

Margaret Bernish | Ph.D.

University of Rhode Island Graduate School of Oceanography

Narragansett, RI

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Education

Ph.D. in Oceanography, University of Rhode Island

2023 - 2026

Graduate School of Oceanography, Narragansett, RI

Dissertation: "Linking Phytoplankton Physiology and Ecology to Global Biogeochemical Cycles: A Modeling Approach"

Advisor: Keisuke Inomura; Committee: David Smith & Ying Zhang

M.S. in Marine Science, University of South Carolina

2021 - 2023

School of Earth, ocean, and Environment, SC

Thesis: "Genomic Analysis of *Exophiala* sp. ETNP2018, a Marine Fungal Strain Isolated from an Oxygen Minimum Zone"

Advisor: Nick Peng; Committee: Annie Bourbonnais & Joshua Stone

B.S. in Quantitative Biology, University of North Carolina at Chapel Hill

2016-2020

Department of Biology, Chapel Hill, NC

Journal Publications

1. **Bernish, M.K.**, Deutsch, C., & Inomura, K. Simulating Variation in Phytoplankton Ecophysiology and Nutrient Inventories Under Various Climate Scenarios. *In Preparation*
2. **Bernish, M.K.**, Kim, J., Gao, M., Pasquier, B. and Inomura, K. (2026). Using a Cell Flux Model to Investigate Phytoplankton Growth and Macromolecular Allocation Under Iron Limitation. *Frontiers in Earth Science*, 14, p.1839921. *Pre-print*
3. Moreno, C. M., **Bernish, M.K.**, Meyer, M. G., Li, Z., Waite, N., Cohen, N. R., ... & Marchetti, A. (2024). Molecular physiology of Antarctic diatom natural assemblages and bloom event reveal insights into strategies contributing to their ecological success. *Msystems*, 9(3).
4. Pizzuti, S.A., **Bernish, M.K.**, Harvey A., Tourangeau L., Shriver C., Kehl, C.E., & Taylor, B.K. (2022). Uncovering how animals use combinations of magnetic field properties to navigate: a computational approach. *Journal of Comparative Physiology A*.
5. Taylor, B.K., **Bernish, M.K.**, Pizzuti, S.A. & Kehl, C.E., (2021). A bioinspired navigation strategy that uses magnetic signatures to navigate without GPS in a linearized northern Atlantic Ocean: a simulation study. *Bioinspiration & Biomimetics*.

Conference Presentations

1. "Resolving the Elemental Stoichiometry and Macromolecular Allocation of Phytoplankton in a Coastal Ocean Simulation" *AGU Ocean Sciences Meeting 2026*. Glasgow, Scotland, UK, February,

- 2026.
2. "Modeling the Coexistence of Two Marine Picocyanobacteria Under Changing Nitrogen Availability" *Xiamen Symposium on Marine Environmental Sciences*. Xiamen, China, January, 2025.
 3. "Utilizing a Coarse-Grained Model to Link Dissolved Iron Concentrations and the Physiology of Phytoplankton" *AGU Ocean Sciences Meeting 2026*. New Orleans, LA, January 2023
 4. "Surface and subsurface salinity variability during marine heatwaves along the East Coast of the United States" *American Geophysical Union Fall Meeting*. New Orleans, LA, December, 2021.
 5. "Using magnetic signatures to navigate the North Atlantic" *Southeast Regional Society for Integrative and Comparative Biology Meeting*. Virtual, November 2024.

Field Experience

Long-Term Ecological Research Network Aug. 2025

Cruise AR92, Northeast US Shelf, MA

Assisting in phytoplankton sampling and incubations. Measuring phytoplankton fluorescence and conducting nutrient limitation experiments.

Long-Term Ecological Research Network Nov. 2024

Cruise AE2426, Northeast US Shelf, MA

Fellowships and Academic Honors

School of the Earth, Ocean, and Environment Graduate Scholar Award Spring 2021

Teaching

Teaching Assistant: Introductory Organic Chemistry Laboratory Jan. - May 2024

University of Rhode Island, South Kingstown, RI

Taught by Justin Pantano

- Instructed students on proper organic chemistry lab protocol, demonstrated experiments and supervised lab sessions.
- Held weekly office hours.

Teaching Assistant: Climate Change and the Oceans Jan. - May 2025

University of Rhode Island, South Kingstown, RI

Taught by Martha McConnell and Rebecca Robinson

Teaching Assistant: Climate Change and the Oceans Jan. - May 2026

University of Rhode Island, South Kingstown, RI

Taught by Keisuke Inomura

Leadership and Mentorship

Graduate Assistants United Jun. 2024 - Jun. 2025

President, Narragansett, RI

- Connected graduate student members across departments through organizing workshops and

social events.

- Held the role of president at the University of Rhode Island's chapter, guided the organization with great success, and developed the Racial and Social Justice Committee.

Skills

- **Programming Languages:** C++ (Intermediate), Fortran (Basic), MATLAB (Advanced), Python (Advanced), Julia (Basic)
- **Software:** Microsoft Office (Advanced)
- **Data Analysis:** MATLAB(Advanced)