Nicole C. Pittoors
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## Research Interests

Molecular ecology, deep-sea benthic ecology, metacommunity dynamics, larval ecology, and reproductive biology.

## Education

2020-Present **Doctor of Philosophy in Biological Sciences**
**Lehigh University, Bethlehem, PA**
Concentration: Evolutionary and Behavioral Biology
Advisor: Dr. Santiago Herrera
Dissertation: Metacommunity dynamics of the mesophotic coral reef benthos within the Northwestern Gulf of Mexico

2013-2017 **Bachelor of Science in Biology, Minor in Mathematics**
Northern Michigan University, Marquette, MI
Concentration: Ecology
Advisor: Dr. Jill Leonard

## Awards

2024 Lehigh University Department of Biological Sciences Nemes Fellowship [$34,000]
2021 National Science Foundation Graduate Research Fellowship [$138,000]
2021 Deep Sea Biology Society Cruise Bursaries Award [$2,000]
2016 and 2018 Charlotte Mangum Student Travel Award- SICB [estimated $600]
2016 Northern Michigan University Graduate Education and Research Grant [$500 1 of 3 awards]
2013-2017 Northern Michigan University Honors Award

## Research Positions

2020-Present Graduate Research Assistant at Lehigh University. *Principal Investigator: Dr. Santiago Herrera*
2018-2020 Laboratory Technician at Harvard University. *Principal Investigator: Dr. Benjamin de Bivort*.
2017 Guest Student at Woods Hole Oceanographic Institution. *Principle Investigators: Drs. Kirstin Meyer-Kaiser and Lauren Mullineaux.*
2014-2017 Undergraduate Independent Researcher at Northern Michigan University. *Advisors: Dr. Jill Leonard*
2013 Volunteer Technician at Michigan's Department of Natural Resources. *Advisors: Daniel Traynor and Dr. Shawn Sitar.*

## Presentations

2024 Characterizing biodiversity of mesophotic reef benthos using Autonomous Reef Monitoring Structures (ARMS). **Poster**. 3rd National Workshop on eDNA. John Hopkins University. Laurel, MD.
2023 Characterizing biodiversity of mesophotic reef benthos using Autonomous Reef Monitoring Structures (ARMS). **Speed Talk and Poster**. International Symposium on Deep-Sea Corals. Edinburgh, Scotland.
2023 Characterizing biodiversity of mesophotic reef benthos using Autonomous Reef Monitoring Structures (ARMS). **Oral Presentation**. ConnectivitY of CoraL Ecosystems in the Gulf of Mexico project PI-MTAG meeting. Smithsonian Institution, Washington, D.C.
2017 Multiple mechanisms of succession at work in subtidal fouling communities. **Oral Presentation**. Western Society of Naturalists. Pasadena, CA.
2017 Mechanisms in ecological succession in subtidal fouling communities. Summer Student Research Forum. **Speed Talk and Poster**. Woods Hole Oceanographic Institution. Woods Hole, MA.
2017 Effects of pH and temperature on the Harpacticoid *Tisbe biminiensis* growth, survivorship, and morphology. **Oral Presentation**. Society of Integrative and Comparative Biology. New Orleans, LA.
2016 The role of *Diadema antillarum* on coral diversity and abundance. Northern Michigan University Research Celebration. **Oral Presentation**. Marquette, MI.

2015 Humpback whale (*Megaptera novaeangliae*) behavioral ecology field methods in Puerto Rico. **Oral Presentation**. Northern Michigan University Research Celebration. Marquette, MI.

## Peer-Reviewed Publications

Herrera, S., Chadwick, W. W., Jackson, M. G., Konter, J., McCartin, L., **Pittoors, N.**, Bushta, E., Merle, S. G. 2023. From basalt to biosphere: Early non-vent community succession on the erupting Vailulu'u deep seamount. *FMARS*. 10. DOI: 10.3389/fmars.2023.1110062

McDermort, J.M., Parnell-Turner, R., Barreyre, T., Herrera, S., Downing, C., **Pittoors, N.**, Pehr, K., Vohsen, S.A., Dowd, W.S., Wu, J., Marjanoic, M., Fornari, D. Discovery of active off-axis vents at 9º 54'N East Pacific Rise. *PNAS*. 119. DOI: 10.1073/pnas.2205602119

Maciejewski, M.F., Meyer, K.S., Wheeler, J.D., Anderson, E.J., **Pittoors, N.C.**, Mullineaux, L.S. Helical swimming as an exploratory behavior in competent larvae of the eastern oyster larvae (*Crassostrea virginica*). *J Exp Mar Biol Ecol*. 510: 86-94. DOI: 10.1016/j.jembe.2018.10.007

## Publications in Review and Preparation

McCartin, L.J., Saso, E., Vohsen, S., **Pittoors, N.C.**, Demetriades, P., McFadden, C., Quattrini, A., and Herrera, S. New eDNA Meta-barcoding Primers for Anthozoan Coral Biodiversity Assessment. *bioRxiv* 2023.10.26.564240 (2023) DOI:10.1101/2023.10.26.564240. *Submitted for Review in Coral Reefs.*

Meyer, K.S., **Pittoors, N.C.**, Solow, A., Mullineaux, L.S. Priority effects in succession in a marine fouling community. *In preparation.* Target journal: Ecology Letters.

## Teaching Experience

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| 2020 | Graduate Teaching Assistant. Genetics Laboratory. Lehigh University. |
| 2017 | Teaching Assistant. Advanced Applied Statistics. Northern Michigan University. |
| 2016-2017 | Campus Tutor. Ecology and Biological Statistics. Northern Michigan University. |
| 2015 | Teaching Assistant. Freshman Biology Seminar. Northern Michigan University. |

## Mentoring

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| 2024-Present | Jamie Lai, Lehigh University Undergraduate Student |
| 2023-Present | Sophia Mihalek, Lehigh University Undergraduate Student |
| 2016-2017 | Grace Grimes, Northern Michigan University Undergraduate Student and McNair Scholar |

## Relevant Coursework

Deep-Sea Biology (Harvard Graduate School of Arts and Sciences), Genomics, Molecular Ecology I & II, Marine Geochemistry, Marine Biology, Oceanography, Coevolution, Ecology, Ecology Theory and Methods, Ecological Animal Physiology, Invertebrate Zoology, Conservation Biology, Ichthyology, Cellular and Molecular Biology, Evolution, Advanced Field Marine Biology, Calculus I-III, Differential Equations, Biostatistics, Advanced Applied Statistics, Organic Chemistry, Calculus-based Physics

## Other Professional Activities

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| Since 2020 | Deep-Sea Biology Society Student Member |
| Since 2018 | Society for Women in Marine Science Student Member |
| 2017 | Sigma Xi Associate Member |
| 2015-2019 | SICB Student Member |
| 2016-2018 | WSN Student Member |
| 2014 | PADI Open water SCUBA certified |

## Diversity in STEM and Anti-Racist Training

2023 *Advancing Antiracism, Diversity, Equity, and Inclusion in STEMM Organizations: Beyond Broadening Participation*

Seminar on recommendations and actions that leaders in STEMM organizations can take to foster a culture of diversity, equity, and inclusion. [at Lehigh University]

2020 *What is an Anti-Racist Classroom? What Actions Can I Take to Create One?*
Workshop on concreate actions that will help create an anti-racist classroom, including remote or blended courses [at Lehigh University]

2019 *Creating Space: Allyship Workshop*
Understanding social justice beyond a U.S. context and how to make social justice efforts more inclusive and accessible [at Harvard]

2019 *Optimizing the Intern Experience: A Woods Hole NSF Workshop*
A series of seminars and workshops aimed to strengthen undergraduate programs that seek to increase diversity in the geosciences workforce [at WHOI]

## Science Communication Training and Outreach

2024-Present *Skype a Scientist Volunteer*
Organization that provides classrooms of students a video conference with a scientist to "meet" scientists and have their questions answered.

2020-Present *Letters to a Pre-Scientist Volunteer*
Pen pal program that pairs fifth to tenth grade "pre-scientists" in US low-income communities with STEM professional volunteers during science class.

2021-2023 *Biological Organization of Graduate Students (BOGS) Treasurer*.
Helped organize events for student professional development, advocate for students, assist with recruiting students to the program, and planned community events

2016 *Story Art for Science Communication, Interactive Workshop*
How to outline your scientific stories using techniques that Pixar Animation Studios uses to construct and translate stories into visual form [at WSN Meeting]

2016 *Communicating the Value of Natural History Through Exploration and Discovery Symposium*
How to use natural history and observation as a tool to motivate a wide audience to care about and conserve the natural world [at WSN meeting]

2017 *Demystifying Public Perceptions of Science Workshop*
Tools to bridge psychological research with science communication [at WSN Meeting]

## Technical Skills

Languages and Platforms: R, ArcGIS, Python, MATLAB, Thin Plate Spline for Morphometric Analysis, SPSS Statistical Software, Windows, Linux, macOS, Autodesk Fusion 360, Adobe Creative Cloud, Photogrammetry for 3D reconstruction.

Hardware: Soldering, Circuits, Laser Cutting, and 3D Printing.
Molecular and Microscopy Techniques: Polymerase Chain Reaction, Protein Electrophoresis, DNA extraction, Metabarcoding, Next Generation Sequencing Technologies, Understanding and Usage of Biostatistics and Bioinformatics Algorithms, Reproductive Histology, Immunohistochemistry, Immunofluorescence, and Confocal Microscopy.

Field Work: Collection and preservation of deep-sea corals for museum voucher specimens and high-molecular weight DNA and RNA acquisition, fixation of deep-sea corals for microscopy and reproductive histology, recovery and processing of Autonomous Reef Monitoring Structures, ship-board experiments involving live deep-sea corals, leading remotely operated vehicle dives, photogrammetry, eDNA sampling and processing of niskin bottles and in-situ high-volume samplers, directing CTD tow-yo's to locate hydrothermal plumes, hydrothermal vent biological and geological sampling, isobaric gas-tight and major sampler preparation and sample acquisition, and fabrication and deployment of deep-sea equipment and benthic landers.

## Research Expeditions

2024 R/V *Atlantis.* HOV *Alvin.* AT50-21. Monitoring hydrothermal fluid origin, crustal permeability, and seafloor morphology in preparation for the next volcanic eruption. Leg 3. East Pacific Rise 9º 50'N, Pacific Ocean. 34 days. Starboard Observer on HOV *Alvin* dive AL5237, Port Observer on dive AL5241.

2023 R/V *Falkor (too)*. ROV *SuBastian.* FKt230812. Hydrothermal Vents of the Western Galapagos. Galapagos Islands, Ecuador. 30 days.

2023 R/V *Falkor (too)*. ROV *SuBastian.* FKt230417. Health Diagnostics of Deep-Sea Corals. Puerto Rico. 19 days.

2023 R/V *Atlantis.* HOV *Alvin.* AT50-07. Monitoring hydrothermal fluid origin, crustal permeability, and seafloor morphology in preparation for the next volcanic eruption. Leg 2. East Pacific Rise 9º 50'N, Pacific Ocean. Starboard observer on HOV *Alvin* dive AL5147. 29 days.

2021 R/V *Point Sur.* ROV *Global Explorer.* ConnectivitY of CoraL Ecosystems (CYCLE). U.S. Gulf of Mexico. 13 days.

2021 R/V *Roger Revelle*. ROV *Jason.* AUV *Sentry.* RR2102*:* Monitoring hydrothermal fluid origin, crustal permeability, and seafloor morphology in preparation for the next volcanic eruption. Leg 1. East Pacific Rise 9º 50'N, Pacific Ocean. 39 days.

## Press and Research Features

2024 Five New Hydrothermal Vents Discovered in the Eastern Tropical Pacific Ocean. Oceanus. https://www.whoi.edu/press-room/news-release/five-new-hydrothermal-vents-discovered-in-the-eastern- tropical-pacific-ocean/

2023 "The Charles Darwin Foundation raises awareness about ocean conservation in Times Square": Charles Darwin Foundation Blog Articles. https://www.darwinfoundation.org/en/blog-articles/923-the-charles- darwin-foundation-raises-awareness-about-ocean-conservation-in-times-square

2023 "New Hydrothermal Vent Found Near Galápagos": Marine Technology News. https://www.marinetechnologynews.com/news/hydrothermal-found-pagos-631128

2023 "A history of Interdisciplinary Research": Schmidt Ocean Institute. https://youtu.be/IytK3n1LC_Y?feature=shared

2023 "Unlike Anything Else on Earth": Schmidt Ocean Institute. https://youtu.be/YAW2x2OURZA?feature=shared

2023 "Deep-Sea Chemical Laboratories": Schmidt Ocean Institute. https://youtu.be/svYFr892fGQ?feature=shared

2022 "Diving Deep – Biologist Nicole Pittoors travels to great depths to measure the health of the ocean" : Lehigh University's ACUMEN Magazine. https://flippingbook.lehigh.edu/ACUMEN-Spring-2022/22/

2022 "Off-Axis High-Temperature Hydrothermal Field Discovered at East Pacific Rise ": Lehigh University News.https://www2.lehigh.edu/news/off-axis-high-temperature-hydrothermal-field-discovered-at-east- pacific-rise

2022 "New Hydrothermal Field Discovered In East Pacific Ocean": Scripps Institution of Oceanography News. https://scripps.ucsd.edu/news/new-hydrothermal-field-discovered-east-pacific-ocean

2022 "Off-axis high-temperature hydrothermal field discovered at the East Pacific Rise 9°54'N": Science Daily. https://www.sciencedaily.com/releases/2022/07/220718154327.htm