

Erin Murphy

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172 E Bonita Way
Tempe, AZ 85281

EDUCATION

Arizona State University – Ph.D. Biology and Society, Expected May 2023, 4.0 GPA
Ph.D. Dissertation Co-Chairs: Dr. Leah Gerber & Dr. Beth Polidoro

University of Illinois Urbana-Champaign – M.Sc. Geology, May 2015, 4.0 GPA
M.Sc. Thesis Advisor: Dr. Bruce W. Fouke

Thesis: Quantitative tracking of the cellular and skeletal response of the coral *Orbicella annularis* to gradients in marine sewage pollution.

University of Illinois Urbana-Champaign – B.S. Integrative Biology, May 2013, 3.97 GPA

AWARDS & HONORS

- 2020 North American Congress for Conservation Biology Student Presentation Award Finalist
- 2015 Harriet Wallace Outstanding Female Graduate Student
- 2015 Outstanding Graduate Teaching Assistant Award
- 2013 Bronze Tablet Award (graduated in top 3% of college)
- 2013 Chancellor's Scholar Graduate
- 2013 James' Scholar Graduate

FUNDING

- 2019 ASU School of Life Sciences Travel Grant (\$400)
- 2019 ASU Graduate and Professional Student Association Travel Grant (\$950)
- 2014 Lerner Gray Memorial Fund, AMNH (\$1400)
- 2014 AAPG-GIA, Edward C. and Caroline Beaumont Named Grant (\$1500)
- 2014 Sohl Research Award, UIUC Geology Department (\$2,843)
- 2013 Graduate College travel grant (\$500)
- 2013 Evergreen Endowed Fellowship in Geology fund (\$20,000)

RESEARCH EXPERIENCE

Research Assistant, Bayer and Center for Biodiversity Outcomes, Arizona State University 2020
Create a decision support framework to improve the EPA's pesticide registration process
Evaluating how data resolution affects the outcomes of EPA's biological evaluations for pesticides
Working with Bayer, EPA's Office of Pesticide Programs, and FWS's Pesticide Consultation Branch

Ph.D. research, Conservation Innovation Lab, Arizona State University 2018 – Present
Modelling the efficacy of marine plastic pollution interventions in the Philippines and Hawaii
Measuring the impacts of plastic pollution on marine ecosystems in the Philippines and Hawaii
Reviewing the social, ecological and economic trade-offs of plastic pollution interventions
Developed a framework to standardize cost estimates for plastic pollution interventions

Member of the Plastic Pollution Emission Working Group 2018 - Present
Supported the development of a model to estimate aquatic plastic emissions globally
Co-developed scenarios for possible future plastic emissions based on varying intervention efforts
Assisted with writing and editing of publications

Research Assistant, Center for Biodiversity Outcomes 2019
Evaluated fishery certification schemes for their effectiveness in protecting ecosystem services
Evaluated the design and effectiveness of online conservation platforms for policy use
Fulfilled the role of the interim project manager while the center hired a new one
Developed LOIs to fund the center's research objectives in fishery sustainability and plastic pollution
Planned events for CBO including workshops and lectures, and support center administration
Coordinated outreach events on behalf of the center

ORISE Fellow, Office of Water Oceans Watersheds, EPA 2016 - 2018
Worked in the Ocean and Coastal Management Branch on the vessels team and the coral team
Evaluated vessel sewage effluent standards to provide recommendations for new federal standards
Researched coral sensitivity to turbidity to support Florida DEP in developing a new state standard
Developed and disseminated resources on federal regulations and BMPs for vessel sewage
Created communication materials to inform partners and citizens of EPA's role in coral conservation
Developed technical guidance for individuals doing ocean disposal under MPRSA

Research Assistant, Afterschool Alliance 2015 - 2016
Worked to increase access to high quality STEM education opportunities in afterschool nationally
Analyzed the results of a national survey to evaluate the state of computer science in afterschool
Led a mini-campaign promoting environmental education in afterschool stem education
Attended congressional briefings on behalf of the organization and blogged on presentations
Developed a searchable database containing the evaluations of afterschool programs

Master's Thesis Research, Dr. Bruce Fouke Lab, University of Illinois 2013 - 2015
Studied the impacts of human sewage pollution on *O. annularis* physiology and skeletal growth
Utilized SCUBA techniques for sampling *O. annularis* colonies along the southern coast of Curacao
Imaged biopsies utilizing various techniques including two-photon microscopy and BioCT imaging
Performed data analyses using AMIRA, IMARIS, and ImageJ
Drafted a final thesis in preparation for submission to a peer-reviewed scientific journal

TEACHING EXPERIENCE

Online Teaching Assistant, Why Sex, Arizona State University, May 2020 - July 2020
Graded student discussion boards and labs

Teaching Assistant, Bioethics, Arizona State University, Jan 2020 - May 2020
Led three weekly recitation sections and graded mini-projects, essays and final exams
Discussed a breadth of bioethics topics, such as GMOs, public health, and conservation

Guest lectured on the ethics of modern conservation practices

Teaching Assistant, Introductory Biology Lab, Arizona State University, Aug - Dec 2018; Aug - Dec 2019

Taught two lab sections introducing a broad range of topics within the biology field

Graded lab reports and presentations, and proctor exams

Teaching Assistant, History of the Earth System, University of Illinois, August 2014 - May 2015

Taught two lab sections introducing a broad range of topics within the field of geology

Created quizzes, exams and improved existing laboratory exercises

Graded course material and organized review sections for students

Assisted with preparing for and teaching on a three-day educational trip to the Ozark Mountains

Teaching Assistant, Biocomplexity, University of Illinois, August - December, 2014

Guest lectured for three weeks in the professor's absence

Assisted in leading four-day field trip to Mammoth Hot Springs, Yellowstone

Mentored students in the development and completion of group research projects

PUBLICATIONS

Murphy, E. Ardisana, R., Shivaguru, M., & Fouke, B.W. (In prep) Human sewage pollution alters the physiology of the Caribbean coral *Orbicella annularis*. *Frontiers in Ecology*.

Murphy, E., Iacona, G., Bernard, M., Barnes, M., McGivern, A., & Gerber, L. R. (In prep) The cost of mitigating marine plastic pollution. *Conservation Biology*.

Murphy, E., Bernard, M., Gerber, L. R., & K. Dooley. (In review) Evaluating the role of market-based instruments in protecting marine ecosystem services in wild-caught fisheries. *Ecosystem services*.

Kittinger, J., Bernard, M., Finkbeiner, E., **Murphy, E.**, Obregon, P., Klinger, D. H., Schoon, M. L., Dooley, K. J., & Gerber, L. R. (in review) Integrating market incentives and governance improvements for sustainable ocean production at the ecosystem scale. *Conservation Science and Practice*.

U.S. EPA. Vessel Sewage in U.S. Waters: An Analysis of Current Regulations. Washington, DC. In review.

Murphy, E. Bernard, M., Helm, L., Hill, I & Tunas-Corzon, A. (In press) A policy approach for improving waste management in Arizona. *Journal for Science Policy & Governance*.

Borrelle, S. B., Ringma, J., Law, K. L., Mannahan, C. C., Lebreton, L., McGivern, A., **Murphy E.**, Jambeck, J., Leonard, G. H., Hilleary, M. A., Eriksen, M., Possingham, H. P., Gerber, L. R., Polidoro, B., Tahir, A., Bernard, M., De Frond, H., Mallos, N., Barnes, M., & Rockman C. M. (In press) Global plastic waste generation exceeds efforts to mitigate plastic pollution. *Science*.

Plastic Pollution Emissions Working Group. Evaluating the impact of mitigation strategies for marine litter and microplastics to inform policy: A white paper. 2018.

https://docs.wixstatic.com/ugd/0e7900_c5645ab3497f489f92e7330f1fe48ce3.pdf

PRESENTATIONS

Murphy, E., Bernard, M., Gerber, L., Dooley, K. Evaluating the role of market-based instruments in protecting marine ecosystem services in wild-caught fisheries. North American Congress for Conservation Biology. Denver, Colorado. 2020.

Barnes, M., Iacona, G., Bernard, M., Gerber, L., **Murphy, E.** Costs of mitigating marine plastic pollution: a decision support tool. International Congress for Conservation Biology., Kuala Lumpur, Malaysia. 2019.

Watts-Fitzgerald, K., **Murphy, E.** EPA's Vessel Sewage Program. SOBA Annual Conference. Anchorage, AK. 2017.

Grant, J., Braithwaite, M., Dvorak, M., **Murphy, E.** Juvenile Justice. 21st Century Community Learning Centers (21st CCLC) 2016 Summer Institute. Phoenix, AZ. 2016.

POSTERS

Murphy, E., Barnes, M., Iacona, G., Bernard, M., Gerber, L., McGivern, A., Borrelle, S. The cost of mitigating marine plastic pollution. Society for Environmental Toxicology and Chemistry annual conference. Toronto, Canada. 2019.

Murphy, E., Sivaguru, M., Fouke, F. W. Physiological Response of the Caribbean Coral *O. annularis* to Pollution Gradients. Midwest Geobiology Conference. 2014.

Murphy, E., M. Sivaguru, B. W. Fouke. Physiological Response of the Caribbean Coral *O. annularis* to Pollution Gradients. American Geophysical Union. 2014.

LEADERSHIP AND SERVICE

2020 – 2021 The Circulate Initiative Impact Metrics Working Group

2018 – 2020 Plastic Pollution Emissions Working Group

2020 – 2021 Arizona Recycling Coalition

Chair of the Policy Committee

2020 WE Empower UN SDG Challenge Judge

2019 – 2021 SOLS Graduate Student Sustainability Committee

Vice President 2019 – 2020

President 2020 – 2021

2019 – 2021 School of Life Sciences Executive Board

Strategic Planning Committee Representative 2019 – 2020

Sustainability Representative 2020 – 2021

2019 – 2021 Arizona Science and Policy Network

Chair of the waste reduction subcommittee

2019 – 2020 Prison Biology Education Program

2018 – 2021 Ask a Biologist

2018 – 2020 Arizona Women's Climbing Coalition

Tempe Chapter Lead

2013 – 2015 School of Earth, Society, and the Environment (SESE) Research Review Committee

MENTORSHIP

2019 – 2020 Infynity Hill, Masters student
2020 Emily Byrum, Undergraduate student
2020 Katelyn Velez, Undergraduate student
2015 Kyle Fouke, Highschool student

OUTREACH

2019 ASU Open Door
2019 OdySEA Aquarium Conservation Expo
2016 Montgomery County Science Fair Judge
2015 Guest Lecturer, Field Expedition to Costa Rica, University of Illinois
2014 Graduate Mentor, Pollen Camp at the Institute for Genomic Biology, University of Illinois

EDITORIAL ACTIVITIES

2020 Peer Reviewer for *Plos One*