

Dr. Brett Froelich

Curriculum Vitae

Work Address

UNC Institute of Marine Sciences
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Contact Information

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EDUCATION

Ph.D., Biology, 2012, The University of North Carolina at Charlotte

- Dissertation: The ecology of C-genotype and E-genotype strains of the bacterium, *Vibrio vulnificus*, and their interactions with the American oyster *Crassostrea virginica*
- **Graduate Dean's Distinguished Dissertation Award Nominee**
- **Advised by Dr. James D. Oliver, Rita Colwell, Inna Sokolova, Amy Ringwood**

B.S., Biology with a concentration in Microbiology, 2005, The University of North Carolina at Charlotte

- Dean's List – Spring 2005
- Dean's List – Fall 2005

APPOINTMENTS

Assistant Professor, George Mason University, Department of Biology; August 2019 - Present

Research Assistant Professor, The University of North Carolina at Chapel Hill, Institute of Marine Sciences; January 2016 – July 2019

Postdoctoral Research Fellow, The University of North Carolina Institute of Marine Sciences; January 2012 – January 2016;

PUBLICATIONS

Brett Froelich, Raul Gonzalez, Denene Blackwood, Kellen Lauer, and Rachel Noble; Decadal monitoring reveals an increase in *Vibrio* spp. concentrations in the Neuse River Estuary, North Carolina, USA; PLoS ONE 14(4): e0215254

TC Williams, **BA Froelich**, B Phippen, P Fowler, RT Noble, and JD Oliver; Different abundance and correlational patterns exist between total and presumed pathogenic *V. vulnificus* and *V. parahaemolyticus* in shellfish and waters along the North Carolina coast; 2017, **FEMS Microbiology Ecology**, 93(6)

BA Froelich, B Phippen, P Fowler, RT Noble, and JD Oliver; Differences in total *Vibrio* spp. *V. vulnificus*, and *V. parahaemolyticus* abundance between clams and oysters in North Carolina, 2017, **Applied and Environmental Microbiology**, 83:2I had

SM Raszl, **BA Froelich**, CRW Vieira, DA Blackwood, and RT Noble, A Review: *Vibrio parahaemolyticus* and *Vibrio vulnificus* in South America: Water, Seafood, and Human Infections; 2016, **Journal of Applied Microbiology**, DOI: 10.1111/jam.13246

Froelich, BA and Noble, RT; *Vibrio* bacteria in raw oysters: managing risks to human health; 2016; **Philosophical Transactions of the Royal Society B, Invited Submission**, 371(1689),20150209

Groner, Maya; Jeffrey Maynard, Rachel Breyta, Ryan Carnegie, Andy Dobson, Carolyn Friedman, **Brett Froelich**, Melissa Garren, Frances Gulland, Scott Heron, Rachel Noble, Crawford Revie, Jeffrey Shields, Raphael Vanderstichel, Ernesto Weil, Sandy Wyllie-Echeverria, and Drew Harvell; 2016; Managing Marine Diseases in an Era of Rapid Change; **Philosophical Transactions of the Royal Society B., Invited Submission**, 371(1689), 20150364

Maya Groner, Rachel Breyta, Andy Dobson, Carolyn S. Friedman, **Brett Froelich**, Melissa Garren, Frances Gulland, Jeffrey Maynard, Ernesto Weil, Sandy Wyllie-Echeverria, and Drew Harvell; 2015; Emergency response for marine diseases; **Science**, 347(6227): 1210

Froelich, BA; Ayrapetyan, M; Fowler, P; Oliver, JD; and Noble, RT; 2015; The development of a matrix tool for the prediction of potentially pathogenic *Vibrio* species in oysters harvested from North Carolina; **Applied and Environmental Microbiology**; 81(3), 1111-1119

Brett Froelich and Rachel Noble; 2014; Factors affecting the uptake and retention of *Vibrio vulnificus* in oysters, **Applied and Environmental Microbiology**; **80**:24, pp7454-7459

MN Ghazaleh; **BA Froelich**; and RT Noble; 2014; The effect of storage time on *Vibrio* spp. and fecal indicator bacteria in an ISCO autosampler; **The Journal of Microbiological Methods**; **104** pp. 109-116

Dana J. Gulbransen, Raul A. Gonzalez, **Brett A. Froelich**, James D. Oliver, Rachel T. Noble, and Karen J. McGlathery; 2014; Association of *Gracilaria vermiculophylla*, a non-native, mat forming macroalga, with increased concentrations of *Vibrio* bacteria in sediment, water, and oysters on intertidal mudflats; **Marine Ecology Progress Series**; **55**, pp. 29-36

Brett A. Froelich, Mary J Weiss, and Rachel T. Noble; 2014; The evaluation of four methods for the isolation and enumeration of *Vibrio vulnificus* bacteria from oyster meat; **Journal of Microbiological Methods**; **97** pp. 1-5

Brett A Froelich; 2013; Warming ocean trends broaden the range of marine bacteria that cause human diseases (Research Highlight), **PostDoc Journal**; **1**:6 page 58

Colleen A. Burge, C. Mark Eakin, Carolyn S. Friedman, **Brett Froelich**, Paul K. Hershberger, Eileen E. Hoffman, Laura E. Petes, Katherine C. Prager, Ernesto Weil, Bette L. Willis, and C. Drew Harvell; 2014; Adapting to Climate Change Impacts on Marine Infectious Disease, **Annual Review of Marine Science**, Vol 6, DOI: 10.1146/annurev-marine-010213-135029

Froelich, Brett; Bowen, James; Gonzalez, Raul; Snedeker, Alexandra; and Noble, Rachel; Empirical and mechanistic models of *Vibrio* abundance in the Neuse River Estuary; 2013; **Water Research**, 47:15, pages 5783-5793

Froelich, Brett and James Oliver; Increases in oysters of a *Vibrio* sp. upon addition of exogenous bacteria, 2013, **Appl. Environ. Microbiol.**, 2013, **79**:17, pages 5208-5213.

Froelich, Brett and Oliver, James; The interactions of *Vibrio vulnificus* and the oyster *Crassostrea virginica*. A Review. 2013; **Microbial Ecology**, **65**:4, pages 807-816

Froelich, Brett; Ayrapetyan, Mesrop; and Oliver, James; *Vibrio vulnificus* integration into marine aggregates and subsequent uptake by the oyster *Crassostrea virginica*; 2012; **Applied and Environmental Microbiology** 79:5, pages 1454-1458 (**Featured as a “Spotlight Article”**);

Williams, T; **Froelich, B;** and Oliver, J; Comparison of two selective and differential media for the isolation of *Vibrio vulnificus* from the environment; 2013; **Journal of Microbiological Methods** 93:3, pp. 277-283

Morrison, S. S., T. Williams, A. Cain, **B. Froelich**, C. Taylor, C. Baker-Austin, D. Verner-Jeffreys, R. Hartnell, J. D. Oliver, and C. J. Gibas. 2012. Pyrosequencing-Based Comparative Genome Analysis of *Vibrio vulnificus* Environmental Isolates. **PLoS ONE** 7:5.

Froelich, Brett; Williams, Tiffany; Noble, Rachel; and Oliver, James; 2012; Apparent loss of *Vibrio vulnificus* in North Carolina oysters coincides with drought-induced increase in salinity; **Appl. Environ. Microbiol.** 78:11, pp 3885-3889

Froelich, Brett and Oliver, James; 2011; Orientation of mannitol related genes can further differentiate strains of *Vibrio vulnificus* possessing the *vegC* allele; **Advanced Studies in Biology**; 3:4, 151-160

Ivanina, Anna; **Froelich, Brett;** Williams, Tiffany; Sokolov, Eugene; Oliver, James; Sokolova, Inna; 2010; Interactive effects of cadmium and hypoxia on metabolic responses and bacterial loads of eastern oysters *Crassostrea virginica* Gmelin; **Chemosphere** 82 (3), 377-389

Froelich, Brett A; Amy Ringwood; Inna Sokolova, and James Oliver. 2010. Uptake and depuration of the C- and E-genotypes of *Vibrio vulnificus* by the Eastern Oyster (*Crassostrea virginica*). **Environmental Microbiology Reports**, 2:1, pp 112-115

Hilton T, Rosche T, **Froelich B,** Smith B, Oliver J, (November, 2006). Capsular polysaccharide phase variation in *Vibrio vulnificus*; **Applied and Environmental Microbiology**, November 2006, p. 6986-6993, Vol. 72, No. 11

Froelich, Brett; Gonzalez, Raul; and Noble, Rachel; Population dynamics of *Vibrio* species in the Neuse River Estuary during stratified and mixed conditions” In prep

ORAL PRESENTATIONS

A comparison of human pathogenic *Vibrio* in farmed and wild oysters (*Crassostrea Virginia*); Invited presentation to **Aquaculture 2019**, New Orleans, LA (2019)

Seafood safety outreach and extension; **Invited presentation to NC STATE Center for Marine Science and Technology; 2019**

Intraspecies competition of *V. vulnificus* on seafood surfaces. **Invited presentation to SUNY Old Westbury**, April 2018

Type VI secretion mediated competition in *Vibrio* species. **Invited presentation to The University of Dallas**, March 2018.

The interactions occurring between different strains of *V. vulnificus* in competition for surfaces. **Invited presentation to CSU San Marcos**, March 2018

Vibrio vulnificus competition on seafood surfaces, **Invited presentation to CSU Northridge**, Feb 2018

Vibrio vulnificus and *Vibrio parahaemolyticus* in North Carolina oysters and clams, **Invited Presentation to the 1st Oyster Symposium**, presented by Oyster South, January 2017

The Tripartite lifestyle of *Vibrio vulnificus*, **Invited Presentation to UNC Chapel Hill Marine Science Seminar Series**, January 2017

Human *Vibrio* pathogens; Presented at the **Marine Diseases Research Coordination Network**, Santa Barbara, CA, December 2016

The state of *Vibrio* research in North Carolina; **Invited Presentation to the Southern California Coastal Water Research Project**, December 2016

The tripartite lifestyle of *Vibrio*, from water, to shellfish, to the human host; **Invited Presentation at Old Dominion University**; Norfolk, VA; December 2016

The tripartite lifestyle of *Vibrio vulnificus*: **Invited Presentation at The University of Texas at Arlington**, November 2016

Clams and oysters have different *Vibrio* concentrations despite being harvested from the same site; Presented at the **2016 UNC Water Microbiology Conference**, Chapel Hill, NC, May 2016

Safe Seafood; Presented to the **NC General Assembly and the UNC General Administration at the UNC Research Opportunities Initiative**, Raleigh, NC, 2016

Differences in *Vibrio vulnificus* and *Vibrio parahaemolyticus* ecology between clams and oysters collected from the same location, Presented at the **2016 International Conference on Vibrio**; Roscoff, France

Vibrio dynamics in Eastern North Carolina; Presented to the UNC Office of Research and Development; (2015)

The diseases caused by *Vibrio parahaemolyticus* and *Vibrio vulnificus* and methods for the rapid detection and quantification of these bacteria. **Invited Presentation to the Southern California Coastal Water Research Project**, Costa Mesa, CA, (2015)

Long Term Changes in *Vibrio* abundance in the Neuse River Estuary of Eastern North Carolina; Presented at the **2015 Water Microbiology Conference, Chapel Hill, NC**

The Tripartite Lifestyle of *Vibrio vulnificus*: A tale told in reverse; 2015; Invited presentation at **Texas A&M International University, Laredo, TX**

Vibrio ecology in an estuary impacted by extreme climatic events: Observed reactions and future predictions; Presented at the 2015 **Curriculum for Ecology and the Environment Seminar Series; Chapel Hill, NC**

Advancing technologies for prediction and management of *Vibrio* sp. pathogens; 2014 **Gulf and South Atlantic States Shellfish Conference; Beaufort, NC**

How human input has downstream effects on vibrios; Presented at the 2014 **Ecology of Infectious Marine Diseases Research Coordination Network; Friday Harbor; WA**

Keeping Oysters Safe to Eat; Tools to predict harmful bacteria in oysters; Invited Speaker for Go-Science and ScienceCafe; presented by **The North Carolina Biotechnology Center; Atlantic Beach, NC** (2014)

Predicting *Vibrio* bacteria in Eastern North Carolina; Talk Presented to **NOAA Ecological Forecasting Roadmap** (2014)

Multi-year changes in *Vibrio* populations in the Neuse River Estuary of North Carolina, USA; Talk presented at **Vibrio 2014, Edinburgh, Scotland**

The effect of storage time on *Vibrio* spp. and fecal indicator bacteria in estuarine water samples in an ISCO autosampler; presented at the 2014 **Water Microbiology Conference: Microbial contaminants from watersheds to human exposure; Chapel Hill, NC**

The ecology of *Vibrio* bacteria in an estuarine system impacted by extreme climatic events; Invited Presentation at the **Centre for Environment, Fisheries, and Aquaculture Science, Weymouth, Dorset, United Kingdom.** (2013)

The importance of long-term, cross disciplinary study of pathogen dynamics in relation to extreme climatic events in complex estuarine systems: an examination across scales; **Ecology and Evolution of Infectious Diseases PI meeting**, Athens, GA (2013)

The ecology of the human pathogen, *Vibrio vulnificus*, and interactions with the oyster reservoir; Presented to the Department of Biology and Marine Biology at **The University of North Carolina at Wilmington;** (2012)

Vector-borne Diseases; Presented to the Department of Biology and Marine Biology at **The University of North Carolina at Wilmington;** (2012)

Vibrio population dynamics and the relationship to environmental parameters and statistical *Vibrio* modeling; **Ecology of Infectious Diseases PI meeting;** Chapel Hill, NC, (2012)

Understanding the dynamics of total *Vibrio* and pathogenic *Vibrio* species in a complex estuarine system impacted by extreme events. **Ecology and Evolution of Infectious Diseases;** Berkeley, CA (2012)

Salinity and temperature consideration for *V. vulnificus* and *V. parahaemolyticus* and how they may affect *Vibrio* control plans; Presented at the *Vibrio* workshop; **FDA Seafood Laboratory, Dauphin Island, AL** (2012)

How to give an effective research presentation; **Graduate Research Workshop;** The University of North Carolina at Charlotte (2012)

Ecology and *in situ* gene expression of the two *V. vulnificus* genotypes; **Vibrios in the environment 2010;** Biloxi, MS

Differential Uptake of C- and E-genotypes of *Vibrio vulnificus* into Oysters. **Presented at USDA Chicago** (2010)

Amy H. Ringwood, **Brett Froelich**, Vanessa Ogint, Melissa McCarthy, Kristi Doyle, and James D. Oliver; (March 2009). Antioxidant status of oysters and susceptibility to pathogens and environmental stressors. **101st Ann. Meet. of the Nat. Shellfisheries Assoc.; Savannah, GA**

Brett Froelich; 2009; Comparisons of the C and E genotypes of the bacterium *Vibrio vulnificus*; Presented to the **University of North Carolina at Charlotte; Charlotte, NC**

POSTERS

T Kiffney, R Canty, S Smith, A Scepter, R Noble and **B Froelich**; Chitin increases intraspecies killing in *Vibrio vulnificus*; to be presented at Water Microbiology 2019; Chapel Hill, NC.

K.J. Jesser, R. Nowell, **B.A. Froelich**, R.T. Noble. Genes significantly associated with human virulence revealed through comparative genomics of *V. vulnificus* strains. ASM Microbe 2018, Atlanta, GA. (poster and rapid talk)

K.J. Jesser, **B.A. Froelich**, W. Valdivia-Granda, R.T. Noble. Comparative clustering of *V. parahaemolyticus* and *V. vulnificus* isolates using phylogenetics and protein motif fingerprints. ASM Microbe 2018, Atlanta, GA. (poster)

R Canty, R Noble, A Scepter, and **BA Froelich**, Intraspecies competition on seafood surfaces by the bacterium *Vibrio vulnificus*, Presented at Benthic Ecology Meeting, Corpus Christi, TX, March 2018

R Canty, R Noble, A Scepter, and **BA Froelich**; Interspecies and intraspecies killing by *Vibrio vulnificus* with use of Type VI secretion system 2; Presented at the ASM Conference on Vibrio; 2017; Chicago, IL

R Canty, J Hart, R Noble, and **BA Froelich**; More human pathogenic *Vibrio* spp. Found in farmed (aquaculture) vs. wild oysters in North Carolina, USA; Presented at the ASM Conference on Vibrio; 2017; Chicago, IL

K Jesser, J Hart, E Andersson, R Canty, D Blackwood, **B Froelich**, and R Noble; Ecological characterization of *Vibrio* in the Neuse River Estuary, NC, using next-generation amplicon sequencing; presented at the Water Resources Research Institute Annual Conference, Raleigh, NC, 2017 and also presented at the Presented at the ASM Conference on Vibrio; 2017; Chicago, IL

JD Oliver, **BA Froelich**, RT Noble, B Phippen; A long term study on the interaction of *Vibrio vulnificus* and *V. parahaemolyticus* with oysters and clams; Presented at the 11th International Conference on Molluscan Shellfish Safety; Galway, Ireland, 2017

TC Williams, **BA Froelich**, B Phippen, P Fowler, RT Noble, and JD Oliver; Long-term assessment of *V. vulnificus* clinical and environmental genotype distributions in environmental samples from the North Carolina coast; Presented at the 2016 International Conference on *Vibrio*, Roscoff, France

B.A. Froelich, M. Ayrapetyan, P. Fowler, J.D. Oliver, and R.T. Noble; 2015; Risk matrix tools for predicting pathogenic *Vibrio* spp. in oysters harvested from North Carolina; Presented at the 2015 National Institute of Food and Agriculture, United States Department of Agriculture, Washington, D.C.

Brett Froelich, R. A. Gonzalez, A. D. Blackwood, K.C. Lauer, and R. T. Noble; 2015; Total *Vibrio* abundance is increasing in the Neuse River Estuary in Eastern North Carolina while *V. vulnificus* is

undergoing rarefaction; Presented at the 115th General Meeting of the American Society for Microbiology; New Orleans, LA

B.A. Froelich, M. Ayrapetyan, P. Fowler, R.T. Noble, and J.D. Oliver; 2014; The development of a decision matrix tool for predicting pathogenic *Vibrio* spp. in oysters harvested from North Carolina, USA; Presented at Vibrio 2014, Edinburgh, Scotland

Brett Froelich, Raul Gonzalez, Denene Blackwood, Monica Greene, Rodney Guajardo, Sydney Brothers, Marc Verhougstraete, Rick Luettich, Hans Paerl, James Oliver, and Rachel Noble; 2012; Pathogenic *Vibrio* species in the Neuse River Estuary, 2012 Meeting of the Ecology of Infectious Marine Disease Research Coordination Network, Seattle, WA

Dana J Gulbransen, Raul A. Gonzalez, **Brett A. Froelich**, and Karen J. McGlathery. 2012. The effects of an invasive mat forming macroalga, *Gracilaria vermiculophylla*, on water quality and human pathogens in oysters.; 2012 Coastal and Estuarine Research Federation meeting, Mar Del Plata, Argentina

Brett Froelich, Raul Gonzalez, Emma Crill, Denene Blackwood, Monica Greene, Rodney Guajardo, Sydney Brothers, Rick Luettich, Hans Paerl, James Oliver, and Rachel Noble; 2012; *Vibrio vulnificus* population dynamics in the Neuse River estuary of eastern North Carolina; Gordon Research Conference on Oceans and Human Health; Biddeford, ME

Williams, Tiffany; **Brett Froelich**, and James D. Oliver; 2012; Characterization of *Vibrio* spp. on CPC+, CHROMagar Vibrio, and TCBS, and Proposed Cross-Plating Method for Isolation of *Vibrio vulnificus* from Environmental Samples; 112th Gen. Meet. Amer. Soc. Microbiol. San Francisco, CA.

Williams, Tiffany; **Froelich, Brett**, and Oliver, James D.; 2012; Inexpensive Non-molecular Method for the Improved Isolation and Identification of *Vibrio vulnificus* from Environmental Samples. 2012 Graduate Research Fair, Charlotte NC

B. Froelich, T. Williams, R. Noble, JD Oliver; High salinity drought conditions resulted in loss of *Vibrio vulnificus* from North Carolina waters and oysters, Presented at the Fourth Conference on the Biology of Vibrios, Santiago de Compostela, Spain.

Froelich, Brett; Williams, Tiffany; Noble, Rachel; and Oliver James; 2011; Harmful bacteria missing from North Carolina Oysters; Presented at the North Carolina General Legislative Assembly

Froelich, Brett; Williams, Tiffany; Noble, Rachel; and Oliver, James; 2011; Severe drought caused a loss of *Vibrio vulnificus* from oysters in North Carolina; 2011 Graduate Research Fair; Charlotte, NC

Froelich, Brett; Williams, Tiffany; Noble, Rachel; and Oliver, James; 2010; High salinity induced loss of *Vibrio vulnificus* populations in North Carolina oysters; Vibrios in the Environment 2010; Biloxi, MS.

Williams, Tiffany; **Froelich, Brett**; and Oliver, James; 2010; Comparison of two selective and differential media for the isolation of *Vibrio vulnificus* from the environment; Vibrios in the Environment 2010; Biloxi, MS.

Froelich, Brett A and Oliver, James D. 2010. Clinical and Environmental Strains of *Vibrio vulnificus* Integrate into Marine Aggregates at Different Rates. 110th Gen. Meet. Amer. Soc. Microbiol. San Diego, CA.

Froelich, Brett A and Oliver, James D; 2010. Clinical and Environmental strains of *Vibrio vulnificus* integrate into marine aggregates at different rates. UNC Charlotte Graduate Research Fair; Charlotte, NC

Ogint, Vanessa K P, **Froelich, Brett A**; Bates, Tonya C; Oliver, James D; Ringwood, Amy H; (March 2010); Antioxidant status of *Crassostrea virginica* and susceptibility to *Vibrio sp.* bacteria under hypoxic conditions. 102nd Ann. Meet. of the Nat. Shellfisheries Assoc.; San Diego, CA

Carmen Lopez-Joven, Melissa Jones, Ana Roque, **Brett Froelich**, and James D. Oliver; (June, 2009). Survival Kinetics of *Vibrio vulnificus* Genotypes in Oysters Stored at Two Different Temperatures. 7th International Conference on Molluscan Shellfish Safety; Nantes, France

Froelich, Brett A; Amy Ringwood, Inna Sokolova, and James Oliver. May 2009. Uptake and Depuration of the C- and E-genotypes of *Vibrio vulnificus* by the Oyster, *Crassostrea virginica*. 109th Gen. Meet. Amer. Soc. Microbiol.; Philadelphia, PA

Froelich, Brett A and Oliver, James D; (June 2008). Arrangement of Mannitol Genes as an Indicator of Virulence in C-genotype Strains of *Vibrio vulnificus*. 108th Gen. Meet. Amer. Soc. Microbiol.; Boston, MA

Froelich, Brett A and Oliver, James D; (May 2007). Mannitol Fermentation by Clinical and Environmental Isolates of *Vibrio vulnificus*. 107th Gen. Meet. Amer. Soc. Microbiol.; Toronto, Canada

James D. Oliver, Tom Rosche, Elizabeth Warner, Ryan Bogard, Tamara Hilton, **Brett Froelich**; (May, 2006). Ecological and Physiological Studies on the Two *Vibrio vulnificus* Genotypes; 106th Gen. Meet. Amer. Soc. Microbiol.; Orlando, FL

Hilton, T., Rosche, T., **Froelich, B.**, Smith, B. and Oliver, J. (2006) Capsular polysaccharide phase variation in *Vibrio vulnificus*. Appl Environ Microbiol 72(11), 6986-6993.

Hilton, T., Rosche, T., Smith, **B., Froelich, B.**, Oliver, J. D.; (July, 2005). Regulation of Capsular Polysaccharide Genes in *Vibrio vulnificus* results in Three Colony Morphotypes. Ann. Meet. Internat. Union Microbiol. Soc.; San Francisco, CA.

GRANTS AWARDED

Primary Investigator, award by the Intrastate Shellfish Sanitation Conference (ISSC, \$35,000) to link extreme ecological events to *V. parahaemolyticus* concentrations in shellfish. (2019)

Primary Investigator Awarded North Carolina SeaGrant (\$152,000) to explore the application of a probiotic treatment to reduce human pathogens in oysters (2018)

Recipient of the 2017 R.J. Reynolds Junior Faculty Development Award (\$7500)

Primary Investigator Awarded North Carolina SeaGrant (\$157,000) to expand oyster research to aquaculture farms. (2016)

Primary Investigator of a United States Department of Agriculture, National Institute of Food and Agriculture Post-doctoral Fellowship (\$150,000) Award No. 2014-67012-21565

Coauthor of successful, multi-institutional grant application to the National Marine Fisheries Service Saltonstall-Kennedy Grant (13SK015).

Coauthor of successful grant proposal to the NC Research Opportunities Initiative (ROI) to develop new diagnostic kits for *Vibrio* pathogens. (\$684,805)

Recipient of Post-doctoral research grant (\$57,000) from the UNC Office of the Vice Chancellor for Research, (2013)

OTHER AWARDS

Recipient of the “Sentinels of Science” award in agricultural and biological sciences by Publons (2016)

Recipient of the 2015 University of North Carolina Postdoctoral Scholar Award for Excellence in Mentoring Undergraduates.

Article “*Vibrio vulnificus* integration into marine aggregates and subsequent uptake by the oyster *Crassostrea virginica*” was featured in the “Spotlight” section of the journal Applied and Environmental Microbiology for having significant interest. (2013)

First Place Award for Research Presentation in Biology/Chemistry, 11th Annual Graduate Research Fair, Charlotte, NC (2011)

Ronald F. Siebeling Award Winner for Outstanding Graduate Student Poster Presentation, Vibrios in the Environment, Biloxi, MS (2010)

ASSOCIATION MEMBERSHIPS

- Member of ASM, The American Society for Microbiology
- Member of Phi Theta Kappa honor society
- Board Member of ABGS, The Association of Biology Graduate Students
- Member of NSA, The National Shellfisheries Association
- Member of NOGLSTP, The National Organization of Scientists and Technical Professionals
- Member of AAAS; The American Association for the Advancement of Science
- Member of SFAM, The Society for Applied Microbiology

JOURNAL EDITORIAL BOARDS

Editor – PLOS One, 2018-current

Guest Editor for Philosophical Transactions of the Royal Society, B, Marine Diseases Theme Issue; 2015

Editor for the Post-Doc Journal, 2012-2014

GRADUATE STUDENTS

Rachel Canty, MS; Graduated March 2019

ADDITIONAL ACTIVITIES

Retained as expert witness for oyster infection lawsuit (New York, NY, 2019)

Reviewer for Mississippi-Alabama SeaGrant (2019)

Served as “Career Expert” for workshop to assist students and post-docs with developing “elevator pitches” (2019)

Hosted all-day activities for Beaufort Middle School 7th graders on water quality and research (2019)

Expert Witness for plaintiff in CT seafood-borne illness case (2019)

Judge for Beaufort Middle School Science Fair (2019)

Reviewer for the Natural Environment Research Council (UK)

Hosted hands-on oyster health experiments for students of the Brad Sneed Marine Science Academy (2018)

Serves on the Hill Award Committee and the graduate tracking committee (2018)

Invited member of the Shellfish Mariculture Advisory Committee (2018), advising the state of NC General Assembly on a Shellfish Aquaculture Plan

Participant in K12 student research activities with St. Egbert School, Morehead City, NC (2018)

Invited member of The North Carolina Marine Science and Education Partnership (MSEP)

Expert Witness for plaintiff in seafood-borne illness case in San Francisco, Ca (2017)

Co-host of the Institute of Marine Sciences Technology Transfer and Commercialization Boot Camp (2017)

Nominated and accepted into the UNC Faculty Leadership Core Skill Program (2017)

Invited Judge at Duke University MarCo Symposium, (April 2017)

Research Featured on NPR station PRE, Public Radio East, Down East Journal, (March 2017)
<https://goo.gl/x8STqC>

Research was written up as an article in *Coastwatch*, the flagship publication of North Carolina Sea Grant (Winter 2016)

Research was featured as one of the “Top 10 most-read features of the year” 2016, in the collective University of North Carolina system <https://goo.gl/5mY0GN>

Invited member (2014-2016) of Marine Diseases Research Coordination Network

Completed training to be certified as a HAVEN (Helping to Advocate for Violence Ending Now) for students

Research and team filmed for “Story Driven Research” film (2016) <https://goo.gl/FdbZCQ>

Research chosen to be professionally adapted and curated as an exhibit at the Morehead Planetarium at the University of North Carolina at Chapel Hill; in production (2017)

TED style research presentation edited and published in video format by the Research Opportunities Initiative (2016)

The entire talk can be viewed at: <https://goo.gl/AGUjg6>

Research featured on the University of North Carolina system-wide News (2016)

<https://goo.gl/5FZ4pv>

Research featured as lead story on the Down East Journal, on Public Radio East (2016)

Eastern NC's NPR station, The entire interview can be heard at <http://goo.gl/aogxut>

Session Moderator for the “Microbiological Methods” and “Recreational Water” side events at the 2016 UNC Water Microbiology Conference, Chapel Hill, NC

Oyster research featured as focus of live interview on WTKF, (2016)

Proudly hosts the NC Coastal Federation Summer Maine Camp students for a day of marine lab, estuarine, and shellfish education and interactive activities (recurring).

Oyster research featured as news story on News Channel 12 in Carteret County; 2015

The entire video can be seen at: <http://goo.gl/zOtFsU>

Session Moderator for “Microbial Source Tracking Methods” and “Microbiology Methods” side events at the 2015 UNC Water Microbiology Conference; Chapel Hill, NC

Featured on the UNC Inside Research newsletter (<http://goo.gl/e3DTBq>)

Invited Speaker for the Gulf and South Atlantic State Shellfish Conference, Sept 2014; Beaufort NC

Research featured on PBS program “NC Science Now”

<http://science.unctv.org/content/oh-shuck>

Followed as part of a “Job-shadow” portion of Carteret High School Curriculum

Session Moderator for “Pathogens” and “Estuarine processes” at the 2014 UNC Water Microbiology Conference; Chapel Hill, NC, May 2014

Invited Speaker, ScienceCafe, Atlantic Beach, NC, 2014

Oyster research twice featured as articles in the Carteret County News-Times; 2014

Referee for Oregon Sea Grant; 2013-2015

Referee for California Sea Grant; 2015

Oyster research featured as news story on News Channel 12 in Carteret County; 2013
<http://goo.gl/H269kX>

Research featured as the lead story on the Down East Journal on PRE, Public Radio East; 2013

<http://publicradioeast.org/post/down-east-journal-091313>

Oyster Research was presented to North Carolina State Representative as relevant to the economy of Eastern North Carolina

Guest Lecturer; 2013-2019; Conducted Teaching Module for class “Human Impacts on Estuarine Processes” (ENST 471) taught to Environmental Science majors at the UNC Chapel Hill Institute for the Environment Morehead City Field Site (MCFS). Led field trip to UNCW oyster hatchery with students.

Guest Lecturer, The University of North Carolina at Charlotte, Nov 2011

Presented three weeks of lectures to a class containing over 100 students on the topics of mycology, parasitology, and marine microbiology

Invited Presenter, North Carolina General Legislative Assembly, May 2011

Presented at the State Capitol Building to the Legislature of North Carolina

Met individually with Senators and Representatives to discuss my research and its possible effect on the North Carolina economy

JOURNALS REVIEWED

African Journal of Biotechnology; 2013

African Journal of Microbiology Research; 2013 - 2015

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