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*

United States Environmental Protection Agency — *2023-Present*

- 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

2024	**EPA Regional-ORD Applied Research**, ($99,000)	*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., Franzè G., Kling J.D., Kremer C.T., Hutchins D.A., Litchman E., Menden-Deuer S., Rynearson T.A. Short-term temperature and nutrient perturbations alter phytoplankton size and elemental structure. *(in prep for Limnology and Oceanography)*.

Killam D., Bouma-Gregson K., Sutula M., Kudela R., Hagy J.D., **Anderson S.I.**, and Senn D. Relating phytoplankton molecular percent abundances to chlorophyll-a and mussel toxin concentration in San Francisco Bay. *(in prep)*.

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:

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

2025	**ASLO Aquatic Sciences Meeting**, Author Spotlight	*Charlotte, NC*
2023	**Harmful Algal Bloom Research Network**, US Environmental Protection Agency	*Remote*
2022	**Ocean Seminar**, University of Liverpool	*Remote*

Recent Conference Presentations

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.

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.

AP Science and Math Tutor
Los Angeles, CA

C2 Education
2015

- Prepared students for AP and college entrance exams through personalized instruction.

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.

Mentorship

I currently lead a research group consisting of two technicians and serve as a mentor for two graduate students as part of the Society for Women in Marine Science. During my doctoral studies, I mentored three summer undergraduate research fellows through the completion of their research projects, later presented at research symposiums. Projects included examining the thermal responses of phytoplankton, engineering a new method for phytoplankton growth assessment, and examining temperature driven lineage sorting using microsatellites.

Research Cruises

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

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*
2017-2019	**Narragansett Bay Classroom**, Lead 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	**Ocean Sciences Bowl**, Assisted in grading at regional high school oceanography competition	*Avery Point, CT*
2016	**Girls Reaching Remarkable Levels (GRRL) Tech**, Led microscopy lab for high school girls	*Kingston, RI*
2016	**Teach for America, RI**, Engaged elementary school students and teachers in lessons about the ocean, including food webs and phytoplankton	*Providence, RI*
2016	**Rhode Island Educators Cruise**, Directed RI teachers in field research aboard the R/V Endeavor	*Narragansett, RI*

Skills and Certifications

Certifications:	Single Subject Teaching Credential	
Computation:	R (fluent), Python and IPython Notebook (proficient), Matlab and C++ (basic)	
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)
Workshops:	ANGUS Next Generation Sequence Analysis Workshop, UC Davis, Summer 2017	
Memberships:	Association for the Sciences of Limnology and Oceanography	
	Society for Women in Marine Science	
	National HAB Committee	
Reviewer:	*Limnology and Oceanography, PLOS One, Aquatic Microbial Ecology, Ecological Modeling,*	
	Global Change Biology, PNAS, NOAA, NSF	