONTENT/UPLOADS/2018/05/5GYRES\\_BANLIST2.PDF](https://www.breakfreefromplastic.org/wp-content/uploads/2018/05/5GYRES_BANLIST2.PDF))

California, USA

2018

## Lets Do It World

WORLD CLEANUP DAY 2018 WASTE REPORT, LET’S DO IT WORLD. 2018. LINK:

([HTTPS://WWW.LETSDOITWORLD.ORG/WP-CONTENT/UPLOADS/2019/01/WCD\\_2018\\_WASTE\\_REPORT\\_FINAL\\_26.01.2019.PDF](https://www.letsdoitworld.org/wp-content/uploads/2019/01/WCD_2018_WASTE_REPORT_FINAL_26.01.2019.PDF))

Tallin, Estonia

2018

## IN THE NEWS

### KVCR Inland Edition

WIN COWGER DISCUSSES ROADSIDE RUBBISH. LINK:

([HTTPS://WWW.KVCRNEWS.ORG/SHOW/INLAND-EDITION/2022-03-02/3-2-2022-WIN-COWGER-DISCUSSES-ROADSIDE-RUBBISH](https://www.kvcrnews.org/show/inland-edition/2022-03-02/3-2-2022-WIN-COWGER-DISCUSSES-ROADSIDE-RUBBISH))

Riverside, CA, USA

2022

### Code for America

OUR TRASHAI PROJECT WAS HIGHLIGHTED IN CODEFORAMERICA BLOG LINK:

([HTTPS://CODEFORAMERICA.ORG/NEWS/VOLUNTEER-SPOTLIGHT-TRASHAI/](https://codeforamerica.org/news/volunteer-spotlight-trashai/))

USA

2022

### Mina Guli

QUOTED IN A BLOG POST BY ACCLAIMED RUNNER LINK: ([HTTPS://TWITTER.COM/MINAGULI/STATUS/1555483770152751110](https://twitter.com/minaguli/status/1555483770152751110))

2022

### Scientific American

INTERVIEWED IN SCIENTIFIC AMERICAN ARTICLE LINK:

([HTTPS://WWW.SCIENTIFICAMERICAN.COM/ARTICLE/SPRAY-ON-RINSE-OFF-FOOD-LSQUO-WRAPPER-RSQUO-CAN-CUT-PLASTIC-PACKAGING/?UTM\\_TERM=AUTOFEED&UTM\\_MEDIUM=SOCIAL&UTM\\_SOURCE=TWITTER#ECHOBOX=1657485704](https://www.scientificamerican.com/article/spray-on-rinse-off-food-lsquo-wrapper-rsquo-can-cut-plastic-packaging/?utm_term=autofeed&utm_medium=social&utm_source=twitter#ECHOBOX=1657485704))

Long Beach, CA, USA

2022

### NBC

INTERVIEWED ON NBC ABOUT CHEWING GUM LINK: ([HTTPS://WWW.LX.COM/CULTURE/SPORTS/HOW-THE-YANKEES-CHEWING-GUM-GAME-COULD-IMPACT-THE-ENVIRONMENT/54979/](https://www.lx.com/culture/sports/how-the-yankees-chewing-gum-game-could-impact-the-environment/54979/))

Long Beach, CA, USA

2022

### Popular Science

MOST ROADSIDE LITTER COMES FROM JUST DOWN THE STREET. LINK:

([HTTPS://WWW.POPSCI.COM/ENVIRONMENT/LITTER-PLASTIC-WASTE/](https://www.popsci.com/environment/litter-plastic-waste/))

Riverside, CA, USA

2022

### Bloomberg

THE FUTILITY OF PICKING UP THE TRASH LINK: ([HTTPS://WWW.BLOOMBERG.COM/NEWS/ARTICLES/2022-02-16/HOW-TO-PREVENT-LITTERING-ACCORDING-TO-RESEARCHERS?UTM\\_MEDIUM=SOCIAL&UTM\\_CAMPAIGN=SOCIALFLOW-ORGANIC&UTM\\_CONTENT=CITYLAB&UTM\\_SOURCE=TWITTER](https://www.bloomberg.com/news/articles/2022-02-16/how-to-prevent-littering-according-to-researchers?utm_medium=social&utm_campaign=socialflow-organic&utm_content=citylab&utm_source=twitter))

2022

Riverside, CA, USA

### Scientific American

TINY ROBOTS COULD CLEAN UP MICROPLASTIC POLLUTION. SCIENTIFIC AMERICAN LINK:

([HTTPS://WWW.SCIENTIFICAMERICAN.COM/ARTICLE/TINY-ROBOTS-COULD-CLEAN-UP-MICROPLASTIC-POLLUTION/](https://www.scientificamerican.com/article/tiny-robots-could-clean-up-microplastic-pollution/))

Riverside, CA, USA

2021

### AGU Thriving Earth Exchange

SCIENTIST SPOTLIGHT: DISRUPTING THE SCIENTIFIC ECHO CHAMBER LINK:

([HTTPS://THRIVINGEARTHEXCHANGE.ORG/SCIENTIST-SPOTLIGHT-DISRUPTING-THE-SCIENTIFIC-ECHO-CHAMBER/?MKT\\_TOK=OTG3LULHVC01NzIAAAF-ZA61CY9HcfTv6W\\_GRL72WV2dN-C6IIC7TuLJEBGFiz5UPBlyoWTCYHvEx2ZWtHHYuRsAkI4OdIKoC1W7Ml2UxZfDuk8K-Jl4sU-Yvzw](https://thrivingearthexchange.org/scientist-spotlight-disrupting-the-scientific-echo-chamber/?mkt_tok=OTg3LULHVC01NzIAAAF-ZA61CY9HcfTv6W_GRL72WV2dN-C6IIC7TuLJEBGFiz5UPBlyoWTCYHvEx2ZWtHHYuRsAkI4OdIKoC1W7Ml2UxZfDuk8K-Jl4sU-Yvzw))

Pinole, CA, USA

2021

### ECO Magazine

OCEAN INNOVATORS LINK: ([HTTP://DIGITAL.ECOMAGAZINE.COM/PUBLICATION/?M=9890&I=696698&P=48&VER=HTML5](http://digital.ecomagazine.com/publication/?m=9890&i=696698&p=48&ver=html5))

Riverside, CA, USA

2021

## SCRIPPS-RADY

TRASH DATA TREASURE: HUNTING FOR SOLUTIONS TO PLASTIC WASTE LINK:

([HTTPS://CMHC.UCSD.EDU/BLOG-TRASH-DATA-TREASURE/](https://cmhc.ucsd.edu/blog-trash-data-treasure/))

Riverside, CA, USA

2020

## Ecowatch

THE OCEAN CLEANUPS INTERCEPTOR AIMS TO CLEAN 1,000 RIVERS IN 5 YEARS. WILL IT WORK? LINK:

([HTTPS://WWW.ECOWATCH.COM/OCEAN-CLEANUP-INTERCEPTOR-2645510058.HTML](https://www.ecowatch.com/ocean-cleanup-interceptor-2645510058.html))

Riverside, CA, USA

2020

## KHOI Public Radio

WIN COWGERS RESEARCH ON TRASH IN IOWAS WATERWAYS LINK: ([HTTPS://KHOIFM.ORG/NODE/2119](https://khoifm.org/node/2119))

Iowa, USA

2019

## Engineering and Technology Magazine

PLASTIC WASTE POLLUTION IN THE OCEAN: TECHNOLOGY AT THE TIPPING POINT LINK:

([HTTPS://EANDT.THEIET.ORG/CONTENT/ARTICLES/2018/05/PLASTIC-WASTE-POLLUTION-IN-THE-OCEAN-TECHNOLOGY-AT-THE-TIPPING-POINT/](https://eandt.theiet.org/content/articles/2018/05/plastic-waste-pollution-in-the-ocean-technology-at-the-tipping-point/))

United Kingdom

2018

## Let's Do It World

A VOYAGE TO HUMANKIND'S LARGEST CREATION – THE NORTH PACIFIC GARBAGE PATCH LINK:

([HTTP://VANNEWSAGENCY.COM/DETAILSNEWS?NEWSID=VN2963071023](http://vannewsagency.com/detailsnews?newsid=VN2963071023))

Tallin, Estonia

2019

## NOAA MDP Blog

MONITORING FOR CLEAN BEACHES LINK:

([HTTPS://BLOG.MARINEDEBRIS.NOAA.GOV/MONITORING-CLEAN-BEACHES?UTM\\_MEDIUM=EMAIL&UTM\\_SOURCE=GOVDELIVERY](https://blog.marinedebris.noaa.gov/monitoring-clean-beaches?utm_medium=email&utm_source=govdelivery))

California, USA

2019

## UNESCO Press Release

UNESCO PRIZEWINNER USES AI TOOL TO DETECT AND COLLECT TRASH WORLDWIDE LINK:

([HTTPS://EN.UNESCO.ORG/NEWS/UNESCO-PRIZEWINNER-USES-AI-TOOL-DETECT-AND-COLLECT-TRASH-WORLDWIDE](https://en.unesco.org/news/unesco-prizewinner-uses-ai-tool-detect-and-collect-trash-worldwide))

Tallin, Estonia

2019

## ARTISTIC CONTRIBUTIONS

### UC Riverside

LEAD LINK: ([HTTPS://WWW.YOUTUBE.COM/WATCH?V=S2IH2X4BPBU&LIST=PLCP TAL\\_CR2BL-RKEYG4610V4AGRYK5BD5](https://www.youtube.com/watch?v=s2IH2x4BPBU&list=PLcpTAL_CR2BL-rKEYG4610V4AGRYK5BD5))

- Win Cowger, UCR Environmental Science Podcast

Riverside, CA, USA

2020 → 2021

### Digital Topo

SCIENTIFIC ADVISOR LINK: ([HTTP://DIGITALTOPO.NET/DEV/PROJECTS/NATGEO-OCEANS-VIZ/](http://digitaltopo.net/dev/projects/natgeo-oceans-viz/))

- Orestis Heordotou, Win Cowger, Facing the Facts of Ocean Plastic Pollution

Oakland, CA, USA

2020

### SCI-Arc

SCIENTIFIC ADVISOR LINK: ([HTTPS://SHURUQTRAMONTINI.COM/CURRENT-AFFAIRS](https://shuruqtramontini.com/current-affairs))

- Shuruq Tramontini, Current Affairs

Los Angeles, CA, USA

2019

## Funding

### ONGOING

#### Break Free From Plastic (\$10,000)

PI (MOORE INSTITUTE)

- Global Brand Audit Study

Asia

2022 → Current

#### HIDA (\$10,000)

PI (PERSONAL)

- HIDA Visiting Researcher Grant

Germany

2022 → Current

#### NREL (\$110,000)

PI (MOORE INSTITUTE)

- Water Pact

USA

2022 → Current

#### Peoples Lab (\$250,000)

PI (MOORE INSTITUTE, UCR, SFEI)

- Microplastics Data Portal

California, USA

2022 → Current

#### 5 Gyres (\$2500)

PI (MOORE INSTITUTE)

- Microfiber Analysis

Long Beach, CA, USA

2022 → Current



<b>NSF I Corps (\$2,000)</b> PI (PERSONAL) • Open Specy Startup Grant. NSF I Corps.	Riverside, CA, USA 2020 → Current
<b>NOAA (\$350,000)</b> WRITING (UCR) • NOAA Marine Debris Grant	California, USA 2019 → Current
<b>California Waterboards (\$100,000)</b> WRITING (UCR) • California Waterboards	California, USA 2019 → Current
<b>COMPLETED</b>	
<b>CICLO (\$2,000)</b> PI (MOORE INSTITUTE) • Measurement of degraded fibers	Long Beach, CA, USA 2022
<b>IGES (\$600)</b> PI (MOORE INSTITUTE) • Honorarium for reviewing a technical manuscript.	Japan 2022
<b>UC Riverside (\$14,400)</b> PI (UCR) • Dissertation Year Fellowship	Riverside, CA, USA 2021 → 2021
<b>National Marine Sanctuaries and NOAA (\$6,000)</b> WRITING (UCR) • Trash Taxonomy	Riverside, CA, USA 2019 → 2021
<b>Renew Oceans (\$6,000)</b> CoPI (UCR) • River Trash Monitoring	Varanasi, India 2019 → 2019
<b>UCR Office of Technology Partnerships (\$1,000)</b> PI (PERSONAL) • Open Specy	Riverside, CA, USA 2019 → 2019
<b>Benioff Ocean Institute (\$1,000,000)</b> CoPI (UCR, RENEW OCEANS) • River Trash Monitoring and Collection Innovation	Varanasi, India 2019 → 2020
<b>5 Gyres (\$1,000)</b> PI (PERSONAL) • Solutions Summit	Maryland, USA 2019
<b>5 Gyres (\$3,000)</b> PI (PERSONAL) • Ocean Plastic Leadership Summit	Bermuda 2019
<b>UC Riverside (\$1,400)</b> PI (PERSONAL) • GSA Travel Grant	Riverside, CA, USA 2019
<b>Microsoft (\$40,000)</b> CoPI (LET'S DO IT WORLD) • Microsoft Artificial Intelligence Development	Estonia 2019
<b>Microsoft (\$16,776)</b> CoPI (LET'S DO IT WORLD) • Microsoft AI for Earth Grant	Estonia 2018
<b>UC Riverside (\$1,960)</b> WRITING (UCR) • UC Riverside Undergraduate Summer Learn and Earn	Riverside, CA, USA 2018
<b>Lets Do It World (\$1,200)</b> PI (PERSONAL) • Let's Do It World, Clean World Conference, Estonia	Tallin, Estonia 2018

<b>United Nations (\$1500)</b> PI (PERSONAL) • United Nations Working Group, Hotspots of Marine Litter	China 2018
<b>Socal SETAC (\$500)</b> PI (PERSONAL) • SETAC North America Competitive Travel Grant	Southern California, USA 2018
<b>UC Riverside (\$700)</b> PI (PERSONAL) • GSA Travel Grant	Riverside, CA, USA 2018
<b>NSF (\$138,000)</b> PI (PERSONAL) • National Science Foundation GRFP	Riverside, CA, USA 2018 → 2021
<b>UC Riverside (\$40,000)</b> PI (PERSONAL) • Chancellors Distinguished Fellowship	Riverside, CA, USA 2017 → 2021
<b>Algalita (\$500)</b> PI (PERSONAL) • Algalita Pacific Gyre Research Voyage	North Pacific Ocean 2017
<b>Lets Do It World (\$450)</b> PI (PERSONAL) • Let's Do It World, Clean World Conference, Estonia	Tallin, Estonia 2017
<b>CSIRO (\$500)</b> PI (PERSONAL) • CSIRO Research Travel Grant, Australia	Tasmania, Australia 2017
<b>UC Riverside (\$1,400)</b> PI (PERSONAL) • GSA Travel Grant	Riverside, CA, USA 2017
<b>Oklahoma State Univeristy (\$250)</b> PI (PERSONAL) • Oklahoma Student Water Conference Travel Scholarship	Stillwater, Oklahoma, USA 2014
<b>Iowa State University (\$750)</b> PI (PERSONAL) • Undergraduate Honors Program Grant	Ames, Iowa 2014
<b>Iowa State University (\$500)</b> PI (PERSONAL) • Iowa Soil and Water Conservation Society Scholarship	Ames, Iowa 2014
<b>Phi Theta Kappa (\$1,000)</b> PI (PERSONAL) • Phi Theta Kappa Scholarship	Ames, Iowa 2014
<b>Iowa State University (\$1,000)</b> PI (PERSONAL) • Fred Foreman Scholarship in Leadership Participation	Ames, Iowa 2014
<b>Iowa State University (\$1,250)</b> PI (PERSONAL) • Iowa State Agronomy Travel Fellowship	Ames, Iowa 2013
<b>Phi Theta Kappa (\$1,000)</b> PI (PERSONAL) • Phi Theta Kappa Scholarship	Ames, Iowa 2013
<b>Hawkeye Community College (\$2,500)</b> PI (PERSONAL) • McElroy Minority Scholarship	Waterloo, IA, USA 2012

## Hawkeye Community College (\$1250)

PI (PERSONAL)

- McElroy Minority Scholarship

Waterloo, IA, USA

2011

## Teaching

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### COURSE INSTRUCTOR

#### UC Riverside

COURSE CO-FACILITATOR

- Diversity Equity and Inclusion in Geosciences Course

Riverside, California, USA

2021

#### UC Riverside

COURSE FACILITATOR

- R Clean Community. Community-focused student-led research.

Riverside, California, USA

2018 → 2019

### WORKSHOP FACILITATOR

#### California EPA

CO-FACILITATOR

- Annual full day meetings focused on advancing trash data for California. Workshops were called Trash Data Dives

California, USA

2018 → 2021

### PROFESSIONAL DEVELOPMENT

#### Hawkeye Community College

STUDENT

- Exploring Math and Teaching Course

Waterloo, IA, USA

2011

## Mentoring

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#### UC Riverside

GRADUATE STUDENT RESEARCHER

- A COMPARISON OF PLASTIC WASTE INPUT MODELS WITH GROUND OBSERVATIONS IN VARANASI, INDIA. Undergraduate Capstone Project. Primary Mentor. Spring 2021.

Riverside, California, USA

2021

#### UC Riverside

GRADUATE STUDENT RESEARCHER

- During my time as a PhD student, I taught over 20 undergraduate students to collect field and lab data, many of whom coauthored my peer reviewed manuscripts, and mentored 2 other graduate students. Summer 2017-Summer 2021.

Riverside, California, USA

2017 → 2021

## Presentations

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### INVITED

#### CSU Long Beach

DR. HOLLANDS CLASS

- Watershed Transport Processes of Anthropogenic Litter

Long Beach, CA, USA

2022

#### Pinole City Council

PINOLE CITY COUNCIL MEETING

- Final results of creek trash assessment.

Pinole, CA, USA

2022

#### AWWA

ANNUAL MEETING

- Watershed Transport Processes of Anthropogenic Litter

Anaheim, CA, USA

2022

#### UC Riverside

MODEL UNITED NATIONS

- Highlights on plastic pollution progress and resources for success

Riverside, CA, USA

2022

#### Pinole City Council

PINOLE CITY COUNCIL MEETING

- Engaging Community to Protect the Pinole Creek Watershed: Assessment of trash impacts to promote a thriving ecosystem.

Pinole, CA, USA

2021

<b>Santa Ana College</b> SHELLY MOORE'S CLASS • Past present and future of waste management	Santa Ana, CA, USA 2021
<b>University of Waterloo</b> MAXIMIZING THE VALUE OF ENVIRONMENTAL MICROPLASTICS DATA • Reporting Guidelines to Increase the Reproducibility and Comparability of Microplastic Research	200 University Ave W, Waterloo, ON N2L 3G1, Canada 2021
<b>San Francisco Estuary Institute</b> SFEI CLEAN WATER GROUP • Watershed transport processes of anthropogenic litter	Richmond, CA, USA 2021
<b>Pacific Northwest Microplastic Workgroup</b> PACIFIC NORTHWEST MICROPLASTIC WORKGROUP MEETING • Big Trash Data Sets and Applications	2021
<b>California EPA</b> TRASH WEBINAR SERIES • Big Trash Data Sets and Applications	California, USA 2021
<b>Rita Allen Foundation</b> CIVIC SCIENCE WORKSHOP • Panel discussion on civic science.	USA 2021
<b>SETAC Europe</b> SETAC EUROPE MEETING • Reporting Guidelines for Increasing the Comparability and Reproducibility of Microplastic Research	Europe 2021
<b>ThermoFisher Scientific</b> THERMOFISHER GLOBAL MICROPLASTIC SYMPOSIUM • Open Source Raman and IR Spectroscopy, Paving the Future for Spectral Analysis using Artificial Intelligence	2021
<b>Scripps-Rady</b> SCRIPPS-RADY OCEAN PLASTIC POLLUTION CHALLENGE • Trash Data Tools	Southern California, USA 2021
<b>Socal SETAC</b> SOCAL SETAC MEETING • Open Specy: An open source, online, spectra classification and sharing tool for plastic pollution research	Southern California, USA 2020
<b>Drexel University</b> DR. WATSON'S LAB SEMINAR • Processes of Fluvial Plastic Pollution Transport and Community Science	Pennsylvania, USA 2020
<b>Staunton City Council</b> STAUNTON CITY COUNCIL WORKING SESSION • Plastic pollution in Staunton	Staunton, VA, USA 2019
<b>James Madison University</b> SUSTAINABLE SHENANDOAH • A discussion on plastic pollution.	Harrisonburg, VA, USA 2019
<b>UC Riverside</b> UNDERGRADUATE ENVIRONMENTAL SCIENCE CLUB • Life of a graduate student	Riverside, CA, USA 2019
<b>5 Gyres</b> SOLUTIONS SUMMIT • Global trends in plastic pollution research	Maryland, USA 2019
<b>Lets Do It World</b> CLEAN WORLD CONFERENCE • Policy implications of waste data.	Tallin, Estonia 2019
<b>CONFERENCE PLATFORM</b>	

## American Geophysical Union

New Orleans, LA, USA

2021

- Litter origins, accumulation rates, and hierarchical composition on urban roadsides of the Inland Empire, California

## SETAC North America

2021

- Trash Taxonomy coauthored with Hannah Hapich.

## American Geophysical Union

2020

- Concentration-Discharge Relationships of Plastic Pollutants in Streams

## UC Riverside

Riverside, CA, USA

SANTA ANA RIVER SYMPOSIUM

2019

- R Clean Community

## SciX

Palm Springs, CA, USA

2019

- Open Specy: An open source, online, spectra classification and sharing tool

## SETAC North America

Toronto, Canada

2019

- How to sample microplastics in streams

## Socal SETAC

Southern California, USA

2019

- Are Microplastic Methods Comparable and Do They Reflect Reality?

## California EPA

Sacramento, CA, USA

CALIFORNIA WATER DATA SYMPOSIUM

2019

- A Call for Open Access to Trash Data

## Microsoft

Geneva Switzerland

AI FOR GOOD

2019

- Coauthored Kristiina Kerg, Kris Haamer, Win Cowger, WADE an AI Trash Detection Algorithm.

## American Geophysical Union

Washington, DC, USA

ANNUAL MEETING

2018

- Are Microplastic Methods Comparable and Do They Reflect Reality?

## SETAC North America

Sacramento, CA, USA

ANNUAL MEETING

2018

- Are Microplastic Methods Comparable and Do They Reflect Reality?

## NOAA

San Diego, CA, USA

INTERNATIONAL MARINE DEBRIS CONFERENCE

2018

- Lead a session on big data in marine debris science that combined lectures with a panel discussion. Presented in a session about the role of open data in marine debris with Let's Do It World.

## Lets Do It World

Tallin, Estonia

CLEAN WORLD CONFERENCE

2018

- Panel discussion Development of the World Waste Platform

Sacramento, CA, USA

APPS FOR AG HACKATHON

2017

- Developed and presented a suite of spatial tools and business model for a business that utilizes urban land for agriculture, pays landowners for underutilized land, beautifies neighborhoods, and combats food deserts.

## Project AWARE

Iowa, USA

ANNUAL MEETING

2016

- Where did the trash you've cleaned up come from? A more productive future for stream cleanups.

## CONFERENCE POSTER

## SETAC North America

North America

ANNUAL MEETING

2021

- Open Specy: An Open Source Online Tool for Raman and FTIR Spectral Analysis of Microplastics and Beyond, Led a session on big data, methods, and standards in microplastic research.

## SETAC Europe

ANNUAL MEETING

- Open Specy: An Open Source Online Tool for Raman and FTIR Spectral Analysis of Microplastics and Beyond

## American Geophysical Union

ANNUAL MEETING

- Estimating Riverine Microplastic Flux by Accounting for Transport Dynamics

## SETAC North America

ANNUAL MEETING

- Coauthored Hannah Hapich, Win Cowger, Twitter Reveals Public Conversation Around Plastic Pollution

LA WATERSHED SYMPOSIUM

- Are Microplastic Methods Comparable and Do They Reflect Reality?

## UC Riverside

WILDLAND URBAN INTERFACE CONFERENCE UCR

- Environmental Relevance in a Sea of Plastic

## UC Riverside

GIS DAY CONFERENCE UCR

- R Clean Community

## Socal SETAC

ANNUAL MEETING

- Environmental Relevance in a Sea of Plastic

## UC Riverside

GIS DAY CONFERENCE UCR

- CleanupOurWorld: Opensource Mismanaged Waste Database with Visualization

## Iowa State University

IOWA WATER CONFERENCE

## Oklahoma State University

OKLAHOMA STUDENT WATER CONFERENCE

North America

2021

San Francisco, California

2019

Toronto, Canada

2019

Los Angeles, California

2018

Riverside, California

2018

Riverside, California

2018

Los Angeles, California

2018

Riverside, California

2017

Ames, Iowa

2015

Stillwater, Oklahoma, USA

2015

# Software Competencies

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## LANGUAGES

R

VISUAL BASIC

HTML

CSS

PYTHON

JAVASCRIPT

## PROGRAMS

DOCKER

TERMINAL

R STUDIO

IMAGE J

QGIS

INKSCAPE

ARCMAP

ARCGIS ONLINE AND GEOAPPS

MICROSOFT OFFICE SUITE

GOOGLE SUITE

AGRICULTURAL CONSERVATION PLANNING FRAMEWORK (ACPF)

STELLA

AMAZON AWS EC2

## Lab Hardwater Competencies

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RAMAN MICROSCOPE

FTIR ATR, MICROSCOPE, FOCAL PLANE ARRAY

FLUORESCENCE MICROSCOPE

PARTICLE SIZE ANALYZER

FLUORESCENCE SPECTROPHOTOMETER

## Field Measurement Competencies

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DISCHARGE MEASUREMENT

GRAB SAMPLING

OCEAN NEUSTON SAMPLING

STREAM PARTICULATE SAMPLING

DRONE FLYING

INFILTRATION MEASUREMENT

ECOSYSTEM SURVEYING

SOIL SURVEYING

TRASH SURVEYING

## Certificates

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NSF ICORPS INNOVAT'R BUSINESS DISCOVERY

2020

LAB SAFETY TRAINING UCR

August 2017

COMMERCIAL HERBICIDE APPLICATOR

February 2016

WILDLAND FIRE FIGHTER TYPE II

February 2016

GENERAL LAB SAFETY ISU

January 2015

DEFENSIVE DRIVING COURSE

May 2015

FEMA TRAININGS ICS AND NIMS

May 2015

PROTECTING HUMAN RESEARCH PARTICIPANTS NIH TRAINING

February 2014

IOWATER TRAINING

November 2013

## Awards

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### SETAC North America

3RD BEST STUDENT PLATFORM PRESENTATION (COAUTHOR)

2021

### UC Riverside

S. SUE JOHNSON ENDOWED GRADUATE AWARD (\$2,500)

2021

### American Geophysical Union

OUTSTANDING STUDENT PRESENTATION AWARD

2019

### UC Riverside

3RD PLACE IN COAUTHORED POSTER, GIS DAY

2019

**UC Riverside**

2ND PLACE IN POSTER COMPETITION, GIS DAY

2018

**Iowa State University**

Ames, IA, USA

2ND PLACE IN POSTER PRESENTATION COMPETITION

2015

**NACTA**

Illinois, USA

3RD PLACE, NACTA SOIL JUDGING COMPETITION

2015

**Conservation Corps of Minnesota and Iowa**

HIGHEST VIEWED BLOG POST

2015