

## NWRI ATHALIE RICHARDSON IRVINE CLARKE PRIZE 2017 Clarke Prize Recipient

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**Charles N. Haas, Ph.D.**  
**LD Betz Professor of Environmental Engineering**  
**Head of the Department of Civil, Architectural, and Environmental Engineering**  
**Drexel University**

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NWRI is pleased to announce that **Charles N. Haas, Ph.D.** will receive the NWRI Athalie Richardson Irvine Clarke Prize for pioneering and applying methods to assess and minimize health risks caused by exposure to disease-causing microorganisms (referred to as pathogens) in water and wastewater. Haas is the LD Betz Professor of Environmental Engineering and Head of the Department of Civil, Architectural, and Environmental Engineering at Drexel University in Philadelphia, Penn.



**He will receive the Clarke Prize the evening of October 19, 2017, at the Twenty-Fourth Annual NWRI Clarke Prize Lecture and Award Ceremony, a black-tie event to be held at the Irvine Marriott Hotel in Irvine, Calif.**

Trained in both engineering and microbiology, Haas used his cross-disciplinary education to explore the disinfection and inactivation of pathogens in water for the last three decades. His most widely cited textbook, *Quantitative Microbial Risk Assessment* (1999), was the first complete guide for measuring and evaluating the risks to humans posed by disease-causing organisms in food, water, air, and other environmental routes. As used today, quantitative microbial risk assessment (QMRA) involves hazard identification, dose response, exposure assessment, and risk characterization. This valuable, widely used tool has influenced the development of public health guidance and policies by prominent organizations both nationally and internationally.

The U.S. Environmental Protection Agency has cited Haas' research in the Surface Water Treatment Rule and its iterations (including the Long Term 2 Enhanced Surface Water Treatment Rule) and Ground Water Rule (2006). Haas also used his expertise in QMRA to help the World Health Organization develop both the *Guidelines for Drinking Water* and *Guidelines for the Safe Use of Wastewater, Excreta, and Greywater*. Among his more recent work, he served on the NWRI Expert Panel for the State of California (which looked at both regulations for IPR using surface water augmentation and the possibility of developing regulations for DPR) from 2014-2016.

"There is no other individual I know who has contributed more or has had the impact of Chuck Haas at advancing quantitative science within the engineering profession," said colleague Joan Rose, Ph.D., the Homer Nowlin Endowed Chair for Water Research at the University of Michigan, and recipient of the 2016 Stockholm Water Prize. "Chuck has always pushed traditional boundaries, not only for himself, but for others to think about new interfaces. He continues to promote the idea that we can answer the question of 'What is safe?'"

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Kevin Hardy (714) 378-3278 • [khardy@nwri-usa.org](mailto:khardy@nwri-usa.org)