

# Stephanie I. Anderson

RESEARCH ECOLOGIST

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

## Publications

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### 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., Ryneerson T.A. Short-term temperature and nutrient perturbations alter phytoplankton size and elemental structure. (*in prep*).

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., and Hagy, J.D. Thermal Traits of U.S. Marine Harmful Algal Species. (*in prep*).

### Peer-reviewed publications:

7. **Anderson S.I.**, Fronda, C., Barton A.D., Clayton S., Ryneerson 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., Ryneerson 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., Ryneerson 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., Ryneerson 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., Ryneerson 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., Ryneerson 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.**, Ryneerson 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/](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](https://scholar.colorado.edu/mcdb_ugrad/1)

## Invited Seminars

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

## Recent Conference Presentations

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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 Ryneerson 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 Ryneerson 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 Ryneerson 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 Ryneerson 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 Ryneerson 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 Ryneerson T.A.. Winners and Losers in a Changing Tide: Temperature-Nutrient Impact on Phytoplankton Community Dynamics. ASLO, San Juan, Puerto Rico. February 2019.

Kling J., Phan M., Fu F., **Anderson S.I.**, Franzè G., Wilburn P., Kremer C., Litchman E., Ryneerson T.A., and Hutchins D.. Thermal Diversity in a Coastal Marine *Synechococcus* Community Selected Under Low and High Temperatures. ASLO, San Juan, Puerto Rico. February 2019.

## Teaching Experience

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### Graduate Teaching Assistant

GRADUATE SCHOOL OF OCEANOGRAPHY, UNIVERSITY OF RHODE ISLAND

*Narragansett, RI*

*2018-2019*

- Teaching Assistant for graduate level Biological Oceanography

### AP Science and Math Tutor

C2 EDUCATION

*Los Angeles, CA*

*2015*

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

### High School Chemistry Teacher

TEACH FOR AMERICA

*Los Angeles, CA*

*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

UNIVERSITY OF COLORADO AT BOULDER

*Boulder, CO*

*2011-2012*

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

### Calculus Learning Assistant

UNIVERSITY OF COLORADO AT BOULDER

*Boulder, CO*

*2011*

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

## Mentorship

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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. I currently mentor two graduate students as part of the Society for Women in Marine Science.

## Research Cruises

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

## Community Engagement

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

## Skills and Certifications

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<b>Certifications:</b>	Single Subject Teaching Credential
<b>Computation:</b>	R (fluent), Python and IPython Notebook (proficient), Matlab and C++ (basic), SQL (familiar)
<b>Software:</b>	MIT Biogeochemistry and Ecosystem Model (Darwin)
<b>Laboratory Techniques:</b>	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)
<b>Workshops:</b>	ANGUS Next Generation Sequence Analysis Workshop, UC Davis, Summer 2017
<b>Memberships:</b>	Association for the Sciences of Limnology and Oceanography Society for Women in Marine Science National HAB Committee
<b>Reviewer:</b>	<i>Limnology and Oceanography, PLOS One, Aquatic Microbial Ecology, Ecological Modeling, Global Change Biology, PNAS, NOAA</i>