John Wm. Washington

Ecosystems Processes Division
USEPA, Center for Environ. Measurements & Modeling
960 College Station Road
Athens, GA 30605

Email: washington.john@epa.gov
Office: (706) 355 - 8227
Laboratory: (706) 355 - 8227

EDUCATION:

Ph.D. Penn State University. 1991. Geochemistry and Mineralogy.
M.S. Penn State University. 1985. Environmental Pollution Control.
B.S. Penn State University. 1982. Environmental Resource Management.

RECENT PROFESSIONAL POSITIONS:

Aug. 2006-present. Adjunct assistant professor, Department of Geology, University of Georgia.

Oct. 2002-present. Research Chemist, National Exposure Research Laboratory, USEPA, Athens, GA. *Perfluorinated Chemicals Research Task Lead*, a high priority effort requested by OPPT, a Washington, D.C. EPA program office, investigating degradation of perfluorinated polymer; responsible for securing >$1M for this task. *Former Nutrient Research Task Lead* with 7 research scientists.

Sept. 1998-Oct. 2002. Chemist, National Exposure Research Laboratory, USEPA. Athens, GA.

PUBLICATIONS (* denotes corresponding author):

Evich, Marina G., Mary J. B. Davis, James P. McCord, Brad Acrey, Jill A. Awkerman, Detlef R. U. Knappe, Andrew B. Lindstrom, Thomas F. Speth, Caroline T. Stevens, Mark J. Strynar, Zhanyun Wang, Eric J. Weber, W. Matthew Henderson*, John W. Washington*. 2022. Per- and polyfluoroalkyl substances in the environment. Science (paper invited by the journal). Vol 375, Issue 6580, Page 512, DOI: 10.1126/science.abg9065.

Breinlinger, S., T.J. Phillips, B.N. Haram, J. Mareš, J.A. Martínez Yerena, P. Hrouzek, R. Sobotka, W.M. Henderson, P. Schmieder, S.M. Williams, J.D. Lauderdale, H.D. Wilde, W. Gerrin, A. Kust, J.W. Washington, C. Wagner, B. Geier, M. Liebeke, H. Enke, T.H.J. Niedermeyer, S.B. Wilde. 2021. Hunting the eagle killer: A cyanobacterial neurotoxin causes Vacuolar Myelinopathy. Science. 371. 1335. Highlighted on issue cover. Received the Newcomb Cleveland Prize honoring outstanding research article of the year.

McCord, J.P., M.J.Strynar, J.W. Washington, E.L. Bergman, S.M. Goodrow. 2020. Emerging chlorinated polyfluorinated polyether compounds impacting the waters of southeastern New Jersey. Identified by use of nontargeted analysis. Environmental Science & Technology Letters. DOI: acs.estlett.0c00640. 7. 903-908.

Washington, J.W.*, C.G. Rosal, J.P. McCord, M.J. Strynar, A.B. Lindstrom, E.L. Bergman, S.M. Goodrow, H.K. Tadesse, A.N. Pilant, B.J. Washington. M.J. Davis, B.G. Stuart, T.M. Jenkins. 2020. Nontargeted mass-spectral detection of chloroperfluoropolyether carboxylates in New Jersey Soils. Science. 368. 1103-1107. Selected for Policy Forum commentary in the same issue, by Gold and Wagner, 368. 1066-1068.

Selano, J., Richardson, V., Washington, J., Mazur, C. 2019. Cryopreserved Rat Hepatocyte Suspensions: Pharmacokinetic Implications for PFOA and PFOS Chemical Exposure. Toxicology in Vitro. Accepted.

Washington, J.W.*, K. Rankin, K., E.L. Libelo, D.G. Lynch, M. Cyterski. 2019. Determining global background soil PFAS loads and the fluorotelomer-based polymer degradation rates that can account for these loads. Science of the Total Environment. 651. 2444-2449.

Washington, J.W.*, C. Rosal, E.M. Ulrich, T.M. Jenkins. 2018. Use of carbon isotopic ratios in nontargeted analysis to screen for anthropogenic compounds in complex environmental matrices. Journal of Chromatography A. doi.org/10.1016/j.chroma.2018.11.013.

Naile, J.E., A.W. Garrison*, J.K. Avants, J.W. Washington*. 2016. Isomers/Enantiomers of Perfluorocarboxylic Acids: Method Development and Detection in Environmental Samples. Chemosphere. 144. 1722-1728.

Rankin, K., S.A. Mabury, T.M. Jenkins, J.W. Washington*. 2015. A Global Survey of Perfluoroalkyl Carboxylates (PFCAs) and Perfluoroalkane Sulfonates (PFSAs) in Surface Soils: Distribution Patterns and Mode of Occurrence. Chemosphere. 161. 333-341.

Washington, J.W.*, T.M. Jenkins. 2015. Abiotic hydrolysis of fluorotelomer polymers as a source of perfluorocarboxylates at the global scale. Environmental Science & Technology. 49. 14129-14135.

Washington, J.W.*, T.M. Jenkins, E.J. Weber*. 2015. Identification of unsaturated and 2H polyfluorocarboxylate homologous series, and their detection in environmental samples and as polymer degradation products. Environmental Science & Technology. 49. 13256.

Washington, J.W.*, T.M. Jenkins, K. Rankin, J.E. Naile. 2015. Decades-Scale Degradation of Commercial, Side-Chain, Fluorotelomer-based Polymers in Soils & Water. Environmental Science & Technology. 49. 915-923. Also selected for reissue in the virtual ES&T issue, Poly- and Perfluoroalkyl Substances. June 2017.

Sullivan et al. 2015. Analysis of the Transport and Fate of Metals Released from the Gold King Mine in the Animas and San Juan Rivers. EPA/600/R-16/296. (https://cfpub.epa.gov/si/si_public_record_report.cfm?Lab=NERL&dirEntryID=325950)

Washington, J.W. 2015. Geochemical Considerations Regarding the Gold King Mine Release. Appendix in EPA/600/R-16/296. (https://cfpub.epa.gov/si/si_public_record_report.cfm?Lab=NERL&dirEntryID=325950)

Washington, J.W.*, J.E. Naile, T.M. Jenkins, D.G. Lynch. 2014. Characterizing Fluorotelomer & Polyfluoroalkyl Substances in New & Aged Fluorotelomer-Based Polymers for Degradation Studies with GC/MS & LC/MS/MS. Environmental Science & Technology. 48. 5762-5769.

Reiner, J.L., et al. 2013. Polyfluorinated Substances in Abiotic Standard Reference Materials. Analytical and Bioanalytical Chemistry. Accepted.

Ferrey, M.L., J.T. Wilson, C. Adair, C. Su, D.D. Fine, X. Liu, J.W. Washington. 2012. Behavior and fate of PFOA and PFOS in sandy aquifer sediment. Ground Water Monitoring & Remediation. 32. 63-71.

Lasier, P.J.*, J.W. Washington, S.M. Hassan, T.M. Jenkins. 2011. Perfluorinated Chemicals in Surface Waters and Sediments from Northwest Georgia, USA, and Their Bioaccumulation in Lumbriculus variegates. Environmental Toxicology & Chemistry. 30. 2194-2201.

Yoo, H., J.W. Washington*, T.M. Jenkins, J.J. Ellington. 2011. Quantitative determination of perfluorochemicals and fluorotelomer alcohols in plants from biosolid-amended fields using LC/MS/MS and GC/MS. Environmental Science & Technology. 45. 7985-7990.

Yoo, H., J.W. Washington*, J.J. Ellington, T.M. Jenkins, M.P. Neill. 2010. Concentrations, distribution and persistence of fluorotelomer alcohols in sludge-applied soils near Decatur, Alabama, USA. Environmental Science & Technology. 44. 8397-8402.

Washington, J.W.*, H. Yoo, J.J. Ellington, T.M. Jenkins, E.L. Libelo. 2010. Concentrations, distribution and persistence of perfluoroalkylates in sludge-applied soils near Decatur, Alabama, USA. Environmental Science & Technology. 44. 8390-8396.

Washington, J.W.*, J.J. Ellington, T.M. Jenkins, H. Yoo. 2010. Response to Comment on "Degradability of an Acrylate-Linked Fluorotelomer Polymer in Soil." Environmental Science & Technology. 44. 849-850.

Yoo, H., J.W. Washington*, T.M. Jenkins, E.L. Libelo. 2009. Analysis of Perfluorinated Chemicals in Sludge: Method Development and Initial Results. Journal of Chromatography A. 1216. 7831-7839.

Washington, J.W.*, J.J. Ellington, T.M. Jenkins, J.J Evans, H. Yoo, S.C. Hafner. 2009. Degradability of an Acrylate-Linked Fluorotelomer Polymer in Soil. Environmental Science & Technology. 43. 6617-6623.

Ellington, J.J.*, J.W. Washington, J.J. Evans, T.M. Jenkins, S.C. Hafner, M.P. Neill. 2009. Analysis of Fluorotelomer Alcohols Soils: Optimization of Extraction and Chromatography. Journal of Chromatography A. 1216. 5347-5354.

Washington, J.W.*, W.M. Henderson, J.J. Ellington, T.M. Jenkins, J.J Evans. 2008. Analysis of Low Concentrations of Perfluorinated Carboxylic Acids in Soils II: Optimization of Chromatography & Extraction. Journal of Chromatography A. 1181. 21-32.

Washington, J.W.*, J.J. Ellington, T.M. Jenkins, J.J Evans. 2007. Analysis of Low Concentrations of Perfluorinated Carboxylic Acids in Soils: Issues with Determination of Presence & Quantification at Low Levels. Journal of Chromatography A. 1154. 111-120.

Henderson, W.M., E.J. Weber, S.E. Duirk, J.W. Washington, M.A. Smith*. 2006. Quantification of Fluorotelomer-Based Chemicals in Mammalian Matrices by Monitoring Perfluoroalkyl Chain Fragments with GC/MS. Journal of Chromatography B. 846. 155-161.

Washington, J.W.*, R.C. Thomas, D. Endale, K. Schroer, L. Samarkina. 2006. Groundwater N Speciation and Redox Control of Organic N Mineralization. Geochimica et Cosmochimica Acta. 70. 3533-3548.

Washington, J.W.*, D. Endale, L. Samarkina, K.C. Chappell. 2004. Kinetic Control of Oxidation State at Thermodynamically Buffered Potentials. Geochimica et Cosmochimica Acta. 68. 4831-4842.

Washington, J.W.*, B.A. Cameron. 2001. Elucidating a Cause for the Gap in Field Vs. Lab k_{deg} for Organic Contaminants Using Analytic Models. Environmental Toxicology and Chemistry. 20. pp. 1909-1915.

Washington, J.W.* 2000. The Possible Role of Volcanic Aquifers in Prebiologic Genesis of Organic Compounds and RNA. Origins of Life and Evolution of the Biosphere. Invited. 30. pp 53-79.

Greeman, D.A., A.W. Rose*, J.W. Washington, R.R. Dobos, E.J. Ciolkosz. 1999. Geochemistry of Radium in Soils of the Eastern United States. Applied Geochemistry. 14. pp 365-385.

Washington, J.W.* 1996. Gas Partitioning of Dissolved Volatile Organic Compounds: Principles, Temperature Effects and Literature Review. Ground Water. 34. pp 709-718.

Washington, J.W.* 1995. Hydrolysis Rates of Dissolved Volatile Organic Compounds: Principles, Temperature Effects and Literature Review. Ground Water. 33. pp. 415-424.

Washington, J.W.*, A.W. Rose, E.J. Ciolkosz, R.R. Dobos. 1994. Gaseous Diffusion and Permeability in Four Soil Profiles in Central Pennsylvania. Soil Science. 157. pp. 65-76.

Washington, J.W., A.W. Rose*. 1992. Temporal Variability of Radon Concentration in the Interstitial Gas of Soils in Pennsylvania. Journal of Geophysical Research. 97. B6. pp. 9145-9159.

Washington, J.W., A.W. Rose*. 1990. Regional and Temporal Relations of Radon in Soil Gas to Soil Temperature and Moisture. Geophysical Research Letters. Invited. 17. pp. 829-832.

Rose, A.W.*, A.R. Hutter, J.W. Washington. 1990. Sampling Variability of Radon in Soil Gases. Journal of Geochemical Exploration. 38. pp. 173-191.

Rose, A.W.*, J.W. Washington, D.J. Greeman. 1988. Variability of Radon with Depth and Season in a Central Pennsylvania Soil. Northeastern Environmental Science. 7. pp. 35-39.

SELECTED AWARDS:

2022 AAAS Newcomb Cleveland Prize. for year's outstanding research paper published in Science, "Hunting the eagle killer: A cyanobacterial neurotoxin causes vacuolar myelinopathy."

2020 USEPA Science Achievement Award. for use of innovative analytical approaches to develop a legacy PFAS fingerprint and detect novel PFAS chemicals and degradates in New Jersey.

2020 USEPA James W. Craig Pollution Prevention Leadership Award. for collaborative efforts with state and tribal governments to characterize exposures and reduce to emerging PFAS.

2021 Penn State, College of Earth and Mineral Sciences 125th Anniversary Fellow. for contributions to the fields of science or engineering.

2018 USEPA Science Achievement Award in Chemistry. for outstanding contributions in initiating, implementing and leading the area of Non-Targeted Analysis.

2017 ES&T Virtual Issue Author. Paper selected to lead Occurrence and Fate Category of the Virtual Issue "Poly & Perfluoroalkyl Substances," June 2017, reissuing "Decades-Scale Degradation of Commercial, Side-Chain, Fluorotelomer-based Polymers in Soils & Water.

2017 USEPA Gold Medal. team award for fate- and transport-analysis of acid mine drainage from the 2015 Gold King Mine release.

2016 USEPA Level II Scientific and Technological Achievement Award. for Experimental Determination of Hydrolysis Rates for Fluorotelomer Polymers and identification of two new classes of perfluorinated compounds.

2015 USEPA Level II Scientific and Technological Achievement Award. for Experimental and Modeling Research to Determine Degradation Rates for Commercial Fluorotelomer-Based Polymers.

2012 USEPA Level II Scientific and Technological Achievement Award. for quantitative determination of perfluorochemicals and fluorotelomer alcohols in plants.

2011 USEPA Silver Medal. individual award for providing exceptional expertise, effort, and data to the Agency to inform regulatory decisions and regulatory efforts concerning perfluorinated compounds.

2011-2012 ACS Chemist of the Year Award for Research. Northeast Georgia Section (including University of Georgia) of the American Chemical Society.

2007 USEPA Gold Medal. for contributions to the Agency mission as a member of the "Risk Management on Perfluorinated Compounds Team."

2007 USEPA Level I Scientific and Technological Achievement Award for elucidation of groundwater N speciation and redox control of organic N mineralization.

2005 USEPA Level II Scientific and Technological Achievement Award for elucidation of kinetic control of oxidation state at thermodynamically buffered potentials in subsurface waters.

2004 USEPA Science Achievement Award in Earth Science. For combining challenging field and laboratory efforts with quantitative chemical modeling to advance our fundamental understanding of redox chemistry in environmental systems.