

# Stephanie I. Anderson

SIMONS FOUNDATION POSTDOCTORAL SCHOLAR

Massachusetts Institute of Technology Department of Earth, Atmospheric, and Planetary Sciences

✉ siander at mit.edu 🌐 StephanielAnderson.com 📧 sianderson 📺 stephanieanderson

## 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

### Simons Foundation Postdoctoral Fellow

Cambridge, MA

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

2021-Present

- Advisor: Dr. Stephanie Dutkiewicz

### Postdoctoral Fellow

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

### Departmental Honors Research

Boulder, CO

UNIVERSITY OF COLORADO AT BOULDER

2011-2012

- Advisor: Dr. Robert Garcea, M.D.

## Fellowships & Awards

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> , (\$3650)	Narragansett, RI
2019	<b>Turner Designs Student Award</b> , (\$500), Travel award	Narragansett, RI
2018	<b>Ann Durbin Memorial Award</b> , (\$462), For excellence in biological oceanography	Narragansett, RI
2016/19	<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:

Bishop I.W., **Anderson S.I.**, Collins S., Ryneerson T.A., Intraspecific thermal trait variation and the adaptive potential of Southern Ocean phytoplankton. (*in prep for Global Change Biology*).

Franzè G., **Anderson S.I.**, Kling J.D., Kremer C.T., Hutchins D.A., Litchman E., Ryneerson T.A., Menden-Deuer S., Synergetic effects of nutrient and temperature on a natural plankton community. (*in prep for Limnology and Oceanography*).

**Anderson S.I.**, Franzè G., Kling J.D., Wilburn P., Kremer C.T., Hutchins D.A., Litchman E., Menden-Deuer S., Ryneerson T.A., The Interactive Effects of Temperature and Nutrients on a Spring Phytoplankton Community. (*in review at Limnology and Oceanography*).

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. Dual thermal ecotypes detected within a nearly genetically-identical population of the unicellular marine cyanobacterium *Synechococcus*. *bioRxiv*. doi: <https://doi.org/10.1101/2020.05.27.119842>

### Peer-reviewed publications:

**Anderson S.I.**, Barton A.D., Clayton S., Dutkiewicz S., Ryneerson T.A., Marine Phytoplankton Functional Types Exhibit Diverse Responses to Thermal Change. *Nature Communications*, accepted.

**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>

### Non-refereed publications:

**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.

**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)

## Presentations

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**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.

**Anderson S.I.** and Ryneerson T.A.. Life at the Edge: Physiology at the Thermal Limits Drives Diatom Community Dynamics. RI NSF EPSCoR Research Symposium, Kingston, RI. April 2018.

Franzè G., **Anderson S.I.**, Kremer C., Kling J., Wilburn P., Hutchins D., Litchman E., Ryneerson T.A., Menden-Deuer S.. Direct and indirect effects of temperature and nutrient on plankton community dynamics. Ocean Sciences, Portland, Oregon. February 2018.

**Anderson S.I.**, Ryneerson T.A.. Thermal traits and community structure in diatoms. Trait-Based Approaches to Ocean Life, Bergen, Norway. August 2017.

**Anderson S.I., Ryneerson T.A..** In hot water? Thermal trait variability among diatom species. RI NSF EPSCoR Research Symposium, Providence, RI. April 2017.

**Anderson S.I., Ryneerson T.A..** Thermal trait variability in seasonally differentiated morphologically cryptic diatom species. ASLO, Honolulu, HI. March 2017.

Canesi K.L., Ryneerson T.A., **Anderson S.I.** New Methods and an old time series reveal temporal trends in diversity among morphologically cryptic diatom species. ASLO, Honolulu, HI. March 2017.

## Teaching Experience

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### Graduate Teaching Assistant

GRADUATE SCHOOL OF OCEANOGRAPHY, UNIVERSITY OF RHODE ISLAND

- Teaching Assistant for graduate level Biological Oceanography

Narragansett, RI

2018-2019

### AP Science and Math Tutor

C2 EDUCATION

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

Los Angeles, CA

2015

### High School Chemistry Teacher

TEACH FOR AMERICA

- 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.

Los Angeles, CA

2012-2014

### Undergraduate Biology Teaching Assistant

UNIVERSITY OF COLORADO AT BOULDER

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

Boulder, CO

2011-2012

### Calculus Learning Assistant

UNIVERSITY OF COLORADO AT BOULDER

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

Boulder, CO

2011

## Community Engagement

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2019-2020	<b>Summer Undergraduate Research Fellowship in Oceanography (SURFO)</b> , Presented Biological Oceanography Introductory Lecture	Narragansett, RI
2017-2019	<b>Narragansett Bay Classroom</b> , Lead summer outdoor explorations for K-12 students	Narragansett, RI
2019	<b>Hamilton Elementary</b> , Engaged elementary students in ocean density lesson	North Kingston, RI
2019	<b>Society for Women in Marine Science (SWMS)</b> , Graduate school panel	Kingston, RI
2016-2019	<b>METCALF Annual Science Immersion Workshop for Journalists</b> , Assisted with lesson on reading scientific literature and engaging in scientific methods	Narragansett, RI
2018	<b>Northwest Passage Project</b> , Presented lesson on Arctic plankton to visiting high school students	Narragansett, RI
2018	<b>Women in Marine Science</b> , Exhibit Presenter at Mystic Aquarium	Mystic, CT
2018	<b>4-H Teen Science Cafe</b> , Presented potential career paths in oceanography to middle school students	Exeter, RI
2018	<b>Bay-Informed Discussion Series</b> , Community presentation on the importance of marine microbes	Narragansett, RI
2017-2018	<b>URI Graduate School of Oceanography Open House</b> , Led interactive DNA extraction demonstrations for the public	Narragansett, RI
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	Narragansett, RI
2016	<b>Ocean Sciences Bowl</b> , Assisted in grading at regional high school oceanography competition	Avery Point, CT
2016	<b>Girls Reaching Remarkable Levels (GRRL) Tech</b> , Led phytoplankton microscopy lab for high school girls	Kingston, RI
2016	<b>Teach for America, RI</b> , Engaged elementary school students and teachers in lessons about the ocean, including food webs and phytoplankton	Providence, RI
2016	<b>Rhode Island Educators Cruise</b> , Directed Rhode Island science teachers in field research aboard the R/V Endeavor	Narragansett, RI

## Mentorship

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During my doctoral studies, I mentored two undergraduate students through the completion of their research projects, later presented at research symposiums.

## 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>

## 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>Machine Learning:</b>	Regression Analysis, Clustering (e.g. k-means), Time-Series Analysis, Classification (e.g. decision trees)
<b>Software:</b>	LaTeX
<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