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Education

2007	Doctor of Philosophy (PhD), Environmental Sciences and Engineering, Gillings School of Global Public Health, University of North Carolina at Chapel Hill. Advisor: Mark Sobsey
2003	Master of Philosophy (MPhil), Environment and Development, University of Cambridge. Advisors: Peter Guthrie (Engineering), Keith Richards (Geography)
2001	Bachelor of Science (BS), Civil and Environmental Engineering, University of Alabama

Professional licensure

2011 - present Professional Engineer (PE) licensure (AL32388-E, NC 038888)

Professional experience

2024 – present	Professor, Department of Environmental Sciences and Engineering, Gillings School of Global Public Health, University of North Carolina at Chapel Hill; Director of Engineering Programs
2020 – 2024	Associate Professor, Department of Environmental Sciences and Engineering, Gillings School of Global Public Health, University of North Carolina at Chapel Hill; Director of Engineering Programs
2020	Wilder Chair and Associate Professor, School of Civil and Environmental Engineering, Georgia Institute of Technology
2014 – 2020	Wilder Chair and Assistant Professor, School of Civil and Environmental Engineering, Georgia Institute of Technology
2010 – 2013	Lecturer in Water Quality and Health, Department of Disease Control, Faculty of Infectious and Tropical Diseases, London School of Hygiene and Tropical Medicine, University of London, United Kingdom

2007 – 2011 Assistant Professor, New College & Department of Biological Sciences, University of Alabama

Adjunct and honorary academic appointments

2020 – present Adjunct, School of Civil and Environmental Engineering, Georgia Institute of Technology

2018 – 2020 Member, Parker H. Petit Institute for Bioengineering and Bioscience

2016 – 2020 Faculty affiliate in bioengineering, Georgia Institute of Technology

2015 – 2020 Courtesy appointment, School of Biology, Georgia Institute of Technology

2014 – 2022 Adjunct Assistant Professor, Department of Environmental Health, Rollins School of Public Health, Emory University

2008 – 2013 Adjunct Assistant Professor, Department of Civil, Construction, and Environmental Engineering, University of Alabama

Honors

National and international

2021 Excellence in Review award, *Environmental Science and Technology*
2017 NSF CAREER Award, National Science Foundation
2015 Young Future Leaders, STS Forum, National Academies
2015 Fellow, Chinese-American Frontiers of Engineering, National Academies
2014 Arab-American Frontiers of Science, Engineering, and Medicine, National Academies
2010 Creative and Novel Ideas in HIV Research, New Investigator Award, NIH
2008 International Water Association Global Small Project Innovation Award
2008 International Water Association Project Innovation Award, Asia Region
2005 EPA P^3 Award for Sustainable Design, US EPA
2002 National Science Foundation Graduate Research Fellow
2002 Gates Cambridge Scholar, Cambridge University, United Kingdom
2001 Eckenfelder Award for Environmental Engineering, Brown and Caldwell
2000 McWane Fellowship for Undergraduate Research in United Kingdom

Institutional

2018 Carlton S. Wilder Assistant Professorship, Georgia Institute of Technology
2017 Women in Engineering (WIE) Faculty Teaching Award, Georgia Institute of Technology
2016 Excellence in Research Program Development Award, Georgia Institute of Technology
2012 Fellow, University of North Carolina – Chapel Hill Global Research Institute
2009 Engineers Without Borders Faculty Mentoring Award, University of Alabama

2009 The Other Club Outstanding Faculty Award, University of Alabama
2007 University of Alabama Faculty Fellow in Service Learning
2006 Dissertation Fellowship, UNC Graduate School
2004 Tinker Fellow, PhD Research in Latin America, University of North Carolina
2003 Trinity Hall Postgraduate Research Fellow, Cambridge University, UK
2001 University of Alabama Engineering Most Outstanding Senior Award

Students' international/national distinctions ([d]doctoral student, [u]undergraduate advisee), selected
[d]Drew Capone: Gulf Research Program Early-Career Research Fellowship, National Academies
[d]Jackie Knee: Marshall-Sherfield Fellowship
[d]Aaron Bivins, EPA-STAR Fellowship; Fulbright-Nehru Graduate Research Fellow, U.S. Department of State; Larson Aquatic Research Support Scholarship, American Water Works Association
[d]Olivia Ginn, NSF INTERN award
[d]Yarrow Linden, NSF Graduate Research Fellowship
[u]Sarah Lowry, NSF Graduate Research Fellowship
[u]Claire Anderson, NSF Graduate Research Fellowship
[u]Ann Johnson, Fulbright Fellowship (India)
[u]Arjun Bir, MIT Water Innovation Prize

Memberships (last 5 years)

American Chemical Society (ACS)
American Society for Microbiology (ASM)
American Association of Environmental Engineering and Science Professors (AEESP)

Honorary society memberships
Chi Epsilon (civil engineering), Tau Beta Pi (engineering), Delta Omega (public health), Blackburn Institute, John Snow Society

Bibliography (advisees: [p]post-doc, [d]doctoral student, [m]masters student, [u]undergraduate)**,** [c]corresponding

Books

1 Sobsey, M. and **Brown, J**. 2011. *Evaluating household water treatment options: health-based targets and performance specifications*. Geneva: World Health Organization. ISBN: 978 92 4 154822 9.

Chapters

3 [p]Berendes, D. and **Brown, J**. 2018. Inequality beyond the toilet: fecal sludge management and the community-level dimensions of sanitation. Chapter in: O. Cumming

& T. Slaymaker (ed.) *Achieving Equality in Water and Sanitation Service Delivery*. London: Routledge.

2 [c]**Brown, J**., Cavill, S., Cumming, O., and Jeandron, A. 2015. Water, sanitation, and hygiene in emergencies. Chapter in: Richard Carter (ed.) *Water, Sanitation and Hygiene in Humanitarian Contexts: Reflections on current practice*. London: Practical Action Publishing. ISBN 9781853398841.

1 [c]**Brown, J**. and [m]Grammer, P. 2015. 'Indicators of microbial quality', in Bartram, J., with Baum, R., Coclanis, P.A., Gute, D. M., Kay, D., McFayden, S., Pond, K., Robertson, W. and Rouse, M.J. (eds) *Routledge Handbook of Water and Health*. London and New York: Routledge.

Peer-reviewed publications

146 Poole, C., Chatham, A.H, Kimberlin, D.W., and **Brown, J**. 2024. Water and sanitation access for children: an under-recognized health risk in the United States. *Pediatrics* [accepted].

145 Braun, L., MacDougall, A., Sumner, T., Adriano, Z., Viegas, E., Nalá, R., Brown, J., Knee, J., and Cumming, O. 2024. Associations between shared sanitation, stunting and diarrhoea in low-income, high density urban neighbourhoods of Maputo, Mozambique - a cross-sectional study. *Maternal and Child Health Journal* 28(4):775-784. doi: 10.1007/s10995-024-03924-4.

144 [d]Lebu, S., Gyimah, R., Nandoya, E., **Brown, J**., Salzberg, A., and Manga, M. 2024. Assessment of sanitation infrastructure resilience to extreme rainfall and flooding: Evidence from an informal settlement in Kenya. *Journal of Environmental Management* 354:120264. doi: 10.1016/j.jenvman.2024.120264.

143 Cha, G., Zhu, K.J., Fischer, J.M., Flores, C.I., **Brown, J**., Pinto, A., Hatt, J.K., Konstantinidis, K.T., and Graham, K. 2024. Metagenomic evaluation of the performance of passive Moore swabs for sewage monitoring relative to composite sampling over time resolved deployments. *Water Research* 253:121269. doi: 10.1016/j.watres.2024.121269.

142 Durán-Viseras, A., Lindner, B.G., Hatt, J.K., [d]Lai, A., Wallace, R., [d]Ginn, O., [c]**Brown, J**., and Konstantinidis, K.T. 2024. Metagenomic insights into the impact of litter from poultry concentrated animal feeding operations (CAFOs) to adjacent soil and water microbial communities. *Science of the Total Environment* 920:170772. doi: 10.1016/j.scitotenv.2024.170772.

141 [p]Capone, D., Cumming, O., [u]Flemister, A., [u]Ilevbare, V., Irish, S.R., Keenum, I., Knee, J., Nalá, R., **Brown, J**. 2024. Sanitation in urban areas may limit the spread of antimicrobial resistance via flies. *PLOS One* 19(3):e0298578. doi: 10.1371/journal.pone.0298578.

140 Walas, N., Müller, N.F., Parker, E., Henderson, A., [p]Capone, D., **Brown, J**., [m]Barker, T., and Graham, J.P. 2024. Phylodynamics uncover the transmission of antibiotic-resistant *Escherichia coli* between canines and humans in an urban environment. *Science of the Total Environment* 916:170139 doi: 10.1016/j.scitotenv.2024.170139.

139 [d]Rao, G., [p]Capone, D., Zhu, K., [m]Knoble, A., Linden, Y. Clark, R., [p]Lai, A., Kim, J., Huang, C., Bivins, A., and [c]**Brown, J**. 2024. Simultaneous detection and quantification of multiple pathogen targets in wastewater. *PLOS Water* doi: 10.1371/journal.pwat.0000224.

138 Mertens, A., Arnold, B.F., Benjamin-Chung, J., Boehm, A.B., **Brown, J**., [p]Capone, D., Clasen, T., Fuhrmeister, E.R., Grembi, J.A., [p]Holcomb, D., Knee, J., Kwong, L.H., Lin, A., Luby, S.P., Nala, R., Nelson, K., Njenga, S.M., Null, C., Pickering, A.J., Rahman, M., Reese, H.E., Steinbaum, L., Stewart, J., Thilakaratne, R., Cumming, O., Colford, J., and Ercumen, A. 2023. 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. *Lancet Global Health* 12(3):e433-e444. doi: 10.1016/S2214-109X(23)00563-6.

137 Palma, F.A.G., Sodré, J.F.A., Nery Jr., N. Olivera, L.J., **Brown, J**., Bourgeois, A., Spears, C.A., White, C., Costa, F., and Stauber, C.E. 2023. A tale of two communities: comparing user perceptions of condominial and conventional sewer systems in Salvador, Brazil. *PLOS Water* https://doi.org/10.1371/journal.pwat.0000129.

136 Smith, S.K., Risk, B.B., Holm, R.H., Tilley, E., Chigwechokha, P., [p]Capone, D., **Brown, J**., and de los Reyes III, F.L. 2023. Microbial community function and pathogen composition in pit latrines in peri-urban Malawi. *PLOS Water* https://doi.org/10.1371/journal.pwat.0000171.

135 Poole, C., [m]Barker, T., Bradbury, R., [p]Capone, D., Chatham, A.H., Handali, A., Rodriguez, E., Qvarnström, Y., and **Brown, J**. 2023. Cross-sectional study of soil-transmitted helminthiases in Alabama's Black Belt. *Emerging Infectious Diseases* 29:12 doi: 10.3201/eid2912.230751.

134 [p]Capone, D., [u]Bakare, T., [m]Barker, T., Chatham, A.H., [u]Clark, R., [u]Copperthwaite, L., [u]Flemister, A., [u]Geason, R., [u]Hoos, E., [u]Kim, E., [u]Manoj, A., [u]Pomper, S., [u]Samodal, C., [u]Smith, S., Poole, C., and [c]**Brown, J**. 2023. Risk factors for enteric pathogen exposure among children in Alabama's Black Belt. *Emerging Infectious Diseases* 29:12 doi: 10.3201/eid2912.230780.

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132 Lee, D., MacDonald Gibson, J., **Brown, J**., Habtewold, J., and Murphy, H. 2023. Burden of disease from contaminated drinking water in countries with high access to safely managed water: a systematic review. *Water Research* 242:120244. doi: 10.1016/j.watres.2023.120244.

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130 [d]Zhu, K., Hill, C., Muirhead, A., Basu, M., **Brown, J**., Brinton, M.A., Hayat, M.J., Venegas-Vargas, C., Reis, M.G., Casanovas-Massana, A., Meschke, S., Ko, A.I., Costa, F., and Stauber, C. 2023. Zika virus RNA persistence and recovery in water and wastewater: an approach for Zika virus surveillance in resource-constrained settings. *Water Research* 241:120116. doi: 10.1016/j.watres.2023.120116.

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128 Fuhrmeister, E.R., Harvey, A.P., Nadimpalli, M.L., Gallandat, K., Ambelu, A., Arnold, B.F., **Brown, J**., Cumming, O., Earl, A.M., Kang, G., Kariuki, S., Levy, K., Jimenez, C. P., Swarthout, J.M., Trueba, G., Tsukayama, P., Worby, C.J., and Pickering, A. 2023. Evaluating the relationship between community-level water and sanitation access and the global burden of antibiotic resistance using human fecal metagenomes from 26 countries: an ecological study. *The Lancet Microbe* S2666-5247(23)00137-4. doi: 10.1016/S2666-5247(23)00137-4.

127 Wolf, J., Johnston, R.B., Ambelu, A., Arnold, B.F., Bain, R., Brauer, M., **Brown, J**., Caruso, B.A., Clasen, T., Colford, J.M., Estevez-Mills, J., Evans, B., Freeman, M.C., Gordon, B., Kang, G., Lanata, C.F., Medlicott, K.O., Prüss-Ustün, A., Troeger, C., Boisson, S., and Cumming, O. 2023. Burden of disease attributable to unsafe drinking water, sanitation and hygiene in domestic settings: a global analysis for selected adverse health outcomes. *The Lancet* 401(10393): P2060-2071. doi.org/10.1016/S0140-6736(23)00458-0.

126 Levy, K., Garn, J.V., Adriano, Z., de Barros, B., Fagnant-Sperati, C.S., Hubbard, S., Júnior, A., Manuel, J.L., Miguel, M., McGunegill, S., Miller-Petrie, M., Snyder, J.S., Victor, C., Waller, L., Konstantinidis, K.T., Clasen, T., **Brown, J**., Nalá, R., and Freeman, M.C. 2023. Study Design and Rationale for the PAASIM Project, a Matched Cohort Study on Urban Water Supply Improvements and Infant Enteric Pathogen Infection, Gut Microbiome Development, and Health in Mozambique. *BMJ-Open* 13(3):e067341. doi: 10.1136/bmjopen-2022-067341.

125 Mertens, A., Arnold, B.F., Benjamin-Chung, J., Boehm, A.B., **Brown, J**., [d]Capone, D., Clasen, T., Fuhrmeister, E., Grembi, J., [p]Holcomb, D., [d]Knee, J., Kwong, L.H., Lin, A., Luby, S.P., Nala, R., Nelson, K., Njenga, S.M., Null, C., Pickering, A.J., Mahbubur, R., Reese, H., Steinbaum, L., Stewart, J., Thilakaratne, R., Cumming, O., Colford, J.M., and Ercumen, A. 2023. Effects of water, sanitation, and hygiene interventions on detection of enteropathogens and host-specific faecal markers in the environment: an individual-participant data meta-analysis. *Lancet Planetary Health* 7(3): E197-E208. doi: https://doi.org/10.1016/S2542-5196(23)00028-1.

124 [c]**Brown, J**., Acey, C.S., Anthonj, C., Barrington, D.J., Beal, C.D., [p]Capone, D., Cumming, O., Fedinick, K.P., Gibson, J.M., Hicks, B., Kozubik, M., Lakatosova, N., Linden, K.G., Love, N.G., Mattos, K.J., Murphy, H.M., and Winkler, I. 2023. The effects of racism, social exclusion, and discrimination on achieving universal safe water and sanitation in high-income countries. *Lancet Global Health* 11:e606-e614.

123 Cha, G., Graham, K.E., [d]Zhu, K.J., [d]Rao, G., Lindner, B.G., Kocaman, K., Woo, S., D'amico, I., Bingham, L.R., Fischer, J.M., Flores, C.I., Spencer, J.W., Yathiraj, P., Chung, H., Biliya, S., Djeddar, N., Burton, L.J., Mascuch, S.J., **Brown, J**., Bryksin, A., Pinto, A., Hatt, J.K., Konstantinidis, K.T. 2023. Parallel deployment of passive and composite samplers for surveillance and variant profiling of SARS-CoV-2 in sewage. *Science of the Total Environment* 866:161101. doi: 10.1016/j.scitotenv.2022.161101.

122 [p]Capone, D., Adriano, Z., Cumming, O., Irish, S., [d]Knee, J., Nala, R., and **Brown, J**. 2023. Urban onsite sanitation upgrades and synanthropic flies in Maputo, Mozambique: effects on enteric pathogen infection risks. *Environmental Science and Technology* 57(1):549-560. doi: 10.1021/acs.est.2c06864.

121 Munk, P., Brinch, C., Møller, F.D., Petersen, T.N., Hendriksen, R.S., Seyfarth, A.M., Kjeldgaard, J.S., Svendsen, C.A., van Bunnik, B., Berglund, F., Global Sewage Surveillance Consortium (consortium members: [d]Drew Capone and **Joe Brown**), Larsson, D.G.J., Koopmans, M., Woolhouse, M., & Aarestrup, F.M. 2022. Genomic analysis of sewage from 101 countries reveals global landscape of antimicrobial resistance. *Nature Communications* 13: 7251. doi: https://doi.org/10.1038/s41467-022-34312-7.

120 [p]Capone, D., [m]Barker, T., Cumming, O., [u]Flemister, A., Geason, R., [u]Kim, E., [d]Knee, J., [d]Linden, Y., Manga, M., Meldrum, M., Nalá, R., Smith, S., [c]**Brown, J**. 2022. Persistent *Ascaris* transmission is possible in urban areas even where sanitation coverage is high. *Environmental Science and Technology* https://doi.org/10.1021/acs.est.2c04667.

119 Ross, I., Greco, G., Adriano, Z., Nalá, R., **Brown, J**., Opondo, C., and Cumming, O. 2022. Impact of a sanitation intervention on quality of life and mental wellbeing in low-income urban neighbourhoods of Maputo, Mozambique: an observational study. *BMJ-Open* 12(10): e062517. doi: 10.1136/bmjopen-2022-062517.

118 Kim, M., Rodriguez-R, L.M., Hatt, J.K., Kayali, O., Nalá, R., Dunlop, A., Brennan, P.A., Corwin, E., Smith, A.K., **Brown, J**., Konstantinidis, K.T. 2022. Higher pathogen load in children from Mozambique vs. USA revealed by comparative fecal microbiome profiling. *ISME Communications* 2(74): https://doi.org/10.1038/s43705-022-00154-z.

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116 Delahoy, M.J., Hubbard, S., Mattioli, M., Culquichicón, C., [d]Knee, J., **Brown, J**., Cabrera, L., Barr, D.B., Ryan, P.B., Lescano, A.G., Gilman, R.H., Levy, K. 2022. High prevalence of chemical and microbiological drinking water contaminants in households with infants enrolled in a birth cohort — Piura, Peru, 2016. *American Journal of Tropical Medicine and Hygiene* doi: 10.4269/ajtmh.22-0098.

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114 [p]Capone, D., Bivins, A., and [c]**Brown, J**. 2022. Producing ratio measures of effect with quantitative microbial risk assessment. *Risk Analysis* doi: https://doi.org/10.1111/risa.13972.

113 [d]Zhu, K., Suttner, B., [d]Knee, J., [d]Capone, D., Moe, C.L., Stauber, C.E., Konstantinidis, K.T., Wallach, T.E., Pickering, A.J., and [c]**Brown, J**. 2022. Elevated fecal mitochondrial DNA from symptomatic norovirus infections suggests potential health relevance of human mitochondrial DNA in fecal source tracking. *Environmental Science and Technology Letters* https://doi.org/10.1021/acs.estlett.2c00140.

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110 [d]Ginn, O., [u]Lowry, S., and [c]**Brown, J**. 2022. A systematic review of enteric pathogens and antibiotic resistance genes in outdoor urban aerosols. *Environmental Research* Volume 212, Part A, 113097. doi: https://doi.org/10.1016/j.envres.2022.113097.

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