

Vita for Erin Michelle Symonds

University of South Florida
College of Marine Science
140 7th Avenue South
Saint Petersburg, Florida 33701

esymonds@mail.usf.edu
esymonds.myweb.usf.edu
mobile: +1 (727) 643-9013
@symonds_e

AREA OF SPECIALIZATION

My environmental microbiology research focuses on the viruses in wastewater and their presence throughout wastewater treatment systems and in aquatic environments. I am especially passionate about contributing to the achievement of the Sustainable Development Goals related to water resources as well as the human health risks associated with wastewater reuse.

EDUCATION

- 2011- 2016 Ph.D. Marine Science, Biological Oceanography
University of South Florida (USF), College of Marine Science
Advisor: Dr. Mya Breitbart
Dissertation: Pepper mild mottle virus as a surrogate for enteric viruses:
Implications for assessing water quality
- 2008 M.S. Marine Science, Biological Oceanography
USF, College of Marine Science
Advisor: Dr. Mya Breitbart
Thesis: Viruses in raw sewage and their potential to indicate fecal pollution in
coastal environments
- 2005 B.A. Environmental Science and Biology, Specialization in Conservation
University of Virginia, Department of Environmental Science

PEER REVIEWED PUBLICATIONS (* indicates co-first authorship)

- 2016 **E.M. Symonds**, S. Young, M.E. Verbyla, S.M. McQuaig-Ulrich, E. Ross, J.A. Jimenez, V.J. Harwood, and M. Breitbart. Microbial source tracking in shellfish harvesting waters in the Gulf of Nicoya, Costa Rica. *Water Research*. *In review*.
- E.M. Symonds**, C. Sinigalliano, M. Gidley, W. Ahmed, S.M. McQuaig-Ulrich, M. Breitbart. Faecal pollution along the southeastern coast of Florida and insight into the use of pepper mild mottle virus as an indicator. *Journal of Applied Microbiology*. doi: 10.1111/jam.13252.
- M.E. Verbyla*, **E.M. Symonds***, R.C. Kafle, M.R. Cairns, M. Iriarte, A. Mercado, O. Coronado, M. Breitbart, C. Ledo, and J.R. Mihelcic. Managing microbial risks from indirect wastewater reuse for irrigation in urbanizing watersheds. *Environmental Science and Technology*. 50 (13): 6803-6813.
- M.M. Cook, **E.M. Symonds**, B. Gerba, A. Hoare, E.S. Van Vleet, and M.

Breitbart. Removal of six estrogenic endocrine-disrupting compounds (EDCs) from municipal wastewater using aluminum electrocoagulation. *WATER*. 8 (4): 128, doi:10.3390/w8040128.

2015 **E.M. Symonds**, M.M. Cook, S.M. McQuaig, R.M. Ulrich, R.O. Schenck, J.O. Lukasik, E.S. Van Vleet, and M. Breitbart. Reduction of nutrients, microbes, and personal care products in domestic wastewater by a benchtop electrocoagulation unit. *Scientific Reports*. 5: 9380.

E.M. Symonds and M. Breitbart. Affordable enteric virus detection techniques are needed to support changing paradigms in water quality management. *CLEAN-Soil, Air, and Water*. 43(1): 8-12.

2014 **E.M. Symonds***, M.E. Verbyla*, J.O. Lukasik, R.C. Kafle, M. Breitbart, and J.R. Mihelcic. A case study of enteric virus removal and insights into the associated risk of water reuse for two wastewater treatment pond systems in Bolivia. *Water Research*. 65: 257-270.

2011 K.P. Tucker, R. Parsons, **E.M. Symonds**, and M. Breitbart. Diversity and distribution of single-stranded DNA phages in the North Atlantic Ocean. *ISME Journal*. 5(5): 822-830.

2009 K. Rosario*, **E.M. Symonds***, C. Sinigalliano, J. Stewart, and M. Breitbart. Pepper mild mottle virus as an indicator of fecal pollution. *Applied and Environmental Microbiology*. 75(22): 7261-7267.

E.M. Symonds, D.W. Griffin, and M. Breitbart. Eukaryotic viruses in wastewater samples from the United States. *Applied and Environmental Microbiology*. 75(5): 1402-1409.

PEER REVIEWED PUBLISHED CONFERENCE PROCEEDINGS

2016 **E.M. Symonds**, E. Ross Salazar, J.A. Jimenez, V.J. Harwood, and M. Breitbart. *Conjunto de herramientas para el rastreo de fuentes de contaminación microbiana para la identificación de contaminación fecal en la costa del Pacífico de Costa Rica* (A microbial source tracking toolbox for the identification of fecal pollution for the Pacific Coast of Costa Rica). 59° Congreso Internacional Asociación Colombiana de Ingeniería Sanitaria y Ambiental & Asociación Interamericana de Ingeniería Sanitaria y Ambiental XXXV Congreso Interamericano de Ingeniería Sanitaria y Ambiental, Bolivar, CO.

RESEARCH GRANTS, FELLOWSHIPS, AND AWARDS

2016 Raymond W. Sarber Award, American Society of Microbiology for research excellence and potential at the pre-doctoral level.

2015 Renate E. Bernstein Outstanding Authorship Award, USF College of Marine

Science for expected scientific impact of an outstanding first-authored, peer-reviewed manuscript based on faculty vote.

- 2014-2016 William and Elsie Knight Fellow, USF College of Marine Science Stipend, tuition, and expenses for the most outstanding graduate student based on a faculty vote, total \$37,340/year.
- 2014-15 United States Fulbright Research Fellowship, Costa Rica, 10 months Stipend, travel, and research expenses, total \$19,000.
- 2013-14 Research Fellow, USF Challenge Grant Recipient for interdisciplinary project on “A rapid assessment of microbial risk from consuming lettuce in the Cochabamba Valley of Bolivia”, total \$5,000.
- 2013 Best Abstract, Water and Health Conference, Chapel Hill, North Carolina, USA.
- 2011-14 Environmental Protection Agency Science to Achieve Results (STAR) Fellow. Stipend, tuition, and expenses for doctoral studies, total \$121,000.
- 2011 2nd Place Student Poster Presentation, Southwest Florida Water Resources Conference, Naples, Florida, USA.

INVITED TALKS

- 2016 **E.M. Symonds.** Indicadores de contaminación fecal en aguas de mar: Más allá de lo tradicional (Indicators of fecal pollution in seawater: Beyond the traditional approach). Universidad de Costa Rica, Centro de Investigación en Ciencias del Mar y Limnología, San Pedro, Costa Rica.
- E.M. Symonds.** Indicadores de contaminación fecal en aguas de mar: Más allá de lo tradicional en Costa Rica (Indicators of fecal pollution in seawater: Beyond the traditional approach in Costa Rica). El Laboratorio Nacional de Aguas del Instituto Costarricense de Acueductos y Alcantarillados, Tres Ríos, Costa Rica.
- 2015 **E.M. Symonds.** Indicadores de contaminación fecal en aguas de mar: Más allá de lo tradicional (Indicators of fecal pollution in seawater: Beyond the traditional approach). El Laboratorio Nacional de Aguas del Instituto Costarricense de Acueductos y Alcantarillados, Tres Ríos, Costa Rica.
- 2014 **E.M. Symonds** and M. Breitbart. Pepper mild mottle virus as a surrogate for enteric viruses. 2nd Global Leadership Initiative Special Workshop on Water Virology, Tokyo, Japan.
- 2010 **E.M. Symonds**, K. Rosario, and M. Breitbart. El virus de pimienta como un bioindicador de contaminación fecal. (Pepper mild mottle virus as a bioindicator of fecal pollution). Universidad de Rafael Landivar, Guatemala City, Guatemala.

CONFERENCE PRESENTATIONS

- 2016 M.E. Verbyla, **E.M. Symonds** (presenter), R.C. Kafle, M.R. Cairns, M. Iriarte, A. Mercado, O. Coronado, M. Breitbart, C. Ledo, and J.R. Mihelcic. 2016. Managing microbial risks from indirect wastewater reuse for irrigation using riverbank filtration. Aerobic Spores and Other Microbial Indicators to Determine Ground Water Under the Direct Influence of Surface Water (GWUDI), California, USA.
- E.M. Symonds**, E. Ross Salazar, J.A. Jimenez, V.J. Harwood, M. Breitbart. Conjunto de herramientas para el rastreo de fuentes de contaminación microbiana para la identificación de contaminación fecal en la costa del Pacífico de Costa Rica (Microbial source tracking toolbox for the identification of fecal pollution for the Pacific coast of Costa Rica). 59° Congreso Internacional Asociación Colombiana de Ingeniería Sanitaria y Ambiental & Asociación Interamericana de Ingeniería Sanitaria y Ambiental XXXV Congreso Interamericano de Ingeniería Sanitaria y Ambiental, Bolivar, CO.
- E.M. Symonds**, C. Sinigalliano, M. Gidley, W. Ahmed, S.M. McQuaig-Ulrich, M. Breitbart. Performance of a pepper mild mottle virus RT-qPCR method in coastal waters exposed to untreated wastewater pollution and its simulated risk of gastrointestinal illness (poster). Annual American Society of Microbiology Microbes Meeting, Massachusetts, USA.
- 2015 Maryann R. Cairns (presenter), R.C. Kafle, **E.M. Symonds**, M.E. Verbyla, M.M. Iriarte, M. Breitbart, and J.R. Mihelcic. Using Quantitative Microbial Risk Assessment and Ethnographic Methods to Understand Socio-Environmental Risk from De Facto Wastewater Reuse for Irrigation. American Anthropological Association Annual Meeting, Colorado, USA.
- 2014 M.E. Verbyla (presenter), **E.M. Symonds**, R.C. Kafle, M.R. Cairns, M.M. Iriarte, M.C. Ledo, and J.R. Mihelcic. The use of river bank filtration systems to reduce the risk of irrigated lettuce in Bolivia. Water Microbiology Conference, North Carolina, USA.
- 2013 **E.M. Symonds**, M.E. Verbyla (presenter), J.O. Lukasik, M. Breitbart, and J.R. Mihelcic. Virus removal in two pond systems treating domestic wastewater in Bolivia. Water and Health Conference: Where Science Meets Policy, North Carolina, USA.
- E.M. Symonds**, M.E. Verbyla, J.R. Mihelcic, and M. Breitbart. Viruses in wastewater: Exploring pepper mild mottle virus as a process indicator for enteric virus removal. 17th International Symposium on Health-Related Water Microbiology, Santa Catarina, Brazil.
- 2012 **E.M. Symonds**, K. Rosario, D.W. Griffin, C. Sinigalliano, J. Stewart, and M. Breitbart. Pepper mild mottle virus as a viral bioindicator of human fecal pollution (poster). Water and Health Conference, North Carolina, USA.

E.M. Symonds, K. Rosario, C. Sinigalliano, J. Stewart, and M. Breitbart. Development of pepper mild mottle virus as a bioindicator of human enteric viruses. Gulf of Mexico Microbial Source Tracking Workshop III, Florida, USA.

2011 **E.M. Symonds**, K. Rosario, C. Sinigalliano, J. Stewart, and M. Breitbart. Viruses in sewage and their potential to indicate fecal pollution in coastal waters (poster). Southwest Florida Water Resources Conference, Florida, USA.

E.M. Symonds, K. Rosario, C. Sinigalliano, J. Stewart, and M. Breitbart. Viruses in sewage and their potential to indicate fecal pollution in coastal waters (poster). Aquatic Virus Workshop, Texel, Netherlands.

2008 **E.M. Symonds**, K. Rosario, and M. Breitbart. Viruses in raw sewage and their potential to indicate fecal pollution in coastal waters (poster). American Society for Microbiology, Annual Meeting, Massachusetts, USA.

E.M. Symonds, K. Rosario, and M. Breitbart. Viruses in raw sewage and their potential to indicate fecal pollution in coastal waters. American Society of Limnology and Oceanography, 2008 Ocean Sciences Meeting, Florida, USA.

2007 **E.M. Symonds** and M. Breitbart. Viruses in raw sewage and their potential to indicate fecal pollution in coastal waters. American Society for Microbiology, Florida Branch Annual Meeting, Florida, USA.

TEACHING EXPERIENCE

Instructor & Course Developer

2014 Duke Talent Identification Program: Blue Gold: Science, Engineering, and the Future of Water. 2 week summer course, 22 talented high school students.

2013 Duke Talent Identification Program: Water Institute: Science, Technology, and Sustainability". 2 week summer course, 14 talented high school students.

2010 San Marcos la Laguna public secondary school: English as a foreign language. 1 year course, 35 students.

Teaching Assistant

2012 Duke Talent Identification Program: Wonders in the Waves: Sea Life in the Gulf. 2 week summer course, 28 talented high school students.

2011 Duke Talent Identification Program: Wonders in the Waves: Sea Life in the Gulf. 2 week summer course, 28 talented high school students.

Mentor

- 2010 Atitlán Research Center, Universidad del Valle de Guatemala Campus Altiplano. Trained 5 high school students in water quality analyses in field and laboratory.
- 2009 Science fair tutor to a middle school student studying food safety.
- 2006 Undergraduate summer student, Florida State University, Coastal & Marine Laboratory.

RELEVANT WORK EXPERIENCE

- 2009-11 Peace Corps Volunteer, United States Government, Guatemala. I assisted in the establishment of the Watershed Monitoring Laboratory and Program at the Atitlán Research Center (Universidad del Valle de Guatemala Campus Altiplano) and acted as lab manager.
- 2006-08 Fisheries & Wildlife OPS part-time Biologist, Florida Wildlife Research Institute. I executed sediment particle analyses and prepared plant tissue for nutrient analyses.
- 2005-06 Research Assistant, Florida State University, Coastal & Marine Laboratory. I assisted in the development and execution of two in situ studies on the effects of nutrient enrichment on benthic microalgae and their role in seagrass food webs.
- 2003-05 Part-time Undergraduate Research Assistant, Department of Biology, University of Virginia. I collected data in the field, greenhouse, and laboratory for studies on the evolution of senescence in plants.
- 2003-05 Part-time Technical Aid & Intern, Johns Hopkins University Applied Physics Laboratory. I completed a large-scale epidemiological investigation to determine the best seasonal covariate for health data collected for syndromic surveillance in the Baltimore-Washington area using Statistical Analysis System software.

RESEARCH-RELATED INTERNATIONAL EXPERIENCE

- 2015-present Executing a microbial water quality and source tracking case study in responsible fishing areas in the Gulf of Nicoya as a visiting Fulbright student researcher at Fundación MarViva, San José, Costa Rica
- 2014 Collected insects with middle school students in rural Puerto Rico for insect virus discovery
- 2013 Concentrated viruses from irrigation water and lettuce samples in the Cochabamba, Bolivia in collaboration with Universidad de San Simon and USF Challenge Grant
- 2012 Research Fellow, Sustainable Water Management Research Experience in Bolivia: Influence of a Dynamic World on Technological and Societal Solutions. 2 week research exchange via USF in collaboration with the Universidad

Technológica Boliviana

- 2010 Co-organized & participated in four Lake Atitlán science expeditions (an international, collaborative effort) in Solola, Guatemala
- Represented Peace Corps Guatemala in bi-monthly meetings regarding the health of Lake Atitlán with USAID, US State Department, US EPA, and Guatemalan Government Officials
- 2009-10 Monthly water quality monitoring, Lake Atitlán, Guatemala.
- 2008 Collected seawater and concentrated viruses from various depths
R/V Atlantic Explorer, Bermuda Institute of Ocean Sciences, 5 days
R/V Oceanus, Woods Hole Oceanographic Institute, 10 days
- 2007 Collected seawater and concentrated viruses from various depths
R/V Bellows, Florida Institute of Oceanography, 5 days
- Yearly seagrass census with Florida Fish and Wildlife Research Institute
- 2005-06 Daily field work for seagrass food web studies on small research vessels

UNIVERSITY SERVICE

- 2014-15 Student Representative, USF College of Marine Science Honors and Awards Committee
- 2012-14 Student Representative, USF College of Marine Science Curriculum Committee
- 2007-08 Outreach Coordinator, USF Marine Science Advisory Committee

COMMUNITY INVOLVEMENT AND OUTREACH

- 2015 Invited Guest, American Society of Microbiology Spanish-speaking Podcast “Mundo de los microbios”
- 2014 Exhibitor, 2014 Saint Petersburg Science Festival
Guest Speaker, FloridaTeen SciCafe, “Peppers and poop: A new way to identify pollution”
Guest Speaker, Boys and Girls Club Wood Valley Unit
Educator, Escuela Laura Mercado, Workshop “What’s bugging my bug?! Viruses infecting insects”
- 2013 Guest Speaker, Great American Teach in at Pinellas Park Middle School
Exhibitor, 2013 Saint Petersburg Science Festival
Guest Speaker, Shorecrest Preparatory School

- 2012 Exhibit Developer & Exhibitor, 2012 Saint Petersburg Science Festival
 Rules Judge, 2012 National Ocean Sciences Bowl (NOSB) Regional Competition
 Co-organizer & Educator, Girl Scout Water Cycle Awareness Workshop
- 2010 Co-organizer & Educator, Water-related environmental education and outreach
 Educator, Peace Corp's Camp GLOW (Girls Leading Our World) Guatemala
- 2009 Co-organizer & Educator, Water-related environmental education and outreach
- 2008 Volunteer, Beach clean-up
 Volunteer, Habitat for Humanity
 Volunteer, Ronald McDonald House
 Educator, Girl Scout Marine Science and Technology Workshop
- 2007 Volunteer, Ronald McDonald House
 Volunteer, Beach clean-up
- 2006 Volunteer, Beach clean-up
- 2002-05 Volunteer, HELP LINE Crisis Intervention Hotline

LANGUAGES

- English Native
 Spanish Fluent (reading, writing, speaking)

CERTIFICATIONS

- 2008 American Red Cross First Aid and CPR
 Divers Alert Network Oxygen Administration
- 2006 PADI Divemaster with NITROX certification

PROFESSIONAL AFFILIATIONS

- 2014-present American Association for the Advancement of Science
- 2013-present International Water Association
- 2015-present; American Society of Microbiology
 2007/8