

Wastewater Derived CEC's in the Drinking Water Cycle

Abstract: EPA Microbiological and Chemical Exposure Assessment Research Division was involved in a study analyzing the CEC levels in approximately 30 drinking water sources around the country. This presentation will review the study with consideration of the data and how it may be useful as a reference point for indirect potable recharge via aquifer recharge.

Presenter: Jay L. Garland

Study Co-Author: Susan Glassmeyer

Professional Backgrounds:

Presenter: Jay L. Garland

Title: Division Director

EPA Division: Microbiological and Chemical Exposure Assessment Research Division

EPA Branch: Immediate Office

Professional Background: Dr. Garland worked for over 20 years on NASA's efforts to develop regenerative, closed-loop life support systems, including testing of recycling systems based on plants and microorganisms, before joining EPA's Office of Research and Development in 2011. He has authored over 100 scientific papers on various topics, including methods for microbial community analysis, the ecology of plant-associated microorganisms and the recycling of solid and liquid wastes in plant growth systems. His work is committed to the development of sustainable systems using sound ecological principles and innovative technology.

Education/Training:

- Ph.D. Environmental Science, University of Virginia, 1991
- M.S. Biology (Aquatic Ecology), Virginia Tech, 1985
- B.S. Zoology, Ohio State University, 1983

Professional Experience:

- Division Director, USEPA, ORD, NERL-MCEARD, Cincinnati, OH 2011-present
- Chief Scientist, Biological Program Manager, Dynamac Corporation, Kennedy Space Center, FL 1991-2011

Professional Societies and Affiliations:

- Courtesy Associate Professor, University of Florida Department of Soil and Water Science (2003-current)
- Adjunct Faculty Member, University of Tennessee Center for Environmental Biotechnology (1998-present)

- Visiting Research Fellow, Institute for Environmental Sciences, Amori, Japan. (2005)
- Visiting Professor, University of Buenos Aires (Buenos Aires, Argentina) (2001-present)
- Visiting Professor, National University of the South (Bahia Blanca, Argentina) (2010)
- Guest Professor, University of Innsbruck (Innsbruck, Austria). (2002)
- American Society of Microbiology International Professorship. (2008)

Select Awards and Honors:

- NASA Peer Award for exemplary mentoring NASA Planetary Biology Interns (2005)
- NASA Certificate of Appreciation for setting the highest standard for peer-reviewed publications (2004)
- NASA Space Flight Awareness Honoree for dedication in support of the space program (2003)
- NASA Certificate of Recognition for creative development of technical innovation (2003)
- NASA Certificate of Recognition for creative development of technically significant software (2002)
- NASA Certificate of Recognition for creative development of technical innovation (1999)
- Arch T. Colwell Merit Award (1993) Presented to outstanding papers presented at Society for Mobility Engineering Meetings. Garland et al. (1993) paper was 1 of 12 selected from over 2300 papers published at SAE meetings
- Outstanding Presentation (1991) University of Virginia Environmental Sciences Research Forum. Fred H. Moore Research Fellowship (1991) University of Virginia Environmental Science Dept.,
- NASA Graduate Student Fellow (1988-1991)
- NASA Certificate of Recognition for Technical Innovation (1988)

For more information: <http://www.epa.gov/nerlcwww/staff/garland.html>

Co-Author: Susan Glassmeyer

Title: Research Chemist

EPA Division: Microbiological and Chemical Exposure Assessment Research Division

EPA Branch: Chemical Exposure Research Branch

Professional Background: Susan's research has focused on contaminants of emerging concern (CECs)—chemicals such as pharmaceuticals, flame retardants and surfactants—in the water cycle. Her initial work in this area examined the concentration of these chemicals in wastewater effluents, and their environmental persistence. Since many of these chemicals are associated with household wastewater, they have the potential to be used as tracers of human fecal pathogens. Susan's current research is examining the occurrence of CECs during drinking water treatment to determine which chemicals people are exposed to through the tap.

Education/Training:

- Ph.D. Environmental Science, Indiana University, 1998
- M.S.E.S. Environmental Chemistry, Indiana University, 1996
- B.S. Chemistry, University Scholar, Xavier University, 1993

Professional Experience:

- Research Chemist, USEPA, ORD, NERL-MCEARD, Cincinnati, OH 1998-present

Professional Societies and Affiliations:

- American Chemical Society, Environmental Chemistry Division
- Society of Environmental Toxicology and Chemistry

Select Awards and Honors:

- US EPA Quality Step Increase Award, 2008, 2011

Select Presentations:

- Glassmeyer, S.T., USEPA Office of Research and Development Research on Contaminants of Emerging Concern Water Research Foundation Expert Workshop on EDCs/PPCPs in Drinking Water, Denver, CO, September 2011.
- Glassmeyer, S.T., D.W. Kolpin, E.T. Furlong Measuring Contaminants of Emerging Concern in the Environment: Is There Such a Thing as Too Much QA/QC?, Water Quality Technical Conference, Savannah, GA. November, 2010.
- Glassmeyer, S.T., Emerging Contaminants in the Drinking Water Cycle, Association of State and Interstate Water Pollution Control Administrators Research Summary on EDCs and PPCPs Webinar, August 2009.
- Glassmeyer, S.T., C.G. Daughton, J.M. Lazorchak, A.L. Batt, M.S. Kostich, M.A. Mills, I.S. Ruhoy, and T.L. Jones-Lepp, United States Environmental Protection Agency Research on Pharmaceuticals and Personal Care Products KNAPPE International Conference, Nimes, France February 2008.
- Glassmeyer, S.T., E.T. Furlong, D.W. Kolpin, I.Ferrer, J.D.Cahill, S.D. Zaugg, S.L. Werner, and D.D. Kryak "Transport of Chemical and Microbial Contaminants From Known Wastewater Discharges", Global Water Research Coalition Workshop on Pharmaceuticals, Nieuwegein, The Netherlands, December 2003.