

Jill R. Stewart

Dorothy D. Smith Coastal Studies Endowed Chair
Cantey Chair in Liberal Studies
Belle W. Baruch Institute for Marine and Coastal Sciences
University of South Carolina
Georgetown, SC

EDUCATION

Ph.D. Environmental Sciences and Engineering, UNC-Chapel Hill, 2003
M.S. Environmental Sciences and Engineering, UNC-Chapel Hill, 1998
B.A. Environmental Sciences / Chemistry (minor), U. of Virginia, 1996 (with highest honors)

PROFESSIONAL EXPERIENCE

Employment and Academic Rank

2024-present Chaired Professor, UofSC School of the Earth, Ocean and Environment
2024-present Director, UofSC Baruch Institute for Marine and Coastal Sciences
2024-present Adjunct Professor, UNC Environmental Sciences & Engineering
2020-2024 Singer Distinguished Professor, UNC Environmental Sciences & Engineering
2019-2020 Professor, UNC Department of Environmental Sciences & Engineering
2014-2019 Associate Professor, UNC Department of Environmental Sciences & Engineering
2013-2017 Adjunct Assistant Professor, UNC Department of Marine Sciences
2008-2014 Assistant Professor, UNC Department of Environmental Sciences & Engineering
2006-2012 Associate Faculty, MUSC Marine Biomedicine and Environmental Sciences
2005-2011 Adjunct Faculty, College of Charleston, Grice Marine Biology Program
2005-2008 Adjunct Assistant Professor, College of Charleston, Environmental Studies
2004-2008 Adjunct Research Assistant Professor, UofSC, Environmental Health Sciences
2002-2008 Contract Microbiologist, NOAA National Ocean Service, Charleston, SC
1999-2002 PhD Student/Fellow, NOAA National Ocean Service, Charleston, SC
1999 Product Development Chemist, HaloSource Corp., Seattle, WA
1996-1998 Research Assistant, Environmental Health Microbiology Lab, UNC
1996 Research Assistant, Coastal Wetlands Ecology Lab, UVA
1995-1996 Research Assistant, Isotope Geochemistry Lab, UVA
1995 REU (undergraduate researcher), NSF Virginia Coastal Reserve LTER Project

Additional Appointments

2024-present Member, Program Advisory Board, S.C. Sea Grant Consortium
2022-2024 Deputy Director, NSF ERC for Precision Microbiome Engineering (PreMiEr)
2022-2023 Chair, UNC/USFQ Galápagos Science Center Advisory Board
2018-2022 co-Lead, UNC MPH Degree Program Concentration in Global Health
2018-2024 Faculty Research Director, UNC Center for Galápagos Studies
2018-2022 Executive Committee, UNC Environment, Ecology, and Energy (E³P) Program
2017-2024 Steering Committee Member, NC One Health Collaborative
2016-2024 Faculty Fellow, UNC Carolina Population Center
2015-2024 Member, NCSU Comparative Medicine Institute
2015-2018 Member, UNC Institute for the Environment Faculty Advisory Council

Jill R. Stewart

2015-2016 co-Chair for Research Subcommittee; UNC Provost's Environmental Task Force
2015-2016 Member, School of Public Health MPH Core Curriculum Planning Committee
2014-2019 Member, UNC Water Microbiology Conference Organizing Committee
2013-2022 Ex Officio Member, UNC/USFQ Galápagos Science Center Advisory Board
2013-2022 Deputy Director, UNC Center for Galápagos Studies
2011-2016 Member, North Carolina Climate-Related Health Working Group (NC DHHS)

HONORS and PROFESSIONAL ACTIVITIES

Selected Honors

- Community Outreach Award for project "Agua Para Galapagos," USFQ, 2022
- Greenberg Alumni Endowment Award, Gillings School of Global Public Health, 2019
- Distinguished Lecturer, American Society for Microbiology (ASM), 2014-2016
- Chair, ASM Division Q: Applied and Environmental Microbiology, 2012-2013
- UNC ESE Newton Underwood Award for Excellence in Teaching, 2016
- Teaching Innovation Award, UNC Gillings School of Global Public Health, 2015
- UNC Junior Faculty Development Award, 2010
- UNC University Research Council Award, 2009
- Certificates of Achievement, NOAA National Ocean Service, 2002 & 2004
- Mahlon L. Kelley Ecology Award, UVA Dept. of Environmental Sciences, 1996

Honors for UNC Galápagos Initiative while serving as Deputy Director

- Senator Paul Simon Spotlight Award for Campus Internationalization, 2016

Professional Memberships and Leadership

American Society for Microbiology (ASM)

- Editorial Board Member, *Applied and Environmental Microbiology* (2016-present)
- Distinguished Lecturer (2014-2016)
- Councilor, ASM Division Q: Applied and Environmental Microbiology (2013-2014)
- Chair, ASM Division Q: Applied and Environmental Microbiology (2012-2013)
- Chair-Elect, ASM Division Q: Applied and Environmental Microbiology (2011-2012)

Southeastern Estuarine Research Society (SEERS)

American Society for Engineering Education (ASEE)

BIBLIOGRAPHY

^TTechnicians, ^UUndergraduates, ^MMasters, ^DPhD, and ^PPost-doctoral researchers students supervised by Dr. Stewart are noted.

Referreed Papers/Articles – In Review

- Holcomb, D, A Christensen, K Hoffman, A Lee, AD Blackwood, T Clerkin, J Gallard-Gongora, A Harris, N Kotlarz, H Mitasova, S Reckling, FL de los Reyes III, **JR Stewart**, VT Guidry, RT Noble, ML Serre, TP Garcia, LS Engel. Estimating rates of change to interpret quantitative wastewater surveillance of disease trends. *Science of the Total Environment*. In submission. medRxiv preprint. 2024. doi: 10.1101/2024.04.24.24306320

Referreed Papers/Articles – Published or In Press

1. Brosky^D, H, SM Prasek, GK Innes, IL Pepper, J Miranda, PE Bierley, SL Slinski, L Polashenski, W Betancourt, K Gronbach, D Gomez, R Neupane, J Johnson, J Weiss, HD Yaglom, K Crank, D Gerrity, **J Stewart**, and BW Schmitz (2024). A Framework for Integrating Wastewater-based Epidemiology (WBE) and Public Health. *Frontiers in Public Health*. 12:1418681. doi: 10.3389/fpubh.2024.1418681
2. Mertens, A, BF Arnold, J Benjamin-Chung, AB Boehm, J Brown, D Capone, T Clasen, ER Fuhrmeister, JA Grembi, D Holcomb, J Knee, LH Kwong, A Lin, SP Luby, R Nala, K Nelson, SM Njenga, C Null, AJ Pickering, M Rahman, HE Reese, L Steinbaum, **JR Stewart**, R Thilakaratne, O Cumming, JM Colford, A Ercumen (2024). Is detection of enteropathogens and human or animal faecal markers in the environment associated with subsequent child enteric infections and growth: an individual participant data meta-analysis. *The Lancet Global Health*. 12(3):e433-e444. doi: 10.1016/S2214-109X(23)00563-6. SSRN preprint. 2023. doi:10.2139/ssrn.4313717
3. LaMontagne^D, CD, EC Christenson-Diver^P, AT Rogers, ME Jacob, **JR Stewart** (2023). Relating antimicrobial resistance and virulence in surface water *E. coli*. *Microorganisms*. 11(11): 2647. doi: 10.3390/microorganisms11112647
4. Hoffman, K, D Holcomb, S Rackling, T Clerkin, D Blackwood, R Beattie, F de los Reyes, A Harris, H Mitasova, N Kotlarz, **J Stewart**, J Kazenelson, L Cahoon, A Frampton, M Munir, A Lee, S Berkowitz, R Noble, VT Guidry, L Engel, M Serre, A Christensen (2023). Using detrending to assess SARS-CoV-2 wastewater loads as a leading indicator of fluctuations in COVID-19 cases at fine temporal scales: correlations across twenty sewersheds in North Carolina. *PLOS Water*. 2(10): e0000140. doi: 10.1371/journal.pwat.0000140
5. Wiesner-Friedman,^D C, RE Beattie, **JR Stewart**, KR Hristova, ML Serre (2023). Identifying sources of antibiotic resistance genes in the environment using the microbial *Find, Inform, and Test* framework. *Frontiers in Microbiology*. 14:1223876. doi: 10.3389/fmicb.2023.1223876.
6. Styles^D, JN, AI Egorov, SM Griffin, J Klein, JW Scott, EA Sams, E Hudgens, C Mugford, **JR Stewart**, K Lu, I Jaspers, SP Keely, NE Brinkman, JW Arnold, TJ Wade (2023). Greener residential environment is associated with increased bacterial diversity in outdoor ambient air. *Science of the Total Environment*. 880 (2023):163266. doi: 10.1016/j.scitotenv.2023.163266.
7. Mertens, A, BF Arnold, J Benjamin-Chung, AB Boehm, J Brown, D Capone, T Clasen, E Fuhrmeister, JA Grembi, D Holcomb^D, J Knee, LH Kwong, A Lin, SP Luby, R Nala, K Nelson, SM Njenga, C Null, AJ Pickering, M Rahman, HE Reese, L Steinbaum, **J Stewart**, R Thilakaratne, O Cumming, JM Colford, A Ercumen (2023). Effects of water, sanitation, and hygiene interventions on detection of enteropathogens and host-specific faecal markers in the environment: a systematic review and individual participant data meta-analysis. *Lancet Planetary Health*. 7(3):e197-e208. doi: 10.1016/S2542-5196(23)00028-1
8. Grube^P, AM, CK Coleman^D, CD LaMontagne^D, ME Miller^M, NP Kothegal^D, DA Holcomb, AD Blackwood, TJ Clerkin, ML Serre, LS Engel, VT Guidry, RT Noble, **JR Stewart** (2023). Detection of SARS-CoV-2 RNA in wastewater and comparison to number of COVID-19 cases in two sewersheds, North Carolina, USA. *Science of the Total Environment*. 858(3):159996. doi: 10.1016/j.scitotenv.2022.159996
Paper selected as a paper of the month in February 2023 by 'Environmental Factor' – the online source for NIH/NIEHS news
9. Christenson^D, E, L Wickersham^M, M Jacob, **J Stewart** (2022). A watershed study assessing effects of commercial hog operations on microbial water quality in North Carolina, USA. *Science of the Total Environment*. 838: 156085. doi: 10.1016/j.scitotenv.2022.156085

10. Manga^P, M, P Kolsky, JW Rosenboom, S Ramalingam, L Sriramajayam, J Bartram, **J Stewart** (2022). Public health performance of sanitation technologies in Tamil Nadu, India: Initial perspectives based on *E. coli* release. *International Journal of Hygiene and Environmental Health*. 243: 113987. doi: 10.1016/j.ijheh.2022.113987
11. Levinson, KJ, ME Collins, AM Lachiewicz, AJ Koltun, MD Sobsey, E Christenson^D, **JR Stewart**, MB Miller (2022). Retrospective analysis of multidrug-resistant clinical and environmental isolates for the presence of the colistin resistance gene *mcr-1*. *Infection Control & Hospital Epidemiology*. doi: 10.1017/ice.2022.8
12. Weisner-Friedman^D, C, RE Beattie, **JR Stewart**, KR Hristova, ML Serre (2022). Characterizing differences in sources and contributions to fecal contamination of sediment and surface water with the microbial FIT framework. *Environmental Science & Technology*. 56(7): 4231-4240. doi: 10.1021/acs.est.2c00224
13. Volkoff, SV, DL Rodriguez, DR Singleton, AW McCumber, MD Aitken, **JR Stewart**, C Gunsch (2022). Identifying bioaugmentation candidates in contaminated estuarine sediment of the Elizabeth River, VA, USA. *Applied Microbiology and Biotechnology*. 106(4): 1715-1727 doi: 10.1007/s00253-021-11754-5
14. Coleman^D, CK, E Mai, M Miller, S Sharma, C Williamson, H Oza, E Holmes, M Lamer, C Ly, **J Stewart**, MD Sobsey, LS Abebe (2021). Chitosan coagulation pretreatment to enhance ceramic water filtration for household water treatment. *International Journal of Molecular Sciences*. 22(18): 9736. doi: 10.3390/ijms22189736
15. Mulhern^D, R, M Stallard, H Zanib^U, **J Stewart**, E Sozzi, J Gibson (2021). Are carbon water filters safe for private wells? Evaluating the occurrence of microbial indicator organisms in private well water treated by point-of-use activated carbon block filters. *International Journal of Hygiene and Environmental Health*. 238: 113852. doi: 10.1016/j.ijheh.2021.113852
16. Harris, AR, EN Fidan, NG Nelson, RE Emanuel, T Jass, S Kathariou, J Niedermeyer, M Sharara, FL de los Reyes III, DA Riveros-Iregui, **JR Stewart** (2021). Microbial contamination in environmental waters of rural and agriculturally-dominated landscapes following hurricane Florence. *ES&T Water*. 1(9): 2012–2019 doi: 10.1021/acsestwater.1c00103
17. Vernaza, W, R Pozo, MC Mateus, D Quiroga, **J Stewart**, A Thompson, N Raheem, V Ochoa-Herrera (2021). Agua para Galápagos: un programa de monitoreo de la calidad del agua en las islas Galápagos. *Esferas*. 2(1):10-35. doi: 10.18272/esferas.v2i.2026
18. Holcomb^D, DA, J Knee, D Capone, T Sumner, Z Adriano, E de Bruijn, R Nalá, O Cumming, J Brown, **JR Stewart** (2021). Impacts of an urban sanitation intervention on fecal indicators and the prevalence of human fecal contamination in Mozambique. *Environmental Science & Technology*. 55(17): 11667–11679. doi: 10.1021/acs.est.1c01538
19. Capone, D, D Berendes, O Cumming, D Holcomb^D, J Knee, K Konstantinidis, K Levy, R Nalá, BB Risk, **J Stewart**, J Brown (2021). Impact of an urban sanitation intervention on enteric pathogen detection in soils. *Environmental Science & Technology*. 55(14): 9989–10000. doi: 10.1021/acs.est.1c02168
20. Wiesner-Friedman^D, C RE Beattie, **JR Stewart**, KR Hristova, ML Serre (2021). The microbial Find, Inform, and Test (FIT) model for identifying spatially distributed contamination sources: Framework foundation, and demonstration for ruminant *Bacteroides* abundance in river sediment. *Environmental Science & Technology*. 55(15): 10451-10461. doi: 10.1021/acs.est.1c01602
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- Zuin, R Nalá, O Cumming, J Brown (2021). Effects of an urban sanitation intervention on childhood enteric infection and diarrhea in Mozambique. *eLife*. 10:e62278. doi: 10.7554/eLife.62278
22. Stallard, MA, R Mulhern, E Greenwood, T Franklin^M, LS Engel, MB Fisher, MD Sobsey, H Zanib^U, RT Noble, **JR Stewart**, and E Sozzi (2021). Occurrence of male-specific and somatic coliphages and relationship with rainfall in privately-owned wells from peri-urban and rural households. *Water Research X*. 12: 100102. doi: 10.1016/j.wroa.2021.100102
23. Rhodes^D, S, E Christenson^D, A Nguyen^U, J Larsen, LB Price, **J Stewart** (2021). Getting ahead of antibiotic-resistant *Staphylococcus aureus* in US hogs. *Environmental Research*. 196:110954. doi: 10.1016/j.envres.2021.110954
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28. Styles^D, JN, R Converse, S Griffin, TJ Wade, E Klein, LA Nylander-French, **JR Stewart**, E Sams, E Hudgens and AI Egorov (2020). Human cytomegalovirus infections are associated with elevated biomarkers of vascular injury. *Frontiers in Cellular and Infection Microbiology*. 10: 334. doi: 10.3389/fcimb.2020.00334
29. Holcomb^D, DA and **JR Stewart** (2020). Microbial indicators of fecal pollution: recent progress and challenges in assessing water quality. *Current Environmental Health Reports*. 7: 311-324. doi: 10.1007/s40572-020-00278-1
30. Grube^D, A, **J Stewart**, and V Ochoa-Herrera (2020). Quality and Quantity: The challenge to achieving safely managed drinking water on San Cristobal Island, Galápagos. *International Journal of Hygiene and Environmental Health*. 228: 113547. doi: 10.1016/j.ijheh.2020.113547
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32. Tu, Pengcheng, Liang Chi, Wanda Bodnar, Zhenfa Zhang, Bei Gao, Xiaoming Bian, **Jill Stewart**, Rebecca Fry and Kun Lu (2020). Gut microbiome toxicity: Connecting the environment and gut microbiome-associated diseases. *Toxics*. 8(1): e19. doi: 10.3390/toxics8010019
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35. Tomlinson, M, HP Santos Jr, **JR Stewart**, R Joseph, A Leviton, AB Onderdonk, KCK Kuban, T Heeren, T M O'Shae, R Fry (2019). Neurocognitive and social-communicative function of children born very preterm at 10 years of age: associations with microorganisms recovered from the placenta parenchyma. *Journal of Perinatology*. 10pp. doi: 10.1038/s41372-019-0505-8
36. Tomlinson, M, K Lu, **J Stewart**, C Marsit, T O'Shea, and R Fry (2019). Microorganisms in the placenta: Links to early life inflammation and neurodevelopment in children. *Clinical Microbiology Reviews*. 32(3): e00103-18. doi: 10.1128/CMR.00103-18
37. Nadimpalli^D, M, **JR Stewart**, E Pierce^U, N Pisanic, DC Love, D Hall, J Larsen, KC Carroll, T Tekle, TM Perl and CD Heaney (2018). Face mask use and persistence of livestock-associated *Staphylococcus aureus* nasal carriage among industrial hog operation workers and household contacts, USA. *Environmental Health Perspectives*. 126(12): 127005. doi: 10.1289/EHP3453
38. Holcomb^D, D, K Messier, M Serre, J Rowny^M and **J Stewart** (2018). Geostatistical prediction of microbial water quality throughout a stream network using meteorology, land cover, and spatiotemporal autocorrelation. *Environmental Science & Technology*. 52(14): 7775-7784. doi: 10.1021/acs.est.8b01178
39. Napier, MD, C Poole, **JR Stewart**, DJ Weber, S Glassmeyer, DW Kolpin, ET Furlong, AP Durfour, TJ Wade (2018). Exposure to human-associated chemical markers of fecal contamination and self-reported illness among swimmers at recreational beaches. *Environmental Science & Technology*. 53(13): 7513-7523. doi: 10.1021/acs.est.8b00639
40. Wu^P, J, **JR Stewart**, MD Sobsey, C Cormency, MB Fisher and JK Bartram (2018). Rapid detection of *Escherichia coli* in water using sample concentration and optimized enzymatic hydrolysis of chromogenic substrates. *Current Microbiology*. 75(7): 827-834. doi: 10.1007/s00284-018-1454-8
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42. Davis, MF, N Pisanic, SM Rhodes^D, A Brown, H Keller, M Nadimpalli^D, A Christ, S Ludwig, C Ordak, K Spicer, DC Love, J Larsen, A Wright, S Blacklin, B Flowers, **J Stewart**, KG Sexton, AM Rule, CD Heaney (2018). Occurrence of *Staphylococcus aureus* in swine and swine workplace environments on industrial and antibiotic-free hog operations in North Carolina, USA: a One Health pilot study. *Environmental Research*. 163:88-96. doi: 10.1016/j.envres.2017.12.010
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44. Napier, MD, R Haugland, C Poole, AP Durfour, **JR Stewart**, DJ Weber, M Varma, JS Lavender and TJ Wade (2017). Exposure to human-associated fecal contamination and self-reported illness among swimmers at recreational beaches: a cohort study. *Environmental Health*. 16: 103. doi: 10.1186/s12940-017-0308-3
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50. Overbey^U, KN, SM Hatcher^D and **JR Stewart** (2015). Water quality and antibiotic resistance at beaches of the Galápagos Islands. *Frontiers in Public Health*. 3(64). doi: 10.3389/fenvs.2015.00064
51. Pisanic, N, M Nadimpalli^D, JL Rinsky, **J Stewart**, S Wing, DC Love, D Hall and CD Heaney (2015). Pig-2-Bac as a biomarker of occupational exposure to pigs and livestock-associated *Staphylococcus aureus* among industrial hog operation workers. *Environmental Research*. 143(Pt A): 93-97. doi: 10.1016/j.envres.2015.09.026
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53. Nadimpalli^D, M, N Pisanic, C Heaney and **J Stewart** (2015). Equivalence of influenza A virus RNA recovery from nasal swabs when lysing the swab and storage medium versus storage medium alone. *Journal of Virological Methods*. 217: 14–17. doi: 10.1016/j.jviromet.2015.01.008
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55. Gentry-Shields^D, J, K Myers^M, N Pisanic, C Heaney and **J Stewart** (2015). Hepatitis E virus and coliphages in waters proximal to swine concentrated animal feeding operations. *Science of the Total Environment*. 505: 487-493. doi: 10.1016/j.scitotenv.2014.10.004
56. Nadimpalli^D, M, JI Rinsky, S Wing, D Hall, **J Stewart**, J Larsen, KE Nachman, DC Love, E Pierce^U, N Pisanic, J Strelitz, L Harduar-Morano, CD Heaney (2015). Persistence of livestock-associated antibiotic-resistant *Staphylococcus aureus* among industrial hog operation workers in North Carolina over 14 days. *Occupational and Environmental Medicine*. 72(2): 90-99. doi: 10.1136/oemed-2014-102095
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Books and Chapters

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92. Walsh, SJ, CF Mena, **JR Stewart**, JP Muñoz Pérez (eds). (2023). *Island Ecosystems: Challenges to Sustainability*. Part of the Social and Ecological Interactions in the Galapagos Islands book series (SESGI). Springer. Switzerland. doi: 10.1007/978-3-031-28089-4
93. Thompson, AL, **JR Stewart**, M Bentley, JE Ocampo Trujillo, E Teran, V Ochoa (2023). Climate and Health Challenges in Small Island States: Identifying Vulnerability in Water and Food Resources in the Galapagos Islands, Ecuador. Ch 7 In: “Island Ecosystems: Challenges to Sustainability” (eds: SJ

Walsh, CF Mena, **JR Stewart**, JP Muñoz Pérez) in the Springer book series titled *Social and Ecological Interactions in the Galapagos Islands*. Springer. Switzerland. doi: 10.1007/978-3-031-28089-4_7

94. Grube^D, A and **J Stewart** (2022). One Health in the Galapagos Social-Ecological System: Not Just the Absence of Disease. Ch. 9 *In*:“Water, food and human health in the Galapagos, Ecuador” (eds: A Thompson, V Ochoa-Herrera, E Terán) in the Springer book series titled *Social and Ecological Interactions in the Galapagos Islands*. Springer. Switzerland. doi: 10.1007/978-3-030-92411-9_9
95. Badhwa^U, N, D Fejfar, R Pozo, K Nicholas, **J Stewart**, A Thompson and V Ochoa-Herrera (2022). Water quality and access in Isabela: Results from a household water survey. Ch. 4 *In*:“Water, food and human health in the Galapagos, Ecuador” (eds: A Thompson, V Ochoa-Herrera, E Terán) in the Springer book series titled *Social and Ecological Interactions in the Galapagos Islands*. Springer. Switzerland. doi: 10.1007/978-3-030-92411-9_4
96. **Stewart, JR**, LE Fleming, JM Fleisher, AM Abdelzaher and MM Lyons (2011). Waterborne Pathogens. Chapter 2 *In*: Issues in Environmental Science and Technology Vol. 33: Marine Pollution and Human Health. R. M. Harrison and R. E. Hester (eds.). Royal Society of Chemistry (RSC) Publishing. London. 43pp. doi: 10.1039/9781849732871-00025
97. Jofre, J, **JR Stewart** and W Grabow (2011). Phage Methods. Ch. 6 *In*: Microbial Source Tracking: Methods, Applications and Case Studies. C Hagedorn, AR Blanch and VJ Harwood (eds.). Springer Publishing Co. New York, NY. 20pp. doi: 10.1007/978-1-4419-9386-1_6
98. **Stewart, JR**, J Santo Domingo, and TJ Wade (2007). Fecal pollution, public health and microbial source tracking. Ch. 1 *In*: Microbial Source Tracking. J Santo Domingo and M Sadowsky (eds.). American Society for Microbiology. Washington D.C. 32pp. doi: 10.1128/9781555815769.ch1

Refereed Reports

99. **Stewart, J**, M Serre, N Kothehal, E Christenson-Diver (2022). Effects of extreme flooding on water quality in areas of dense food animal production. Water Resources Research Institute (WRI) of the University of North Carolina. Report No. 498. Final Project Report for WRI Project 20-09-W. Raleigh, NC. 49 pp.
100. MacDonald Gibson, J, S McElmurry, **J Stewart** and RE Mulhern (2021). Modelling and predicting drinking water contamination risk in North Carolina to enhance community resilience. Water Resources Research Institute (WRI) of the University of North Carolina. Report No. 489. Final Project Report for WRI Project 19-04-W. Raleigh, NC. 63 pp.
101. **Stewart, JR**, JG Rowny and JG Shields (2011). Microbial contaminants associated with urbanization of a drinking water reservoir. Water Resources Research Institute (WRI) of the University of North Carolina. Report No. 403. Raleigh, NC. 67 pp.
102. Sanger, D, A Blair, G DiDonato, T Washburn, S Jones, R Chapman, D Bergquist, G Riekerk, E Wirth, **J Stewart**, D White, L Vandiver, S White, D Whittall (2008). Integrative Ecological Assessments of NOAA’s National Estuarine Research Reserves System (NERRS), *Volume I: The Impacts of Coastal Development on the Ecology and Human Well-being of Tidal Creek Ecosystems*. NOAA Technical Memorandum. NOS NCCOS 82. Silver Spring, MD. 76 pp.
103. Interagency Oceans and Human Health Research Implementation Plan: A Prescription for the Future (2007). Interagency Working Group on Harmful Algal Blooms, Hypoxia, and Human Health of the Joint Subcommittee on Ocean Science and Technology. Washington, DC. 92pp.
104. Santo Domingo, J, T Edge, J Griffith, J Hansel, VJ Harwood, M Jenkins, A Layton, M Molina, C Nakatsu, R Oshiro, M Sadowsky, O Shanks, G Stelma, **J Stewart**, D Stoeckel, B Wiggins and J

Wilbur (2005). *Microbial Source Tracking Guide Document*. EPA/600-R-05-064, Office of Research & Development. Cincinnati, OH. 123 pp.

Products of Engaged Scholarship

1. Report on the Experts Scientific Workshop on Potential Human Health Risks from Exposure to Fecal Contamination from Avian and Other Wildlife Sources in Recreational Waters (2011). U.S. Environmental Protection Agency Office of Water and Office of Research and Development. Washington, DC. 34 pp.
2. Report from the Workshop on Indicators of Final Ecosystem Goods and Services for Wetlands and Estuaries (2011). Ringold, P, A Nahlik, J Boyd and D Bernard. U.S. Environmental Protection Agency. Corvallis, OR. 78 pp.
3. Linking changes in plankton biodiversity to increased human exposure to pathogens and potential for using the Global Earth Observing System (GEOS) to monitor and predict such threats (2010). Final project report of NOAA-EPA Interagency Agreement DW-13-92270801 (PI: Sandifer). Charleston, SC. 28pp.
4. Conference Report: Accelerating Innovation in 21st Century Biosciences: Identifying the Measurement, Standards and Technological Challenges (2009). Special Publication 903034. National Institute of Standards and Technology. Gaithersburg, MD. 98 pp.
5. Report on the Experts Scientific Workshop on Critical Research and Science Needs for the Development of Recreational Water Quality Criteria for Inland Waters (2009). Report Number: PATH4W09. Water Environment Research Foundation. Alexandria, VA. 124pp.
6. Gooch, JA, LF Webster, R Ascanio, BC Thompson, MH Fulton, **JR Stewart** and GI Scott (2007). Multiple antibiotic resistance (MAR) testing and ribotyping (RT) of *Escherichia coli* isolates from three North Carolina impaired watersheds. Report submitted to the UNC Coastal Studies Institute. Manteo, NC. 69pp.
7. The pilot epidemiologic assessment of microbial indicators for monitoring recreational water quality in marine sub/tropical environments (2008). Final Project Report (PI: Fleming). University of Miami. Miami, FL. 29pp.
8. **Stewart, J**, B Robinson, J Gooch, J Ufnar and RD Ellender (2005). Identification of human-associated microorganisms from Charleston stormwater samples. Report submitted to the Charleston Commissioners of Public Works. Charleston, SC. 4pp.
9. Gooch, JA, **JR Stewart**, BC Thompson, LF Webster, SM Allen, LM Kracker, PL Pennington, MH Fulton, and GI Scott (2004). Use of three microbial source tracking methods to analyze shellfish harvesting waters in South Carolina. Report submitted to the South Carolina Department of Health and Environmental Control. Columbia, SC. 93pp.
10. **Stewart, JR**, BC Thompson, LF Webster, JW Daugomah, AK Leigh, JA Gooch, and GI Scott (2001). *Escherichia coli* and coliphage analyses to distinguish microbial pollution sources in surface waters of South Carolina. Report submitted to the South Carolina Department of Health and Environmental Control. Columbia, SC. 139pp.

Presentations and Published Abstracts

^T Technicians, ^U Undergraduates, ^M Masters or ^D PhD students mentored by Dr. Stewart are noted.

Invited Keynotes, Seminars, and Conference Presentations

1. **Stewart, J.** (2024). Spread of the Superbugs: Environmental Dimensions of Antimicrobial Resistance. Department of Environmental Sciences and Engineering Seminar Series. Jan. 16. Chapel Hill, NC and virtual.
2. **Stewart, J,** H Brosky, C LaMontagne (2023). Environmental Antibiotic Resistance in the Built Environment. Precision Microbiome Engineering (PreMiEr) Seminar Series. Sept. 14. Virtual.
3. **Gunsch, C and J Stewart** (2022). Engineering Research Center for Precision Microbiome Engineering (PreMiEr). NC Board of Science, Technology, and Innovation. Nov. 10. Durham, NC.
4. **Stewart, J,** A Grube^D, A Thompson, Valeria Ochoa-Herrera (2022). Water quality in the Galápagos Islands: linking human and environmental health. World Summit on Island Sustainability. Galapagos Science Center. June 26-30. San Cristobal Island, Galapagos, Ecuador.
5. **Stewart, JR** (2021). A Legacy of Environmental Science and Engineering for the Public Good. Philip C. Singer Symposium. November 5. Chapel Hill, NC.
6. **Stewart, JR** and A Grube^D (2019). Trouble in Paradise – One Health in the Galapagos Islands. Plenary Panel moderated by Dr. Margaret Bentley at the Triangle Global Health Consortium Annual Conference. October 16. Durham, NC.
7. **Stewart, JR** and E Christenson^D (2019). Impact of flooding on environmental antibiotic resistance. Environmental antimicrobial resistance (AMR) workshop at UNC Water Microbiology Conference. May 13. Chapel Hill, NC.
8. **Stewart, JR** (2017). Ecology of antibiotic resistant *Staphylococcus aureus* in food animal production. Duke University Department of Civil and Environmental Engineering Seminar Series. Sept. 18. Durham, NC. [seminar]
9. **Stewart, JR** (2017). Tracking pathogens in coastal waters. North Carolina Coastal Conference. April 4-5. Raleigh, NC.
10. **Stewart, JR** (2017). Water research at UNC: Assisting communities across NC. NC Clean Tech Summit. March 3. Chapel Hill, NC.
11. **Stewart, JR** (2016). Ecology of antibiotic resistant *Staphylococcus* in industrial food animal production. Spring Meeting of the South Carolina Branch of the American Society for Microbiology (SCBASM). April 9. Charleston, SC. [keynote]
12. **Stewart, JR** (2016). The impact of intensive livestock production on the disease ecology of antibiotic resistant *Staphylococcus*. Carolina Population Center Interdisciplinary Research Seminars. Feb. 12. Chapel Hill, NC. [seminar]
13. **Stewart, JR** (2015). The impact of intensive livestock production on the evolution and dissemination of antibiotic resistant *Staphylococcus*. Agriculture and the Environment Interdepartmental Seminar Series. Virginia Polytechnic Institute and State University. Sept. 22. Blacksburg, VA. [seminar]
14. **Stewart, JR** (2015). Global environmental change: Are we making populations of antibiotic resistant bacteria? American Society for Microbiology Tri-Branch Meeting. Meeting convened by the Rio Grande, Intermountain and Rocky Mountain Branches of ASM. April 24-25. Durango, CO. [keynote]
15. **Stewart, JR** (2015). Global environmental change: Are we making populations of antibiotic resistant bacteria? 2015 Annual Meeting of the Alaska Branch of the American Society for Microbiology. April 17-18. Anchorage, AK. [keynote]

16. **Stewart, JR** (2015). Ecology of antibiotic resistant *Staphylococcus* in industrial food animal production. University of Alaska Anchorage Biological Sciences Seminar Series. April 17. Anchorage, AK. [seminar]
17. **Stewart, JR** (2015). Climate change and inland waters: Effects of increasing storm intensity on patterns of pathogen loading. 2015 Spring Meeting of the Indiana Branch of the American Society for Microbiology. March 27-28. Nashville, IN. [keynote]
18. Heaney, C and **J Stewart** (2014). Human exposures to antibiotic resistant bacteria in the WASH context. UNC Water and Health Conference: Where Science Meets Policy. Oct. 13-17. Chapel Hill, NC.
19. Pierce, E^M, M Nadimpalli^D, N Pisanic, C Heaney, D Hall and **J Stewart** (2014). *Staphylococcus aureus* in industrial hog farmers in eastern North Carolina: Persistence of nasal carriage. 114th General Meeting of the American Society for Microbiology. May 17-20. Boston, MA.
Pierce selected among international pool of submissions for a Young Investigator Oral Presentation
20. **Stewart, JR** (2014). The impact of intensive livestock production on the evolution and dissemination of antibiotic resistant *Staphylococcus*. University of South Carolina Environmental Health Sciences Seminar Series. April 2. Columbia, SC. [seminar]
21. **Stewart, JR** (2013). Global environmental change: Are we making populations of antibiotic resistant bacteria? NC Population Medicine Forum Spring Seminar Series. April 12. Raleigh, NC. [seminar]
22. **Stewart, JR** (2013). Pathogen loads in source water are associated with landuse change and storm events. UNC Global Research Institute Seminar Series. Jan. 9. Chapel Hill, NC. [seminar]
23. **Stewart, JR** (2012). Global environmental change: Are we making populations of antibiotic resistant bacteria? Bugs vs. Drugs: A One Medicine Approach to Antimicrobial Resistance. Ninth One Medicine Symposium. Dec. 5-6. Raleigh, NC.
24. **Stewart, JR** and JG Shields^D (2011). *Methanobrevibacter smithii* *nifH* qPCR for microbial source tracking. Meeting for the California Microbial Source Identification Protocol Project hosted by the Southern California Coastal Water Research Project (SCCWRP). Dec. 13-14. Costa Mesa, CA.
25. **Stewart, JR**, JG Rowny^M and JG Shields^D (2011). Effect of storm events on pathogen loads in a drinking water reservoir. 139th Annual Meeting & Exposition of the American Public Health Association (APHA). Oct. 29-Nov.2. Washington, DC.
26. **Stewart, JR** and JA Gooch (2010). Improving detection of human pathogens for beaches & coastal waters: Advancing technologies and employing sentinel species. Center Review for NOAA Hollings Marine Laboratory Center of Excellence in Oceans and Human Health. July 7. Charleston, SC.
27. **Stewart, JR**, JG Rowny^M and JG Shields^D (2010). Microbial contaminants associated with urbanization of a drinking water reservoir. NC Urban Water Consortium. June 4. Cary, NC.
28. **Stewart, JR** (2009). Detecting and tracking pathogens in coastal waters to reduce public health risks. National Environmental Public Health Conference. Oct. 26-28. Atlanta, GA.
29. **Stewart, JR**, JW Dickerson^T, JB Gregory^T, C Johnston^T, BC Thompson, LF Webster and JA Gooch (2009). Improved detection and quantification of pathogens from coastal waters. NOAA Oceans and Human Health Initiative all-PI Meeting. Oct. 13-16. Seattle, WA.
30. **Stewart, JR** and GW Characklis (2009). Assessing microbial contamination of North Carolina stormwater. NC Urban Water Consortium Stormwater Group. June 11. Fayetteville, NC.
31. **Stewart, JR** (2009). Enteric viruses in coastal waters. Ecosystem-Based Management Conference. Chesapeake Research Consortium. March 23-25. Baltimore, MD.

32. **Stewart, JR** (2009). Detecting and tracking pathogens in coastal waters. UNC Department of Marine Sciences Seminar Series. March 4. Chapel Hill, NC. [seminar]
33. **Stewart, JR** (2009). What's in your water? Linking ecosystem and human health. ENVR 400: in-house seminar series. Jan. 28. Chapel Hill, NC. [seminar]
34. **Stewart, JR** (2007). Detecting and tracking pathogens in surface waters. UNC Environmental Sciences and Engineering Seminar Series. Aug. 30. Chapel Hill, NC. [seminar]
35. **Stewart, JR** (2006). Detection and tracking of pathogens in coastal waters. Marine Biology and Fisheries Seminar Series. University of Miami Rosenstiel School of Marine and Atmospheric Science. Nov. 3. Miami, FL. [seminar]
36. Stoeckel, DM, JW Santo Domingo, **JR Stewart**, T Edge and M Jenkins (2006). Microbial source tracking of fecal contamination is a tool to protect high-quality water and remediate poor-quality water resources. Presented to the National Science and Technology Council, Committee of Environment and Natural Resources, Subcommittee on Water Availability and Quality. Sept. Washington DC.
37. **Stewart, JR** (2006). Ocean observing systems and public health. Ecosystem-Based Approaches to Management. UNC Wilmington. March 19-21. Wrightsville Beach, NC.
38. **Stewart, JR**, GI Scott and MD Sobsey (2002). F⁺RNA coliphage typing for microbial source tracking. Presentation in Symposium titled "Development and Application of Methods to Identify Sources of Fecal Pollution in Water." 102nd General Meeting of the American Society for Microbiology (ASM). May 19-23. Salt Lake City, UT.
39. **Stewart, JR** and MD Sobsey (1998). Detection and characterization of coliphages in a ground water aquifer recharged with reclaimed waste water. 98th General Meeting of the American Society for Microbiology. May 17-21. Atlanta, GA.
Presentation invited for a student oral presentation

Contributed Presentations

40. Brosky, H, A Thompson, C Jones, V Ochoa-Herrera, **J Stewart** (2024). Calidad del Agua y Análisis de Cultivos Microbianos: un Estudio Piloto en Las Islas Galápagos. 6th Galápagos Research and Conservation Symposium. July 15-16. San Cristobal, Galapagos, Ecuador. [poster]
41. Hoke, MK, EE Teran, **JR Stewart**, AL Thompson (2024). Examining pathways between water quality and longitudinal growth among children in the Galápagos. 49th Meeting of the Human Biology Association. March 20-22. Los Angeles, CA. [poster]
42. Wiesner^D, C., B. Rachelle B, K. Hristova, **J. Stewart**, M Serre (2023). Modeling microbial responses in water networks with hydrologically informed statistical approaches. International Research Project CHEMICY workshop, Oct. 20. Rennes France.
43. **Stewart, JR** (2023). Antibiotic Resistance and the built environment. Research Experience for Undergraduates (REU) Brown Bag Seminar Series. Engineering Research Center for Precision Microbiome Engineering (PreMiEr). July 18. Virtual.
44. Miller, J, JFT Suárez, V Ochoa-Herrera, **J Stewart**, AL Thompson (2023). From pipes to taps: water quality in San Cristobal. Galápagos Conservation and Research Symposium. Galápagos National Park and Galápagos Science Center. June 26-27. Isla San Cristobal, Galápagos, Ecuador
45. Miller, J, L Adair, **J Stewart**, E Terán, M Bentley, A Thompson (2023). Water insecurity is differentially associated with food insecurity across seasons: evidence from the Galápagos. UNC Nutrition Obesity Research Center (NORC) Symposium. April 12. Chapel Hill, NC.

46. Lee, A, R Strott, L Cahoon, S Berkowitz, L Engel, D Holcomb, A Christensen, S Reckling, H Mitasova, A Salzberg, **J Stewart**, V Guidry, R Noble, M Serre (2023). Daily Inflow and Infiltration at Wastewater Treatment Plants across North Carolina. NC Water Resources Research Institute (WRRRI) Annual Conference. March 22-23. Raleigh, NC.
47. Kothegal^D, N, E Christenson-Diver^D, M Serre, CK Coleman^D, C LaMontagne^D, **J Stewart** (2022). Effects of Extreme Flooding on Water Quality in Areas of Dense Food Animal Production. UNC Water and Health Conference. Oct. 24-28. Chapel Hill, NC.
48. LaMontagne^D, C, AM Grube^D, N Kothegal^D, ME Miller^M, DA Holcomb, **JR Stewart** (2022). Detection of SARS-CoV-2 in wastewater and comparison to COVID-19 cases in two sewersheds, North Carolina. UNC Water and Health Conference. Oct. 24-28. Chapel Hill, NC.
49. Rodríguez-Estupiñán, P, **J Stewart**, A Thompson, C Mateus, D Quiroga, N Raheem, WF Vasquez and V Ochoa-Herrera (2022). State of water quality in the Galapagos Islands: Challenges, opportunities, and household preferences for improved water services. World Summit on Island Sustainability. Galapagos Science Center. June 26-30. San Cristobal Island, Galapagos, Ecuador. [poster]
50. Miller, J, L Adair, **J Stewart**, E Terán, M Bentley, A Thompson (2022). Water insecurity is differentially associated with food insecurity across seasons: evidence from the Galápagos. American Society for Nutrition. Nutrition 2022. June 14-16. Meeting abstract published in *Curr Dev Nutr.* 6(Suppl 1): 591. doi: 10.1093/cdn/nzac060.049
51. **Stewart J**, P Kolsky, M Manga (2021). Understanding pathogen flows associated with sanitation practices in urban communities. Introduction to Side Event Session. UNC Water and Health Conference. Oct. 4-8. Virtual Conference.
52. Miller^M, ME et al. (2021) Detection and surveillance of SARS-CoV-2 in Wastewaters from Treatment Plants Predicted Rise in Reported COVID Infections. UNC Water and Health Conference. Oct. 4-8. Virtual Conference.
53. Holcomb, D, J Knee, T Sumner, R Nalá, O Cumming, J Brown, **J Stewart** (2020). Human fecal contamination of the domestic environment and child enteric infection in urban Maputo, Mozambique. 32nd Annual Conference of the International Society for Environmental Epidemiology (ISEE). Aug. 24-27. Virtual Conference.
54. **Stewart, JR** (2020). COVID-19 Wastewater Surveillance in North Carolina. Report from the North Carolina Wastewater Pathogen Network (NC Path). UNC Water and Health Conference. Virtual Conference.
55. **Stewart, JR** and A Grube^D (2019). Antibiotic Resistance in Darwin's Laboratory. One Health Panel moderated by Dr. Jill Stewart at the UNC Center for Galapagos Studies Annual Research Retreat. December 5. Chapel Hill, NC.
56. Pisanic, N, C Ordak, A Corrigan, F Curriero, V Coffman, S Rhodes, C Wiesner, M Serre, **J Stewart**, D Hall, and C Heaney (2019). Environmental contamination of outdoor and indoor household surfaces with pig waste in a region with high density of industrial hog operations, North Carolina, USA. NC Environmental Justice Summer, Oct. 18-19. Whitakers, NC. [poster]
57. Harris, MS, K Walker, E Lee, M Andreu-Sanz, A Mistry, N Vance, C Woods, W Pan, **J Stewart**, M Jacob and P Cowen (2019). A novel approach to one health education and collaboration. Triangle Global Health Consortium Annual Conference. October 16. Durham, NC. [poster]
58. Holcomb^D, D, J Knee, T Sumner, Z Adriano, E de Bruijn, R Nala, O Cumming, J Brown, and **J Stewart** (2019). Risk factors of human fecal contamination in urban Mozambican Households in the MapSan Trial. UNC Water and Health Conference. Oct 7-11. Chapel Hill, NC.

59. Manga^P, M, P Kolsky, A Peal, J Bartram, S Ramalingam, V Vichu, L Sriramajayam and **J Stewart** (2019). Unveiling pathogen hazards associated with sanitation technologies in Tamil Nadu. UNC Water and Health Conference. Oct 7-11. Chapel Hill, NC.
60. Christenson^D, EC, J Bartram, M Jacob, R Noble, M Serre, and **J Stewart** (2019). Assessing impacts of commercial hog operations on surface water quality. UNC Water and Health Conference. Oct 7-11. Chapel Hill, NC.
61. LaMontagne^D, CD, EC Christenson^D, AT Rogers, ME Jacob and **JR Stewart** (2019). Relating antimicrobial resistance and virulence in surface water *E. coli*. UNC Water and Health Conference. Oct 7-11. Chapel Hill, NC.
62. M Stallard, R Mulhern, M Cross, E Greenwood, K Deyonke, J Kim, S Cromratie, H Zanib^U, M Fisher, M Sobsey, **J Stewart** and E Sozzi (2019). Impact of Hurricane Florence on drinking water safety in North Carolina: rapid assessment and recommendations for resilience and recovery. UNC Water and Health Conference. Oct 7-11. Chapel Hill, NC. [poster]
63. Grube^D, A and **J Stewart** (2019). Antibiotic resistance in Darwin's laboratory: a survey of aquatic and wildlife resistomes on San Cristobal, Galapagos. 5th International Symposium on the Environmental Dimension of Antibiotic Resistance (EDAR). June 9-14. Hong Kong. [poster]
64. Coleman^D, K, E Sozzi, M Sobsey and **J Stewart** (2019). Microbial inactivation by peracetic acid in sewage and feces to optimize disinfection of highly infectious waste waters. UNC Water Microbiology Conference. May 14-16. Chapel Hill, NC.
65. Christenson^D, E, **J Stewart** (2019). Assessing impacts of commercial hog operations on surface water quality. UNC Water Microbiology Conference. May 14-16. Chapel Hill, NC.
66. LaMontagne^D, CD, EC Christenson^D, AT Rogers, ME Jacob and **JR Stewart** (2019). Relating antimicrobial resistance and virulence in surface water *E. coli*. UNC Water Microbiology Conference. May 14-16. Chapel Hill, NC. [poster]
67. Wiesner^D, C, R Beattie, K Hristova, **J Stewart** and M Serre (2019). Space/time variability of antibiotic resistance genes, Wisconsin rivers/streams (2019). UNC Water Microbiology Conference. May 14-16. Chapel Hill, NC. [poster]
68. Harris A, R Emanuel, T Jass, M Sharara, J Kearns, D Riveros-Iregui, F de los Reyes, S Kathariou, J Niedermeyer, **J Stewart** (2019). Water quality of Hurricane Florence floodwaters: What we know so far. NC Water Resources Research Institute (WRRI) Annual Conference. March 21-22. Raleigh, NC.
69. Riveros-Iregui D, H Moser, E Christenson^D, J Gray, A Harris, M Hedgespeth, S Kathariou, J Kearns, T Jass, D Lowry, K Martin, N Nelson, E Nichols, J Niedermeyer, F de los Reyes, M Sharara, **J Stewart**, R Emanuel (2019). Flood-driven connectivity and water quality in the Atlantic Coastal Plain. NC Water Resources Research Institute (WRRI) Annual Conference. March 21-22. Raleigh, NC.
70. Manga^P M, **J Stewart**, P Kolsky (2018). Estimates of unsafe return of human excreta to the environment. UNC Water and Health Conference. Oct. 29-Nov. 2. Chapel Hill, NC.
71. Grube^D, A, **J Stewart**, G Lewbart, JP Muñoz and V Ochoa-Herrera (2018). Primed for selection: The anthropogenic influence on the environmental resistome in the Galápagos Islands. Galápagos Conservation and Research Symposium. Galápagos National Park and Galápagos Science Center. June 27-28. Isla San Cristobal, Galápagos, Ecuador.
72. Houck, K, **J Stewart**, P Bentley, J Ochoa and E Terán (2018). Exploring the relationship of infections and municipal water quality on San Cristobal, Galápagos. Galápagos Conservation and Research Symposium. Galápagos National Park and Galápagos Science Center. June 27-28. Isla San Cristobal, Galápagos, Ecuador.

73. Christenson^D, E, L Wickersham^M, R Leighton^M, M Jacob and **J Stewart** (2018). A longitudinal, landscape-scale watershed study assessing how precipitation, wetlands, and commercial swine operation geography affect prevalence of antibiotic resistant *E. coli* and source-specific gene markers. UNC Water Microbiology Conference. May 22-24. Chapel Hill, NC.
74. Holcomb^D, D, J Brown, and **J Stewart** (2018). Impact of onsite sanitation intervention on human and avian fecal contamination in urban Mozambican households. UNC Water Microbiology Conference. May 22-24. Chapel Hill, NC.
75. Christenson^D, EC and **JR Stewart** (2018). Adoption of poultry microbial source tracking marker LA35 for use in North Carolina. UNC Water Microbiology Conference. May 22-24. Chapel Hill, NC. [poster]
76. Wickersham^M, L, E Christenson^D and **J Stewart** (2018). Comparison of multidrug-resistant *Staphylococcus aureus* in surface waters with and without commercial swine production. UNC Water Microbiology Conference. May 22-24. Chapel Hill, NC. [poster]
77. Browning^U, E, J Stewart and D Riveros-Iregi (2018). Rainfall effects on water quality in a tropical semi-arid island environment. UNC Water Microbiology Conference. May 22-24. Chapel Hill, NC. [poster]
78. Christenson^D, E, L Wickersham^M, R Leighton^M, M Jacob and **J Stewart** (2018). Landscape-scale watershed study of the effect of swine CAFOs on concentrations of antibiotic-resistant *E. coli* and swine-specific fecal bacteria. NC Water Resources Research Institute (WRI) Annual Conference. March 14-15. Raleigh, NC.
79. Wickersham^M, L, E Christenson^D and **J Stewart** (2018). Comparison of multidrug-resistant *Staphylococcus aureus* in surface waters with and without commercial swine production. NC Water Resources Research Institute (WRI) Annual Conference. March 14-15. Raleigh, NC. [poster]
Poster won honorable mention in student poster competition
80. Leighton^M, R, E Christenson^D and **J Stewart** (2018). Precipitation's effect on prevalence of *Escherichia coli* in Yadkin-Pee Dee watersheds with and without poultry concentrated animal feeding operations. NC Water Resources Research Institute (WRI) Annual Conference. March 14-15. Raleigh, NC. [poster]
81. Lempp, R^U, E Christenson^D, T Jass, R Emanuel, D Riveros-Iregui and **J Stewart** (2018). Tracking sources of fecal water contamination in eastern NC in the aftermath of Hurricane Matthew. NC Water Resources Research Institute (WRI) Annual Conference. March 14-15. Raleigh, NC. [poster]
82. Riveros-Iregui, D, H Moser, E Christenson^D, J Gray, M Hedgespeth, T Jass, D Lowry, K Martin, E Nichols, **J Stewart** and R Emanuel (2017). Impacts of extreme flooding on hydrologic connectivity and water quality in the Atlantic coastal plain. American Geophysical Union (AGU) Fall Meeting. Dec. 11-15. New Orleans, LA. [poster]
83. Tipton^M, C, MD Sobsey and **JR Stewart** (2017). Evaluation of a low-cost compartment bag test to quantify hydrogen sulfide producing bacteria in drinking water. UNC Water and Health Conference. Oct. 16-20. Chapel Hill, NC.
84. Holcomb^D, D and **J Stewart** (2017). Occurrence of human and avian fecal contamination in urban Mozambican households: Assessing fecal transmission in the MapSan trial. UNC Water and Health Conference. Oct. 16-20. Chapel Hill, NC. [poster]
85. Grube^D, A, **JR Stewart** and V Ochoa-Herrera (2017). Long-term water quality monitoring program on San Cristobal Island: summary of results. Galapagos Conservation and Research Symposium. Galapagos National Park and Galapagos Science Center. July 10-11. Isla San Cristobal, Galapagos, Ecuador.

86. Holcomb^D, D, J Knee, J Brown and **J Stewart** (2017). Impact of a controlled, before-and-after trial of shared, onsite sanitation on environmental exposure to fecal contamination in low-income neighborhoods of urban Maputo, Mozambique. UNC Water Microbiology Conference. May 15-17. Chapel Hill, NC.
87. Tipton^M, C, MD Sobsey and **JR Stewart** (2017). Evaluation of a low-cost compartment bag test to quantify hydrogen sulfide producing bacteria in drinking water. UNC Water Microbiology Conference. May 15-17. Chapel Hill, NC. [poster]
88. Christenson^D, E and **J Stewart** (2017). Prevalence of antibiotic-resistant *E. coli* in North Carolina watersheds with and without swine CAFOs. UNC Water Microbiology Conference. May 15-17. Chapel Hill, NC. [poster]
89. Holcomb^D, D and **J Stewart** (2017). Validation of quantitative PCR assays to detect fecal contamination of general, human, and poultry origin in low-income neighborhoods of urban Maputo, Mozambique. UNC Water Microbiology Conference. May 15-17. Chapel Hill, NC. [poster]
90. Rhodes^D, SR, SM Hatcher^D, **JR Stewart**, E Silbergeld, N Pisanic, J Larsen, S Jiang^U, A Krosche, D Hall, K Carroll and CD Heaney (2017). A community-based participatory research study of exposure to antibiotic-resistant *Staphylococcus aureus* in regions of dense industrial hog production in North Carolina, USA. University of Warwick Annual Toxic Expertise Workshop: Pollution, Environmental Justice, and Citizen Science. May 3-4. Warwick, United Kingdom.
91. Rhodes^D, S, E Christenson^D, A Nguyen^U, D Hall, J Larsen, L Price and **J Stewart** (2016). Prevalence of livestock-associated, multi-drug resistant, methicillin-susceptible *S. aureus* is lower in recently-slaughtered North Carolina hogs raised without antibiotics compared to conventionally raised hogs. The 14th Annual Ecology and Evolution of Infectious Disease Meeting. June 3-5. Ithaca, NY. [poster]
92. **Stewart, JR** (2016). Candidate AMR indicator targets and methods for their culture-based detection and quantification. Workshop titled "Monitoring Antimicrobial Resistance in the Environment to Support Global Surveillance." Side Event held at the UNC Water Microbiology Conference. May 17-19. Chapel Hill, NC.
93. Young^M, BA, JA Steele, JF Griffith and **JR Stewart** (2016). Effect of environmental factors on coliphage concentrations in marine waters. UNC Water Microbiology Conference. May 17-19. Chapel Hill, NC. [poster]
94. Hatcher^D, S, S Rhodes^D, J Larsen, S Jiang^U, D Hall, A Krosche, K Carroll, E Silbergeld, **J Stewart** and C Heaney (2015). Prevalence of antibiotic-resistance *Staphylococcus aureus* nasal carriage among children living with industrial hog operation workers. 4th ASM-ESCMID Conference on Methicillin-Resistant *Staphylococci* in Animals: Veterinary and Public Health Implications. Nov 2-5. Chicago, IL.
95. Nadimpalli^D, **JR Stewart**, N Pisanic, DC Love, D Hall, J Larsen, A Krosche, T Tekle, T Ross, K Carroll, TM Perl and CD Heaney (2015). *Staphylococcus aureus* nasal carriage is associated with symptoms of skin and soft tissue infection among industrial hog operation workers in North Carolina. 4th ASM-ESCMID Conference on Methicillin-Resistant *Staphylococci* in Animals: Veterinary and Public Health Implications. Nov 2-5. Chicago, IL.
96. Pisanic, N, ML Nadimpalli^D, JL Rinsky, **J Stewart**, S Wing, DC Love, D Hall and CD Heaney (2015). Pig-2-Bac as a biomarker of occupational exposure to swine and to *Staphylococcus aureus* and methicillin resistance. 4th ASM-ESCMID Conference on Methicillin-Resistant *Staphylococci* in Animals: Veterinary and Public Health Implications. Nov 2-5. Chicago, IL.
97. Nadimpalli^D, M, SM Rhodes^D, ML Serre, CD Heaney and **JR Stewart** (2015). Recovery of antibiotic-resistant *Staphylococcus aureus* from industrial hog farmworker households in North

- Carolina. 4th ASM-ESCMID Conference on Methicillin-Resistant *Staphylococci* in Animals: Veterinary and Public Health Implications. Nov 2-5. Chicago, IL. [poster]
98. Hatcher^D, SM, S Rhodes^D, **JR Stewart**, E Silbergeld, N Pisanic, J Larsen, S Jiang^U, A Krosche, D Hall, K Carroll, CD Heaney (2015). Livestock worker and community exposure to antibiotic-resistant bacteria in eastern North Carolina. North Carolina Environmental Justice Network (NCEJN) Annual Summit. Oct 18-19. Whitakers, NC. [poster]
99. Christenson, E, **J Stewart** and M Serre (2015). Using remote sensing to calculate plant available nitrogen needed by crops on swine farm sprayfields in North Carolina. SPIE Remote Sensing Conference. Sept. 21-24. Toulouse, France.
100. Houck, K, **J Stewart** and M Bentley (2015). Exploring the relationships between infections and municipal water quality on San Cristobal Island, Galapagos. Galápagos Science Center Summer Seminar Series. July 3. San Cristobal Island, Galápagos, Ecuador.
101. Nadimpalli^D, M, S Rhodes^D, M Serre, C Heaney and **J Stewart** (2015). Detection of livestock-associated and antibiotic resistance *Staphylococcus aureus* from household surfaces. 13th annual Ecology and Evolution of Infectious Disease Meeting. May 26-29. Athens, GA. [poster]
102. Hatcher^D, SM, SM Rhodes^D, CD Heaney, S. Jiang^U, T Le^U, D Hall, J Larsen and **J Stewart** (2015). Prevalence of methicillin- and multidrug resistant *S. aureus* among children living with industrial hog operation workers in North Carolina. 13th annual Ecology and Evolution of Infectious Disease Meeting. May 26-29. Athens, GA. [poster]
103. Wu^P, J and **J Stewart** (2015). The use of remote sensing and GIS in microbial source tracking. UNC 2nd Annual Water Microbiology Conference. May 18-25. Chapel Hill, NC.
104. Holcomb^D, D, K Messier, M Serre, J Rowny^M and **J Stewart** (2015). Geostatistical prediction of microbial water quality on an urbanizing inland stream network. UNC 2nd Annual Water Microbiology Conference. May 18-25. Chapel Hill, NC. [poster]
105. Wu^P, J, **JR Stewart**, GW Walters, MD Sobsey, C Cormency and JK Bartram (2015). Toward a rapid enzymatic method for detection of coliform bacteria in water. UNC 2nd Annual Water Microbiology Conference. May 18-25. Chapel Hill, NC. [poster]
106. Nadimpalli^D, M, E Pierce^U, N Pisanic, **J Stewart** and C Heaney (2014). Nasal carriage of antibiotic-resistant *Staphylococcus aureus* with multiple markers of livestock association among industrial pig farmers and their household members in eastern North Carolina. International Meeting of Emerging Diseases and Surveillance (IMED). International Society for Infectious Diseases. Oct. 31-Nov.3. Vienna, Austria. [poster]
107. Nadimpalli^D, M, N Pisanic, **J Stewart** and C Heaney (2014). Surveillance of influenza A exposure using non-invasive methods among industrial pig farm workers and household members in North Carolina. International Meeting of Emerging Diseases and Surveillance (IMED). International Society for Infectious Diseases. Oct. 31-Nov.3. Vienna, Austria. [poster]
108. Heaney, C, N Pisanic, M Nadimpalli^D, J Rinsky, D Love, K Nachman, T Perl, S Wing and **J Stewart** (2014). Concurrent exposure to drug-resistant *Staphylococcus aureus*, influenza A virus, and hepatitis E virus among industrial hog operation workers. ID Week 2014 Meeting of the Infectious Diseases Society of America. Oct. 8-12. Philadelphia, PA. [poster]
109. Heaney, C, N Pisanic, M Nadimpalli^D, J Rinsky, D Love, K Nachman, T Perl, S Wing and **J Stewart** (2014). *Staphylococcus aureus* CC398 and pig-specific fecal *Bacteroidales* qPCR concentrations decline with increasing time away from work among industrial hog operation workers. ID Week 2014 Meeting of the Infectious Diseases Society of America. Oct. 8-12. Philadelphia, PA. [poster]

110. Overbey^U, K, S Steel^U, W Gerhard^M and **J Stewart** (2014). An interdisciplinary study of water quality in the Galápagos. Galápagos Science Center Summer Seminar Series. June 20. San Cristobal Island, Galápagos, Ecuador.
111. Hatcher^D, S, K Myers^M, C Heaney, D Hall, J Larsen, S Wing, M. Miller and **J Stewart** (2014). Multidrug- and methicillin-resistant *Staphylococcus aureus* are present in surface waters near industrial hog operations in North Carolina. 6th Annual “Water and Health” Seminar for PhD Students. June 16-18. Cannes, France.
Hatcher awarded certificate for ranking among top three student presentations
112. Polston^D, PM, E Rodgers-Veira, MD Aitken and **JR Stewart** (2014). The development of novel microbial indicators used for environmental tracking of biosolid contaminants. 114th General Meeting of the American Society for Microbiology. May 17-20. Boston, MA. [poster]
113. Overbey^U and **J Stewart** (2014). Sewage impacts on water quality and antibiotic resistance in beach waters in the Galapagos Islands, Ecuador. UNC Water Institute 1st Annual Water Microbiology Conference. May 5-7. Chapel Hill, NC.
114. Hatcher^D, S, K Myers^M, C Heaney, D Hall, J Larsen, S Wing, M. Miller and **J Stewart** (2014). Multidrug- and methicillin-resistant *Staphylococcus aureus* are present in surface waters near industrial hog operations in North Carolina. UNC Water Institute 1st Annual Water Microbiology Conference. May 5-7. Chapel Hill, NC.
115. Holcomb^D, D, J Rowny^M, M Serre and **J Stewart** (2014). Application of predictive and space/time interpolative models of fecal contamination in an urbanizing watershed. UNC Water Institute 1st Annual Water Microbiology Conference. May 5-7. Chapel Hill, NC. [poster]
116. Polston^D, PM, E Rodgers-Veira, MD Aitken and **JR Stewart** (2014). The development of novel microbial indicators used for environmental tracking of biosolid contaminants. UNC Water Institute 1st Annual Water Microbiology Conference. May 5-7. Chapel Hill, NC. [poster]
117. Overbey^U, K, S Steel^U, W Gerhard^U and **J Stewart** (2014). An interdisciplinary study of water quality in the Galápagos. UNC 15th Annual Celebration of Undergraduate Research. April 14. Chapel Hill, NC.
118. Nadimpalli^D, M, J Rinsky, S Wing, D Hall, D Baron, L Price, J Larsen, M Stegger, **J Stewart** and C Heaney (2014). Carriage of antibiotic-resistant *Staphylococcus aureus* among livestock workers and household members in North Carolina. 2014 Spotlight on Student Research Poster Event. March 21. Chapel Hill, NC. [poster]
Nadimpalli awarded the 2014 Gillings Poster Award, 1st Runner-Up
119. Overbey^U, K, S Steel^U, W Gerhard^U and **J Stewart** (2013). An interdisciplinary study of water quality in the Galápagos. 9th Annual State of North Carolina Undergraduate Research & Creativity Symposium (SNCURCS). Nov. 16. Charlotte, NC. [poster]
120. Hatcher^D, S, K Myers, C Heaney, D Hall, J Larsen, S Wing and **J Stewart** (2013). Multidrug- and methicillin-resistant *Staphylococcus aureus* are present in surface waters near industrial hog operations in North Carolina. 3rd ASM-ESCMID Conference on Methicillin-resistant *Staphylococci* in Animals: Veterinary and Public Health Implications. Nov. 4-7. Copenhagen, Denmark. [poster]
121. Nadimpalli^D, M, J Rinsky, D Hall, E Pierce^U, N Pisanic, J Larsen, K Nachman, D Love, S Wing, **J Stewart**, C Heaney (2013). Persistence of livestock-associated methicillin and multidrug-resistant *Staphylococcus* among industrial hog operation workers in North Carolina. 3rd ASM-ESCMID Conference on Methicillin-resistant *Staphylococci* in Animals: Veterinary and Public Health Implications. Nov. 4-7. Copenhagen, Denmark. [poster]

122. Myers^M, K., SM Hatcher^D, C Heaney, D Hall, S Wing and **J Stewart** (2013). Microbial water quality assessment near industrial swine operations in North Carolina. North Carolina Environmental Justice Network Summit. Oct. 14-15. Whitakers, NC.
123. **Stewart, JR** (2013). Water Quality in the Galápagos Islands. Science and Conservation in the Galápagos Islands: A Summer Seminar Series. Galápagos Science Center and Galápagos National Park. June 7. San Cristobal Island, Galápagos, Ecuador.
124. Nadimpalli^D, M, C Heaney, J Rinsky, D Hall, N Muhammed, D Baron-Hall, L Price, J Larsen, M Stegger and **J Stewart** (2013). Carriage of antibiotic resistant *Staphylococcus aureus* among livestock workers and household members in North Carolina. UNC Graduate Student Recognition Celebration. April 10. Chapel Hill, NC. [poster]
125. Layton, BA, AB Boehm, M Byappanahalli, AH Farnleitner, M Gourmelon, PA Holden, JA Jay, J Lee, WG Meijer, R Noble, R Rodrigues, JB Rose, OC Shanks, C Sinigalliano, **J Stewart**, R Whitman, S Wuertz, JF Griffith (2013). Performance of general fecal and host-associated *Bacteroidales* markers In the California Source Identification Protocol Project method evaluation study. U.S. Recreational Water Quality Criteria: A Vision for the Future. University of Hawaii Water Resources Research Center. March 11-13. Honolulu, Hawaii. [poster]
126. **Stewart, JR**, JG Rowney^M and and JG Shields^D (2012). Land use and storm events affect pathogen loading in a drinking water reservoir of the Southeastern US. UNC Water and Health Conference: Science, Policy and Innovation. Oct. 29-Nov. 2. Chapel Hill, NC.
127. Hatcher^D, S, K Myers^M, C Heaney, S Wing, D Hall, and **J Stewart** (2012). Microbial water quality assessment near industrial swine operations in North Carolina. . UNC Water and Health Conference: Science, Policy and Innovation. Oct. 29-Nov. 2. Chapel Hill, NC. [poster]
128. Symonds, EM, K Rosario, DW Griffin, C Sinigalliano, **J Stewart** and M Breitbart (2012). Pepper mild mottle virus as a viral bioindicator of human fecal pollution. UNC Water and Health Conference: Science, Policy and Innovation. Oct. 29-Nov. 2. Chapel Hill, NC. [poster]
129. Gentry-Shields^D, J, C Heaney, K Myers^M, D Hall, D Baron-Hall, S Wing and **J Stewart** (2012). Hepatitis E virus in waters proximal to swine concentrated animal feeding operations in eastern North Carolina. 140th Annual Meeting of the American Public Health Association (APHA). Oct. 27-31. San Francisco, CA. [poster]
130. Rinsky, J, M Nadimpalli^D, D Hall, D Baron-Hall, **J Stewart**, S Wing and C Heaney (2012). Carriage of *Staphylococcus aureus* CC398 among livestock workers and household members in NC. ASM 52nd International Conference on Antimicrobial Agents and Chemotherapy (ICAAC). Sept. 9-12. San Francisco, CA.
131. Gentry-Shields^D, J and **JR Stewart** (2012). Similar concentration and extraction recoveries allow for use of Turnip Crinkle Virus as a spike and recovery control for waterborne Enteroviruses. 112th General Meeting of the American Society for Microbiology. June 16-19. San Francisco, CA. [poster]
Shields awarded ASM student travel award from among international pool of applicants
132. Hatcher^D, SM, E Prevette^M, C Heaney, T Wade and **J Stewart** (2012). Multidrug-resistant *Staphylococcus sp.* isolated from sand at a tropical beach and a beach impacted by non-point source pollution. 112th General Meeting of the American Society for Microbiology. June 16-19. San Francisco, CA. [poster]
Hatcher awarded travel grant from UNC Graduate and Professional Student Federation
133. Nadimpalli^D, M, C Heaney, J Rinsky, S Wing, D Baron-Hall, D Hall and J Stewart (2012). Multidrug-resistant *Staphylococcus aureus* is carried more often by industrial workers and household members than antibiotic-free farmers and household members in North Carolina. 112th General Meeting of the American Society for Microbiology. June 16-19. San Francisco, CA. [poster]
Nadimpalli awarded travel grant from UNC Graduate and Professional Student Federation

134. Gentry-Shields^D, J, C Heaney, K Myers^M, D Hall, D Baron-Hall, S Wing and **J Stewart** (2012). Detection of Hepatitis E virus in water proximal to swine concentrated animal feeding operations in eastern North Carolina. UNC SPH Spotlight on Student Research Event, held in conjunction with annual Innovations in Public Health lecture. April 3, Chapel Hill, NC. [poster]
Poster won award from the UNC chapter of the Delta Omega Honorary Society in Public Health
135. Gentry-Shields^D, J, C Heaney, K Myers^M, D Hall, D Baron-Hall, S Wing and **J Stewart** (2012). Detection of Hepatitis E virus in water proximal to swine concentrated animal feeding operations in eastern North Carolina. Hepatitis E in the United States. An NIH Workshop. March 26. Bethesda, MD. [poster]
136. Lane, SM, BC Balmer, L Dyar, JG Moore, TK Rowles, **JR Stewart**, FI Townsend and LH Schwacke (2011). Bacterial pathogens in bottlenose dolphins of Brunswick and Sapelo, GA, USA. 19th Biennial Conference on the Biology of Marine Mammals. Nov. 27-Dec. 2. Tampa, FL. [poster]
137. Rinsky, J, C Heaney, S Hatcher^D, M Nadimpalli^D, D Hall, D Baron-Hall, **J Stewart** and S Wing (2011) Prevalence of and risk-factors for MRSA carriage among industrial and sustainable livestock workers and household members in North Carolina. 139th Annual Meeting & Exposition of the American Public Health Association (APHA). Oct. 29-Nov.2. Washington, DC. [poster]
138. Rinsky, J, C Heaney, S Hatcher^D, M Nadimpalli^D, D Hall, D Baron-Hall, **J Stewart** and S Wing (2011). Prevalence of and risk-factors for MRSA carriage among industrial and sustainable livestock workers and household members in North Carolina. North Carolina Environmental Justice Annual Summit. Oct 14-15. Whitakers, NC.
139. **Stewart, JR** (2011). Effects of inhibitors and other barriers to molecular quantification in water. Workshop titled “The New Age of Rapid Methods for Water Quality Applications” convened at the UNC Water and Health Conference. Oct. 4. Chapel Hill, NC.
140. Myers^M, K, C Heaney, M Nadimpalli^D, S Wing, D Hall and **J Stewart** (2011). Detection of antibiotic resistant *Staphylococcus* in environmental waters near industrial swine operations in eastern North Carolina. 2nd ASM-ESCMID Conference on Methicillin-resistant *Staphylococci* in Animals: Veterinary and Public Health Implications. Sept. 8-11. Washington, DC.
Myers awarded ASM student travel grant to pay conference registration
141. Nadimpalli^D, M, C Heaney, J Rinsky, S Wing, D Hall, D Baron-Hall and **J Stewart** (2011). Carriage of methicillin-resistant *Staphylococcus aureus* among workers and household members at livestock farms in North Carolina. 2nd ASM-ESCMID Conference on Methicillin-resistant *Staphylococci* in Animals: Veterinary and Public Health Implications. Sept. 8-11. Washington, DC. [poster]
Nadimpalli awarded ASM student travel grant to pay conference registration
142. Shervette, V, R Van Dolah, **J Stewart**, and J Gooch-Moore (2011). Preliminary assessment of seasonal trends in *Vibrio vulnificus* and *V. parahaemolyticus* concentrations from South Carolina oysters. National Shellfisheries Association. March 27-31. Baltimore, MD. Meeting abstract published in *Journal of Shellfish Research*. 31(2): 552.
143. Shields^D, JG, JG Rowny^M, S Schumaker^U and **JR Stewart** (2011). Alternative indicators to predict water quality in a drinking water reservoir based on land-use characteristics. 111th General Meeting of the American Society for Microbiology. May 21-24. New Orleans, LA. [poster]
144. Shields^D, JG, JG Rowny^M and JR Stewart (2011). Alternative indicators to predict water quality in a North Carolina drinking water reservoir based on land-use characteristics. 2011 Spotlight on Student Research Poster Event sponsored by the SPH Office of Research, the Office of Student Affairs. April 7. Chapel Hill, NC. [poster]

145. Myers^M, K, C Heaney, S Wing, D Hall and **J Stewart** (2011). Microbial water quality assessment near industrial swine operations in North Carolina. NC Water Resources Research Institute (WRI) Annual Conference. March 22-23. Raleigh, NC. [poster]
146. Rowny^M, JG and **JR Stewart** (2011). Characterization of nonpoint source microbial contamination in an urbanizing watershed serving as a municipal water supply. NC Water Resources Research Institute (WRI) Annual Conference. March 22-23. Raleigh, NC. [poster]
147. Shields^D, JG, JG Rowny^M and **JR Stewart** (2011). Alternative indicators to predict water quality in a North Carolina drinking water reservoir based on land-use characteristics. NC Water Resources Research Institute (WRI) Annual Conference. March 22-23. Raleigh, NC. [poster]
Poster awarded honorable mention in NCWRA student poster competition
148. Breitbart, M, TF Ng, F Gulland, E Wheeler, K Rosario, E Symonds, Y Ruan, C Nilsson, YW Lim, C Sinigalliano, **J Stewart**, E Bixby, J Polston, G Vallad, and S Duffy (2011). Virus hunting in the age of metagenomics. NSF Ecology of Marine Infectious Diseases Workshop. Feb. 12-13. San Juan, PR. [poster]
149. Abdelzaher, A, M Wright, C Ortega, AR Hasan, H Solo-Gabrielle, T Shibata, J Kish, K Withum, G He, S Elmir, JA Bonilla, C Palmer, T Scott, G Lukasik, VJ Harwood, S McQuaig, C Sinigalliano, M Gidley, J Wanless, K Goodwin, L Plano, CA Garza, X Zhu, **J Stewart**, H Yampara-Iquise, C Carson, J Dickerson, J Fleisher and L Fleming (2011). Relationship between measured indicator microbes, pathogens, and human health effect levels in a non-point source subtropical marine recreational beach. NSF Ecology of Marine Infectious Diseases Workshop. Feb. 12-13. San Juan, PR. [poster]
150. Heaney, C, S Wing, **J Stewart**, K Myers^M, A Ammerman, N Muhammad, D Hall and D Baron-Hall (2010). Asking microbiological research questions responsive to community concerns about environmental justice and industrial hog operations. The 138th Annual Meeting of the American Public Health Association (APHA). Nov. 6-10. Denver, CO.
151. Moore, JG, JW Dickerson, Jr., L Schwacke, T Rowles and **JR Stewart** (2010). *Vibrio* concentrations in bottlenose dolphins from Sapelo Island and Brunswick GA. International *Vibrios* in the Environment Conference. Nov. 7-12. Biloxi, MS. [poster]
152. Nilsson, WB, RN Paranjpye, BD Bill, VL Trainer, JW Dickerson, JG Moore, DI Greenfield, **JR Stewart** and MS Strom (2010). Linking changes in *Vibrio parahaemolyticus* populations to phytoplankton abundance and composition in the Puget Sound and coastal South Carolina. International *Vibrios* in the Environment Conference. Nov. 7-12. Biloxi, MS. [poster]
153. Prevette^M, EB, CD Heaney, TJ Wade, E Sams and **JR Stewart** (2010). Beach sand analysis for indicators of microbial contamination. Water and Health: Where Science Meets Policy. UNC Institute for the Environment and UNC Water Institute. Oct. 23-26. Chapel Hill, NC.
154. Simmons^U, T, D Moore^U, K Myers^M and **J Stewart** (2010). Pathogens in Water: Impact of Swine CAFOs (Concentrated Animal Feeding Operations) on Surface Water. Final Presentations of the UNC SMART and DEBS Summer Undergraduate Programs. July 16. Chapel Hill, NC.
155. Abdelzaher, A, M Wright, C Ortega, AR Hasan, H Solo-Gabriele, T Shibata, J Kish, K Withum, G He, S Elmir, JA Bonilla, C Palmer, T Scott, G Lukasik, VJ Harwood, S McQuaig, C Sinigalliano, M Gidley, D Wanless, K Goodwin, L Plano, CA Garza, X Zhu, JD Wang, **J Stewart**, H Yampara-Iquise, C Carson, J Dickerson, J Fleisher and L Fleming (2010). Relationship between measured indicator microbes, pathogens, and human health effect levels in a non-point source subtropical marine recreational beach.” Gordon Conference in Oceans and Human Health. June. Biddeford, Maine. [poster]

156. Shah, AH, Abdelzaher, AM, Solo-Gabriele, HM, Phillips, M, Hernandez, R, Kish, J, Scorzetti, G, Fell, JW, Diaz, MR Scott, TM, Lukasik, J, Harwood, VJ, McQuaig, S, Sinigalliano, CD, Gidley, ML, Wanless, D, Agar, A, Lui, J, **Stewart, JR**, Plano, LWR, Fleming, LE. (2010) Exploratory Study of Bacteria, Protozoa, Yeast, Helminthes, and Viruses of Health Significance at a Recreational Beach. Gordon Conference in Oceans and Human Health, June. Biddeford, Maine. [poster]
157. Wu^D, J, R Rodriguez, **JR Stewart**, OD Simmons and MD Sobsey (2010). Concentrating adenovirus 41 in drinking water using electronegative membrane filtration and hollow fiber ultrafiltration. Poster and Abstract Q-2400. 110th General Meeting of the American Society for Microbiology. May 23-27. San Diego, CA. [poster]
158. Steel^U, B, R Relyea^U, **J Stewart**, J Gentry and E Prevette (2009). Assessing the microbiological quality of recreational water and beach sand. Final Presentations of the UNC SMART and DEBS Summer Undergraduate Programs. July 17. Chapel Hill, NC.
159. Gregory^T, J, B Robinson^T, L Webster and **J Stewart** (2008). Use of a competitive internal positive control for reliable qRT-PCR detection of norovirus in marine environments. Poster and Abstract Q-446. 108th General Meeting of the American Society for Microbiology. June 1-5. Boston, MA. [poster]
160. Holland, AF, DM Sanger, GT DiDonato, MH Fulton, **JR Stewart** and R Van Dolah (2007). Assessing the impact of coastal development on ecosystem and public health in the Southeast. Estuarine Research Federation Annual Meeting. Science and Management Observations/ Syntheses/ Solutions. Nov. 4-8. Providence, RI.
161. **Stewart, JR**, J Gregory^T, C Johnston^T, L Webster, B Thompson and J Gooch (2007). Pathogen source tracking. NOAA Oceans and Human Health Initiative all-PI Meeting. Oct. 22-24. Muskegon, MI.
162. Johnston^T, C, J Ufnar, J Gooch and **J Stewart** (2007). Development and validation of a multiplex Luminex assay for detection and tracking of fecal contamination. NOAA Oceans and Human Health Initiative (OHHI) all-PI meeting. Oct. 22-24. Muskegon, MI. [poster]
163. Ross, J^D, JA Gooch, and **JR Stewart** (2007). *Vibrio vulnificus* and *V. parahaemolyticus* densities in oyster samples from coastal South Carolina. Medical University of South Carolina (MUSC) Marine Biomedicine and Environmental Sciences (MBES) Center Student Research Open House. July 20, Charleston, SC. [poster]
164. DiDonato, GT, AC Blair, AF Holland, G Riekerk, B Robinson, A Rourk, DM Sanger, **J Stewart**, B Thompson, and R Van Dolah (2007). Consequences of changing land use in coastal South Carolina: Effects on water quality in lowcountry tidal creeks. 55th Annual Meeting of the North American Benthological Society (NABS). June 3-8. Columbia, SC.
165. DiDonato, GT, D Bergquist, AF Holland, DM Sanger, **J Stewart**, R VanDolah and E Wirth (2007). Comparative studies demonstrate the effects of changing land use on tidal creeks. Baruch Institute Research Symposium. March 28-29. Georgetown, SC.
166. Robinson^T, BJ, DL Richardson, **JR Stewart**, LD Coen, GHM Riekerk, RF Van Dolah, and JA Gooch (2006). Coliphage and human norovirus presence at SCECAP and oyster disease monitoring sites. International Conference on Shellfish Restoration. Nov. 15-18. Charleston, SC. [poster]
167. Sanger, D, **J Stewart**, G DiDonato, B Robinson^T, B Thompson and F Holland (2006). Microbial water quality of tidal creek systems along the southeastern coast. 27th Annual Meeting of the Society for Environmental Toxicology and Chemistry (SETAC). Nov. 5-9. Montréal, Québec, Canada. [poster]
168. Holland, F, J Lewis and **J Stewart** (2006). NOAA's Oceans and Human Health Initiative. New England Shellfish Sanitation Association. Oct. 23-26. Cape May, NJ.

169. **Stewart, JR** (2006). Oceans and Human Health Research at the Hollings Marine Laboratory. California and the World Ocean Conference. Sept. 17-20. Long Beach, CA.
170. Robinson^T, BJ, **J Stewart**, F-C Hsu and J Gooch (2006). Efficiency of detecting viruses from environmental waters. The AOAC International Southern Regional Meeting. April 24-25. Atlanta, GA.
171. **Stewart, J**, D Sanger, G DiDonato, B Robinson^T and B Thompson (2006). Microbial water quality of tidal creek systems along the South Carolina coast. The 13th Ocean Sciences Meeting. American Society for Limnology and Oceanography. Feb. 20-24. Honolulu, HI.
172. Gooch JA, **JR Stewart**, LF Webster, BJ Robinson^T, BC Thompson, and GI Scott (2006). Microbial source tracking in South Carolina: Lessons learned and future directions. EPA Gulf of Mexico Water Quality Monitoring Workshop. Feb. 2. Mobile, AL.
173. Robinson, BJ^T, BC Thompson, LF Webster, G DiDonato, **J Stewart** and J Gooch (2006). Microbial water quality of tidal creek systems along the South Carolina coast. 106th General Meeting of the American Society for Microbiology. May 21-25. Orlando, FL. [poster]
174. **Stewart, J**, B Thompson, L Webster, J Gooch, D Graves, D Chestnut, M Fulton, G Scott and F Holland (2005). Pathogens and source tracking in South Carolina. Estuarine Interactions: Biological-Physical Feedbacks and Adaptations. Estuarine Research Federation (ERF). Oct. 16-20. Norfolk, VA.
175. Robinson^T, B, B Thompson, G DiDonato, J Gooch and **J Stewart** (2005). Virus detection in South Carolina shellfish waters: Indicators versus pathogens. Biennial meeting of the Interstate Shellfish Sanitation Conference (ISSC). Aug. 10-12. Point Clear, AL.
176. Hsu, F.-C., D. Battigelli, R. Wong, F. Tepper, B. Robinson^T, and **J. Stewart** (2005). Detection of coliphages in large volumes of water using positively charged filters. Poster and Abstract Q-321. 105th General Meeting of the American Society for Microbiology. June 5-9, Atlanta, GA. [poster]
177. Gooch, JA, **JR Stewart** and GI Scott (2005). Pathogens in seafood. Annual Meeting of the South Carolina Public Health Association (SCPHA). May 23-27. Myrtle Beach, SC.
178. **Stewart, JR** (2005). Microbial source tracking in South Carolina. Southeastern Estuarine Research Society (SEERS). Feb. 28-March 2. Charleston, SC.
179. Gooch, JA, **JR Stewart**, LF Webster, BC Thompson and GI Scott (2005). Tracking sources of microbial contaminants. Annual Meeting of the American Association for the Advancement of Science (AAAS). Feb. 17-21. Washington, DC.
180. **Stewart, JR** (2004). Library independent methods for microbial source tracking. 7th International Conference on Shellfish Restoration. Nov. 17-19. Charleston, SC.
181. **Stewart, JR**, SA McDaniel, BC Thompson, LF Webster, and GI Scott (2003). Prevalence of antibiotic resistant *Escherichia coli* in South Carolina environmental waters. Society of Environmental Toxicology and Chemistry (SETAC) 24th Annual Meeting. Nov. 9-13, Austin, TX. [poster]
182. **Stewart, JR** (2003). Utilization of coliphages for microbial source tracking. Biennial meeting of the Interstate Shellfish Sanitation Conference (ISSC). Aug. 3-7. Portland, OR.
183. **Stewart, JR**, J Vinje, SJG Oudejans and MD Sobsey (2003). Phylogenetic relationships of group III F+RNA coliphages from different sources. Poster and Abstract Q-475. 103rd General Meeting of the American Society for Microbiology. May 18-22. Washington, D.C. [poster]

184. Meschke, JS, **JR Stewart** and MD Sobsey (2002). Coliphages as indicators of viral contamination in water. American Water Works Association (AWWA) Water Quality Technology Conference. Nov. 10-14. Seattle, WA.
185. Webster, LF, BC Thompson, **JR Stewart**, and DA Eargle (2002). Microbial source tracking of fecal pollution: a case study. Poster and Abstract Q-453. 102nd General Meeting of the American Society for Microbiology. May 19-23, Salt Lake City, UT. [poster]
186. Scott, GI, MH Fulton, BC Thompson, LF Webster, AK Leight, **J Stewart**, J Gooch, D Chestnut, RF Van Dolah, DW Porter, H Kelsey (2001). Identification of coliform bacterial pollution sources in tidal creek watersheds of South Carolina using multiple antibiotic resistance and selected molecular techniques. Estuarine Research Federation (ERF) 16th Biennial Conference. Nov. 4-8, St. Pete Beach, FL.
187. **Stewart, JR** (2001). Utilization of coliphages for microbial source tracking. Biennial meeting of the Interstate Shellfish Sanitation Conference (ISSC). July 21-27. Norfolk, VA.
188. **Stewart, JR**, MD Sobsey and GI Scott (2001). Coliphages as indicators and for fecal source tracking. Poster and Abstract Q-258. 101st General Meeting of the American Society for Microbiology. May 20-24. Orlando, FL. [poster]
189. **Stewart, JR**, MD Sobsey and GI Scott (2001). Coliphages as indicators of waterborne enteric viruses. Meeting of the EPA Environmental Monitoring and Assessment Program (EMAP). April 24-27. Pensacola, FL.
190. Hsu, FC, **J Stewart**, MD Sobsey, and J Larkin. (2000). Coliphages as fecal indicators for groundwater. United States Environmental Protection Agency Science Advisory Board Drinking Water Committee Meeting, Washington, DC.
191. **Stewart, JR**, BC Thompson, LF Webster, DE Chestnut, DA Graves and GI Scott (2000). *Escherichia coli* and coliphage analyses to differentiate pollution sources in surface waters of South Carolina. Poster and Abstract Q-297. 100th General Meeting of the American Society for Microbiology. May 21-25. Los Angeles, CA. [poster]
192. Hsu, FC, TR Handzel, G Lovelace, **JR Stewart**, MD Sobsey, SS Thompson, and MV Yates (1998). Improved methods to detect low levels of coliphages in water by enrichment presence/absence and membrane filter methods. American Water Works Association (AWWA) Water Quality Technology Conference. Nov. 1-5, San Diego, CA.
193. **Stewart, JR**, MD Sobsey, TM Gambling, JL Carson (1998). Morphological identification of indicator viruses from reclaimed wastewater. Microscopy Society of America 56th Annual Meeting. July 12-16, Atlanta, GA. Meeting abstract published in *Microscopy and Microanalysis*. 4(2): 500-501. doi: 10.1017/S1431927600022625 [poster]
Poster awarded 2nd place in meeting-wide RUSKA competition.
194. **Stewart, JR** and SA Macko (1996). A Stable Isotope Study of Meteoric Water: The Determination of a Local Meteoric Water Line for the Chesapeake Bay Area and its Relation to the Fresh Water Lenses on Parramore Island, VA. Virginia EnviroDays Exhibition. April. Charlottesville, VA. [poster]

TEACHING RECORD

UNC Courses

One Health: Integration of Human, Animal and Environmental Health (ENVR 705/PUBH 705; formerly ENVR 890-003); Cross-listed at Duke and NCSU

Co-Instructor with Prof. Sackey-Harris, 1-3 credits
Spring 2017; Fall 2018-2023

**Environmental Crisis Management
(ENVR 989/992)**

Co-Instructor with Prof. Will Vizuete and Aaron Salzberg; 3 credits
Spring 2022-2024

Water and Health Communications (ENVR 684; formerly ENVR 890-005)

Co-Instructor with Profs. Bartram and MacDonald-Gibson, 2 credits
Spring 2013-2019

Ecological Microbiology (ENVR 412)

Instructor, 3 credits
Spring 2009-2014; Fall 2015-2016

Water and Health Research (ENVR 683; formerly ENVR 890-005)

Co-Instructor with Profs. Bartram and MacDonald-Gibson, 2 credits
Fall 2012-2014

Humans and their Microbiological Footprint (ENVR 296-01S)

Summer Study Abroad in the Galapagos Islands

Instructor, 3 credits
Summer 2012-2013

Unifying Concepts Module on Identification of a Bacterial Unknown (ENVR 401)

Module Instructor (Primary Instructor: Steve Whalen), 3 credits
Spring 2010, 2011, 2013

Environmental Epidemiology (EPID 785)

Guest Lecturer (Primary Instructor: Larry Engel), 1 lecture per semester, 3 credits
Spring 2010, 2012, 2013, 2014, 2016, 2017, 2018, 2024

Emerging and Re-Emerging Infectious Diseases (EPID 751)

Guest Lecturer (Primary Instructor: Lola Stamm), 1 lecture per semester, 3 credits
Fall 2014, 2015, 2016, 2017, 2018

Water, Sanitation, Hygiene and Global Health (ENVR 682)

Guest Lecturer (Primary Instructor: Mike Fisher), 1 lecture per semester, 3 credits
Fall 2019

Foundations of Public Health (SPH 351)

Guest Lecturer (Primary Instructor: Patsy Polston), 1 lecture per semester, 3 credits
Fall 2019

One Health: Integration of Human, Animal and Environmental Health (PUBH 690-008)

Guest Lecturer (Primary Instructor: Mamie Sackey-Harris), 1 lecture per semester
Spring 2014

Infectious Disease Epidemiology (ENVR 755)

Guest Lecturer (Primary Instructor: Steve Meshnick), 1 lecture per semester, 3 credits

Spring 2013

Epidemiology for Environmental Scientists and Engineers (ENVR 890)

Guest Lecturer (Primary Instructors: Fry and Yeatts), 1 lecture per semester, 3 credits
Fall 2012

Techniques in Environmental Health Sciences (ENVR 431)

Guest Instructor (Primary Instructor: Louise Ball), 1 laboratory per semester, 3 credits
Fall 2008, 2009

Additional Teaching and Outreach

- Co-Advised an undergraduate research consulting team (URCT) funded by the UNC Office of Undergraduate Research to conduct water and health research on Isabela Island, Galapagos, Ecuador (2019)
- Hosted the 8th grade classes from Brogden Middle School (Wayne County, NC) including approximately 150 students and support staff for a campus tour and science activities including lessons from our research (2018)
- Mentored a “pod” of 15 undergraduate students (class of 2017) who received Col. Robinson Scholarships. These scholarships focus on students engaged in math and science (2013-2017).
- Mentored a team of three undergraduate students (Overbey, Gerhard and Steel) who won the Vimy Global Team Award from a university-wide pool of applicants. The Vimy Award is given annually to one interdisciplinary team of students (Vimy Scholars) working collaboratively to pursue research or service projects outside the United States (2013).
- Supervised honors contracts for UNC undergraduate honors students Kelli Paice (2011), Sharon Jiang (2014) and Ashley Cairns (2014).
- Hosted undergraduate students in laboratory for summer programs aimed at increasing representation of underrepresented minorities in sciences, including the UNC Science and Math Achievement and Resourcefulness Track (SMART) Program, the UNC Duke Energy Bioscience Summer (DEBS) Research Program (2009, 2010) and Morehouse College’s Project IMHOTEP (2014).
- Gave invited presentation at the South Carolina Aquarium then sat on panel discussing water quality issues with the public (2007).
- Designed and taught Marine Microbiology Module of Marine Biomedicine and Environmental Sciences Program Selective Course, Medical Univ. of South Carolina (2006).
- Judged science fairs for local schools in Charleston, SC (2003-2008).
- Offered pollution seminar to touring school groups in Charleston, SC (2005-2008).
- Designed and supervised an independent study on public health microbiology for a University of South Carolina PhD student (2005).
- Helped plan a coliphage methods demonstration at the biennial Interstate Shellfish Sanitation Conference (ISSC) in Point Clear, AL. Helped develop instructional brochures for use at the conference and subsequent dissemination. (2005).
- Trained representatives from the Hampton Roads, VA Sanitation District (HRSD) in coliphage detection technology (2005).
- Answers media queries for popular science news pieces (e.g. CNN 1999; Charleston Post & Courier 2004; The Weather Channel 2005).

Jill R. Stewart

- Developed curriculum and materials, and performed as faculty for American Society for Microbiology (ASM) pre-meeting workshop on microbial source tracking (Washington D.C. 2003; New Orleans, LA 2004; Atlanta, GA 2005).
- Served on panel and participated in webcast discussion of NC coastal water quality in Beaufort, NC. Sponsored by the NC National Estuarine Research Reserve (2002).

Student Advising (UNC)

Student Mentoring (3 current + 41 graduated + 10 MPH mentees + 95 committees)

Primary Advisor - Current (3 current)

Hanna Brosky (PhD, in progress)

Nikhil Kothehal (PhD, in progress)

Connor LaMontagne (PhD, in progress)

Primary Advisor - Graduated (41 graduated – 12 PhD, 21 MS/MSPH, 8 BS/BSPH Honors)

Doctorate Primary Advisor (12 graduated)

Collin Knox Coleman (PhD, 2023)

“Advancing test methods for point-of-use disinfection of water and wastewater”

Jennifer Styles (PhD, 2022), with research advisors Drs. Tim Wade and Andrey Egorov

“Residential outdoor air microbiome: exploring its environmental predictors, impacts on host microbiome, and associations with human health”

Alyssa Grube (PhD, 2021)

National Award: NSF Graduate Research Fellowship

“Characterization of the environmental resistome in the Galapagos Islands, Ecuador: a One Health perspective”

Corinne Wiesner (PhD, 2021), co-advisor with Prof. Marc Serre

“Find, Inform, and Test (FIT): a spatial modeling framework to estimate contributions of spatially distributed sources to microbial contaminants in the environment”

David Holcomb (PhD, 2019)

University Award: Paul Hardin Dissertation Fellowship

“Characterizing domestic fecal transmission and child enteric infections during an urban onsite sanitation intervention”

Elizabeth Christenson (PhD, 2019)

University Award: NC Impact Award

“A longitudinal, landscape-scale field study assessing the effects of commercial hog operations on microbial quality of surface waters in North Carolina, USA”

Sarah Rhodes (PhD, 2018)

Regional Award: Steve Wing International Environmental Justice Award

“High density hog production and the occurrence of antibiotic-resistant Staphylococcus aureus in hogs, community residents, and the environment in North Carolina”

Patsy Polston (PhD, 2015)

University Award: Dennis and Mireille Gillings Global Public Health Fellowship

Jill R. Stewart

“Development and evaluation of candidate microbial source tracking markers to use following land application of biosolids”

Maya Nadimpalli (PhD, 2015)

National Award: EPA Science to Achieve Results (STAR) Fellowship

“Exposure to zoonotic Staphylococcus aureus among industrial hog operation workers and their household contacts in North Carolina, and dissemination into the household environment”

Sarah Hatcher (PhD, 2015)

National Award: NSF Graduate Research Fellowship

“Environmental presence of and potential occupational exposure to antibiotic-resistant Staphylococcus aureus in regions of high industrial hog operation density”

Jennifer Gentry Shields (PhD, 2012)

National Award: Graduate Women in Science (GWIS) Fellowship

“Utilization of microbial source-tracking markers to inform targeted remediation and predict potential pathogens in the Cape Fear Watershed”

Jianyong Wu (PhD, 2011); co-advisor with Prof. Michael Emch

“Diarrheal diseases in rural Bangladesh: spatial-temporal patterns, risk factors and pathogen detection”

Master’s Primary Advisor (21 graduated)

Hania Zanib (MS, 2022)

“Evaluating the effectiveness of point of use UVC-LED disinfection of activated carbon filter effluent in private well water in North Carolina”

Megan E. Miller (MS, 2021)

“Comparison of PCR methodologies for the detection and quantification of SARS-CoV-2 in North Carolina community wastewaters”

Claire Dust (MSPH, 2021); co-advisor with Prof. Marc Serre

“Exploratory analysis of the variability of viral and bacterial indicators of fecal contamination in private wells”

Taylor Franklin (MS, 2020)

“Microbiological analysis of well water from Robeson County, North Carolina”

Kara Kochek (MS, 2019)

“Microbial source tracking following extreme flooding in areas of dense swine production”

Beverly Medina (MS, 2019); co-advisor with Prof. Pete Kolsky

“The role of septic tanks in reducing unsafe return of excreta to the environment: A targeted literature review and case study”

Ryan Leighton (MS, 2018)

“Escherichia coli, Poultry, Precipitation: A Watershed Story”

Lindsay Wickersham (MS, 2018)

“Antibiotic resistance of Staphylococcus aureus in watersheds with and without commercial hog operations”

Megan Lott (MS, 2018); co-advisor with Prof. Mark Sobsey

Jill R. Stewart

“Examination of selective culture media for the direction detection and quantification of Vibrio cholerae: an adapted compartment bag test”

Amy Guo (MS, 2018); co-advisor with Prof. Jamie Bartram

“Predictors of water quality in rural healthcare facilities in 14 low- and middle-income countries”

Claire Tipton (MS, 2017)

“Evaluation of a low-cost compartment bag test to quantify hydrogen sulfide producing bacteria in drinking water resources”

Sharon Jiang (MS, 2017)

“The contribution of temperate phages to coliphage numbers detected by plaque assay”

Brianna Young (MS, 2016)

“Effect of environmental factors on coliphage concentrations in surface waters”

William Gerhard (MSPH, 2015)

“Assessing microbial drinking water quality and human-specific contaminants on San Cristobal Island, Galapagos”

Elizabeth Pierce (MS, 2014)

National Award: Selected for student oral presentation at ASM General Meeting

“Persistence of Staphylococcus aureus nasal carriage among industrial hog operation workers and their household contacts in North Carolina”

Maya Nadimpalli (MS, 2012)

National Award: EPA Science to Achieve Results (STAR) Fellowship (2011-2014)

“Carriage of antibiotic-resistant Staphylococcus aureus by livestock workers and household members in North Carolina”

Robert Albury (MS, 2012)

“Detection of enterovirus in marine recreational waters of southern California using quantitative and nested PCR”

Tracey Slaughter (MPH, 2012); Co-advisor with Ms. Kathleen Gray

“Community assessments at North Carolina superfund sites: A qualitative analysis of knowledge and concerns of communities located near hazardous waste sites and recommendations for implementing ATSDR’s community engagement guidance”

Kevin Myers (MSPH, 2011)

National Award: CDC Public Health Prevention Service Fellowship (2011-2014)

“Microbial water quality assessment near industrial swine operations in North Carolina”

Jakob Rowny (MS, 2011)

“Characterization of nonpoint source microbial contamination in an urbanizing watershed serving as a municipal water supply”

Emylee Prevette (MSPH, 2010)

“Beach sand analysis for indicators of microbial quality”

Bachelor’s with Honors Primary Advisor (8 graduated)

Nicholas Badhwa (BSPH Honors, 2020)

“Household water quality and access in Puerto Villamil, Isabela, Galápagos Islands”

Jill R. Stewart

Rachel Lempp (BSPH Honors, 2018)

“Water quality in eastern North Carolina after Hurricane Matthew: A novel approach to microbial source tracking”

Emily Browning (BSPH Honors, 2018); co-advisor with Dr. Diego Riveros-Iregui

“Rainfall effects on water quality in a tropical semi-arid environment”

Alexandra Nguyen (BSPH Honors, 2016)

“Antibiotic resistance in Staphylococcus aureus from hogs raised with and without antibiotics”

Sharon Jiang (BSPH Honors, 2016)

“Comparison of antibiotic-resistant Staphylococcus aureus among industrial hog operation households and community referent households in North Carolina”

Connor Ifkovits (BS Honors, UNC Biology, 2015). Research advisor with Dr. Elizabeth Shank as academic advisor, *“Analyzing the prevalence of Staphylococcus aureus virulence factor Panton-Valentine leukocidin (pvl) in a North Carolina livestock worker community”*

Katie Overbey (BS Honors, UNC Environmental Science, 2014)

“Sewage impacts on water quality and antibiotic resistance in beach waters in the Galapagos Islands”

Hunter Story (BS Honors, UNC Biology, 2011); Research advisor with Dr. Christina Burch as academic advisor; *“Characterizing bacterial contamination of drinking water wells in North Carolina”*

MPH Mentees (10 mentees)

Madeline Metz (MPH Global Health 2023)

Sierra Brantz (MPH Global Health 2023)

Logan Klein (MPH Global Health 2023)

Seowoo Jung (MPH Global Health 2023)

Sarah Muskin (MPH Environmental Health Solutions 2022)

Dorothy Smith (MPH Environmental Health Solutions 2022)

William Barker (MPH Global Health 2022)

Jessica Kolbe (MPH Global Health 2022)

Tamara Brooks (MPH Global Health 2021)

Brandon Adams (MPH Global Health 2021)

Committee Member for Students (95 graduated)

Doctorate Committee Member (27 graduated)

Yun-Chung Hsiao (PhD, 2023)

“Exploration on biotransformation and metabolic modulation by the gut microbiome”

Haley Plaas (PhD, 2023)

“Understanding the impacts of harmful cyanobacterial blooms on air quality”

Gouthami Rao (PhD, 2023)

“Expanding the reach of wastewater surveillance through improved pathogen detection and passive sampling methods”

Riley Mulhern (PhD, 2021; committee chair)

“Point-of-use water treatment for wells in North Carolina: risks and solutions for lead, per- and polyfluoroalkyl substances (PFAS), and microbial contaminants”

Matthew Price (PhD, 2020)

“Understanding fecal contamination dynamics through the integration of molecular quantification tools and land-water interface characteristics”

Jennifer Griggs (PhD, 2020)

“Effects of Arsenic-Contaminated Soil Exposure on Gut Bacteria and Its Relationship with Oral Bioaccessibility of Arsenic Using a Multi-Compartment in Vitro Gastrointestinal Model”

Cassandra Meakin (PhD, 2020)

“Inorganic arsenic as an endocrine disruptor in the placenta: implication for the glucocorticoid receptor (GR) signaling pathway in trophoblasts”

Liang Chi (PhD, 2020)

“The functional interactions of arsenic exposure, gut microbiota, and host”

Paige Bommarito (PhD, 2020)

“Toxic metals and preeclampsia: an interdisciplinary approach to understanding disease etiology”

Jacqueline Knee (PhD, Georgia Tech 2019)

“Quantifying the impact of an urban on-site shared sanitation intervention on child health in Maputo, Mozambique: the MapSan trial”

Pengcheng Tu (PhD, 2019)

“Effects of gut microbiome modulation on intestinal inflammation and arsenic toxicity with dietary administration of black raspberries”

Lisa Smeester (PhD, 2019)

“A critical role for imprinted genes in the placenta in the developmental origins of health and disease”

Kelsey Jesser (PhD, UNC Marine Sciences 2018)

“Sequence-based approaches for the study of Vibrio ecology and virulence traits”

Martha Scott Tomlinson (PhD, 2018)

“Prenatal microbes as an indicator of neurocognitive outcomes in children born preterm”

Jingbo Wang (PhD, 2018)

“Characterization of the solute transport properties of the active layers of polyamide thin film composite membranes”

Kelly Houck (PhD, UNC Anthropology 2017)

“Early life effects of a dual burden environment: Childhood intestinal health and immune function in Galapagos, Ecuador”

Emily Bailey (PhD, 2017)

“Microbial quality and risk assessment of alternative sources of drinking water Impacted by waste water: An analysis of NC type 2 reclaimed water for potable reuse”

Elizabeth Martin (PhD, 2017)

Jill R. Stewart

“The use of metabolic profiling to elucidate mechanisms underlying arsenic-associated diabetes”

Ariel Atkinson (PhD, 2016)

“Development and performance evaluation of an innovative anti-biofouling reverse osmosis membrane for water purification applications”

Melanie Napier (PhD, UNC Epidemiology 2016)

“Exposure to human source-associated fecal indicators and self-reported illness among swimmers”

Ampai Soros (PhD, 2015)

“Chitosan coagulation for household water treatment in developing countries”

Alice Wang (PhD, 2015)

“Performance evaluation of the compartment bag test for E. coli in drinking water”

Eric Staunton (PhD, 2015)

“Integrated biological treatment of swine waste for nitrogen removal and energy recovery”

Raul Gonzales (PhD, 2013)

“Tools for predicting microbial water quality in estuaries used for recreation and shellfish harvesting”

Leah Schinasi (PhD, UNC Epidemiology 2012)

“Environmental, occupational, and medical exposures associated with methicillin resistant Staphylococcus aureus nasal carriage in eastern North Carolina residents”

Tim Otten (PhD, 2012)

“Ecophysiology and toxigenicity of cyanobacterial assemblages: molecular insights into toxin production with emphasis on microcystins”

Curtis Stumpf (PhD, UNC Marine Sciences 2011)

“New approaches and technologies for quantifying fecal contamination in tidal creek and coastal receiving waters”

Master’s Committee Member (60 graduated)

Martina Gonzalez Bertello (MS, 2023)

“Quantifying stormwater nutrient processing in urban water conveyance to Inform university sustainability practices”

Rachel Kleiman (MS, 2020)

“Characterizing and managing weather-related financial risk in algal biofuel production”

Ghanja O’Flaherty (MSPH, 2019)

“Water, sanitation and hygiene monitoring terminology: the semantic issues that hinder communication”

Sydney Lockhart (MS, 2019)

“Resident perspectives on the experiences of private well water scarcity at Irongate Drive, Apex, NC”

Juan Carlos Camacho (MSPH, 2019)

“Detection and quantification of infectious human enteric viruses in a pilot wastewater reclamation facility by integrated cell culture plus RT-qPCR”

Emma Kelly (MS, 2019)

“Assessing water safety: An exploration of the relationship between sanitary inspection and water quality analysis”

Meghan Miller (MSPH, 2018)

“The effects of water reselling, seasonality, and community engagement on the finances of rural piped water systems”

Noor Baloch (MSPH, 2018)

“Use of multiple metal ions in combination with chlorine for enhanced disinfection of Cryptosporidium parvum in drinking water”

Emily Jewell (MSPH, 2018)

“Microbial communities and the bioremediation of a sample of polycyclic aromatic nitrogen heterocycle-contaminated soil”

Cassandra Meakin (MS, 2018)

“Inorganic arsenic as an endocrine disruptor: Modulation of the glucocorticoid receptor pathway and implications on placental physiology”

Alexandra George (MSPH, 2018)

“Antibiotic resistant Staphylococcus aureus dispersion from hog operations: A systematic review and meta-analysis”

Gabriella Gallo (MS, 2018)

“Prenatal arsenic exposure is associated with decreased mitochondrial DNA copy number and increased genomics indicators of reactive oxygen species in newborn cord blood leukocytes”

Lisa Fleming (MS, 2017)

“A conceptual model of pathogen-specific hazards in pit latrines over time”

Zhe Wang (MS, 2017)

“Biodegradation of N-heterocyclic aromatic hydrocarbons in contaminated soil”

Jennifer Styles (MSPH, 2017)

“Demographic predictors and biomarkers of vascular injury associated with human cytomegalovirus infection”

Joseph Strasser (MSPH, 2017)

“Survival and sodium hypochlorite disinfection of ebola virus surrogates in a conservative matrix of raw hospital sewage and human fecal waste”

Sloane Tilley (MS, 2017)

“Analysis of bladder cancer tumor CpG methylation and gene expression within the Cancer Genome Atlas identifies GRIA1 as a prognostic biomarker for basal-like bladder cancer”

Collin Knox Coleman (MSPH, 2016)

“Efficacy of sodium hypochlorite for disinfecting Raoultella terrigena cells in varying preparation conditions, and in multiple test water matrices under point-of-use conditions”

Andrew Nguyen (MSPH, 2016)

“Towards in silico toxicity prediction: Analyzing superfund chemicals for their biological properties using the Toxcast data”

Katherine Brown (MSPH, 2016)

“Methods for surveillance of antimicrobial resistant bacteria in environmental water and wastewater”

Katherine Broadwater (MS, 2016)

“Passive reduction of methane emissions from a hog waste lagoon using a floating biofilter system”

Lisa Smeester (MS, 2016)

“Chronic early childhood exposure to inorganic arsenic is associated with TNF-mediated proteomic signaling response”

A.J. Karon (MSPH, 2016)

“Evaluation of three different selective media for enumeration of Clostridium perfringens in untreated and treated wastewater”

Elizabeth Corteselli (MSPH, 2016)

“Characterization of two novel proteobacteria isolated from contaminated soil and capable of degrading aromatic compounds”

Rachel Baum (MSPH, 2016)

“Implementing water safety plans in North Carolina: Bridges, barriers, and potential benefits”

Jenna Hartley (MS, 2016)

“Spatial and temporal patterns of gastrointestinal illness and their relationship with precipitation across the state of North Carolina”

Frank Joseph Stillo III (MSPH, 2015)

“Community water systems vs private wells: A comparison of water quality on the fringes of municipalities”

Elizabeth Christenson (MS, 2015)

“Using remote sensing to calculate plant available nitrogen from industrial swine farms in North Carolina at the sprayfield and sub-watershed scales”

Kellen Lauer (MS, Marine Sciences 2015)

“Quantitative analysis of fecal contamination in stormwater conveyance systems and the effects of drain discharge on beach water quality in Wrightsville Beach, NC”

Tucker Witsil (MSPH, 2014)

“Disinfection of stored water by antimicrobial granular metallic particles”

Caroline Kostyla (MS, 2014)

“Seasonality of drinking water contamination: A systematic literature review”

Lauren Koban (MS, 2014)

“Small-unit water purifiers in U.S. Army special operations: A multi-attribute evaluation”

- Carrie Doyle (MS, 2013)
“Contributions of Bacterial Cells to the Fluorescence Spectra of Natural Organic Matter in Freshwaters”
- Tania Jordanova (MSPH & MCRP, 2013)
“Modeling fecal coliform contamination of surface waters to evaluate stormwater management policies in North Carolina”
- Brad Bennett (MSEE, 2012)
“Characterization of brass, copper and zinc as potential alternatives for the reduction of nitrate in water supplies”
- Sage Dunleavy (MS, 2012)
“Stable-isotope probing of anthracene-degrading bacteria in a bioreactor treating polycyclic aromatic hydrocarbon-contaminated soil”
- Gabe McGowan (MS, 2012)
“Sediment emission and water column oxidation of methane in Alaskan arctic lakes”
- Sara Mishamandani (MSPH, 2012)
“Phylogentic analysis and activity of hydrocarbon-degrading bacteria associated with the marine diatom Skeletonema costatum during a simulated oil spill experiment”
- Rebecca Milsk (MS, 2012)
“Comparative cytotoxicity of drinking water disinfection by-product mixtures produced during chlorination and chloramination”
- Kristen Betz (MS, 2012)
“Methane production and consumption in Alaskan arctic lake sediments”
- Grant Lignon (MSPH, 2012)
“Synthesizing waterborne disease outbreak data to assess the effects of water system failures on human health: a systematic review”
- Alyson Malone (MSPH, 2012)
“Characterization of ionic copper and zinc as microbial disinfectants in drinking water”
- Abhinav Komandur (MSPH, 2012)
“Copper and zinc nanoparticles as microbial disinfectants in water”
- Will Stanley (MS, 2011)
“Dynamics of micropollutant removal from wastewater”
- Paul Ebohon (MS, 2011)
“Screening disinfection by-products and phenolic compounds for estrogenic activity”
- Angela Wang (MSPH, 2011)
“Influence of land use and storm events on dissolved organic matter quantity and quality in the Jordan Lake watershed”
- Jenia Tufts (MS, 2011)
“Thermal inactivation of viable Geobacillus stearothermophilus and Bacillus atrophaeus spores in a bench-scale landfill gas flare”

Jonny Crocker (MSEE, 2011)

“Characterization and cost analysis of drinking water quality monitoring programs in India and Jordan”

Patsy Polston (MSPH, 2010)

“Field evaluation of improved methods to detect infectious group F adenoviruses in source water”

Mary (Katie) Kelly (MSPH, 2010)

“Total coliform and E. coli content of North Carolina new groundwater wells: an analysis of environmental variables and sampling practices among North Carolina counties in spring, 2009”

Amanda Kaufman (MSPH, 2010)

“Efficacy of CrystalPur™ Household Water Filter for Removal of Pathogenic Microorganisms: Lifespan volume test”

Jacqueline Knee (MSPH, 2010)

“Optimization of EPA Method 1601 for rapid detection of male-specific (F+) coliphages in seawater”

Katherine Pierson (MSPH, 2010)

“Evaluation of a low-cost compartmentalized bag MPN method for the detection and enumeration of E. coli in fecally contaminated drinking water”

Emma Susick (MS, 2010)

“Relationship of total Vibrio spp. and V. vulnificus to plankton and water quality parameters in the Neuse River Estuary, North Carolina”

Kavya Kasturi (MSEE, 2009)

“Implications of variation in Best Management Practice effectiveness on the selection of a watershed restoration strategy for microbial contamination”

Lauren Thie (MSPH, 2009)

“Reducing environmental inhibition in the quantitative real-time PCR detection of adenovirus, norovirus and MS-2 in recreational seawaters”

Julianne Tajuba (MSPH, 2008)

“Evaluation of different methods for detecting male specific coliphages from marine water at Doheny Beach, CA”

Heidi Williams (MS, College of Charleston 2008)

“The immune response of the eastern oyster Crassostrea virginica: Effects of cadmium and the localization and bacteriostasis of introduced Vibrio”

Jordan Felber (MES, College of Charleston 2007)

“Variability of fecal coliform concentrations with regards to land use, tidal cycles, rainfall events, and creek size”

Jeanette Klopchin (MES, College of Charleston 2005)

“Environmental impacts of the free-ranging rhesus monkey colony (Macca Mulatta) on Morgan Island, South Carolina”

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Bachelors with Honors Committee Member (8 graduated)

Jack Cordes (BSPH, 2017)

“Comparing euclidean and river distance metrics in the Bayesian Maximum Entropy (BME) estimation of E. coli concentrations in Connecticut rivers”

Abhishek Komandur (BSPH, 2017)

“The association between water lead levels and blood lead levels: A systematic review”

Saideep Gona (BSPH, 2016)

“Evidence for the transcription factor occupancy theory: An in silico analysis of DNA methylation responses to metal exposures in adults”

Stefanie Schwemlein (BSPH, 2014)

“Systematic review and application of indicator selection methods for monitoring school WASH”

Shannon Steel (BS, Geography 2014)

“Sewage waste on San Cristobal Island: It’s not just a numbers game”

Sophie Wilderotter (BSPH, 2012)

“Stream orders and other environmental factors as indicators of carbon dioxide and methane partial pressures and fluxes in North Carolina Piedmont streams”

Abhinav Komandur (BSPH, 2011)

“Copper and zinc salts as E. coli antagonists in water”

Grant Ligon (BSPH, 2010)

“Analyzing long-term ceramic filter usage and the associations between user characteristics and water quality in post-tsunami Sri Lanka”

GRANTS

Current Support

NSF Engineering Research Center (ERC) Program. “NSF Engineering Research Center for Precision Microbiome Engineering (PreMiEr).” Role: PI on subaward with Duke University (PI: Gunsch). 09/01/2022-08/31/2027. Total award: \$26 million. UNC Subaward: \$4.7 million.

NC Collaboratory. “Impact of the COVID-19 Pandemic on Antimicrobial Resistance Measured in North Carolina Wastewaters.” Role: PI. 01/01/2022 – 12/31/2024. \$99,601.

Bill & Melinda Gates Foundation. Estimating Pathogen Hazards from Sanitation Technologies in Africa.” Role: co-PI (PI: Manga). 10/1/2023-9/30/2025. \$753,531.

Reckitt Global Hygiene Institute. “Promoting Evidence-Based Investments in Hygiene and Sanitation for Health & Equity (PROMISE) Consortium.” Role: Investigator on a subaward (PI Manga) from Emory University (PI Moe). 01/2024-12/2025. Award: \$750,000. UNC Subaward: \$137,500.

Bill & Melinda Gates Foundation. Incorporating Fecal Pathogen Flows Into Decision Support Tools for CWIS. Role: Investigator on a subaward (PI Manga) from Makerere University (PI Mugambe). 04/15/2024-03/31/2026. Award: \$1.2 million.

Completed Support

- Bill & Melinda Gates Foundation. “Pathogen Flow Planning Grant” Role: co-PI (PI: Manga). 9/1/2022-12/31/2023. \$55,000.
- Centers for Disease Control and Prevention. “Expansion in 2022-2023 of NC DHHS/CDC National Wastewater Surveillance System within the UNC System.” 07/01/2022-06/30/2023. Role: Investigator (PI: Noble) \$1,337,519.
- Bill & Melinda Gates Foundation. “Proof of concept of estimates of the unsafe return of human excreta to the environment.” Role: PI. 10/1/2016-3/31/2022. \$687,319.
- NSF Division of Atmospheric and Geospace Sciences. “RAPID - Airborne CoV-2 Viability and oxidation.” Role: Investigator (PI: Turpin). 8/1/2020-7/31/2022. \$199,999.
- Centers for Disease Control and Prevention. “Expansion of NC DHHS/CDC National Wastewater Surveillance System within the UNC System.” Role: Investigator (PI: Noble). 7/1/2021-6/30/2022. \$1,355,522.
- NSF Division of Chemical, Bioengineering, Environmental, and Transport Systems (CBET). “RAPID: Impact of Hurricane Florence on Drinking Water Safety in Eastern and Central North Carolina: Rapid Assessment and Recommendations for Recovery and Resilience.” Role: Investigator (PI: Sozzi). 12/15/18-5/31/22. \$154,790.
- NC Policy Collaboratory. “Tracking SARS-CoV-2 in wastewater across a range of North Carolina municipalities.” Role: co-PI. (PI Noble) 05/2020-12/2020. \$1,714,999.
- NC WRRI: “Effects of Extreme Flooding on Water Quality in Areas of Dense Food Animal Production.” Role: PI. 3/1/2020-12/31/2021. \$60,000
- NC Policy Collaboratory. “Microbial Contaminants and Public Health Risk Associated with Flooding in North Carolina.” Role: PI. 9/18/2020-12/30/2020. \$125,000.
- UNC/RTI Initiative to Maximize Partnerships and Catalyze Teamwork (IMPACT) Seed Fund. “Evidence to Policy: Surveillance and Analytics to Combat Antimicrobial Resistance.” Role: PI. 1/1/2019-12/31/2020. \$112,831.
- UNC Creativity Hubs Pilot Award. “Sustainable access to safe water: Graphene-polymer nanocomposite membranes for water purification, energy production and storage.” Role: co-PI (PI Dingemans). 7/1/2018-6/30/2020. \$500,000.
- NIH Fogarty International Center for Advanced Study in the Health Sciences: Exploratory Research (R21). “Water, food, and the triple burden of disease in the Galapagos, Ecuador.” Role: Investigator (PI Thompson). 09/22/2017-06/30/2019. \$177,755
- NSF DEB Ecology and Evolution of Infectious Disease (EEID) Program: “The impact of intensive livestock production on the disease ecology of antibiotic resistant *Staphylococcus*.” Role: PI. 09/15/2013-08/31/2019. \$1.86 million.
- NSF Division of Chemical, Bioengineering, Environmental, and Transport Systems (CBET). “RAPID: Collaborative Research: Assessing Chemical and Microbiological Contamination in Environmental Waters in Eastern North Carolina after Hurricane Florence.” Role: co-PI. (UNC PI: Riveros-Iregui, NCSU PI: Harris). 12/1/2018-11/30/2019. \$149,668.

- Gillings Innovation Labs: “Novel tools to track land-applied biosolids.” Role: PI. 01/01/2015-12/31/2018. \$100,000.
- Eastman Chemical Company. “Efficacy of peracetic acid for on-site disinfection of hospital surfaces and waste streams.” Role: PI. 08/01/2017-10/31/2018. \$166,511.
- Yadkin Riverkeeper. “Microbial indicators of poultry litter: A water quality study in the NC Yadkin Water Basin.: Role: PI. 09/01/2017-09/30/2018, \$13,000
- NSF RAPID: “Impacts of extreme flooding on hydrologic connectivity and water quality in the Atlantic coastal plain and implications for vulnerable populations.” Role: Co-PI (PI: Riveros-Iregui). 12/01/2016-11/30/2017. Total award: \$58,851.
- WaterTech Healthcare, LLC. “A proposed study to evaluate the efficacy of chlorine dioxide in selected clinical trials.” Role: PI on a subaward from University of South Carolina (PI Scott). 8/1/2015-8/31/2017. Total subaward: \$20,000.
- US Agency for International Development (US AID). “Population density, neighborhood-level sanitation access, and health in urban Maputo.” Role: Investigator (PI Bartram) on a subaward from London School of Hygiene and Tropical medicine. 01/01/2015-03/31/2017. Total subaward: \$385,011.
- NC Sea Grant: “Rapid detection of fecal indicator bacteria in water by enzymatic hydrolysis of specific chromogenic substrates.” Role: PI. 02/01/14-01/31/16. Total award: \$50,000.
- Southern California Coastal Water Research Project (SCCWRP): “Coliphage analysis in support of a health risk pilot study at beaches in San Diego County II.” Role: PI. 01/01/2015-06/31/2015. Total award: \$57,374.
- Southern California Coastal Water Research Project (SCCWRP): “Coliphage analysis in support of a health risk pilot study at beaches in San Diego County.” Role: PI. 01/15/2014-07/14/2014. Total award: \$19,598.
- United Nations Children’s Fund (UNICEF): “Rapid detection of fecal bacteria in water by improved enzymatic methods.” Role: Co-PI (PI: Bartram). 01/01/2015-08/31/2015. Total award: \$100,000.
- United Nations Children’s Fund (UNICEF): “Real-time *E. coli* water testing research.” Role: Co-PI (PI Bartram). 11/01/13-04/30/14. Total award: \$100,000.
- Center for a Livable Future, Johns Hopkins University: “Longitudinal study of pathogen exposure and CAFO worker health.” Role: Investigator (PI Heaney). 10/01/12-06/01/14. Total award: \$86,000.
- Gillings Innovation Labs: “Microbial source tracking technology to evaluate land application of waste products.” Role: PI. 07/01/10-06/30/13. Total award: \$80,000.
- NC TraCS Institute: “Biomarkers to assess infectivity of *Staphylococcus* isolated from surface waters.” Role: PI. 09/01/11-11/30/12. Total award: \$2,500.
- UNC ECHO Program: “Developing, optimizing and validating non-invasive measures for zoonotic pathogen carriage.” Role: PI. 04/01/11-07/31/12. Total award: \$8,000.
- UNC University Research Council Small Grant: "Impacts of CAFOs on microbial water quality." Role: PI. 12/01/09-11/30/11. Total award: \$3,822.

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Southern California Coastal Water Research Project (SCCWRP): “Virus analysis in support of California recreational water epidemiology studies.” Role: PI on subaward with prime funding from the State Water Resources Control Board. 08/01/10-07/31/11. Total subaward: \$112,734.

NC Water Resources Research Institute (WRI): "Microbial contaminants associated with urbanization of a drinking water reservoir." Role: PI. 03/01/10-02/28/11. Total award: \$50,000.

UNC Junior Faculty Development Award: "Evaluation of public health risks associated with beach sand." Role: PI. 01/01/10-12/31/10. Total award: \$7,500.

NOAA Oceans and Human Health Initiative: “Establishment of a center of excellence in oceans and human health within the Hollings Marine Laboratory at Charleston, SC.” Role: PI, Pathogen Source Tracking Program (Center PI Holland). 10/01/04-09/30/10. Initial budget for award: \$10.1 million.

US EPA Advanced Monitoring Initiative: “Linking changes in plankton biodiversity to increased human exposure to pathogens and potential for using the Global Earth Observing System to monitor and predict such threats.” Role: Project Lead (PI Sandifer). 03/01/08-05/31/10. Total award: \$250,000.

The Cooperative Institute for Coastal and Estuarine Environmental Technology (CICEET): “Assessment of microbial contaminants pertinent to swimming-related illnesses at Doheny Beach, Orange County, CA.” Role: Co-PI (PI Noble). 05/01/07-04/30/08. Total award: \$460,010.

US EPA 319 grant awarded by the SC Department of Health and Environmental Control (DHEC): “Microbial source tracking to identify pollution sources affecting shellfish harvesting waters.” Role: Co-PI (PI Scott). 2001-2003. Total award: \$100,000.

US EPA 319 grant awarded by the SC Department of Health and Environmental Control (DHEC): “*Escherichia coli* and coliphage analyses to differentiate pollution sources in surface waters.” Role: Co-PI (PI Scott). 2000-2001. Total award: \$100,000.

PROFESSIONAL SERVICE

To discipline

Editorial Board Member

Applied and Environmental Microbiology (2016-present).

Frontiers in Environmental Health (2014-present).

Invited Reviewer for Scientific Journals

Applied and Environmental Microbiology, Aquatic Biology, Canadian Journal of Microbiology, Coastal Management Journal, Environmental Health, Environmental Health Perspectives, Environmental Microbiology, Environmental Monitoring and Assessment, Environmental Pollution, Environmental Science & Technology, Estuaries and Coasts, Frontiers in Environmental Health, Hydrobiologia, International Journal of Environmental Research and Public Health, Journal of Applied Microbiology, Journal of Environmental Management, Journal of Environmental Quality, Journal of Great Lakes Research, Journal of the American Water Works Association, Journal of Virological

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Methods, *Journal of Water, Sanitation and Hygiene for Development*, *Letters in Applied Microbiology*, *Marine Pollution Bulletin*, *Microbial Ecology*, *Oceanography*, *PLOS ONE*, *Science of the Total Environment*, *Water Research*

Invited Reviewer for Research Proposals

USDA Small Business Innovative Research (panelist), *Sea Grant*, *NC Sea Grant*, *UPR Sea Grant*, *SC Sea Grant*, *WI Sea Grant*, *EPA Gulf of Mexico and RARE Programs*, *The Cooperative Institute for Coastal and Estuarine Technology (CICEET)*, *Department of Commerce SBIR Program*, *NC Biotechnology Center*, *NC WRRI*, *NIWR-USGS Competitive Grants Program*, *NOAA Oceans and Human Health Initiative*, *NOAA Non-Native Oyster Research Program*, *National Science Foundation (panelist)*, *Robert Wood Johnson Foundation*, *UNC Internal Selection Committee/Duke Energy Water Resources Fund*

Invited Participation in Expert Panels and Workshops

- Gates Foundation Pathogen Flows Workshop (May 24-25, 2022; Seattle, WA)
- Gates Foundation Workshop on Improving Exposure Measurements in WASH (Sept. 25-26, 2019; Atlanta, GA)
- EPA Experts Scientific Workshop on “The potential human health risks from exposure to fecal contamination from avian and other wildlife sources in recreational waters” (Nov. 15-17, 2011; Atlanta, GA).
- NSF Ecology of Marine Infectious Diseases (EMID) Workshop (Feb. 12-13, 2011; San Juan, Puerto Rico)
- International Joint Commission’s (IJC) Beaches and Recreational Water Quality Work Group, Great Lakes Beach Association (Oct. 21-22, 2010; Erie, PA).
- EPA workshop on final indicators of ecosystem services for estuaries and wetlands. (June 7-10, 2010; Denver, CO).
- Experts Scientific Workshop on Inland Waters coordinated by the Environment Research Foundation (WERF) and sponsored by EPA’s Office of Water (Feb. 18-20, 2009; Dallas, TX).
- Environment Technical Panel at National Institute of Standards and Technology (NIST) conference on accelerating innovation in biosciences (Oct. 2008; Gaithersburg, MD).
- Project Advisory Committee, American Water Works Association Research Federation (2006-2008).
- Rapporteur for Human Health Research Priorities, JSOST Ocean Research Priorities Meeting (April 2006; Denver CO) with contributions to the National Ocean Research Priorities Plan and Implementation Strategy.
- Cary Conference “Ecology of Infectious Diseases” Workshop (05/05; Milbrook, NY)
- Water and Environment Research Federation (WERF) Microbial Source Tracking Workshop (02/05; San Antonio, TX)
- Alliance for Coastal Technologies (ACT) Genetic Sensors Workshop (01/05; St. Petersburg, FL)

Conference Organizing

- Helped organize Convergent Research Planning Workshop. NSF Engineering Research Center for Precision Microbiome Engineering (PreMiEr). (2022).
- Served on planning committee for annual Water Microbiology Conference: Microbial Contaminants from Watersheds to Human Exposure. This conference is held annually in

Chapel Hill, NC (2014-2019) and brought together hundreds of microbiologists and water resource managers from across the globe. Contributions of the planning committee included identifying and inviting keynote speakers, reviewing abstracts, coordinating side events and workshops, inviting sponsors, and organizing the scientific program.

- Reviewed and scored selected abstracts submitted to conference “Water and Health: Where Science Meets Policy” sponsored by the UNC Water Institute (2010, 2012-2014).
- Reviewed session proposals and invited Division Lecturer for 2013 ASM General Meeting, then led division business meeting including selection of new chair (2013).
- Organized review and sorting of 415 abstracts submitted to Division Q for presentation at the 2012 American Society for Microbiology (ASM) General Meeting (2012).
- Helped organize and administer two CDC-funded workshops on coastal public health preparedness (2003 & 2004; Charleston, SC).
- Represented NOAA on planning committee for the Fort Johnson Marine Science Seminar Series (2003-2008) co-hosted by SC Department of Natural Resources, College of Charleston, Medical University of South Carolina, and NOAA
- Served on faculty committee to organize annual College of Charleston Grice Marine Biology Colloquium (2007-2008).
- Served on faculty committee to organize annual Medical University of South Carolina Student Research Open House (2006-2007)

Scientific Sessions Convening

- Side Event co-Convener, “Understanding Pathogen Flows Associated with Sanitation Practices in Urban Communities,” UNC Water and Health Conference (2021).
- Panel Moderator, “One Health in the Galapagos Islands,” UNC Center for Galapagos Studies Annual Research Retreat (2019).
- Workshop co-Convener, “Understanding the Flow and Fate of Sanitation-Related Pathogens,” UNC Water and Health Meeting (2018).
- Panel Discussion Moderator, “Communicating Research and Evidence in the Clickbait Era,” 4th annual UNC Water Microbiology Conference (2017).
- Workshop Co-Convener, “Coliphage as Fecal Indicator Viruses in Recreational Water and Shellfish,” 2nd annual UNC Water Microbiology Conference (2015).
- Workshop Co-Convener, “Preparedness and Response in Context of Microbial Contaminants, Public Health, and Extreme Events,” 1st Annual UNC Water Microbiology Conference (2014).
- Workshop Co-Convener, “The New Age of Rapid Methods for Water Quality Applications: Blending Scientific Advancement with Routine Monitoring Needs”. UNC Water and Health Meeting (2011).
- Session Facilitator, “Seafood Quality and Safety, and Natural Products from the Sea,” NOAA Oceans and Human Health Initiative all-PI meeting (Oct 24, 2007; Muskegon, MI).
- Session Facilitator, “Designing an Ocean Observation System to Support Public Health Decisions,” Coastal Observations for Decision Making Conference (Jan. 23-25, 2006; St. Petersburg, FL).
- Session Co-Chair, “Understanding and Predicting Pathogens in an Ecosystem Context” at the NOAA Oceans and Human Health all-PI meeting (Jan. 18 2006; Charleston SC).

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- Session Co-Chair, SYM05 “Connecting Estuarine and Great Lakes Health with Human Health,” 18th Biennial Conference of the Estuarine Research Federation (Oct. 16-21, 2005; Norfolk, VA).
- Session Co-Chair, “Microbial Source Tracking,” Biennial Meeting of the Interstate Shellfish Sanitation Conference (ISSC) (Aug. 3-7, 2003; Portland, OR).

Within State of North Carolina

- Steering Committee Member, NC One Health Collaborative (2017-2024)
- NC COVID-19 Network Surveillance Studies Working Group (2020-2021)
- NCSU Comparative Medicine Institute, Emerging and Infectious Diseases Program (2014-2024)
- Research Working Group, UNC Gillings School of Global Public Health and NC State University College of Veterinarian Medicine (2015-2017)
- NC Climate-Related Health Working Group, NC Division of Public Health (2011-2016)
- Stakeholders meeting to address hog waste management and community health issues, hosted by community group (REACH) and attended by representatives from the US EPA, USDA and NC DENR (2010; Duplin County, NC).

Within UNC-Chapel Hill

UNC Center for Galapagos Studies (CGS) - UNC/USFQ Galapagos Science Center

- CGS Strategic Planning Committee (2022-2023)
- Galapagos Science Center Advisory Board (*ex officio* 2013-2022, chair 2022-2023)
- Deputy Director (2013-2022)
- Galapagos Council (*ex officio* 2018-2022)
- Faculty Research Director (2019-present; Chair 2019-present)
- Biobanking Committee (2017-present; chair 2017-2021)
- Steering Committee (2012-2015)
- Staff Search Committees (2018-2019)
 - Administrative Assistant
 - Education and Communications Specialist
 - Development Specialist

Other Pan-Campus Environmental and Scientific Initiatives

- Executive Committee, Environment, Ecology, and Energy (E³P) Program (2018-2022)
- Administrative and Program Review Committee, Institute for Marine Sciences (2019)
- Search Committee, Cluster Hire (5 positions) in E³P Program (2018-2019)
- Faculty Advisory Committee, UNC Institute for the Environment (2015-2019)
- Environmental Task Force II, UNC Provost (2016)
- Environmental Task Force I, UNC Provost, Co-Chair for Research SubCommittee (2015)
- Moderator, UNC Celebration of Undergraduate Research Symposium (April 2016)
- Mentor, Col. Robinson Scholarship Program (2013-2017)

Within Gillings School of Global Public Health

- Greenberg Alumni Endowment Award Selection Committee (2020-2024)
- Judge for UNC Student Global Health Committee (SGHC) Case Competition (2024)
- Co-Lead for MPH Global Health Concentration (2018-2022)
- Admissions Committee for MPH Global Health Concentration (2018-2021; chair 2021)
- Steering Committee for MPH degree program (2017-2020)
- Planning Committee for MPH Global Health Concentration (2017)
- Planning Committee for Revising MPH Core Curriculum (2015-2016)
- SPH Academic Programs Committee (2011-2016)

Within Department of Environmental Sciences and Engineering

- Awards Committee (2024)
- Space Committee (2013-2024; Chair, 2021-2024)
- Chair of Promotion Committee (2023)
- Faculty Search Committees
 - WaSH/Sanitation Engineer (Chair, 2022)
 - Environmental Microbiologist/Microbial Process Engineer (Chair, 2019)
 - Director of UNC Water Institute (2018-2019)
 - Associate Director of Research for UNC Water Institute (2014-2016)
 - Research Assistant Professor in Microbial Ecology (Chair, 2012)
 - Assistant Professor in Process Engineering (2009)
- Chair of Post Tenure Review Committee (2022)
- Department Admissions Committee (2016-2019)
- Planning Committee for Professor Sobsey Retirement Symposium (2018)
- Degree Program Competencies / Curriculum Review
 - MPH global health curriculum (2022)
 - BSPH Program (2017-2018)
 - PhD Program (2018)
- Student Recruitment/Presentations at Open House Events (2012-2016, 2018-2019)
- ESE Academic Programs Committee (2012-2017)