Nichole E. Brinkman, Biologist, in EPA's National Exposure Research Laboratory

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Area of Expertise: My current research focuses on two major topic areas. The first research area involves describing and evaluating the microbial communities in our aquatic resources through EPA's nationwide surveys. This research will facilitate understanding of the microbial processes in our watersheds and could aid in assessing water quality, aquatic condition and watershed integrity. My other research area is centered on the practice of decentralized, on-site water reuse for non-potable purposes. This work aims to evaluate pathogen densities in a variety of operational systems to provide data to better inform quantitative microbial risk assessment models and allow policy makers to institute practical, but safe treatment requirements for on-site systems. In addition, fast and reliable monitoring of recycled water is being investigated through the use of real-time, online water quality sensors and by investigating the microbial communities in on-site systems to identify abundant members that could be used as biological monitors of treatment performance of decentralized, on-site water reuse systems.

Select Publications:

Fout GS, Cashdollar JL, Griffin SM, Brinkman NE, Varughese EA, Parshionikar SU. 2016. EPA Method 1615. Measurement of Enterovirus and Norovirus Occurrence in Water by Culture and RT-qPCR. Part III. Virus Detection by RT-qPCR. *Journal of Visualized Experiments* (107), e52646, doi:10.3791/52646.

Zimmerman BD, Korajkic A, Brinkman NE, Grimm AC, Ashbolt NJ, Garland JL. 2015. A Recipe-Driven Spike Cocktail Approach to Improve Microbial Risk Characterization of Water Reuse. *Water Environment Research*, In press

Keely, SP, Brinkman NE, Zimmerman BD, Wendell D, Ekeren KM, DeLong SK, Sharvelle S, Garland JL. 2015. Characterization of the relative importance of human- and infrastructure-associated bacteria in graywater: a case study. *Journal of Applied Microbiology* 119(1): 289-301

Griffin SM, Brinkman NE, Hedrick EJ, Rhodes ER, Fout GS. 2014. Comparison of nucleic acid extraction and reverse transcription-qPCR approaches for detection of GI and GII noroviruses in drinking water. *Journal of Virological Methods* 199: 76-85

Brinkman NE, Haffler TD, Cashdollar JL, Rhodes ER. 2013. Evaluation of methods using celite to concentrate norovirus, adenovirus and enterovirus from wastewater. *Journal of Virological Methods* 193(1): 140-6

Brinkman NE, Francisco R, Nichols TL, Robinson D, Schaefer FW 3rd, Schaudies RP, Villegas EN. 2013. Detection of multiple waterborne pathogens using microsequencing arrays. *Journal of Applied Microbiology* 114(2): 564-73

View more research publications by Nichole Brinkman.

Education:

- Ph.D., Biological Sciences, University of Cincinnati, 2014
- M.S., Biological Sciences, University of Cincinnati, 2007
- B.S., Biological Sciences, Northern Kentucky University, 1999

Professional Experience:

- Biologist, USEPA, ORD, NERL-SED, Cincinnati, OH 2015-present
- Biologist, USEPA, ORD, NERL-MCEARD, Cincinnati, OH 2001-2015
- Postgraduate Research Fellow, Oak Ridge Institute for Science and Education, USEPA, ORD, NERL-MCEARD, Cincinnati, OH 2000-2001

Honors and Awards:

- USEPA Office of Research and Development Science and Technological Achievement Award, Level III, 2013
- USEPA Office of Research and Development Science and Technological Achievement Award, Honorable Mention, 2013
- USEPA Office of Research and Development Bronze Medal for Commendable Service, 2011
- USEPA Office of Research and Development Science and Technological Achievement Award, Level III, 2010
- USEPA National Exposure Research Laboratory Team Award, 2008
- USEPA National Exposure Research Laboratory Meritorious Research Support Award, 2007