

## Shawn Siefring, Biologist, in EPA's National Exposure Research Laboratory

Exposure Methods and Measurements Division

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**Area of Expertise:** My research is aimed at developing a fast rapid method, qPCR, for the detection of enterococci indicator bacteria. Currently, cultural methods are utilized and require 24 hours before results are read. QPCR provides results in a few hours so the same day a sample is taken results can be analyzed. No longer will today's results be for yesterday's sample.

### Select Publications:

Richard A. Haugland, Shawn Siefring, Manju Varma, Kevin H. Oshima, Mano Sivaganesan, Yiping Cao, Meredith Raith, John Griffith, Stephen B. Weisberg, Rachel T. Noble, A. Denene Blackwood, Julie Kinzleman, Tamara Anan'eva, Rebecca N. Bushon, Erin A. Stelzer, Valarie J. Harwood, Katrina V. Gordon, Christopher Sinigalliano. Multi-laboratory survey of qPCR enterococci analysis method performance in U.S. coastal and inland surface waters. Journal of Microbiological Methods (2016).

Paar, J., M. Doolittle, M. Varma, S. Siefring, K. Oshima, AND R. Haugland. Development and evaluation of a culture-independent method for source determination of fecal wastes in surface and storm waters using reverse transcriptase-PCR detection of FRNA coliphage genogroup gene sequences. JOURNAL OF MICROBIOLOGICAL METHODS. Elsevier Science Ltd, New York, NY, 112(2):28-35, (2015).

Sivaganesan, M., S. Siefring, M. Varma, AND R. Haugland. Comparison of Enterococcus quantitative polymerase chain reaction analysis results from midwest U.S. river samples using EPA Method 1611 and Method 1609 PCR reagents. JOURNAL OF MICROBIOLOGICAL METHODS. Elsevier Science Ltd, New York, NY, 101(6):9-17, (2014).

Haugland, R., S. Siefring, M. Varma, A. Dufour, K. Brenner, Tim Wade, E. Sams, S. Cochran, S. Braun, AND M. Sivaganesan. Standardization of enterococci density estimates by EPA qPCR methods and comparison of beach action value exceedances in river waters with culture methods. JOURNAL OF MICROBIOLOGICAL METHODS. Elsevier Science Ltd, New York, NY, 105(7):59-66, (2014).

HAUGLAND, R. A., S. SIEFRING, J. Lavender, AND M. VARMA. Influences of sample interference and interference controls on quantification of enterococci fecal indicator bacteria in surface water samples by the qPCR method. WATER RESEARCH. Elsevier Science Ltd, New York, NY, 46(18):5989-6001, (2012).

CHERN, E. C., S. SIEFRING, J. PAAR, M. Doolittle, AND R. A. HAUGLAND. Comparison of quantitative PCR assays for Escherichia coli targeting ribosomal RNA and single copy genes. Letters in Applied Microbiology. Blackwell Publishing, Malden, MA, 52(3):298-306, (2012).

View more research publications by [Shawn Siefring](#).

**Education:**

- B.S. Biology, Heidelberg College, 1991

**Professional Experience:**Honors and Awards:

- Bronze Medal for Commendable Service in Recreational Water Quality Criteria Research Team (2014)
- Scientific and Technological Achievement Award, Level II for Supporting the Implementation of EPA Method 1611 for Rapid Recreational Water Testing (STAA) (2013)
- Scientific and Technological Achievement Award, Level 1 for Development of Real-Time PCR Methods for the Detection of Human and Cow Fecal Pollution (STAA) (2010)
- Scientific and Technological Achievement Award, Level 1 for Development of a Molecular Biology Data Analysis Model (STAA) (2010)
- Scientific and Technological Achievement Award, Level 1 for Protecting Swimmers' Health (STAA) (2006)
- Quality Step Increase (2005), Award for High Quality Performance
- S-Award (2004), Award for Participating in Rapid Methods Competition
- S-Award (2003), Group Award with Richard Haugland for assisting in the Beach Program's Epi-Study.
- Team Award (2001), for Rapid Molecular Method Development pertaining to the Bathing Beach Program.
- Outstanding Performance Appraisal and Monetary Award (1996, 1997).