# Stephanie I. Anderson

Research Ecologist

*U.S. Environmental Protection Agency*

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## Education

**Ph.D. Oceanography** — *Narragansett, RI*

Graduate School of Oceanography, University of Rhode Island — *2015-2021*

- Dissertation: Phytoplankton thermal responses as drivers of community composition and biogeography in a changing environment
- Advisor: Dr. Tatiana Rynearson

**Single Subject Teaching Credential** — *Los Angeles, CA*

Loyola Marymount University — *2012-2013*

**B.A. Molecular, Cellular, and Developmental Biology** — *Boulder, CO*

University of Colorado at Boulder | *magna cum laude* — *2008-2012*

- Thesis: Identifying Purification and Storage Techniques for the Human Papillomavirus Type 16 Major Capsid Protein L1
- Advisor: Dr. Robert Garcea, M.D.

## Research Appointments

**Research Ecologist** — *Narragansett, RI*

U.S. Environmental Protection Agency — *2023-Present*

- Office of Water, Office of Wetlands, Oceans, and Watersheds
- Office of Research and Development, Atlantic Coastal Environmental Sciences Division

**Simons Foundation Postdoctoral Fellow** — *Cambridge, MA*

Massachusetts Institute of Technology — *2021-2023*

- Advisor: Dr. Stephanie Dutkiewicz

**Postdoctoral Associate** — *Narragansett, RI*

Graduate School of Oceanography, University of Rhode Island — *06/2021 - 09/2021*

- Advisor: Dr. Tatiana Rynearson

**Graduate Research Assistant** — *Narragansett, RI*

Graduate School of Oceanography, University of Rhode Island — *2015-2021*

- Advisor: Dr. Tatiana Rynearson

## Fellowships, Grants & Awards

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|---|---|---|
| 2024 | **EPA Regional-ORD Applied Research**, ($99,000), co-PI | *Narragansett, RI* |
| 2022 | **Ocean Carbon and Biogeochemistry Travel Award**, ($1,250) | *Cambridge, MA* |
| 2021 | **Simons Foundation Postdoctoral Fellowship in Marine Microbial Ecology**, ($258,418) | *Cambridge, MA* |
| 2019 | **Davis Family Endowed Scholarship for Fisheries Oceanography**, ($3,650) | *Narragansett, RI* |
| 2019 | **Turner Designs Student Award**, ($500), Travel award | *Narragansett, RI* |
| 2019 | **University of Rhode Island Alumni Award**, ($1,000), Travel award | *Narragansett, RI* |
| 2018 | **Ann Durbin Memorial Award**, ($462), For excellence in biological oceanography | *Narragansett, RI* |
| 2016 | **University of Rhode Island Alumni Award**, ($1,000), Travel award | *Narragansett, RI* |
| 2013 | **Segal AmeriCorps Education Award**, ($11,000) Dedication to the Teach for America program | *Los Angeles, CA* |
| 2013 | **Teacher of the Month**, Manual Arts High School | *Los Angeles, CA* |
| 2012 | **Departmental Honors**, University of Colorado at Boulder | *Boulder, CO* |
| 2010 | **National Society of Collegiate Scholars**, National Honors Society | *Boulder, CO* |

# Publications

### Manuscripts in review or in preparation:

**Anderson S.I.**, McGinty N., Sterling A. and Hagy, J.D. Thermal Traits of Marine Harmful Algal Species Discerned from Bloom Events. *(in prep for Harmful Algae)*.

### Peer-reviewed publications:

9. Killam D., Bouma-Gregson K., Sutula M., Kudela R., Hagy J.D., **Anderson S.I.**, and Senn D. Revisiting chl-a thresholds for San Francisco Bay: insights from observations of phytoplankton molecular abundance. *Harmful Algae*. https://doi.org/10.1016/j.hal.2026.103086.

8. **Anderson S.I.**, Franzè G., Kling J.D., Wilburn P., Kremer C.T., Hutchins D.A., Litchman E., Menden-Deuer S., Rynearson T.A. Nutrient Availability Modulates Impacts of Short-Term Shifts in Temperature and Grazing on Phytoplankton Composition and Size Structure. *Limnology and Oceanography*. https://doi.org/10.1002/lno.70322.

7. **Anderson S.I.**, Fronda, C., Barton A.D., Clayton S., Rynearson T.A., Dutkiewicz S. (2024), Phytoplankton thermal trait parameterization alters community structure and biogeochemical processes in a modeled ocean. *Global Change Biology*, 30, e17093. https://doi.org/10.1111/gcb.17093.

6. Kling J., Lee M.D., Webb E.A., Coelho J.T., Wilburn P., **Anderson S.I.**, Zhou Q., Wang C., Phan M.D., Kremer C.T., Litchman E., Rynearson T.A., Hutchins D.A. (2023), Dual thermal ecotypes co-exist within a nearly genetically identical population of the unicellular marine cyanobacterium *Synechococcus*. *Proceedings of the National Academy of Sciences*. https://doi.org/10.1073/pnas.2315701120.

5. Franzè G., **Anderson S.I.**, Kling J.D., Kremer C.T., Hutchins D.A., Litchman E., Rynearson T.A., Menden-Deuer S. (2022), Interactive effects of nutrients and temperature on herbivorous predation in a coastal plankton community. *Limnology and Oceanography* https://doi.org/10.1002/lno.12289.

4. Bishop I.W., **Anderson S.I.**, Collins S., Rynearson T.A. (2022), Thermal trait variation may buffer Southern Ocean phytoplankton from anthropogenic warming. *Global Change Biology*, 00, 1– 13. https://doi.org/10.1111/gcb.16329.

3. **Anderson S.I.**, Franzè G., Kling J.D., Wilburn P., Kremer C.T., Hutchins D.A., Litchman E., Menden-Deuer S., Rynearson T.A. (2022), The Interactive Effects of Temperature and Nutrients on a Spring Phytoplankton Community. *Limnology and Oceanography*. https://doi.org/10.1002/lno.12023

2. **Anderson S.I.**, Barton A.D., Clayton S., Dutkiewicz S., Rynearson T.A. (2021), Marine Phytoplankton Functional Types Exhibit Diverse Responses to Thermal Change. *Nature Communications*, 12, 6413. https://doi.org/10.1038/s41467-021-26651-8

1. **Anderson S.I.**, Rynearson T.A.(2020), Variability Approaching the Thermal Limits Drives Diatom Community Dynamics. *Limnology and Oceanography*. doi: https://doi.org/10.1002/lno.11430

### Book Chapters:

**Anderson S.I.**, McDuffie K., Menezes S.(2020), Science Communication for Natural Resource Managers: Techniques and Examples in Marine Systems.*The Handbook of Natural Resources: Coastal and Marine Environments*, 5, 143-149.

### Dissertations and Theses:

**Anderson S.I.**."Phytoplankton Thermal Responses as Drivers of Community Composition and Biogeography in a Changing Environment" (2021). *University of Rhode Island Dissertations*. Available at: https://digitalcommons.uri.edu/oa_diss/1256/

**Anderson S.I.**."Identifying Purification and Storage Techniques for the Human Papillomavirus Type 16 Major Capsid Protein L1" (2012). *Molecular, Cellular, and Developmental Biology Undergraduate Contributions*. Available at: https://scholar.colorado.edu/mcdb_ugrad/1

# Invited Seminars

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| 2026 | **University of Connecticut**, Ecology Seminar Series | *Storrs, CT* |
| 2025 | **University of Bergen**, Visiting Researcher in Theorectical Ecology Group | *Bergen, Norway* |
| 2025 | **ASLO Aquatic Sciences Meeting**, Author Spotlight: Recent high-impact publications from ASLO | *Charlotte, NC* |
| 2023 | **Harmful Algal Bloom Research Network**, US Environmental Protection Agency | *Remote* |
| 2022 | **University of Liverpool**, Ocean Seminar | *Remote* |

## Selected Abstracts

Teevan-Kamhawi F., Wang H., Palter P., **Anderson S.I.**, Gibson S., Grear J., Kelly R.P., Pockalny R., Robinson R. The Potential for Estuarine Alkalinity Enhancement via Nearshore Crushed Limestone Application is Concealed by Natural Variability in the Marine Carbonate System. Ocean Sciences, Glasgow, Scotland. February 2026.

**Anderson S.I.**, Franzè G., Kling J., Kremer C., Menden-Deuer S., Litchman E., Hutchins D., and Rynearson T.A. The interactive effects of temperature and nutrients on a spring phytoplankton community. ASLO Aquatic Sciences Meeting, Charlotte, NC. March 2025

Pelletier M., **Anderson S.I.**, Brown C., Hagy J.D., Kaldy J., Oczkowski A., Plaisted H. Exploring factors impacting long-term temperature trends in U.S. estuarine and coastal waters. NWQMC National Monitoring Conference, Green Bay, WI. March 2025.

Palter J., **Anderson S.I.**, Fontaine D., Gibson S., Grear J., Kelly R.P., Mucci N., Robinson R.R., Teevan-Kamhawi F., Wang H.. An Opportunistic Study of Ocean Alkalinity Enhancement, CDR, and Ecosystem Impacts Through Coastal Liming. American Geophysical Union, Washington DC. December 2024.

**Anderson S.I.**, Hagy J.D., McGinty N.. Discerning the Thermal Traits of Marine Harmful Algal Species from Bloom Events. 12th U.S. Symposium on Harmful Algae, Portland, ME. October 2024.

Killam D., Sutula M., Kudela R., Hagy J. **Anderson S.I.**, Senn D. Relating Phytoplankton Molecular Abundances to Chlorophyll-a and mussel toxin in SF Bay. 12th U.S. Symposium on Harmful Algae, Portland, ME. October 2024.

**Anderson S.I.**, Fronda C., Barton A.D., Clayton S., Dutkiewicz S., and Rynearson T.A.. Phytoplankton Thermal Trait Parameterization Alters Community Structure and Biogeochemical Processes in a Modeled Ocean. ASLO, Madison, WI. June 2024.

**Anderson S.I.**, Barton A.D., Clayton S., Dutkiewicz S., and Rynearson T.A.. Marine Phytoplankton Functional Types Exhibit Diverse Responses to Thermal Change. Fifth Traits Meeting, Knoxville, TN. January 2022.

**Anderson S.I.**, Franzè G., Kling J., Kremer C., Menden-Deuer S., Litchman E., Hutchins D., and Rynearson T.A.. Plankton Shuffle: Temperature-Nutrient Interplay Restructures Phytoplankton Community. ASLO, Virtual. June 2021.

**Anderson S.I.**, Barton A.D., Clayton S., Dutkiewicz S., and Rynearson T.A.. Changing Rates and Shifting Ranges: Assessing the Phytoplankton Global Response to Ocean Warming. Ocean Sciences, San Diego, CA. February 2020.

Bishop I., **Anderson S.I.**, Collins S., and Rynearson T.A.. Intraspecific Variability in Thermal Tolerance Buffers Southern Ocean Diatoms from Biogeographic Range Contraction in a Warming Ocean. Ocean Sciences, San Diego, CA. February 2020.

**Anderson S.I.**, Kling J., Kremer C., Franzè G., Hutchins D., Litchman E., Menden-Deuer S., and Rynearson T.A.. Winners and Losers in a Changing Tide: Temperature-Nutrient Impact on Phytoplankton Community Dynamics. ASLO, San Juan, Puerto Rico. February 2019.

## Teaching Experience

**Graduate Teaching Assistant** *Narragansett, RI*

Graduate School of Oceanography, University of Rhode Island *2018-2019*

- Teaching Assistant for graduate level Biological Oceanography
- Led field and laboratory section for classes of 20 students.

**High School Chemistry Teacher** *Los Angeles, CA*

Teach for America *2012-2014*

- Joined highly selective national teacher corps and committed two years to teaching in under-resourced public schools.
- Developed and implemented science curriculum for 250 students that resulted in 68% of students passing statewide end-of-year assessment; a 20% increase from the previous year.

**Undergraduate Biology Teaching Assistant** *Boulder, CO*

University of Colorado at Boulder *2011-2012*

- Facilitated student discussion during undergraduate lectures and led exam review sessions.

**Calculus Learning Assistant** *Boulder, CO*

University of Colorado at Boulder *2011*

- Led recitation sessions each week and guided students through new course material.

## Research Supervision

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| 2025 | **Research Technician**, Impacts of Ocean Alkalinity Enhancement (OAE) as a marine Carbon Dioxide Removal (mCDR) technique on algal communities. | *Narragansett, RI* |
| 2025 | **Research Technician**, Impacts of Ocean Alkalinity Enhancement (OAE) as a marine Carbon Dioxide Removal (mCDR) technique on algal stoichiometry. | *Narragansett, RI* |
| 2019 | **Summer Undergraduate Research Fellow**, Thesis: Short-term temperature variations alter community and population structure in the diatom genus Skeletonema | *Narragansett, RI* |
| 2017-2018 | **Undergraduate Researcher**, Phytoplankton temperature growth assessments | *Narragansett, RI* |
| 2017 | **Summer Undergraduate Research Fellow**, Thesis: Multi-environmental growth assessment plate: A new method of conducting temperature dependent growth experiments with phytoplankton | *Narragansett, RI* |

## Research Cruises

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| 2018 | **AE1812**, R/V Atlantic Explorer (14 days); Chief Scientist: Dr. Tatiana Rynearson | *Bermuda to Narragansett, RI* |
| 2017 | **Phosphorus Hydrocarbon And Transcriptomics (PHAT); AR16**, R/V Neil Armstrong (19 days); Chief Scientist: Dr. Benjamin Van Mooy | *Woods Hole to Bermuda* |
| 2016-2017 | **Antarctic Diversity Among Plankton and their Transformations (ADAPT); NBP17-01**, R/V Nathaniel B. Palmer (29 days); Chief Scientist: Dr. Tatiana Rynearson | *Southern Ocean Transect* |

## Community Engagement

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| 2024 | **Wickford Middle School**, Led middle school students in month long ecology workshop | *North Kingstown, RI* |
| 2023-2024 | **National HAB Committee**, Elected to serve as Early Career Ex-officio Member | *Falmouth, MA* |
| 2021 | **URI Teaching Assistant Training Workshop**, Speaker on Teaching Assistant Panel | *Narragansett, RI* |
| 2019-2020 | **Summer Undergraduate Research Fellowship in Oceanography (SURFO)**, Presented Biological Oceanography Introductory Lecture | *Narragansett, RI* |
| 2017-2019 | **Narragansett Bay Classroom**, Led summer outdoor explorations for K-12 students | *Narragansett, RI* |
| 2019 | **Hamilton Elementary**, Engaged elementary students in ocean density lesson | *North Kingston, RI* |
| 2019 | **Society for Women in Marine Science (SWMS)**, Graduate school panel | *Kingston, RI* |
| 2016-2019 | **METCALF Annual Science Immersion Workshop for Journalists**, Assisted with lesson on reading scientific literature and engaging in scientific methods | *Narragansett, RI* |
| 2018 | **Northwest Passage Project**, Presented lesson on Arctic plankton to visiting high school students | *Narragansett, RI* |
| 2018 | **Women in Marine Science**, Exhibit Presenter at Mystic Aquarium | *Mystic, CT* |
| 2018 | **4-H Teen Science Cafe**, Presented oceanography career paths to middle school students | *Exeter, RI* |
| 2018 | **Bay-Informed Discussion Series**, Community presentation on the importance of marine microbes | *Narragansett, RI* |
| 2017-2018 | **URI Graduate School of Oceanography Open House**, Led interactive DNA extraction demonstrations for the public | *Narragansett, RI* |
| 2016-2017 | **Bio-at-Noon Seminar Series Organizer**, Organize seminar series that brings outside scientists for informal discussion at the Graduate School of Oceanography | *Narragansett, RI* |
| 2016 | **Girls Reaching Remarkable Levels (GRRL) Tech**, Led microscopy lab for high school girls | *Kingston, RI* |
| 2016 | **Rhode Island Educators Cruise**, Directed RI teachers in field research aboard the R/V Endeavor | *Narragansett, RI* |

## Skills and Certifications

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| **Certifications:** | Single Subject Teaching Credential | |
| **Computation:** | R (fluent), Python and IPython Notebook (proficient), Matlab and C++ (basic) | |
| **Machine Learning:** | Regression Analysis, Clustering, Time-Series Analysis, Classification, Species Distribution Modeling | |
| **Software:** | MIT Biogeochemistry and Ecosystem Model (Darwin) | |
| **Laboratory Techniques:** | Molecular: | DNA extraction, PCR, Sanger sequencing, microsatellites |
| | Other: | Aseptic cell culturing, Microscopy, Plankton taxonomy, CHN Analysis, Chlorophyll extraction, Flow Cytometry, Ship-board sampling and sample processing (preservation) |
| **Referee:** | *Limnology and Oceanography, PLOS One, Aquatic Microbial Ecology, Ecological Modeling, Global Change Biology, PNAS, Biogeosciences* | |
| **Proposal reviewer:** | *National Science Foundation, National Oceanic and Atmospheric Association* | |