Rebecca J. Stevick

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Education

University of Rhode Island, Graduate School of Oceanography — Narragansett, RI
Ph.D. candidate: Biological Oceanography — Sept 2015 – Dec 2019 (*expected*)
NSF Graduate Research Fellow
Co-Major Advisors: Dr. Anton Post, Dr. Marta Gomez-Chiarri
Dissertation: Oyster-Associated Microbial Community Dynamics

University of Maryland, A. James Clark School of Engineering — College Park, MD
B.S., Bioengineering, Minor in International Engineering — May 2015
Study Abroad: Biomedical Engineering, Universidad Carlos III de Madrid, Spain — Spring 2015
Senior Honors Thesis: Measuring Cell Traction Forces in Simulated Microgravity (PI Dr. Adam Hsieh)

Funding Awards

TNC/URI Global Marine Initiative Student Research Award ($24,000 total) — Mar 2017 - Dec 2018
"Effects of estuarine acidification on adult Eastern oyster (Crassostrea virginica) microbiomes and health in Narragansett Bay, Rhode Island"

NSF Graduate Research Fellowship, awarded in Bioengineering ($138,000 total) — Aug 2015 - May 2020
"Molecular Mechanisms in pH-Induced Demineralization of Bones and Coral"

Publications

Stevick, R.J., Sohn, S., Nelson, D.R., Rowley, D.C., Tammi, K., Smolowitz, R., Lundgren, K.M., Post, A.F. and Gomez-Chiarri, M. (2019). Bacterial Community Dynamics in an Oyster Hatchery in Response to Probiotic Treatment. *Frontiers in Microbiology* 10, 1060. doi:10.3389/FMICB.2019.01060.

Robledo, J.A.F., Yadavalli, R., Allam, B., Pales-Espinosa, E., Gerdol, M., Greco, S., **Stevick, R.J.**, Gómez-Chiarri, M., Zhang, Y., Heil, C.A. and Tracy, A.N. (2018). From the raw bar to the bench: Bivalves as models for human health. *Developmental & Comparative Immunology* 92, 260-282. doi:10.1016/j.dci.2018.11.020.

Yuan, L., **Stevick, R.J.**, Ahern, O.M., Daniels, N.M. (2017). Analysis of 16S Genomic Data using Graphical Databases. *Proceedings of ACM Conference on Bioinformatics, Computational Biology, and Health Informatics*, (ACM-BCB17), 2 pages. doi:10.1145/3107411.3108208.

Thomas, N.J., **Stevick, R.J.**, Tran, L.H., Nalavadi, M.O., Almeida, E.A.C., Globus, R.K., Alwood, J.S (2015). Does Simulated Spaceflight Modify Epigenetic Status During Bone Remodeling? Presented at: *Annual Meeting of the American Society for Gravitational and Space Research*, Alexandria, VA. *Conference Paper*. doi: http://hdl.handle.net/2060/20160000930

Research Experience

URI Marine Diseases Laboratory — Kingston, RI
Graduate Research Assistant — Sept 2015 - present
Conducted experiments and analysis on the effects of probiotics or environmental conditions on the health, disease status, microbiomes, and ecosystem services of larval or adult oysters. Developed protocols for DNA and RNA co-elution from various tissue and sample types, microbial analysis, and pathogen detection. Performed bacterial cell culture, sequencing library prep, nucleic acid quality control, and bioinformatic analysis to determine the microbial and host response to perturbations.

NASA Ames Research Center Mountain View, CA
Program Coordinator: Wyle Laboratories, Inc. June 2015-Aug 2015
Supported the Space Life Sciences Training Program (SLSTP) in the Space Biosciences Division. Managed and organized activities for 10 student interns, while continuing research on the effects of microgravity and exercise on DNA methylation during bone remodeling.

UMD Orthopaedic Mechanobiology Laboratory College Park, MD
Research Assistant: Cell-Substrate Forces in Microgravity Aug 2014-May 2015
Investigated the effects of microgravity on human mesenchymal stem cell growth and traction forces. Designed and manufactured a microfluidic device to determine forces from stem cells on PDMS substrate. Cultured stem cells and performed mechanical analysis based on microscope images.

NASA Ames Research Center Mountain View, CA
Research Associate: Space Biosciences, Bone and Signaling Laboratory June 2014-Aug 2014
Participant in the Space and Life Sciences Training Program, where I researched the effects of microgravity and exercise on DNA methylation during bone remodeling. We also developed a NASA Project Plan to investigate the effects of deep space radiation on DNA in *C. elegans*. I presented findings at 2 center-wide poster sessions and in a 1-hour final oral presentation.

POSTECH Molecular Genetic Biotechnology Laboratory Pohang, South Korea
Exchange Research Internship: Marine Bioadhesives June 2013-Aug 2013
Conducted bioadhesive mussel protein research at the Pohang University of Science and Technology. Performed experiments to increase knowledge of fp-151 protein expression and its applications. Optimized electrospray techniques to create more effective polymer shapes for tissue engineering.

Honors and Awards

First Place in Graduate Oral Presentations at Benthic Ecology Meeting	April 2019
URI-GSO Ann Durbin Memorial Award	Jan 2018
Gordon Gunter Outstanding Poster Award at NSA 109th Annual Meeting	March 2017
UMD Engineering Honors Program Citation	May 2015
Best Research for the 2015 UMD Honors Program	May 2015
UMD Fischell Department of Bioengineering Outstanding Research Award	Feb 2015
UMD Digital Cultures and Creativity Honors Program Citation	May 2013
Tau Beta Pi Engineering National Honor Society	Sept 2013 - May 2015

Presentations

Stevick, R.J., Hamilton, A.P., Moseman-Valtierra, S., Post, A.F., Gómez-Chiarri, M. *Metabolic Activity of Oyster-Associated Microbiomes in Response to Nutrient Enrichment*. American Society for Microbiology Microbe, June 20-24, 2019. *Poster*.

Gómez-Chiarri, M., Modak, T.H., Roberts, E., **Stevick, R.J.**, Nelson, D., Rowley, D. *Immune Responses of American Oysters to Bacterial and Parasitic Challenge*. International Conference on Fish & Shellfish Immunology, Las Palmas de Gran Canaria, Spain, June 16-20, 2019. *Oral presentation.*

Stevick, R.J., Spada, S., Rojas, D., Post, A.F., Gomez-Chiarri, M. *Oysters and Microbes and Narragansett Bay, oh my!*. RI NSF EPSCoR Annual Research Symposium, Kingston, RI, April 10, 2019. *Poster*.

Stevick, R.J., Post, A.F., Gómez-Chiarri, M. *Trends in Oyster-Associated Microbial Transcriptomes*. Eastern Fish Health Workshop, Lake Placid, NY, April 2-5, 2019. *Oral presentation*.

Stevick, R.J., Spada, S., Post, A.F., Gómez-Chiarri, M. *Effects of Estuarine Conditions on Eastern Oyster (Crassostrea virginica) Microbiomes and Health*. Benthic Ecology Meeting, St. John's, Newfoundland and

Labrador, Canada, April 3-6, 2019. *Oral presentation*. Awarded 1st Place in Graduate Student Oral Presentation contest.

Stevick, R.J., Post, A.F., Gomez-Chiarri, M. *It Takes all Kinds: Microbiomes and Oysters in Narragansett Bay, RI*. RI NSF EPSCoR Annual Research Symposium, Kingston, RI, April 9, 2018. *Poster*.

Stevick, R.J., Sohn, S., Modak, T., Nelson, D., Rowley, D., Smolowitz, R., Post, A.F., Gómez-Chiarri, M. *Bacterial Community Dynamics in an Oyster Hatchery in Response to Probiotic Treatment*. National Shellfisheries Association Annual Meeting, Seattle, WA, March 18-22, 2018. *Oral presentation*. Awarded student travel grant from department ($250).

Stevick, R.J., Post, A.F., Gómez-Chiarri, M. *Trends in Oyster-Associated Microbial Transcriptomes*. National Shellfisheries Association,Annual Meeting, Seattle, WA, March 18-22, 2018. *Oral presentation*. Awarded student travel grant from association ($275).

Yuan, L., **Stevick, R.J.**, Ahern, O.M., Daniels, N.M. *Analysis of 16S Genomic Data using Graphical Databases.* Proceedings of ACM Conference on Bioinformatics, Computational Biology, and Health Informatics (ACM-BCB17), Boston, MA, August 21, 2017. *Poster*.

Stevick, R.J., Modak, T., Post, A.F., Gómez-Chiarri, M. *Probiotic-Driven Changes in Rearing Water Microbial Communities in an Oyster Hatchery*. Gordon Research Conference, Marine Molecular Ecology, Hong Kong University of Science and Technology, Hong Kong, China, July 23-28, 2017. *Poster*.

Stevick, R.J., Pimentel, Z., Post, A.F., Gómez-Chiarri, M., Zhang, Y. *Probiotic-Driven Changes in Rearing Water Microbial Community Structure and Function in an Oyster Hatchery.* Gordon Research Conference, Animal-Microbe Symbiosis, West Dover, VT, June 11-16, 2017. *Poster*.

Stevick, R.J., Modak, T., Pimentel, Z., Zhang, Y., Post, A.F., Gomez-Chiarri, M. *Probiotic-Driven Changes in Rearing Water Microbial Community Structure and Function in an Oyster Hatchery*. RI NSF EPSCoR Annual Research Symposium, Brown University, Providence, RI, April 12, 2017. *Poster*.

Stevick, R.J., Pimentel, Z., Zhang, Y., Post, A.F., Gomez-Chiarri, M. *A Metagenomic Approach to Analyze Changes in Rearing Water Microbial Communities in an Oyster Hatchery*. National Shellfisheries Association Annual Meeting, Knoxville, TN, March 26-30, 2017. *Oral presentation*. Awarded student travel grant from association ($275).

Stevick, R.J., Modak, T., Pimentel, Z., Zhang, Y., Post, A.F., Gomez-Chiarri, M. *Probiotic-Driven Changes in Rearing Water Microbial Community Structure and Function in an Oyster Hatchery*. National Shellfisheries Association Annual Meeting, Knoxville, TN, March 26-30, 2017. *Poster*. Awarded student travel grant from department ($250). Awarded Gordon Gunter Outstanding Poster Award.

Stevick, R.J., Luna, C., Hsieh, AH. *Measuring Cell Traction Forces in Simulated Microgravity*. UMD-JHU BMES Undergraduate Research Festival, Baltimore MD, March 27, 2015. *Invited oral presentation*. Third place overall.

Luna, C., **Stevick, R.J.**, Yew, A., Hsieh, AH. *Forces Behind Cell Adhesion and Migration in Microgravity*. The Biophysical Society Annual Meeting, Baltimore MD, February 7-11, 2015. *Poster*.

Stevick, R.J., Tran, L., Nalavadi, M., Alwood, J.S. *Does Simulated Weightlessness Alter the Methylation Status of Gene Promoters During Bone Remodeling?* American Society for Gravitational and Space Research Annual Meeting, Pasadena CA, October 22-26, 2014. *Poster*.

Research Cruise and Field Work Experience

R/V ENDEAVOR – EN581 Narragansett, RI – Narragansett, RI
PI: Susanne Menden-Deuer, Export Processes on NE Shelf June 13, 2016 – June 18, 2016 (6 days)
Conducted 16 CTD casts within a survey area to provide temporal and vertical sample resolution. Water samples were collected for nutrient analysis, DNA analysis, cell counts, and on-board chlorophyll-a extractions.

R/V ENDEAVOR – EN575 Fort Lauderdale, FL – Narragansett, RI
PI: Brice Loose, Z-Inventories of Primary Production Mar 3, 2016 – Mar 11, 2016 (9 days)
Collected water samples from 11 stations for nutrient analysis, DNA analysis (3 depths), and cell counts
Performed Winkler titrations to validate in-situ mass spectrometer measurements

Narragansett Bay Oyster and Environmental Sampling Rhode Island
PI: Rebecca Stevick, Effects of Estuarine Acidification on Oysters August 2017 – September 2017
Collected 150 oysters from throughout Rhode Island, along with continuous environmental monitoring

Additional Training

Scientific Diving: Coral Reef Ecology Kralendijk, Bonaire
Field work and diving as part of AAUS certification course March 19-26, 2016

ECOGEO Workshop: Introduction to Environmental 'Omics Honolulu, Hawaii
Unix for bioinformatics, analysis of 16S rRNA surveys & metagenomic libraries July 25-26, 2016

Strategies and Techniques for Analyzing Microbial Population Structure Woods Hole, MA
Various computer programs used in molecular microbial ecology and genomics August 3-13, 2016

Teaching Experience

Curriculum Development for BIO 104 Introduction to Biology Lab II University of Rhode Island
Integrated R and RStudio into the curriculum for Introductory Bio students Fall 2017 – Summer 2018
Implemented 4 teaching modules with RStudio and wrote supplementary material (PowerPoints, troubleshooting guides, informational posters, and lab manuals) for this core curriculum course.
All course materials available: https://github.com/rjstevick/BIO103R

BIO 104 Introduction to Biology Lab II: Teaching Assistant University of Rhode Island
General lab practices and data analysis using R: 75 students in 3 2-hour lab sections Fall 2017
Prepared weekly quizzes, administered labs, and grading

OCG 106G You, Me, and Life in the Sea: Teaching Assistant University of Rhode Island
General education class with emphasis on human impacts on the ocean: 80 students Spring 2018
Guest lecture, "Sustainable Aquaculture"

AFS 105G Food from the Sea: Teaching Assistant University of Rhode Island
Assisted with grading exams and assignments: 125 students total Fall 2018 – Spring 2019

Mentoring Experience

Dana Rojas URI Summer 2018
Undergraduate SURF student: "Gut Microbiomes of Nutrient Enriched Oysters in Point Judith Pond"

Stephanie Spada URI Summer-Fall 2018
Undergraduate Coastal Fellow student: "Prevalence of *Perkinsus marinus* in Oysters in Narragansett Bay"

Outreach and Leadership Activities

R ShinyApp of Oysters in Narragansett Bay	April 2019
https://rjstevick.shinyapps.io/nbay_shinyapp/	
Letters to a Pre-Scientist pen pal	September 2018 – Present
URI Office of Marine Programs	January 2017 – Present
Outreach Scientist	
Bay Informed Discussion Series	June 2017 – Present
Organizer and Webmaster	
Presenter, "The Microbial Ocean"	February 2018
URI-GSO Open House exhibitor and tour guide	October 2016, 2017, 2018
National Ocean Sciences Bowl	Feb 2016, 2017, 2018, 2019
CT/RI Regional Competition: TCQ grader	
Chowder & Marching Student Society	Sept 2016 – August 2018
Communications chair and Webmaster	
"Preparing for Graduate School" at URI panelist	October 2018
Women in Science Day at Mystic Aquarium exhibitor	August 2018
Volvo Ocean Race Ocean Exploration Zone exhibitor	May 2018
Society for Women in Marine Science Symposium facilitator	March 2018
Newport International Boat Show exhibitor	Sept 2015

Skills

Environmental: Flow cytometry, Winkler titration, Lachat nutrient analysis, Chlorophyll-a measurements
Biological: Nucleic Acid Isolation (RNA, DNA), qPCR, Methylation Assays, Protein Expression, Sequencing library prep, Electrospray, Vector Cloning, Cell Culture, Gel Electrophoresis, SEM, µCT, Animal Handling: Mice, Photolithography, Soft lithography, DRIE
3D Modelling: ProEngineer, SolidWorks, AutoCAD, Maya, Google SketchUp
Programming: Various bioinformatics software, MATLAB, R, Python, SQLite, LabVIEW
Other: Microsoft Office, Photoshop, PADI Open Water Diver, AAUS Scientific Diver