

Erin Murphy

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EDUCATION

Arizona State University – Ph.D. in Biology (Ecology, Economics, & Ethics of the Environment)	2023
University of Illinois Urbana-Champaign – M.Sc. Geology	2015
University of Illinois Urbana-Champaign – B.Sc. Integrative Biology	2013

RESEARCH EXPERIENCE

July 2024–Present	Manager of Ocean Plastics Research, Ocean Conservancy
May 2023–Present	School of Life Sciences Adjunct Faculty, Arizona State University
Nov 2023–Present	Co-Chair of NCEAS working group, “social costs of plastic pollution”
Jan 2023–July 2024	Post-Doctoral Researcher, Ocean Conservancy & University of Toronto
Oct 2023–May 2024	Research Consultant, Polidoro Lab, ASU
Aug 2018–May 2023	Ph.D. Researcher, Conservation Innovation Lab, ASU
Aug 2020–May 2021	Research Assistant, Bayer and Center for Biodiversity Outcomes, ASU
Jan 2019–Aug 2019	Research Assistant, Center for Biodiversity Outcomes, ASU
Oct 2016–Apr 2018	ORISE Fellow, Office of Wetlands, Oceans, and Watersheds, EPA
Nov 2015–Oct 2016	Research Assistant, Afterschool Alliance
Aug 2013–May 2015	Master’s Thesis Researcher, Dr. Bruce Fouke Lab, University of Illinois

PUBLICATIONS

- Murphy, E. L.**, Baechler, B. R., Roman, L., Leonard, G. H., Mallos, N. J., Santos, R. Rochman, C. M. (2025). How much is too much?: A quantitative risk assessment framework for mortality due to macroplastic ingestion in seabirds, marine mammals, and sea turtles. *Proceedings of the National Academy of Sciences*.
- Marhoon, A., **Murphy, E. L.**, Høiberg, M. A., Borgelt, J., Dorber, M., Verones, F. (*In press*). An Effect Factor for Macro- and Microplastic Ingestion Impacts on Marine Ecosystems for Use in Life Cycle Assessment. *Marine Pollution Bulletin*.
- Jung, J., Duprey, N. N., Foreman, A. D., D’Olivo, J. P., Pellio, C., Ryu, Y., **Murphy E. L.**, et al. (2025). "Equatorial upwelling of phosphorus drives Atlantic N₂ fixation and Sargassum blooms." *Nature Geoscience*.
- Jung, J. C., Ardisana, R., Vermeij, M., **Murphy, E. L.*** (2025). Physiological Consequences of Nitrogen Enrichment for Corals in the Caribbean. *Royal Society Open Science*.
- Murphy, E. L.**, Gerber, L. R., Rochman, C., Polidoro, B. (2024). A macroplastic vulnerability index for marine mammals, seabirds, and sea turtles in Hawai’i. *Science of the Total Environment*.
- Eikenberry, S., Iacona, G., **Murphy, E. L.**, Watson, G., Gerber, L. R. (2024). Identifying immediate opportunities for high resolution pesticide usage data to improve the efficiency of endangered species pesticide risk assessment. *Science of the Total Environment*.
- Murphy, E. L.**, Fredette-Roman, C., Rochman, C., Gerber, L. R., Polidoro, B. (2023) A multi-taxonomic, trait-based framework for assessing macroplastic vulnerability. *Science of the Total Environment*.
- Murphy, E. L.**, Polidoro, B., Gerber, L. R. (2023) The Plastic-scape: Applying seascape ecology to marine plastic pollution. *Frontiers in Marine Science*.

- Murphy, E. L.,** Iacona, G., Bernard, M., Barnes, M., McGivern, A., & Gerber, L. R. (2022) A decision framework for estimating the cost of marine plastic pollution interventions. *Conservation Biology*. [conbio.onlinelibrary.wiley.com/doi/10.1111/cobi.13827](https://doi.org/10.1111/cobi.13827)
- Helm, L., **Murphy, E. L.,** McGivern, A., Borrelle, S. B. (2022) Impacts of plastic pollution mitigation strategies. *Environmental Reviews*. <https://doi.org/10.1139/er-2021-0117>
- Murphy, E. L.,** Eikenberry, S., Iacona, G., Watson, G., & Gerber, L. R. (2021) The value of increased spatial resolution of pesticide usage data for assessing risk to endangered species. *Conservation Science and Practice*. [conbio.onlinelibrary.wiley.com/doi/epdf/10.1111/csp2.551](https://doi.org/10.1111/csp2.551)
- Murphy, E. L.,** Bernard, M., Gerber, L. R., & K. Dooley. (2021) Evaluating the role of market-based instruments in protecting marine ecosystem services in wild-caught fisheries. *Ecosystem services*. [sciencedirect.com/science/article/pii/S2212041621001145](https://www.sciencedirect.com/science/article/pii/S2212041621001145)
- Kittinger, J., Bernard, M., Finkbeiner, E., **Murphy, E.,** Obregon, P., Klinger, D. H., Schoon, M. L., Dooley, K. J., & Gerber, L. R. (2021) Integrating market incentives and governance improvements for sustainable ocean production at the ecosystem scale. *Conservation Science and Practice*. conbio.onlinelibrary.wiley.com/doi/full/10.1111/csp2.386
- Cramer, K. L., Bernard, M. L., Bernat, I., Gutierrez, L., **Murphy, E. L.,** Sangolquí, P., Surrey, K., Gerber, L. R. (2021). The present and future status of ecosystem services for coral reef. *Imperiled: The Encyclopedia of Conservation*.
- Murphy, E. L.,** Bernard, M., Helm, L., Hill, I & Tunas-Corzon, A. (2020) Policy Recommendations to reinvigorate recycling in Arizona. *The Journal of Science Policy & Governance*. sciencepolicyjournal.org/article_1038126.jspg170115.html
- 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. (2020) Predicted growth in plastic waste exceeds efforts to mitigate marine plastic pollution. *Science*. science.org/doi/abs/10.1126/science.aba3656
- Fredette-Roman, C., Rolsky, C., Polidoro, B., **Murphy, E. L.*** (Under Revision). A global ranking of the relative vulnerability of marine mammals to macroplastic entanglement and ingestion. *Conservation Biology*.

*Indicates advising author

RESEARCH GRANTS

- 2025 NOAA Marine Debris Interception Technologies Grant (\$560,000)
- 2025 Family Foundation funding for Macroplastic Risk Assessment Research (\$500,000)
- 2022 ASU Graduate and Professional Student Association Terminal Research Grant (\$2000)
- 2022 Center for Biology and Society Unusual Student Project Funding (\$2000)
- 2022 Center for Biology and Society Student Travel Award (\$1060)
- 2022 ASU Graduate and Professional Student Association Travel Grant (\$950)
- 2022 ASU School of Life Sciences Travel Grant (\$400)
- 2021 ASU Tripke Travel Grant (\$2000)
- 2021 ASU Graduate and Professional Student Association Publication Grant (\$900)
- 2021 ASU Graduate College Travel Award (\$300)
- 2019 ASU School of Life Sciences Travel Grant (\$400)
- 2019 ASU Graduate and Professional Student Association Travel Grant (\$950)

TEACHING EXPERIENCE

Aug 2021–Aug 2022	Adjunct Professor, Marine Biology, Estrella Mountain Community College
Aug 2021–Aug 2022	Teaching Assistant, Environmental Ethics, Arizona State University
May 2021–Aug 2021	Teaching Assistant, Why People Steal, Lie and Cheat, Arizona State University
Jan 2020–May 2020	Teaching Assistant, Bioethics, Arizona State University
Jun 2020–Aug 2020	Teaching Assistant, Why Sex?, Arizona State University
Aug 2018–Dec 2019	Teaching Assistant, Introductory Biology Lab, Arizona State University
Jan 2015–May 2015	Biocomplexity, Teaching Assistant, University of Illinois
Aug 2014–May 2015	History of the Earth System, Teaching Assistant, University of Illinois

LEADERSHIP AND SERVICE

2020–2024	The Circulate Initiative, Impact Metrics Working Group
2020–2023	AZ Forward, Plastic Committee Lead and Circular Economy Committee Member
2023	Arizona Recycling Coalition, Long-term Steering Committee Member
2021–2023	Arizona Recycling Coalition, Policy Chair
2021–2023	Keep Tempe Beautiful, Founding Board Member
2021–2023	Arizona Science Policy Network, Executive Board Co-Chair
2020–2022	SOLS Executive Board, Sustainability Representative
2020–2022	SOLS Sustainability Committee, President
2019–2022	SOLS Sustainability Committee, Founding Vice President
2018–2022	Ask a Biologist, Marine Biology Expert
2019–2020	Arizona Science Policy Network, Waste Management Committee Chair
2019–2020	SOLS Executive Board, Strategic Planning Representative
2019–2020	ASU Prison Biology Program, Instructor
2018–2020	AZ Women's Climbing Coalition, Tempe Chapter Lead

AWARDS & HONORS

2022	Graduate College Completion Fellowship (\$19,200)
2022	Lisa Dent Memorial Fellowship (\$6,440)
2021	Arijit Guha Graduate Student Advocacy Award
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	Evergreen Endowed Fellowship in Geology (\$20,000)

MENTORSHIP

<i>Postdoctoral researcher</i>	<i>Undergraduate students</i>
2024 – present Marisa Morse, Ph.D.	2023–Present Catelyn Chang, SOLUR Advisor
	2023–Present Cecelia Darter, SOLUR Advisor
<i>Master's students</i>	2024–Present Jasmine Abe, Advisor
2021–2023 Cassidy Fredette-Roman	2021–2022 Kristin Deacon, thesis committee
2019–2021 Infynity Hill	2021 Victoria Rader, AzRC intern

REFeree ACTIVITIES

2025	Science of the Total Environment Oceans
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2024 Science | Marine Biodiversity | Research in Ecology
2023 International Journal of Environmental Science and Development
2021 Conservation Biology | International Journal of the Commons
2020 Plos One

PRESENTATIONS

- Murphy, E. L.**, The social cost of plastic pollution. PICES. Yokohama, Japan. 2025.
- Murphy, E. L.**, Baechler, B. R., Roman, L., Santos, R., Leonard, G., Mallos, N., Rochman, C. A risk assessment framework for mortality due to macroplastic ingestion in seabirds. Pacific Seabird Group. San Jose, Costa Rica. 2025.
- Murphy, E. L.**, Baechler, B. R., Roman, L., Santos, R., Leonard, G., Mallos, N., Rochman, C. Recent advances in macroplastic risk assessments. PICES. Honolulu, Hawaii. 2024.
- Murphy, E. L.**, Baechler, B. R., Roman, L., Santos, R., Leonard, G., Mallos, N., Rochman, C. Quantitative assessment of mortality due to ingested macroplastics in seabirds, marine mammals, and sea turtles. International Marine Conservation Congress. Cape Town, South Africa. 2024.
- Murphy, E. L.**, Baechler, B. R., Roman, L., Santos, R., Leonard, G., Mallos, N., Rochman, C. Macroplastic risk assessment and monitoring methods. Canadian Plastic Action Zone side event at the UNEP Intergovernmental Negotiating Committee on Plastic Pollution Fourth Session. Ottawa, Canada. 2024.
- Murphy, E. L.**, Macroplastic risk assessment and monitoring methods. UN Plastic Pollution Working Group of Latin America and the Caribbean. Virtual. 2024
- Murphy, E. L.**, Key Drivers and Challenges in Developing and Implementing MSW Recycling Programs. National Academies of Sciences, Engineering, and Medicine Information Gathering Session for Costs and Approaches for Municipal Solid Waste Recycling Programs. Virtual. 2024.
- Murphy, E. L.**, Baechler, B. R., Roman, L., Santos, R., Leonard, G., Mallos, N., Rochman, C. Linking meso and macroplastic ingestion to likelihood of mortality in turtles, mammals, and birds. Ocean Sciences Meeting. New Orleans, LA. 2024.
- Murphy, E. L.**, Fredette-Roman, C., Polidoro, B. A relative trait-based vulnerability ranking of the world's marine mammals to plastic ingestion and entanglement. International Marine Debris Conference. Bhusan, South Korea. 2022.
- Murphy, E. L.**, Fredette-Roman, C., Rochman, C., Gerber, L. R., Polidoro, B. Ranking the relative vulnerability of Hawai'ian Species to marine macroplastic. North American Congress for Conservation Biology. Reno, NV. 2022.
- Ahumada, J., Cheng, S., **Murphy, E. L.** Interactive tools can drive evidence-informed decisions in conservation: insights from camera trap surveys in the Amazon. Association for tropical biology and conservation. Cartagena de Indias, Colombia. 2022.
- Murphy, E. L.**, Fredette-Roman, C., Rochman, C., Gerber, L. R., Polidoro, B. Assessing the relative vulnerability of marine biodiversity to macroplastics. Association for the Sciences of Limnology and Oceanography's Ocean Sciences Meeting. Honolulu, HI. 2022.
- Murphy, E. L.**, Eikenberry, S., Iacona, G., Watson, G. The value of increased spatial resolution of pesticide usage data for assessing risk to endangered species. Society for Environmental Toxicology and Chemistry annual conference. Portland, OR. 2021.
- Murphy, E. L.**, Bernard, M., Iacona, G., Borrelle, S. B., Barnes, M., McGivern, A., Emmanuel, J., Gerber, L. R. A decision framework for estimating the cost of marine plastic pollution intervention. Society for Conservation Biology's Emerging Issues in Conservation Seminar. Virtual. 2021.
<https://vimeo.com/638724724>

- 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. L.** Juvenile Justice. 21st Century Community Learning Centers (21st CCLC) 2016 Summer Institute. Phoenix, AZ. 2016.

POSTERS

- Jung, J., **Murphy, E. L.** A Nitrogen Isotope Assisted View of Nutrient Dynamics in the Caribbean Sea during the Anthropocene. Reef Futures. Riviera Maya, Mexico. 2024.
- Murphy, E. L.**, Borrelle, S., Kittinger, J., Gerber, L. R. Engaging stakeholders in identifying scenarios to mitigate marine plastic pollution in Hawai'i. American Geophysical Union. Chicago, IL. 2022.
- Murphy, E. L.**, Barnes, M., Iacona, G., Bernard, M., Gerber, L. R., McGivern, A., Borrelle, S. The cost of mitigating marine plastic pollution. Institute for Social Science Research. Tempe, AZ. 2020.
- Murphy, E. L.**, Barnes, M., Iacona, G., Bernard, M., Gerber, L. R., McGivern, A., Borrelle, S. The cost of mitigating marine plastic pollution. Society for Environmental Toxicology and Chemistry annual conference. Toronto, Canada. 2019.
- Murphy, E. L.**, Sivaguru, M., Fouke, F. W. Physiological Response of the Caribbean Coral *O. annularis* to Pollution Gradients. Midwest Geobiology Conference. 2014.
- Murphy, E. L.**, M. Sivaguru, B. W. Fouke. Physiological Response of the Caribbean Coral *O. annularis* to Pollution Gradients. American Geophysical Union. 2014.

MEDIA

Authored.

- Murphy, E.**, Helm, L. 2021. Lawmakers raided funds meant for recycling, raising fees, or scaling back programs. *AZ Central*. azcentral.com/story/news/local/arizona-environment/2023/05/03/arizona-lawmakers-consider-plan-to-fund-plastic-to-fuel-plants/70147952007/
- Murphy, E. L.**, Bernard, M., Hill, I., Tunas-Corzon, A., Helm, L. 2020. Arizona should take steps to reinvigorate recycling. *Arizona Capitol Times*. azcapitoltimes.com/news/2020/12/04/arizona-should-take-steps-to-reinvigorate-recycling/

Interviewed.

- Hawkinson, K. 2025. Charging for plastic shopping bags can actually lead to cleaner beaches, study shows. *The Independent*. independent.co.uk/climate-change/news/plastic-bag-ban-study-clean-beaches-litter-b2774245.html
- Hailstone, J. 2025. Plastic bag bans and fees can reduce shoreline litter study finds. *Forbes*. forbes.com/sites/jamiehailstone/2025/06/27/plastic-bag-bans-and-fees-can-reduce-shoreline-litter-study-finds/
- Owen, R. 2025. Policy Success: Fees and Bans on Plastic Bags Reduce Beach Trash. *EOS*. eos.org/articles/policy-success-fees-and-bans-on-plastic-bags-reduce-beach-trash
- Kelso, C. 2025. Banning Plastic Bags Works to Limit Shoreline Litter, Study Finds. *NYTimes*. nytimes.com/2025/06/19/climate/plastic-bag-bans-litter.html
- Holcombe, M. 2025. Plastic shopping bag policies are actually working, a new study suggests.

- CNN. edition.cnn.com/2025/06/19/business/plastic-bag-policies-pollution-wellness
- Chiu, A. 2025. Plastic bag fees and bans help protect beaches and riverbanks, study finds. *Washington Post*. Link. [washingtonpost.com/climate-solutions/2025/06/19/plastic-bag-fee-ban-litter-pollution/](https://www.washingtonpost.com/climate-solutions/2025/06/19/plastic-bag-fee-ban-litter-pollution/)
- Migoya, C. 2023. Arizona lawmakers want to restore recycling fund. But environmentalists fear one addition. *AZ Central*. [azcentral.com/story/news/local/arizona-environment/2023/05/03/arizona-lawmakers-consider-plan-to-fund-plastic-to-fuel-plants/70147952007/](https://www.azcentral.com/story/news/local/arizona-environment/2023/05/03/arizona-lawmakers-consider-plan-to-fund-plastic-to-fuel-plants/70147952007/)
- Bankston, A., **Murphy, E. L.**, Fleming, H.K, Zolyniak, A. 2020. Wellness Privacy, Recycling, & Commercialization of the Arctic [SciPolSoundBites - S3 | E6. *Journal of Science Policy and Governance*. [youtube.com/watch?v=7vBIGQ2VPIs](https://www.youtube.com/watch?v=7vBIGQ2VPIs)
- Gerbis, N. 2020. Study: Massive Global Effort Needed to Reduce Plastic Pollution By 2030. NPR KJZZ. [Fronterasdesk.org/content/1621612/study-massive-global-effort-needed-reduce-plastic-pollution-2030](https://www.fronterasdesk.org/content/1621612/study-massive-global-effort-needed-reduce-plastic-pollution-2030)

OUTREACH

- 2025 Guest speaker for Blacks of the Chesapeake Science Camp
- 2024 Guest speaker for ASU Staff Sustainability Group
- 2024 Guest speaker for KPMG ESG team
- 2023 Guest lecturer in Environmental Life Sciences Ph.D. Seminar, ASU
- 2023 Plenary speaker for The Sustainability Consortium Annual Conference
- 2022 Guest speaker for Wells Fargo Sustainability Team
- 2022 Guest speaker at Arizona State Prison Complex
- 2022 Guest speaker for Environmental Protection Agency Region 9
- 2021 Bi-annual guest lecturer at California State University, Chico
- 2021 WE Empower UN SDG Challenge Judge
- 2021 ASU Sustainability Challenge Pitch Day judge
- 2021 Guest speaker at Chaparral High School
- 2020 Bi-annual guest lecturer at California State University, Chico
- 2020 WE Empower UN SDG Challenge Judge