Stephanie I. Anderson

Simons Foundation Postdoctoral Fellow

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

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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

Simons Foundation Postdoctoral Fellow *Cambridge, MA*

Massachusetts Institute of Technology *2021-Present*

- 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

Departmental Honors Research *Boulder, CO*

University of Colorado at Boulder *2011-2012*

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

Fellowships & Awards

2021	**Simons Foundation Postdoctoral Fellowship in Marine Microbial Ecology**, ($258,418)	*Cambridge, MA*
2019	**Davis Family Endowed Scholarship for Fisheries Oceanography**, ($3650)	*Narragansett, RI*
2019	**Turner Designs Student Award**, ($500), Travel award	*Narragansett, RI*
2018	**Ann Durbin Memorial Award**, ($462), For excellence in biological oceanography	*Narragansett, RI*
2016/19	**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:

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

Franzè G., **Anderson S.I.**, Kling J.D., Kremer C.T., Hutchins D.A., Litchman E., Rynearson T.A., Menden-Deuer S., Synergetic effects of nutrient and temperature on a natural plankton community. *(in prep for 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., Rynearson 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., 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*.doi: `https://doi.org/10.1002/lno.12023`

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*. doi: `https://doi.org/10.1038/s41467-021-26651-8`

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`

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`

Invited Seminars

Ocean Seminar, February 2022, University of Liverpool – Liverpool, England

Conference Presentations

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.

Kling J., Phan M., Fu F., **Anderson S.I.**, Franzè G., Wilburn P., Kremer C., Litchman E., Rynearson 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 Rynearson 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., Rynearson 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., Rynearson T.A.. Thermal traits and community structure in diatoms. Trait-Based Approaches to Ocean Life, Bergen, Norway. August 2017.

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

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

Canesi K.L., Rynearson 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

Graduate Teaching Assistant *Narragansett, RI*
Graduate School of Oceanography, University of Rhode Island *2018-2019*
- Teaching Assistant for graduate level Biological Oceanography

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.

Community Engagement

2019-2020	**Summer Undergraduate Research Fellowship in Oceanography (SURFO)**, Presented Biological Oceanography Introductory Lecture	*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 potential career paths in oceanography 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 phytoplankton 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 Rhode Island science teachers in field research aboard the R/V Endeavor	*Narragansett, RI*

Mentorship

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

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*

Skills and Certifications

Certifications:	Single Subject Teaching Credential	
Computation:	R (fluent), Python and IPython Notebook (proficient), Matlab and C++ (basic), SQL (familiar)	
Machine Learning:	Regression Analysis, Clustering (e.g. k-means), Time-Series Analysis, Classification (e.g. decision trees)	
Software:	LaTex	
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	
Reviewer:	Limnology and Oceanography	