Gene Whelan, Research Physical Scientist, in EPA's National Exposure Research Laboratory

Systems Exposure Division
Mailing Address

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Area of Expertise: Dr. Whelan conceives, develops, and applies physics-based, integrated, user-friendly computer-based multimedia contaminant transport and exposure/risk assessment methodologies, which simulate chemical, radionuclide, and microbial release, intermedia transport (through groundwater, surface water, overland, and air), exposure to human (by inhalation, ingestion, dermal contact, and external dose) and wildlife, and risk/hazard (to carcinogens, noncarcinogins, and pathogens).

He is currently the Principle Investigator for developing an integrated environmental modeling infrastructure to automate the set-up, data collection, and assessment of risks to contaminant exposures, especially as it relates to a Quantitative Microbial Risk Assessment (QMRA) infrastructure. He is also on the team to develop the Chemical Transformation Simulator (CTS) [formerly called the Environmental Fate Simulator (EFS)], which is a computational tool that integrates the most robust process science to provide physicochemical properties to both the parent chemical and potential transformation products. Prior to joining EPA, he was a Chief Engineer at the Pacific Northwest National Laboratory and was involved in the development of 10 multimedia software systems and approaches (RAPS, MEPAS, FRAMES V1, 3MRA, FRAMES V2, ARAMS, RAAS, MRA, RRA, and CORE).

Select Publications

Kim, K., G. Whelan, M. Molina, S.T. Purucker, Y. Pachepsky, A. Guber, M. Cyterski, D. Franklin, R.A. Blaustein. 2016. Rainfall-induced release of microbes from manure: model development, parameter estimation, and uncertainty evaluation on small plots. J Water Health.

Park, Y., Y. Pachepsky, D. Shelton, J. Jeong, G. Whelan. 2016. Survival of manure-borne Escherichia coli and fecal coliforms in soil: temperature dependence as affected by site-specific factors. J Environ Qual (doi: 10.2134/jeq2015.08.0427)

Kim, K., G. Whelan, S.T. Purucker, T.F. Bohrmann, M. Cyterski, M. Molina, Y. Gu, Y. Pachepsky, A. Guber, and D. Franklin. 2014. Rainfall-runoff model parameter estimation and uncertainty evaluation on small plots. Hydrol Process, 28(20):5220-5235.

Pachepsky, Y., R. Blaustein, G. Whelan, D.R. Sheldon. 2014. Comparing temperature effects on Escherichia coli, Salmonella, and Enterococcus survival in surface waters. Letters in Applied Microbiology, 59:278-283.

View more research publications by Gene Whelan.

Education:

- Ph.D. Civil & Environmental Engineering (Soil Chemistry minor), Utah State University (Dissertation: Surface-induced Oxidation of Multiple-ringed Diol and Dione Aromatics by Manganese Dioxide)
- M.S. Mechanics and Hydraulics, The University of Iowa (Thesis: Distributed Model for Sediment Yield)
- B.S. Civil Engineering, The Pennsylvania State University
- Civil Engineering, University of Massachusetts (transferred)

Professional Experience:

- Research Physical Scientist, U.S. Environmental Protection Agency, Athens, GA (2008-present)
- Chief Engineer V, Pacific Northwest National Laboratory, Richland WA (1995-2008)
- Adjunct Assistant Professor, Washington State University, Tri-Cites (1993-2008)
- Director, EPA Sector, Pacific Northwest National Laboratory, Richland WA (1999-2004)
- Sedimentation/Hydraulic Engineer, U.S. Army Corps of Engineers, Omaha District (1982)

Honors and Awards:

- 2010, 2012, 2014, 2016 – International Environmental Modeling & Software Society (iEMSs) Biennium Conference, Organizing Committee and/or Session and Workshop Chairman
- 2008-2015 – ISCMEM Working Group 1 Chairman (Software Systems Design and Implementation for Environmental Modeling)
- 2011, 2014 – U.S. EPA Team S Award
- 2012 – IEM Summit, Integrated Environmental Modeling, Lowering the Barriers, Organizing Committee
- 2012—Society of Toxicology (SOT), Building for Better Decisions: Multi-scale Integration of Human Health and Environmental Data, Organizing Committee
- 2011 – U.S. EPA NERL Goal 3 Award
- 2004, 2005 – Pacific Northwest National Laboratory, (PNNL) Outstanding Team Performance Award
- 2004 – Environmental Business Journal 2003 Achievement Award Recipient of the Technical Merit Award for Environmental Technology and Environmental Information Innovation
- 2004 – Symposium Organizer and Chairman, Multimedia Modeling and Assessment Symposium, 2nd International Conference on Prevention, Assessment, Rehabilitation and Development of Brownfield Sites, Siena Italy
- 1999, 2001, 2003 – PNNL Outstanding Performance Award
- 2002 – Symposium Organizer and Chairman, Multimedia Modeling and Assessment Symposium, 1st International Conference on Prevention, Assessment, Rehabilitation and Development of Brownfield Sites, Cadiz, Spain
- 1991, 1993, 1994, 1997, 1998, 2000 – Battelle Award for Patents, Inventions, Innovations, and Software Development