

KARA L. NELSON

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EDUCATION

Ph.D. Environmental Engineering, University of California at Davis, September 2001
M.S.E. Environmental Engineering, University of Washington, 1996
B.A. Biophysics, University of California, Berkeley, 1992

EMPLOYMENT HISTORY

2017 – present Associate Dean for Equity and Inclusion, College of Engineering, U.C. Berkeley
2013 – present Professor, Department of Civil and Environmental Engineering, U.C. Berkeley
2015 (Spring) Visiting Professor, Institute of Biogeochemistry and Pollutant Dynamics, ETH Zurich, Switzerland
2015 (Spring) Visiting Researcher, Swiss Federal Institute of Aquatic Sciences and Technology (Eawag), Dübendorf, Switzerland
2014 (Fall) Fulbright-Colciencias Scholar, Cinara Institute, Universidad del Valle, Cali, Colombia
2008 – 2013 Associate Professor, Department of Civil and Environmental Engineering, U.C. Berkeley
2001 – 2008 Assistant Professor, Department of Civil and Environmental Engineering, U.C. Berkeley
1996 – 2001 Research Assistant/Teaching Assistant, Civil and Environmental Eng., U.C. Davis
1998 – 1999 Fulbright Fellow, Universidad Nacional Autónoma de México, Mexico City, Mexico
1994 – 1996 Research Assistant, Civil and Environmental Engineering, University of Washington
1992 – 1994 Research Associate, Lawrence Berkeley National Laboratory

HONORS AND AWARDS

2014 Fulbright Fellowship (Colombia), Fulbright Program, US Information Agency
2011 Award of Merit, Water Environment Foundation, Disinfection Committee
2004, 2005 P3 Award from U.S. EPA, Phase I and II (faculty advisor to winning student team)
2003 Presidential Early Career Award for Scientists and Engineers (PECASE), Office of Science and Technology Policy, Executive Office of the President
2003 CAREER Award, National Science Foundation
2001 Academic Enrichment Program Award, University of California, Berkeley, CA
1999 Dissertation Grant, University of California Institute for Mexico and the United States
1999 GAAAN Fellowship, University of California, Davis, CA
1998 Fulbright Fellowship (Mexico), Fulbright Program, US Information Agency
1997 Research Mentorship Fellowship, University of California, Davis, CA
1997 TOPS Fellowship, University of California, Davis, CA
1994, 1995 King Country Metro Graduate Fellowship, University of Washington, Seattle, WA
1988, 1989 NSF Research Experience for Undergraduates (REU) Summer Fellowship, Oregon State University, Corvallis, OR

LANGUAGES

Spanish: Excellent (comprehension, speaking, reading), Good (writing)

COURSES TAUGHT *(course units are based on semester system)*

E11 “Engineered systems and sustainability” (lower-division undergraduate; 3 units)
CE111 “Environmental engineering” (upper division undergraduate; 3 units)
CE110 “Water Systems of the Future” (upper division undergraduate; 3 units; developed as new course)

CE113 "Ecological engineering for water quality improvement" (upper division undergraduate; 1 unit lab and 2 units lecture; developed as new course)
CE211A "Environmental physical-chemical processes" (graduate; 3 units)
CE210 "Control of water-related pathogens" (graduate; 3 units; developed as new course)
CE290 "Reinventing Urban Water Infrastructure" (graduate; 1 unit; developed as new course)
One-day workshop on "Water and sanitation in the urban environment", UC Berkeley Beahrs Environmental Leadership Program (developed as new workshop)

SUPERVISION OF STUDENTS AND POST-DOCTORAL RESEARCHERS

Post-doctoral researchers (current position): Rose Kantor (2017 – present); Andrea Silverman (2015 – 2016; Assistant Professor, New York University); Jannis Wenk (2012 – 2014; Assistant Professor, University of Bath, UK); Temitope Ogunyoku (2011 – 2013; IBM Research Africa); Jee Yeon Kim (2009-2010; Samsung Research Group); David Love (2007-2009; Johns Hopkins University); Allegra da Silva (2008-2009; MWH); Maria Raynal (2007-2008; Universidad Nacional Autonoma de México); Tamar Kohn (2004-2006; Associate Professor, Ecole Polytechnique Fédérale de Lausanne); Jose Antonio Barrios (2005; Universidad Nacional Autonoma de México)

Ph.D. dissertations (current position):

Will Tarpeh "Designing and Evaluating Novel Approaches to Nitrogen Recovery from Source-Separated Urine," August 2017 (postdoc at University of Michigan)
John Erickson "The Effects of Intermittent Drinking Water Supply in Arraiján, Panama," August 2016. (Hazen and Sawyer Consultants)
Anne Thebo "Wastewater Reuse in Irrigated Agriculture: Global Perspectives on Water Quantity, Quality, and Exposure to Health Risks," August 2016 (Pacific Institute)
Andrew Torkelson "Enhanced Granular Media Filtration of Waterborne Pathogens: Effect of Media Amendments for Treatment of Drinking Water and Stormwater," December 2015
Mi Tra Nguyen "Sunlight inactivation of fecal indicator bacteria in open-water unit process wetlands," March 2015 (postdoc, Swiss Federal Institute of Aquatic Science and Technology)
Fermin Reygadas "Evaluation of user compliance, field efficacy, and greenhouse gas emissions of an ultraviolet water disinfection system and other drinking water treatment alternatives for rural households in Mexico," December 2014 (Executive Director, Fundación Cantaro Azul, Chiapas, Mexico)
Rabia Chaudhry "Virus Removal Mechanisms in Membrane Bioreactors and Implications For Water Reuse," December 2014 (AAAS Science and Technology Policy Fellow)
Andrea Silverman "Sunlight inactivation of waterborne viruses: Mechanisms, modeling, and application to surface waters and wastewater treatment," December 2013 (Assistant Professor, New York University)
Emily Kumpel "Water quality and quantity in intermittent and continuous piped water supplies in Hubli-Dharwad, India", August 2013 (Assistant Professor, University of Massachusetts, Amherst)
Sintana Vergara "Transforming trash: reuse as a waste management and climate change mitigation strategy", May 2012 (Assistant Professor, Humboldt State University)
Michael Fisher "The effects of wavelength, metals, and reactive oxygen species on the sunlight inactivation of microorganisms: observations and applications to the solar disinfection of drinking water," July 2011 (Postdoc, University of N. Carolina)
Khalid Kadir "Sunlight-mediated inactivation mechanisms of *Enterococcus faecalis* and *Escherichia coli* in waste stabilization ponds," July 2010 (lecturer, U.C. Berkeley)
Ashley Murray "Don't Think of Wastewater: Evaluation and Planning Tools for Reuse-Oriented Sanitation Infrastructure," May 2009 (Founder, Pivot Works, Kigali, Rwanda)
Gordon Williams "The effect of loading rate on tertiary wastewater filtration," May 2009 (East Bay Municipal Utility District)
Sarah Silkie "Use of host-specific molecular markers in fecal source tracking," August 2008 (Portland Water Bureau, OR)
Brian Pecson "Improving methods for the control of *Ascaris* eggs in wastewater sludge," Fall 2006 (Trussell Technologies)

Tryg Lundquist “A reduction pond for denitrification of agricultural drainage,” Fall 2006 (Associate Professor, Cal State San Luis Obispo)

Former M.S. students: Ileana Wald, Maja Wiprachtiger, Emily Woods, Bria Crawford, Iris Schilling (visiting from ETH), Cleo Woelfle-Erskine, Brie Webber, Anna Corrigan, Heidi Fuchs, Deepak Subramanian, Alejandro Guido, Jeff Dahm, Forest Kaser, Micah Lang, Fermin Reygadas, Sarah Brownell, Hans Schwing, Amy Pickering, Alicia Chakrabati, IlJoo Yang, Matthew Tolcher

Former B.S. students: Mahaa Ahmed (REU), Daisy Benitez (REU), Enrique Lucca (REU), Makeda Negash, Amira Jahan, Omsri Bharat, Rong Chao Bi, Maritza Flores-Marquez (REU), Hank Bradford, Kimberly Huynh (REU), Matt Blair (REU), Marina Mautner, Fikreselam Habebo, Katya Cherukumilli, Malavika Neti, Douglas Fabini, Joshua Song, Majid Khan, Brian Coox, Ofelia Romero, Rachel Peletz, April Wong, Sonia Lopez, Ali Kattan, Senem Surelli

Current Ph.D. students: Sharada Prasad, Karina Chevarria, Scott Miller, Olga Kavvada, Erica Fuhrmeister, Lauren Kennedy, Hannah Greenwald

PROFESSIONAL AFFILIATIONS

International Water Association, American Chemical Society, American Society of Microbiology, Water Environment Federation, American Water Works Association, Association of Environmental Engineering and Science Professors

PROFESSIONAL SERVICE *(Selected)*

Director of Engineering Research Thrust, ReNUWIt, National Science Foundation Engineering Research Center on Reinventing our Nation's Urban Water Infrastructure (2016 – present)

Director of Graduate Education, ReNUWIt, National Science Foundation Engineering Research Center on Reinventing our Nation's Urban Water Infrastructure (2011 – 2016)

Co-Director of Diversity, ReNUWIt, National Science Foundation Engineering Research Center on Reinventing our Nation's Urban Water Infrastructure (2017 – present; member 2011-2017)

Member of Expert Panel on the Development of Water Recycling Criteria for Indirect Potable Reuse (IPR) through Surface Water Augmentation and the Feasibility of Developing Criteria for Direct Potable Reuse (DPR), State Water Resources Control Board, Division of Drinking Water (2014 – present)

Science Advisory Board, National Science Foundation Engineering Research Center on Nanotechnology-Enabled Water Treatment (2016 – present)

Technical Advisory Board, Sanergy (2015 – present)

Secretary, IWA Specialist Group on Pond Treatment Technology (2009 – present)

Board Member, International Water Association USA National Committee, (2015 – present)

Expert review for U.S. EPA report on “Review of coliphages as possible indicators of fecal contamination for ambient water quality” (2015)

Peer reviewer for research proposals: National Science Foundation (CBET, SBIR); UK Royal Society, Department for International Development; Indo-US Science and Technology Forum; King Abdullah University of Science and Technology (KAUST), Saudia Arabia; King Abdulaziz City for Science and Technology (KACST), Saudia Arabia; Austrian Science Fund

Peer reviewer for more than 50 manuscripts and one textbook in last three years

Reviewer for NSF Graduate Research Fellowships, Panel (2016)

Invited member of evaluation committee for PhD thesis defense of Loic Decrey, EPFL, Switzerland (April 2015)

Lead organizer for one-day International Water, Sanitation, and Hygiene Symposium at UC Berkeley (> 50 participants; 2008, 2009, 2012, 2014)

Conference organizing committee, AEESP 2013 Education and Research Conference, Univ of Colorado, Boulder and Colorado School of Mines

Conference organizing committee for IWA Specialist Group on Waste Stabilization Ponds (2006, 2008, 2010, 2013)

ACADEMIC SERVICE *(Selected)*

Strategic Planning Committee, CEE Department (2016)

Chair of Equity and Inclusion Committee, CEE Department (2015 – present)

Faculty Equity Advisor, CEE Department (2015 – 2017)
Broadening Participation Committee, College of Engineering (2015 – present)
Faculty advisor for Environmental Engineering Science, College of Engineering (2015 – present)
Graduate Group for Designated Emphasis in Development Engineering, UC Berkeley (2013 – present)
Alumni Liaison, Environmental Engineering Graduate Program, CEE Department, UC Berkeley (2010 – present)
Chair of graduate admissions, Environmental Engineering Program, CEE Department, UC Berkeley (2011 and 2012)
Search committee for director of Berkeley Institute of Environment (2011)
Executive Committee for Energy and Resources Group, UC Berkeley (2010-2014)
Faculty advisor, Engineers Without Borders/Engineers for a Sustainable World, UC Berkeley chapter (2002 – present)
Engineering Ethics and Social Responsibility Committee, College of Engineering, UC Berkeley (2011-2014)
Curriculum Committee for Blum Center for Developing Economies, UC Berkeley (2006 – 2012)
Strawberry Creek Environmental Quality Committee, UC Berkeley (member 2006 – 2015; Chair 2016 - present)
Curriculum Committee, CEE Department, UC Berkeley (2001 – 2007, 2011 - 2014)
Graduate advisor, Environmental Engineering Program, UC Berkeley (2010 – 2014)

PEER-REVIEWED PUBLICATIONS

75. Thebo, A. L., P. Drechsel, E. F. Lambin, and K. L. Nelson. (2017) "A Global, Spatially-Explicit Assessment of Irrigated Croplands Influenced by Urban Wastewater Flows." *Environmental Research Letters* 12(7): 074008. doi:10.1088/1748-9326/aa75d1.
74. Bivins, A.W., T. Sumner, E. Kumpel, G. Howard, O. Cumming, I. Ross, K. Nelson, and J. Brown. (2017) "Estimating Infection Risks and the Global Burden of Diarrheal Disease Attributable to Intermittent Water Supply Using QMRA." *Environmental Science & Technology* 51(13): 7542–51. doi:10.1021/acs.est.7b01014.
73. Chaudhry, R.M., Hamilton, K.A., Haas, C.N., and K.L. Nelson (2017) "Drivers of Microbial Risk for Direct Potable Reuse and de Facto Reuse Treatment Schemes: The Impacts of Source Water Quality and Blending." *International Journal of Environmental Research and Public Health*. 14 (635). doi:10.3390/ijerph14060635
72. Steinbaum, L., L.H. Kwong, A. Ercumen, M.S. Negash, A.J. Lovely, S.M. Njenga, A.B. Boehm, A.J. Pickering, and K.L. Nelson. (2017) "Detecting and Enumerating Soil-Transmitted Helminth Eggs in Soil: New Method Development and Results from Field Testing in Kenya and Bangladesh." *PLOS Neglected Tropical Diseases* 11(4). doi:10.1371/journal.pntd.0005522.
71. Erickson, J.J., Smith, C.D., Goodridge, A.G., and K.L. Nelson. (2017) "Water quality effects of intermittent water supply in Arraiján, Panama." *Water Research*. 114:338-350
70. Tarpeh, W.A., K.M. Udert, K.L. Nelson. (2017) "Comparing ion exchange resins for nitrogen recovery from source-separated urine." *Environmental Science and Technology*. 51(4):2373–2381. doi: 10.1021/acs.est.6b05816.
69. Emily Kumpel, Cleo Woelfle-Erskine, Isha Ray, and Kara L. Nelson. (2016). "Measuring household consumption and waste in unmetered, intermittent piped water systems." *Water Resources Research*. 53. doi:10.1002/2016WR019702.
68. Kavvada, O., A. Horvath, J. Stokes-Draut, T.P. Hendrickson, W.A. Eisenstein, and K.L. Nelson. (2016). "Assessing Location and Scale of Urban Non-Potable Water Reuse Systems for Life-Cycle Energy Consumption and Greenhouse Gas Emissions." *Environmental Science and Technology*. 50(24):13184–13194. doi:10.1021/acs.est.6b02386.
67. Andrea I. Silverman and Kara L. Nelson. (2016). Modeling the endogenous sunlight inactivation rates of laboratory strain and wastewater *E. coli* and enterococci using biological weighting functions. *Environmental Science and Technology*. 50(22):12292–12301. doi: 10.1021/acs.est.6b03721

66. Mellor, J.E., K. Levy, J. Zimmerman, M. Elliott, J. Bartram, E. Carlton, T. Clasen, R. Dillingham, J. Eisenberg, R. Guerrant, D. Lantagne, J. Mihelcic, K. Nelson. (2016). "Planning for Climate Change: The Need for Mechanistic Systems-Based Approaches to Study Climate Change Impacts on Diarrheal Diseases." *Science of The Total Environment*. 548–549: 82–90.
65. Ogunyoku, Temitope A., and Kara L. Nelson. (2016). "In-Toilet Disinfection of Fresh Fecal Sludge with Ammonia Naturally Present in Excreta." *Journal of Water, Sanitation, and Hygiene for Development*.
64. Kumpel, Emily, and Kara L. Nelson. (2016). "Intermittent water supply: Prevalence, Practice, and Microbial Water Quality." *Environmental Science and Technology*. 50(2):542-553.
63. Ercumen, A., Arnold, B.F., Kumpel, E., Burt, Z., Ray, I., Nelson, K.L., Colford, J.M. (2015). "Upgrading a Piped Water Supply from Intermittent to Continuous Delivery and Association with Waterborne Illness: A Matched Cohort Study in Urban India." *PLoS Medicine*.
62. Reygadas, Fermin, Joshua S. Gruber, Isha Ray, and Kara L. Nelson. (2015). "Field Efficacy Evaluation and Post-Treatment Contamination Risk Assessment of an Ultraviolet Disinfection and Safe Storage System." *Water Research*. 85:74–84.
61. Caroline Delaire, Case M. van Genuchten, Kara L. Nelson, Susan E. Amrose, Ashok J. Gadgil. (2015). "*E. coli* attenuation by Fe electrocoagulation in synthetic Bengal groundwater: the effect of pH and natural organic matter." *Environmental Science and Technology*. 49(16):9945-9953.
60. Hendrickson, T.P, Nguyen M., Sukardi, M., Miot, A., Horvath, A., and K.L. Nelson. (2015). "Environmental Performance of a Building-Scale Wastewater Treatment and Non-potable Reuse System." *Environmental Science and Technology*. 49(17):10303–10311.
59. Chaudhry, R.M., Holloway, R.W., Cath, T.Y., and K.L. Nelson (2015). "Impact Of Virus Surface Characteristics on Removal Mechanisms within Membrane Bioreactors." *Water Research*. 84:144-52.
58. Nguyen, M.T., Jasper, J.T., Boehm, A.B., Nelson, K.L. (2015) "Sunlight inactivation of fecal indicator bacteria in open-water unit process treatment wetlands: Modeling endogenous and exogenous inactivation rates" *Water Research*. 83:282-92.
57. Fidjeland, J., Nordin, A., Pecson, B.M., Nelson, K.L., and B. Vinnerås (2015). "Modeling the inactivation of *Ascaris* eggs as a function of ammonia concentration and temperature." *Water Research*. 83:153-160.
56. Chaudhry, R.M., Nelson and Jörg E. Drewes, (2015) "Mechanisms of Pathogenic Virus Removal In A Full-Scale Membrane Bioreactor." *Environmental Science and Technology*. 49(5):2815–2822.
55. Silverman, A.I., Nguyen, M.T., Schilling, I.E., Wenk, J., and Nelson, K.L. (2015) "Sunlight inactivation of viruses in open water unit process treatment wetlands: Modeling endogenous and exogenous mechanisms." *Environmental Science and Technology*. 49(5):2757–2766.
54. Silverman, A.I., Akrong, M.O., Drechsel, P., and K.L. Nelson. (2014) On-farm treatment of wastewater used for vegetable irrigation: bacteria and virus removal in small ponds in Accra, Ghana. *Journal of Water Reuse and Desalination*. 4(4):276–86.
53. Mohanty, S.K., Cantrell, K.B., Nelson, K.L., and A.B. Boehm. (2014) "Efficacy of Biochar to Remove *Escherichia Coli* from Stormwater under Steady and Intermittent Flow." *Water Research*. 61:288–96.
52. Nguyen, M.T., Silverman, A.I., Nelson, K.L. (2014) "Sunlight Inactivation of MS2 Coliphage in the Absence of Photosensitizers: Modeling the Endogenous Inactivation Rate Using a Photoaction Spectrum." *Environmental Science and Technology*. 48(7):3891–3898
51. Kumpel, E. and K.L. Nelson (2014) "Mechanisms affecting microbial water quality in an intermittent piped water supply." *Environmental Science and Technology*. 48(5):2766–2775.
50. M.B. Fisher, K.L. Nelson (2014) "Inactivation of *Escherichia coli* by Polychromatic Simulated Sunlight: Evidence for a Fenton Mechanism Involving Iron, Hydrogen Peroxide, and Superoxide." *Applied and Environmental Microbiology*. 80(3):935-942.

49. Kadir, K. and K.L. Nelson (2014) "Sunlight mediated inactivation mechanisms of *Enterococcus faecalis* and *Escherichia coli* in clear water versus waste stabilization pond water." *Water Research*. 50:307-317.
48. Mohanty, S., Torkelson, A.A., Dodd, H., Nelson, K.L., and A.B. Boehm (2013). "Engineering solutions to improve the removal of fecal indicator bacteria by bioinfiltration systems during intermittent flow of stormwater." *Environmental Science and Technology*. 47(19):10791–10798.
47. Silverman, A. I., Akrong, M., Amoah, P., Drechsel, P., and K.L. Nelson. (2013). "Quantification of human norovirus GII, human adenovirus, and fecal indicator organisms in wastewater used for irrigation in Accra, Ghana." *Journal of Water and Health*. 11(3):473-488.
46. Kumpel, E. and K.L. Nelson (2013). "Comparing microbial water quality in an intermittent and continuous piped water supply". *Water Research*. 47(14):5176-5188.
45. J.E. Grebel, S.K. Mohanty, A.A. Torkelson, A.B. Boehm, C.P. Higgins, R.M. Maxwell, K.L. Nelson, D.L. Sedlak (2013). "Engineered Infiltration Systems for Urban Stormwater Reclamation." *Environmental Engineering Science*. 30(8): 437-454.
44. J.T. Jasper, M.T. Nguyen, Z.L. Jones, N.S. Ismail, D.L. Sedlak, J.O. Sharp, R.G. Luthy, A.J. Horne, K.L. Nelson (2013). "Unit Process Wetlands for Removal of Trace Organic Contaminants and Pathogens from Municipal Wastewater Effluent." *Environmental Engineering Science*. 30(8):421-436.
43. Gruber, J.S., Reygadas, F., Arnold, B.F., Ray, I., Nelson, K., and J. Colford (2013). "A stepped wedge, cluster-randomized trial of a household UV-disinfection and safe storage drinking water intervention in rural Baja California Sur, Mexico." *American Journal of Tropical Medicine and Hygiene*. 89(2):238-245.
42. Silverman, A.I., Peterson, B.M., Boehm, A.B., McNeill, K., Nelson, K.L. (2013). "Sunlight Inactivation of Human Viruses and Bacteriophages in Coastal Waters Containing Natural Photosensitizers." *Environmental Science and Technology*. 47(4):1870–1878.
41. Enger, K.S., Nelson, K.L., Rose, J.B., and J.S. Eisenberg (2013). "The joint effects of efficacy and compliance: A study of household water treatment effectiveness." *Water Research*. 47(3):1181-1190.
40. Raynal, M., Villegas, E.N., and K.L. Nelson (2012). "Enumeration of viable and non-viable larvated *Ascaris* eggs with quantitative PCR." *Journal of Water and Health*. 10(4):594-604.
39. L.M. Sassoubre, K.L. Nelson, A.B. Boehm (2012) "Mechanisms for photoinactivation of *Enterococcus faecalis* in seawater", *Applied and Environmental Microbiology*. 78(21):7776-7785.
38. A.A. Torkelson, A.K. da Silva, D.C. Love, J.Y. Kim, J.P. Alper, B. Coox, J. Dahm, P. Kozodoy, R. Maboudian, & K.L. Nelson (2012) "Investigation of quaternary ammonium silane-coated sand filter for the removal of bacteria and viruses from drinking water," *Journal of Applied Microbiology*. 113(5):1196-1207.
37. L.M. Sassoubre, D.C. Love, A.I. Silverman, K.L. Nelson and A.B. Boehm. (2012). "Comparison of enterovirus and adenovirus concentration and enumeration methods in seawater from Southern California, USA and Baja Malibu, Mexico." *Journal of Water and Health*. 10(3):419-430.
36. Enger, K., Nelson, K., Clasen, T., Rose, J., and J.N.S. Eisenberg. (2012). "Linking quantitative microbial risk assessment and epidemiological data: Informing safe drinking water trials in developing countries." *Environmental Science and Technology*. 46 (9): 5160–5167.
35. Clasen, T., Fabini, D.; Boisson, S., Taneja, J., Song, J., Aichinger, E., Bui, A., Dadashi, S., Schmidt, W.P., Burt, Z., Nelson, K (2012) "Making sanitation count: Developing and testing a device for assessing latrine use in low-income settings." *Environmental Science and Technology*, 46(6):3295-3303.
34. Levy, K., Nelson, K. L., Hubbard, A. E., and Eisenberg, J. N. S. (2011). "Rethinking indicators of microbial drinking water quality for health studies in tropical developing countries: Case study in Northern Coastal Ecuador." *American Journal of Tropical Medicine and Hygiene*. 86(3):499-507. doi.org/10.4269/ajtmh.2012.11-0263.

33. Fisher, M.B., Iriarte, M., and K.L. Nelson (2011). "Solar water disinfection (SODIS) of *Escherichia coli*, *Enterococcus* spp., and MS2 coliphage: Effects of additives and alternative container materials." *Water Research*, 46(6):1745-1754. doi.org/10.1016/j.watres.2011.12.048.
32. Fisher, M. B., Love, D. C., Schuech, R., & Nelson, K. L. (2011). "Simulated sunlight action spectra for inactivation of MS2 and PRD1 bacteriophages in clear water." *Environmental Science and Technology*, 45(21):9249–9255. doi:10.1021/es201875x
31. Kim, J.Y., Lee, C., Love, D.C., Sedlak, D.L., Yoon, J., and K.L. Nelson (2011) "Inactivation of MS2 coliphage by ferrous ion and nanoparticulate zero-valent iron nanoparticles." *Environmental Science and Technology*, 45(16):6978-6984.
30. Kim, J.Y., Park, H.J., Lee, C., Nelson, K. L., Sedlak, D., and J. Yoon (2010) "Inactivation of *Escherichia coli* by nanoparticulate zerovalent iron and ferrous ion." *Applied and Environmental Microbiology*, 76(22):7668-7670.
29. Wang, D., Silkie, S.S., Nelson, K.L., and Wuertz, S. (2010) "Estimating true human and animal host source contribution in quantitative microbial source tracking using the Monte Carlo method." *Water Research*, 44(16):4760-75.
28. Drake, J., Carpenter, E., Cousins, M., Nelson, K., Guido-Zarate, A., Loftin, K. (2010) "Effects of light and nutrients on seasonal phytoplankton succession in a temperate eutrophic coastal lagoon." *Hydrobiologia*, 654:177-192
27. Love, D.C., Silverman, A.S., and K.L. Nelson (2010) "Human virus and bacteriophage inactivation in clear water by simulated sunlight compared to bacteriophage inactivation at a southern California Beach." *Environmental Science and Technology*, 44 (18):6965–6970.
26. Kim, J.Y., Lee, C., Sedlak, D.L., Yoon, J., and K. L. Nelson (2010) "Inactivation of MS2 by Fenton's Reagent." *Water Research*. 44: 2647–2653.
25. Boehm, A.B., Yamahara, K.M., Love, D.C., Peterson, B.M., McNeill, K., and K.L. Nelson (2009) "Covariation and photoinactivation of traditional and novel indicator organisms and human viruses at a sewage-impacted marine beach." *Environmental Science & Technology*. 43(21):8046-8052.
24. Silkie, S.S. and K.L. Nelson (2009) "Concentrations of host-specific and generic fecal markers measured by quantitative PCR in raw sewage and fresh animal feces." *Water Research*, 43 (19):4860-4871.
23. Murray, A., Ray, I., and K.L. Nelson (2009) "An innovative sustainability assessment for urban wastewater infrastructure and its application in Chengdu, China." *Journal of Environmental Management* 90(11):3553-3560.
22. Levy, K., Hubbard, A. E., Nelson, K. L., and Eisenberg, J. N. S. (2009). "Drivers of water quality variability in Northern coastal Ecuador." *Environmental Science & Technology*, 43(6):1788-1797.
21. Levy, K., Nelson, K. L., Hubbard, A., and Eisenberg, J. N. S. (2008). "Following the water: A controlled study of drinking water storage in northern coastal Ecuador." *Environmental Health Perspectives*, 116(11):1533-1540.
20. K.L. Nelson and A. Murray (2008) "Sanitation for Unserved Populations: Technologies, Implementation Challenges, and Opportunities." *Annual Review of Environment and Resources*, 33:119-151.
19. Lee, C., J.Y. Kim, W.I. Lee, K.L. Nelson, J. Yoon, and D. Sedlak (2008) "Bactericidal effect of zero-valent iron nanoparticles on *Escherichia coli*." *Environmental Science & Technology*, 42(13):4927-4933.
18. Murray, A., A. Horvath, and K.L. Nelson. (2008) "Hybrid life-cycle environmental and cost inventory of sewage sludge treatment and end use scenarios: A case study from China." *Environmental Science & Technology*, 42(9):3163-3169.
17. Silkie, S.S., Tolcher, M.P., and K.L. Nelson. (2008) "Reagent decontamination to eliminate false positives in *E. coli* qPCR." *Journal of Microbiological Methods*, 72(3):275-282.

16. Brownell, S.A., A.R. Chakrabarti, F.M. Kaser, L.G. Connelly, R.L. Peletz, F. Reygadas, M.J. Lang, D. Kammen, and K.L. Nelson (2008). "Assessment of a low-cost, point-of-use, ultraviolet water disinfection technology." *Journal of Water and Health*, 6(1):53-65.
15. Fisher, M.B., C. Keenan, K.L. Nelson, and B.M Voelker (2008) "Speeding up solar disinfection (SODIS): Effects of hydrogen peroxide, temperature, pH, and copper plus ascorbate on the photoinactivation of *E. coli*" *Journal of Water and Health*, 6(1):35-51.
14. Williams, G.J., B. Sheikh, R.B. Holden, T.J. Kouretas, and K.L. Nelson (2007) "The impact of increased loading rate on granular media, rapid depth filtration of wastewater" *Water Research*, 41(19):4535-4545.
13. Kohn, T., M. Grandbois, K. McNeill, and K.L. Nelson (2007) "Association with natural organic matter enhances the sunlight-mediated inactivation of MS2 coliphage by singlet oxygen" *Environmental Science & Technology*, 41(13); 4626-4632.
12. Pecson, B.M., J.A. Barrios, B.E. Jimenez, and K.L. Nelson. (2007). "The effects of temperature, pH, and ammonia concentration on the inactivation of *Ascaris* eggs in sewage sludge." *Water Research*, 41:2893-2902.
11. Kohn, T. and K.L. Nelson (2007) "Sunlight-mediated inactivation of MS2 coliphage via exogenous singlet oxygen produced by sensitizers in natural waters" *Environmental Science & Technology*, 41(1): 192-197.
10. Pecson, B.M., J.A. Barrios, D.R. Johnson, and K.L. Nelson. (2006) "A real-time PCR method for quantifying viable *Ascaris* eggs using the first internally-transcribed spacer region of rDNA". *Applied and Environmental Microbiology*, 72(12): 7864-7872.
9. Brownell, S.A., and K.L. Nelson (2006). "Inactivation of single-celled *Ascaris suum* eggs by low-pressure ultraviolet radiation." *Applied and Environmental Microbiology*, 72(3): 2178-2184.
8. Pecson, B.M., and K.L. Nelson. (2005). "Inactivation of *Ascaris suum* eggs by ammonia." *Environmental Science & Technology*, 39:7909-7914.
7. Nelson, K.L., B. Jiménez, G. Tchobanoglous, and J.L. Darby. (2004). "Sludge accumulation, characteristics, and pathogen inactivation in four primary wastewater stabilization ponds in central Mexico." *Water Research*, 38(1):111-127.
6. Nelson, K.L. (2003). "Concentrations and inactivation of *Ascaris* eggs and pathogen indicator organisms in wastewater stabilization pond sludge." *Water Science and Technology*, 48(2):89-95.
5. Huffman, D.E., K.L. Nelson, and J.B. Rose. (2003). "Calicivirus – An emerging contaminant in water: State of the art." *Environmental Engineering Science*, 20(5):503-515.
4. Nelson, K.L., and J. L. Darby. (2002). "Determination of the inactivation rate of *Ascaris* eggs in wastewater stabilization pond sludge using dialysis chambers and sludge cores." *Water Environment Research*, 74(4):362-369.
3. Nelson, K.L., and J. L. Darby. (2001). "Inactivation of viable *Ascaris* eggs by reagents during enumeration." *Applied and Environmental Microbiology*, 67(12):5453-5459.
2. Nelson, K.L. (2000) "Ultraviolet light disinfection of wastewater stabilization pond effluents and the impact of particles with embedded coliform bacteria." *Water Science and Technology* 42(10-11):165-170.
1. Nelson, K.L. and B. Jiménez (2000) "Sludge accumulation, properties, and degradation in a Mexican wastewater stabilization pond." *Water Science and Technology* 42(10-11):231-236.

REPORTS AND BOOK CHAPTERS

Erickson, J. and K.L. Nelson (2016) Investigation of the Effects of Intermittent Drinking Water Supply to Improve Operation and Infrastructure Investment Strategies, Inter-American Development Bank, Report #ATN/OC-14360-RG. [Also in published in Spanish as Investigación de los Efectos del Suministro

Intermitente de Agua Potable en la Calidad de Agua y la Infraestructura.]

Ray, I., Burt, Z. and K. Nelson (2016) Toward Gender Equality Through Sanitation. United Nations Discussion Paper.

Nelson, K.L., Williams, G., Sheikh, B., Holden, B., Crook, J., Cooper, R.C. (2010). Filter Loading Evaluation for Reuse; Final Project Report. WateReuse Foundation. Project number WRF-02-003.

Kone, D., Cofie, O.O., and K. Nelson (2010) "Low-cost options for pathogen reduction and nutrient recovery from faecal sludge." In Wastewater Irrigation and Health: Assessing and Mitigating Risk in Low-Income Countries. Eds P. Drechsel, C.A. Scott, L. Raschid-Sally, M. Redwood, and A. Bahri. Earthscan, London, p. 171-188.

Silkie, S.S. and K.L. Nelson (2008) "Assessment of Nutrient Enrichment in Rodeo and Tennessee Valley Watersheds: A Mass Balance Approach to Nutrient Source Tracking," Report to National Park Service, Golden Gate Recreation Area.

M. Lang, F. Kaser, F. Reygadas, K. Nelson, D.M. Kammen. (2006). "Meeting the need for safe drinking water in rural Mexico through point-of-use treatment." Policy Paper Series, Center for Latin American Studies, U.C. Berkeley, Berkeley.

Nelson, K.L. (2005). "Small and Decentralized Systems for Wastewater Treatment and Reuse." in Water Conservation, Reuse and Recycling: Proceedings of an Iranian-American Workshop, National Research Council, The National Academies Press, Washington, D.C., 54-66.

INVITED PRESENTATIONS

"Water Systems of the Future: Innovations in Water Reuse and Resource Recovery" Distinguished Lecture, Biological and Environmental Science and Engineering, King Abdullah University of Science and Technology, Saudia Arabia, 26 March, 2017.

"Innovative Water Reuse Practices in California," Invited Panelist, Water Availability in California, Berkeley Energy and Resources Collaborative, Goldman School of Public Policy, U.C. Berkeley, October 26, 2016.

"Closing the nitrogen loop with source-separation of human waste." Invited seminar, Environmental Science Policy and Management, U.C. Berkeley, October 20, 2016.

"State of the Science Panel", Statewide Water Reuse Forum, Governor Edmund G. Brown Jr.'s Office of Planning and Research Sacramento, CA, 16 September, 2017.

"El suministro intermitente de agua potable: *Lecciones de un estudio de caso en Arraiján, Panamá*," (Intermittent water supply: Lessons from a case study in Arraiján, Panama), with John Erickson. Invited presentation to Instituto de Acueductos y Alcantarillados Nacionales (National Institute of Aquaducts and Sewers), Panama City, Panama, June 15, 2016.

"El suministro intermitente de agua potable: *Lecciones de un estudio de caso en Arraiján, Panamá*," (Intermittent water supply: Lessons from a case study in Arraiján, Panama), with John Erickson. Invited presentation at City of Knowledge, INDICASAT, Panama, June 14, 2016.

"El suministro intermitente de agua potable: *Lecciones de un estudio de caso en Arraiján, Panamá*," (Intermittent water supply: Lessons from a case study in Arraiján, Panama), with John Erickson. Invited presentation at Inter-American Development Bank, Washington, D.C., May 19, 2016.

"Rethinking safe drinking water: Insights from studying intermittent water supplies (IWS) in India and Panama and direct potable reuse (DPR) in the United States," Invited Seminar, Cornell University, April 21, 2016.

"Current Perspective and Challenges for Pathogen Control in Waste Stabilization Ponds," Opening Plenary Talk for 11th IWA Specialist Group Conference in Wastewater Pond Technologies, Leeds University, UK, 21-23 March, 2016.

"Decentralized approaches for wastewater management, water reuse, and nutrient recovery," Invited Seminar, University of Southern California, November 13, 2016.

"Solar disinfection of viruses and bacteria in an open-water wetland: Mechanisms, monitoring, and modeling," Invited presentation at IUVA Research Frontiers Conference, Leeuwarden, Netherlands, May 19-21, 2015.

"Global perspectives on wastewater reuse: Contrasting Ghana, India and the United States," Invited Seminar, Technical University of Munich, Chair of Urban Water Systems Engineering, April 27, 2015.

"Microbial water quality in distribution systems: Contrasts between intermittent water supply (IWS) in India and Panama with direct potable reuse (DPR) in the United States," Invited seminar at Swiss Federal Institute of Aquatic Science and Technology, March 31, 2015.

"Innovations in Natural treatment systems and reuse," Seminar on Resource Recovery from Wastewater, University of Leeds, Leeds, UK, February 11, 2015.

"Reinventando la Infraestructura para el Manejo del Agua en Ambientes Urbanos" (Reinventing infrastructure for the management of water in urban environments), Public Forum on Treatment of Wastewater, Cali, Colombia, December 4, 2014.

"Are Existing Sanitation Technologies Workable and Appropriate for Urban Areas (in Latin America and Africa)?" Invited presentation at workshop "Bridging Science and Policy to Enhance Urban Water Security in Africa and the Americas". US National Academy of Science, Inter-American National Academy of Sciences (IANAS), Network of African Academies of Sciences (NASAC), Rosenberg International Forum on Water Policy, Panama City, October 16-17, 2014.

"Waste Stabilization Ponds: Innovations, Research, and Education," Keynote Presentation at 10th IWA Wastewater Pond Technology Specialist Conference, Cartagena, Colombia, August 21, 2013.

"Impact evaluation for switching from intermittent to 24x7 water supply in Hubli-Dharwad, India," Invited presentation at Indian Council for Research on International Economic Relations, New Delhi, July 26, 2013. [Co-authors: Emily Kumpel, Ayse Ercumen, Zach Burt]

"Impact evaluation for switching from intermittent to 24x7 water supply in Hubli-Dharwad, India," Invited presentation at the World Bank, New Delhi, July 25, 2013. [Co-authors: Emily Kumpel, Ayse Ercumen, Zach Burt]

"An evaluation of intermittent versus 24x7 water supply in Hubli-Dharwad, India," Invited presentation at the Indian Institute of Science, Bangalore, July 19, 2013. [Co-authors: Emily Kumpel, Ayse Ercumen, Zach Burt].

"Water quality impacts of intermittent water supply in Hubli-Dharwad, India," Invited presentation at the Inter-American Development Bank, Washington, D.C., November 12, 2012. [Co-author: Emily Kumpel]

"Reinventing America's Urban Water Infrastructure – Tailored water for distributed non-potable and potable reuse." Invited Plenary Talk at IWA Leading Edge Technologies Conference, Brisbane, Australia,

June 3-7, 2012. [Co-authors: Jörg Drewes, Tzahi Cath, Junko Munakata-Marr, Bernd Leinauer, Ana Lucia Prieto, Ryan Hollaway, Dave Vuono, Rabia Chaudhry, Elena Sevostianova.]

“Urban water infrastructure in India,” Invited speaker at IIT Kharagpur-UCB Joint Workshop on Sustainable Water Infrastructure, Indian Institute of Technology, Kharagpur, India, January 10-11, 2012.

“Reducing pathogen risks in drinking water in the developing world from the household to the city scale,” Invited seminar, Department of Civil Engineering and Environmental Science, University of Oklahoma, January 27, 2012.

“Predicting the health impact of household water treatment,” Invited presentation at the WHO Household Water Treatment and Safe Storage Annual Network Meeting, University of North Carolina, October 3, 2011. [Co-authors: Joe Eisenberg, Kyle Enger]

Panel on CAREER Awards, Invited participant, Association of Environmental Engineering and Science Professors Education and Research Conference, University of South Florida, Tampa, FL, July 10-12, 2011.

“Sunlight-mediated inactivation of pathogens in water,” Invited seminar, Swiss Federal Institute of Aquatic Science and Technology, June 9, 2011.

“Sunlight-mediated inactivation of pathogens in water,” Invited seminar, Department of Chemical and Environmental Engineering, University of California, Riverside, April 29, 2011.

“Wastewater irrigation of food crops: A global perspective,” Invited seminar, Department of Civil and Environmental Engineering, Stanford University, December 3, 2010.

“Sunlight inactivation of pathogens, in the context of Waste Stabilization Ponds and SODIS,” Invited speaker at “Sanitation and health in an international perspective,” Swedish University of Agricultural Sciences, Department of Energy and Technology, Uppsala, Sweden, October 29, 2010.

“From small to large scale: How do the hygienic requirements change?” Invited presentation at Workshop on Hygienic Risks of Sanitation Systems, Water, Health and Development Conference, University of North Carolina, Chapel Hill, October 24, 2010.

“Perceived vs. Actual Risks: Greywater, Pathogens. and Public Health,” Invited presentation at the Fourth Bay Area Greywater Roundtable, Greywater Alliance, EBMUD Headquarters, Oakland, September 20, 2010.

“Sunlight-mediated inactivation of pathogens in water,” Invited seminar, Department of Civil and Environmental Engineering, University of California, Los Angeles, February 16, 2010.

“Low-cost household water treatment for pathogens”, Invited speaker at Transitioning Technologies from Labs to Least Developed Countries Workshop, Rice 360°, Rice University, November 6, 2009.

“Sunlight-mediated inactivation of pathogens in water,” Invited seminar, Department of Civil and Environmental Engineering, Rice University, November 6, 2009.

“Designing for reuse: Pathogen removal and inactivation mechanisms,” International Expert Consultation on Wastewater Irrigation: Consumer health risk assessment, on-farm and off-farm options for health risk mitigation, and participatory wastewater governance in low-income countries, International Water Management Research Institute, Accra, Ghana, Oct 6-9, 2009.

“Sunlight-mediated inactivation of pathogens in water,” Invited seminar, WaterCampws (NSF STC), University of Illinois, Champaign-Urbana, April 13, 2007.

"Sunlight-mediated inactivation of pathogens in water," Invited seminar, Department of Chemical and Environmental Engineering, Yale University, April 11, 2007.

"Sunlight-mediated inactivation of pathogens in water," Invited seminar, Environmental Sciences and Engineering, University of North Carolina, Chapel Hill, April 10, 2007.

"Sunlight-mediated inactivation of pathogens in water," Invited seminar, Department of Civil and Environmental Engineering, Stanford University, May 12, 2006.

"Small and decentralized treatment systems in water conservation and reuse," Invited lecture at National Academy of Science Joint Iranian-United States Symposium on Water Resources, Tunis, Tunisia, December 10, 2003.

"Challenges in water and biosolids reuse," Invited seminar, Department of Civil and Environmental Engineering, U.C. Davis, March 3, 2003.

"El UV Tube: Una tecnologia de desinfección de bajo costo," (The UV Tube: A low-cost water disinfection technology), Invited seminar at the Mexican Institute for Water Technology, Juicatepec, Mexico, January 8, 2003.

CONFERENCE PRESENTATIONS

Kara L. Nelson, Scott Miller, Roberto Rodriguez. "Managing microbial water quality for direct potable reuse (DPR)." Gordon Research Conference, Environmental Sciences: Water. Holderness, NH, June 26 – July 1, 2016.

William Tarpeh, Kai Udert, Kara L. Nelson. "Recovering Nitrogen from Source-Separated Urine via Ion Exchange and Electrochemical Stripping." Gordon Research Conference, Environmental Sciences: Water. Holderness, NH, June 26 – July 1, 2016.

Erica Fuhrmeister, Ayse Ercumen, Amy Pickering, Kara L. Nelson. "Impact of Sanitation Improvements on Fecal Contamination in the Household Environment in Rural Bangladesh." Gordon Research Conference, Environmental Sciences: Water. Holderness, NH, June 26 – July 1, 2016.

Kara L. Nelson, Scott Miller, Roberto Rodriguez. "Flow Cytometry and Metagenomics in Pilot-Scale Direct Potable Reuse: Bacterial Persistence and Regrowth." WateReuse Research Conference, Denver, May 23-24, 2016.

Kara L. Nelson. "A Mechanistic Model for Sunlight Inactivation of Viruses and Bacteria in Waste Stabilization Ponds", Opening Plenary Talk for 11th IWA Specialist Group Conference in Wastewater Pond Technologies, Leeds University, UK, 21-23 March, 2016.

Scott Miller, Kara L. Nelson, Roberto Rodriguez. "Flow Cytometry and Bacterial Communities in Pilot-DPR: Bacterial Persistence and Regrowth." California WateReuse Conference, Santa Rosa, CA, March 13-15, 2016.

Kara L. Nelson. "Sunlight inactivation of viruses and bacteria: Mechanistic insights and implications for practice." UV Photochemistry for Water: Implications for Safe Water Disinfection and Oxidation Treatment Application, PacifiChem, Honolulu, Hawaii, December 14-17, 2015

William A. Tarpeh and Kara L. Nelson. "Evaluating Ion Exchange and Electrochemical Nitrogen Recovery From Source-Separated Urine." American Chemical Society, Boston, MA, August 19, 2015.

John Erickson, Paul West, Yamileth Quintero, and Kara L. Nelson. "Online Monitoring in an Intermittent

Drinking Distribution System in Panamá.” American Water Works Association Annual Conference and Exposition, Anaheim, CA, June 7-10, 2015.

William A. Tarpeh, Kara L. Nelson. “Comparing Ion Exchange and Electrochemical Nitrogen Recovery From Source-Separated Urine.” Fecal Sludge Management 3 Conference, Hanoi, Vietnam, January 18-22, 2015.

Sharada Prasad, P Drechsel, K Nelson. “Health risks of sanitation workers associated with faecal sludge management in India.” Fecal Sludge Management 3 Conference, Hanoi, Vietnam, January 18-22, 2015.

Rabia M. Chaudhry, Ryan Holloway, Tzahi Cath, Jörg E. Drewes, Kara L. Nelson. “Virus Surface Characteristics And Removal Mechanisms In Membrane Bioreactors.” The 29th Annual Water Reuse Symposium. Dallas, TX, September 7-10, 2014.

Mi Nguyen, Jannis Wenk, Kara L Nelson. “Natural photosensitizers in constructed unit process wetlands; Spectroscopic characteristics, production of reactive species and effects on inactivation of indicator organisms.” Gordon Research Conference on Environmental Sciences: Water. Plymouth, NH, June 22-27, 2014.

Jannis Wenk, Mi T. Nguyen, Iris Schilling, Andrea I. Silverman, David L. Sedlak, Kara L. Nelson. Sunlight-induced removal of pathogens in unit process wetlands (Original German title: Sonnenlicht-induzierte Entfernung von Krankheitserregern in Pflanzenkläranlagen). The German Water Chemistry Society Annual Meeting, May 26 - 28, 2014.

Andrea I. Silverman, Mi Nguyen, Kara L. Nelson. “Progress on Modeling Sunlight Disinfection of Viruses.” IWA 17th International Symposium on Health-Related Water Microbiology, Florianopolis, Brazil, 17th September 2013.

Rabia M. Chaudhry, Kara L. Nelson, Jorg E. Drewes. “Pathogenic virus removal mechanisms in membrane bioreactors.” IWA 17th International Symposium on Health-Related Water Microbiology, Florianopolis, Brazil, 17th September 2013.

Rabia M. Chaudhry, Kara L. Nelson, Jorg E. Drewes. “Tailored Water Reuse: Virus removal in membrane bioreactors.” AEESP 50th Anniversary Conference, Golden, Colorado, July 14-16, 2013. (*2nd place award for best student poster*).

Fermin Reygadas, Joshua S Gruber, Kara Nelson, John M Colford Jr., Isha Ray. “Barriers and Drivers to Adoption and Use of a Household Ultraviolet Water Disinfection System: A Randomized Control Stepped Wedge Trial in Baja California Sur, Mexico.” Water and Health Conference, Chapel Hill, NC, October 14-18, 2013.

Kara L. Nelson, Mi Nguyen, Iris Schilling “A novel pond design for more efficient disinfection,” 10th IWA Wastewater Pond Technology Specialist Conference, Cartagena, Colombia, August 21, 2013.

Emily Kumpel and Kara L. Nelson. “The challenge of providing safe water with an intermittently supplied piped water distribution system.” American Geophysical Union Annual Meeting, San Francisco, December, 2012.

Kara L. Nelson, Mi Nguyen, Andrea Silverman, Mike Fisher, Dave Love. “Progress on modeling sunlight-mediated inactivation of viruses.” IWA Disinfection of Water, Wastewater, and Biosolids, Mexico City, Mexico, November 26-28, 2012.

Fermin Reygadas, Joshua Gruber, Isha Ray, Jack Colford, Kara Nelson. “Evaluation of the field efficacy of a household UV water disinfection system: The Mesita Azul randomized control stepped wedge trial in Baja California Sur, Mexico.” IWA Disinfection of Water, Wastewater, and Biosolids, Mexico City, Mexico, November 26-28, 2012.

Kara L. Nelson, Temi Ogunyoku. "The Disinfection of Latrine Faecal Sludge with Ammonia Naturally Present in Excreta." IWA Disinfection of Water, Wastewater, and Biosolids, Mexico City, Mexico, November 26-28, 2012.

Kara L. Nelson and Emily Kumpel. "Comparison of Water Quality in Intermittent versus Continuous Piped Water Supply in Hubli-Dharwad, India." IWA Disinfection of Water, Wastewater, and Biosolids, Mexico City, Mexico, November 26-28, 2012.

Temi Ogunyoku, Kara L. Nelson. "The Disinfection of Latrine Faecal Sludge with Ammonia Naturally Present in Excreta." Faecal Sludge Management Conference, Durban, South Africa, Oct 29, 2012.

Fermin Reygadas, Joshua S Gruber, Kara Nelson, John M Colford Jr., Isha Ray. "Evaluation of the Laboratory and Field Efficacy of the UV Tube, an Ultraviolet Water Disinfection System Designed for Households in Developing Countries." Water and Health Conference, Chapel Hill, NC, October 29-November 2, 2012.

Andrea Silverman and Kara Nelson. "Simulated sunlight inactivation of poliovirus, adenovirus, and bacteriophage MS2 and PRD1 in coastal waters from southern California and Mexico." American Society for Microbiology 112th General Meeting, San Francisco, USA, June 16-18, 2012.

Andrew Torkelson and Kara Nelson. "Long-Term Laboratory Study of Virus Removal From Household Drinking Water Filters Using Granular Media." American Society for Microbiology 112th General Meeting, San Francisco, USA, June 16-18, 2012.

Mi Nguyen, Kara Nelson. "Development of a predictive model for direct inactivation of MS2 by sunlight." American Society for Microbiology 112th General Meeting, San Francisco, USA, June 16-18, 2012.

Andrea Silverman and Kara Nelson. "An evaluation of small, on-farm ponds in Accra, Ghana to treat wastewater before use in urban, irrigation agriculture." Water and Health Conference, Chapel Hill, NC, October 2-6, 2011.

Emily Kumpel and Kara Nelson. "Impact on Water Quality of the Conversion from Intermittent to Continuous Piped Water Supply in Urban South India." Water and Health Conference, Chapel Hill, NC, October 2-6, 2011.

Joshua S Gruber, Fermin Reygadas, Isha Ray, Kara Nelson, John M Colford, Jr. "Impact Evaluation of a Safe Drinking Water Intervention for Rural Baja California Sur, Mexico using a Randomized, Stepped Wedge Design." Water and Health Conference, Chapel Hill, NC, October 2-6, 2011.

Nelson, K.L., Kumpel, E. "Water quality in the intermittent, piped water supply of Hubli-Dharwad, India," Association of Environmental Engineering and Science Professors, University of South Florida, Tampa, FL, July 10-12, 2011.

Torkelson, A.A., Kim, J., Love, D., da Silva, A.K., & Nelson, K.L. "Development of Antimicrobial Surfaces on Silica Media to Enhance Bacteria and Virus Removal and Inactivation During Filtration." Disinfection 2011, Water Environment Foundation, Cincinnati, OH, April 10-12, 2011.

A.A. Torkelson, J.P. Alper, A.K. da Silva, J. Kim, P. Kozodoy, D.C. Love, R. Maboudian, & K.L. Nelson. "Development of Antimicrobial-Coated Surfaces for Disinfection of Drinking Water: Permanent Surface Coatings of a Quaternary Ammonium Silane (QAS) on Silica Sand Enhance Removal and Inactivation of Bacteria and Viruses During Filtration." American Society for Microbiology 110th General Meeting, San Diego, USA, May 23-27, 2010.

Fermin Reygadas, Ian Balam, Isha Ray, and Kara L. Nelson. "Field evaluation of the UV Tube in Baja California Sur, Mexico." International Research Colloquium of the Network to promote Household Water Treatment and Safe Storage (HWTS), Dublin, Ireland, September 21 – 23, 2009.

Kara Nelson, Roya Maboudian, Allegra da Silva, Dave Love, John Alper, Andy Torkelson, Peter Kozodoy. "Progress on development of cationic antimicrobial surface coatings for application in HWTS." International Research Colloquium of the Network to promote Household Water Treatment and Safe Storage (HWTS), Dublin, Ireland, September 21 – 23, 2009.

Michael B. Fisher, Kara L. Nelson. "Performance of Accelerated Solar Disinfection (ASODIS) Under Laboratory and Field Conditions." International Research Colloquium of the Network to promote Household Water Treatment and Safe Storage (HWTS), Dublin, Ireland, September 21 – 23, 2009.

Kara L. Nelson, Alexandria B. Boehm, Jee Yeon Kim, David Love, Kristopher McNeill, Britt M. Peterson, Kevan M. Yamahara. "Sunlight inactivation of fecal indicator bacteria and viruses in the field (Avalon Beach, CA) and laboratory" 15th International Symposium on Health-Related Water Microbiology, Naxos Island, Greece, May 31 – June 5, 2009.

Kara L. Nelson, Allegra K. da Silva, Peter Kozodoy, Marta Cerruti, Rosanna M. Lim, Jeffry A. Dahm, Carlo Carraro, Roya Maboudian "Optimizing Quaternary Ammonium Silane Antimicrobial Coatings for Low-Cost, Portable Point-of-Use Water Treatment by Filtration" 15th International Symposium on Health-Related Water Microbiology, Naxos Island, Greece, May 31 – June 5, 2009.

Allegra K. da Silva, Peter Kozodoy, Marta Cerruti, Rosanna M. Lim, Jeffry A. Dahm, Carlo Carraro, Roya Maboudian, Kara L. Nelson "Developing a Point of Use (POU) Drinking Water Filter: Optimization of Self-Assembled Monolayers (SAMs) of Immobilized Quaternary Ammonium Salt (QAS) on Sand Enhances Removal of E. coli from Water", American Society for Microbiology 109th General Meeting Philadelphia, USA, May 17-21, 2009.

Love, D.C., Silverman, A., and K.L. Nelson "Survival of Adenovirus-2, Poliovirus-3, and Bacteriophages in Waters Exposed to Simulated Sunlight," American Society for Microbiology 109th General Meeting Philadelphia, USA, May 17-21, 2009.

Kim, J.Y, Lee, C., Love, D.C., Sedlak, D. L., Yoon, J., and K.L. Nelson "Inactivation of MS-2 coliphage by Ferrous Ion and Zero-valent Iron Nanoparticles", American Society for Microbiology 109th General Meeting Philadelphia, USA, May 17-21, 2009

Nelson, K.L, Kadir, K., Fisher, M., and D. Love "New insights into sunlight disinfection mechanisms in WSP," 8th IWA Specialist Group Conference on Waste Stabilization Ponds, Belo Horizonte, Brazil, April 26-30, 2009.

Love, D.C., Silverman, A., and K.L. Nelson "Comparison of Virus Survival in a Laboratory Solar Simulator and at Avalon Bay, Catalina Island, CA— Corroborating Evidence of Virus Inactivation by Solar UV" EPA National Beach Conference, Huntington Beach, CA, April 20-22, 2009

Alexandria Boehm, Dave Love, Kara Nelson, Kris McNeill, Britt Peterson, Kevan Yamahara, "A model of fecal indicator organisms and viruses at Avalon Bay, Catalina Island, CA, provides insight into sources and fate" EPA National Beach Conference, Huntington Beach, CA, April 20-22, 2009

Allegra K. da Silva, Peter Kozodoy, Jeffrey A. Dahm, and Kara L. Nelson, "Point-Of-Use Disinfection of Drinking Water using Cationic Antimicrobial Surface Coatings," WEF Disinfection 2009, Atlanta, GA, Feb 28 – Mar 3, 2009.

M.B. Fisher, K.L. Nelson, M. Iriarte, "Sunlight inactivation rates of wild-type, mutant, and wastewater-derived E. coli: Applied and Mechanistic Implications for SODIS" WEF Disinfection 2009, Atlanta, GA, Feb 28 – Mar 3, 2009.

Fermin Reygadas, Isha Ray, and Kara L. Nelson, "Field evaluation of the UV Tube in Baja California Sur, Mexico," WEF Disinfection 2009, Atlanta, GA, Feb 28 – Mar 3, 2009.

K.L. Nelson "Designing for reuse: Pathogen removal and inactivation mechanisms," International Expert Consultation on Wastewater Irrigation: Consumer health risk assessment, on-farm and off-farm options for health risk mitigation, and participatory wastewater governance in low-income countries, International Water Management Research Institute, Accra, Ghana, Oct 6-9, 2009.

Nelson, K.L., G.J. Williams. "Virus removal by coagulation and filtration of wastewater – The role of particle association," 14th International Symposium on Health-related Water Microbiology, Tokyo, Japan, September 9-15, 2007.

Nelson, K.L., S.A. Brownell, A.R. Chakrabarti, L.G. Connelly, F.M. Kaser, D. Kammen, M.J. Lang, R.L. Peletz, A.J. Pickering, F. Reygadas. "The UV Tube: Low-cost, point-of-use disinfection of drinking water with ultraviolet light", Association of Environmental Engineering and Science Professors Conference: Interactions at the Interface – Making the Connections Between Environments, Disciplines and Nations, Blacksburg, VA, July 28-Aug 1, 2007.

Kadir, K. and K.L. Nelson "Waste Stabilization Ponds: Technical Functions and Institutional Limitations," The First Joint Egypt-United States Workshop on Innovative Treatment Technologies for Water, Wastewater, Sludge and Other Contaminated Waters, Cairo, Egypt, May 22-24, 2007.

Kohn, T., and K.L. Nelson "Association with natural organic matter enhances the photoinactivation of MS2 by singlet oxygen" Oral presentation at the American Chemical Society Spring Meeting, Chicago, IL, March 26, 2007.

Kohn, T., and K.L. Nelson "The role of singlet oxygen in the sunlight-mediated inactivation of MS2 coliphage in water." Poster presentation at Gordon Research Conference on Environmental Sciences: Water, Plymouth, NH, June 25-30, 2006.

Williams, G., K. Nelson, R. Holden, T. Kouretas, B. Sheikh, J. Crook, and R. Cooper. "Effect of increased loading rate on particles and pathogen indicators in tertiary filters." Oral presentation at 10th Annual Water Reuse Research Conference, Phoenix, AZ, May 14-16, 2006.

Nelson, K.L. "Real-time, quantitative, PCR detection of *E.coli* and *Ascaris* eggs." Oral presentation at International Symposium on Waterborne Pathogens, Athens, GA, March 16-18, 2006.

Kadir, K. and K.L. Nelson "Sunlight-mediated inactivation of pathogens in natural systems." Oral presentation at 6th Annual Meeting of the American Ecological Engineering Society, U.C. Berkeley, April 13-15, 2006.

Kohn, T., and K.L. Nelson "The role of reactive oxygen species in the sunlight-mediated inactivation of viruses in water." Oral presentation at Pacifichem, Honolulu, HI, December 15-20, 2005.

Kadir, K. and K.L. Nelson "Mechanisms of sunlight-mediated inactivation of *Enterococcus faecalis* in surface waters." Poster presentation at Pacifichem, Honolulu, HI, December 15-20, 2005. (*Award for best student poster*).

Fisher, M.B., Voelker, B.M., and K.L. Nelson "Solar disinfection: Effects of hydrogen peroxide, temperature, and copper plus ascorbate on the photoinactivation of *E.coli*." Poster presentation at Pacifichem, Honolulu, HI, December 15-20, 2005.

Nelson, K.L. and I.J. Yang "The effects of degradation and consolidation on sludge accumulation in primary waste stabilization ponds" Oral presentation at 6th International Conference on Waste Stabilization Ponds, Avignon, France, October 1, 2004.

Pecson, B.M. and K.L. Nelson "The Effects of Exposure Time, Temperature, pH, and ammonia concentration on the inactivation rate of *Ascaris* eggs" Oral presentation at XXIX Conference of the Inter-American Association of Sanitary and Environmental Engineering (AIDIS), San Juan, Puerto Rico, August 22-27, 2004.

Nelson, K.L., B. Sheik, R.C. Cooper, R. Holden, and K. Israel "Efficacy of pathogen removal during full-scale operation of water reuse facilities in Monterey, California." Oral presentation at International Water Association 4th International Symposium on Wastewater Reclamation and Reuse, Mexico City, Mexico, November 12-14, 2003.

Pecson, B. and K.L. Nelson "Inactivation of *Ascaris* eggs by pH, temperature, and ammonia" Oral presentation at WEFTEC 03, Los Angeles, CA, October 6-8, 2003.

Nelson, K.L. "Inactivation of waterborne pathogens in engineered and natural systems." Oral presentation at the 3rd American Ecological Engineering Society, College Park, MD, May 28-30, 2003.

Nelson, K.L. "Concentrations and inactivation of *Ascaris* eggs and pathogen indicator organisms in wastewater stabilization pond sludge." Oral presentation at the 5th International Specialist Group Conference on Waste Stabilization Ponds, Auckland, NZ, April 2-5, 2002.

Nelson, K.L. "Development of a mechanistic model of sludge accumulation in primary wastewater stabilization ponds." Oral presentation at the 5th International Specialist Group Conference on Waste Stabilization Ponds, Auckland, NZ, April 2-5, 2002.

Nelson, K. L., G. Tchobanoglous, and D.O. Cliver "Inactivation of helminth eggs in wastewater stabilization pond sludges." Oral presentation at the WEF/AWWA/CWEA Joint Residuals and Biosolids Management Conference, San Diego, CA, February 21-24, 2001.

Nelson, K. L., and B. Jiménez "Acumulación, degradación, y características del lodo en varios lagunas de estabilización en México" (Accumulation, degradation, and characteristics of sludge in several wastewater stabilization ponds in Mexico.) Oral presentation at the First Latin American Conference on Waste Stabilization Ponds and Reuse, Cali, Colombia, October 24-27, 2000.

Nelson, K. L., and B. Jiménez "Concentración e inactivación de patógenos en los lodos de las lagunas de estabilización en México" (Concentration and inactivation of pathogens in the sludge of wastewater stabilization lagoons in Mexico.) Oral presentation at the XII Congreso Nacional de Ingeniería Sanitaria y Ciencias, Michoacán, Mexico, April 20-24, 2000.

Nelson, K. L. "Inactivation of *Ascaris* eggs in wastewater stabilization pond sludges." Poster presentation at WEF Disinfection 2000: Disinfection of Wastes in the New Millennium, New Orleans, March 15-18, 2000.

Nelson, K. L. "Remoción e Inactivación de Huevos de Helmintos en Lagunas de Estabilización," (Removal and Inactivation of Helminth Eggs in Stabilization Ponds). Invited lecture at Course on the Determination and Quantification of Helminth Eggs in Water, Institute of Engineering (UNAM), Academy of Environmental Engineers, and the Interdisciplinary Professional Center for Biotechnology (IPN), Mexico, November 18, 1999.

Nelson, K. L. (1999) "Ultraviolet light disinfection of wastewater stabilization pond effluents and the impact of particles with embedded coliform bacteria." Oral presentation at the 4th IAWQ Specialist Conference on Wastewater Stabilization Ponds: Technology and the Environment, Marrakesh, Morocco, April 20-24.

Nelson, K. L., and B. Jiménez, (1999) "Sludge accumulation, properties, and degradation in a Mexican wastewater stabilization pond." Oral presentation at the 4th IAWQ Specialist Conference on Wastewater Stabilization Ponds: Technology and the Environment, Marrakesh, Morocco, April 20-24.

Nelson, K. L., B. Jiménez, A. Chávez, and C. Maya, (1998) "The use of total suspended solids as an indicator of helminth egg removal from wastewater," Poster presentation at WEFTEC '98, Water Environment Federation, Orlando, Florida, October 3-7.

RESEARCH GRANTS

"Tri-San: Gender Equity in Sanitation", Blum Center for Developing Economies, U.C. Berkeley. Co-PI: Isha Ray. 2015-2016, \$100,000.

"Obama-Singh 21 Century Knowledge Initiative." United States-India Educational Foundation (USIEF/OSI/2014/03). Co-PI: Isha Ray. 2014-2017. \$189,524.

"Effects of sanitation on pathogen transmission and child health in Bangladesh," National Institute of Health, 2014-2018. PI: Jack Colford. Co-PIs: Stephen Luby, Leanne Unicomb, Alan Hubbard. \$2,500,000.

"Investigation of the Effects of Intermittent Drinking Water Supply to Improve Operation and Infrastructure Investment Strategies," Inter-American Development Bank, 2014-2016. \$100,000.

"Sunlight Inactivation Mechanisms of Pathogenic Bacteria in Natural Waters," National Science Foundation (CBET-1335673), 2013-2016. Co-PI: Alexandria Boehm. \$189,000 (UC Berkeley portion).

"Engineering Research Center for Reinventing America's Urban Water Infrastructure", National Science Foundation (28139880-50542-C), 2011-2021. PI: Richard Luthy. Co-PIs: Jorg Drewes, David Sedlak, Nirmala Khandan. ERC funding provided for projects E2.4, N1.1, N4.2, E3.3, E2.8. 2011-2016.

"Safe sludge," Bill and Melinda Gates Foundation, Grand Challenge Explorations, 2011-2012, \$130,000.

"Global assessment of wastewater irrigation" and "Pathogen removal and disinfection in small, farmer-dug ponds in Accra, Ghana," International Water Management Institute, 2011-2013, \$52,000.

"Next generation design of the passive latrine use monitor," Bill and Melinda Gates Foundation, Sub-award from London School of Hygiene and Tropical Medicine, 2011-2013, \$93,756.

"Impact of conversion from intermittent to continuous water supply in Hubli-Dharwad, India. Expanding international research opportunities for US Students," National Science Foundation (OISE-1031194), 2010-2014, \$149,991.

"Evaluation of intermittent versus 24x7 water supply in Hubli-Dharwad, India", Blum Center for Developing Economies, U.C. Berkeley, 2009-2011, \$80,000. Lead PI: Kara Nelson; Co-PIs: Jack Colford, Isha Ray.

"The role of sunlight in controlling fecal indicator bacteria and human virus concentrations in recreational waters," National Science Foundation (CBET-0853568), 2009-2012, \$400,000, Co-PIs Alexandria Boehm, Kris McNeill.

"Q-H2O: A new class of household consumer products for low-cost drinking water treatment", Sustainable Products and Solutions Program, U.C. Berkeley, 2008-2011, \$270,000. Lead PIs: Kara Nelson, Peter Kozodoy; Co-PIs: Roya Maboudian, George Shanthikumar.

"Initiative on Safe Water and Sanitation", Blum Center for Developing Economies, U.C. Berkeley, 2006-2010, \$742,000. Lead PI: Kara Nelson; Co-PIs: Jack Colford, David Levine, Isha Ray.

"Development of an ITS-1 ribosomal DNA (rDNA) gene specific quantitative real-time PCR method for detecting viable larvated *Ascaris* ova in biosolids," U.S. Environmental Protection Agency, 2007-2008, \$90,000.

"Understanding the causes and effects of toxic cyanobacterial blooms in Rodeo Lagoon, Golden Gate National Recreation Area, CA" UC Toxic Substances Research & Teaching Program, 2006-2008, \$50,000.

"Sustainable urban sanitation in developing countries" (component of the Urban Sustainability Initiative, Berkeley Institute for the Environment) Moore Foundation, 2006-2008, \$70,000. Co-PIs: Isha Ray, Jennifer Davis.

"Assessment of nutrient enrichment in Rodeo and Tennessee Valley watersheds" U.S. Park Service, 2005-2007, \$39,781.

"Improving methods for the control of helminth eggs in wastewater and sludge" UC Mexus-Conacyt Collaborative Grant, 2004-2006, \$25,000. Co-PI: Blanca Jimenez.

"UV-Tube design concept for sustainable, point-of-use water disinfection," P3 Award, U.S. Environmental Protection Agency, 2004-2006, \$10,000 (Phase I), \$75,000 (Phase II). Co-PI: Daniel Kammen.

"Understanding sunlight-mediated inactivation of pathogens in water" Faculty Early Career Development (CAREER) Program, Presidential Early Career Award for Scientists and Engineers (PECASE), National Science Foundation (BES-0239144), 2003-2008, \$400,000.

"Optimization of filtration flux rate for production of Title-22 disinfected tertiary recycled water" National Water Research Institute and WaterReuse Foundation, 2003-2008, \$244,000. (Subcontract from Monterey Regional Water Pollution Control Agency).

"Development of a quantitative detection method for enumerating host-specific fecal bacteria based on real-time, quantitative polymerase chain reaction" Center for Water Resources, University of California, 2003-2005, \$60,000.