

**KERI C. HORNBUCKLE**

Department of Civil and Environmental Engineering, 4105 SC  
University of Iowa, Iowa City, Iowa 52242

(319) 384-0789

Fax: 319 335-5660

E-mail: keri-hornbuckle@uiowa.edu

**Professional Preparation:**

Ph.D. University of Minnesota - Minneapolis, MN Environmental Engineering. January 1996

B.A. Grinnell College, Grinnell, IA.

Chemistry May 1987

**Appointments:**

- 9/2007–present Department Executive Officer (Chair), Dept. Civil and Environmental Engineering
- 7/2007–present Professor, Department of Civil and Environmental Engineering
- 1/2007-7/2007 Visiting Professor, Department of Applied Environmental Science (ITM) and Department of Environmental Chemistry, Stockholm University, Sweden
- 7/2006–present Associate Professor and Professor, Department of Environmental and Occupational Health, College of Public Health, University of Iowa (Secondary Appointment)
- 4/2006-present Co-Leader, Analytical Core, Iowa Superfund Basic Research Program (NIEHS), Univ. of Iowa
- 7/2001-7/2007 Associate Professor w/tenure, Dept. Civil and Environmental Engineering, Univ. of Iowa
- 7/1998–7/2001 Assistant Professor, Dept. Civil and Environmental Engineering, University of Iowa
- 7/1998-present Research Engineer, IIHR-Hydroscience and Engineering, University of Iowa
- 8/2002-2004 Director, Exposure Assessment Facility, Environmental Health Sciences Research Center (NIEHS), University of Iowa
- 7/1995-7/1998 Assistant Professor, Department of Civil, Structural, and Environmental Engineering, State University of New York at Buffalo

**Awards**

- 2008 Distinguished Achievement Award, Committee for Excellence among Women, Univ. of Iowa
- 2007 Robert and Virginia Wheeler Faculty Fellow of Engineering
- 2007 University of Iowa Career Development Award (Stockholm University)
- 2006 IAGLR Appreciation Award, International Association for Great Lakes Research
- 2003 Excellence in Review Award, American Chemical Society, *Environmental Science & Technology*
- 2003 Distinguished Service Award, Association of Environmental Engineering and Science Professors
- 2000 University of Iowa Provost Office International Travel Grant
- 2000 University of Iowa's Old Gold Summer Fellowship (and 1999)
- 1997 National Science Foundation's Early Faculty Career (CAREER) Development Program Award

### **Scientific and Professional Society Activities (Selected)**

Headwaters Council, University of Minnesota Water Resources Center (2009-present)

Internet Resources Committee, Assoc. Environmental Engineering and Science Professors (2009-present)

Board of Directors, Assoc. Environmental Engineering and Science Professors (2006-2009)

President, Vice President and Past President, International Association for Great Lakes Research (2005/2006)

Chair, 5-year Plan Committee, International Association for Great Lakes Research (6/2003-6/2005)

Air Toxics Research Strategy / Multi-Year Plan Panelist serving U.S.EPA's Science Advisory Board.

July, 2003-2004. Produced report EPA-SAB-05-002: "EPA's Air Toxics Research Strategy and Air Toxics Multi-Year Plan. A review by the Air Toxics Research Strategy and Multi-Year Plan Panel of the EPA Science Advisory Board."

Associate Editor, the *Journal of Great Lakes Research*. (2001 –2006)

Board of Directors, The International Association for Great Lakes. (6/2002 – 6/2006)

CH2M & Parsons PhD Dissertation Awards Committee, Association of Environmental Engineering and Science Professors (2001-2003), Chair in 2003.

Science Advisory Board, The International Joint Commission (1/98-12/2002)

Liaison to the International Joint Commission's International Air Quality Advisory Board (10/98 to 12/2002).

Awards Committee, Society of Environmental Toxicology and Chemistry (2000-2002).

### **University Service (Selected)**

Co-Chair of Search Committee for Associate Vice President for Diversity (2009-present)

Graduate Programs Assessment Task Force (2009-present)

Search Committee, Associate Provost for Faculty (2009- present)

Sustainability Curriculum Committee Member (2008-present)

Review Committee, Regents Award for Faculty Excellence (2008)

Executive Board of Iowa AGEP (Alliance in Graduate Education and Professoriate) (2005, 2008-09)

Provost Search Committee (2007-2008)

AGEP Iowa Advisory Board member (Alliance for Graduate Education and Professoriate)

Center for the Health Effects of Environmental Contamination (CHEEC) Advisory Board (2002- 08)

Faculty Senate subcommittee on Student Financial Aid (2003- 2006)

Faculty Senate Member (2003- 2004)

### **Current Research Projects:**

Transport of Sediments and Pollutants into the Terrestrial Regions of a Small Urban-Industrial City:

The June 2008 Flood of Cedar Rapids, Iowa. Keri Hornbuckle (PI) and Thanos Papanicolaou (co-PI).

National Science Foundation. (8/1/08-7/31/10)

Atmospheric Sources of PCB Congeners. A research project of the Iowa superfund basic research program (isbrp), Semi-volatile PCBs: Sources, Exposures, Toxicities (Program Director Larry Robertson), Hornbuckle, K.C. and Persky, V. NIESH/ NIH: (04/06 to 03/10)

Analytical Core: Extraction, Detection, and Interpretation of PCB Congeners in Complex Matrices. A core facility of the isbrp. Hornbuckle, K.C.; Lehmler, H.-J.; Just, C.J. NIESH/ NIH: ( 04/06 to 03/10)

Characterization of Exposures of Urban and Rural Cohorts to Airborne PCBs. A research project of the isbrp. Thorne, P. and Hornbuckle, K.C. NIESH/ NIH: (04/06 to 03/10)

A molecular microbiological search for active biphenyl dioxygenases in polychlorinated biphenyl-contaminated sediments. A research grant from the Center for Health Effects of Environmental Contamination. (05/07 to 04/09).

### Peer-Reviewed Publications

1. Persoon, C; Peters, TM; Kumar, N; and Hornbuckle, KC. "Spatial Distribution of Airborne Polychlorinated Biphenyls in Cleveland, OH and Chicago, IL" In Press, Environ. Sci. Technol., 2009.
2. Paola A Correa,; LianShin Lin,; Craig L Just,; Dingfei Hu; Hornbuckle C Keri; Jerald L Schnoor; Benoit Van Aken\*. "The Effects of Individual PCB Congeners on the Soil Bacterial Community Structure and the Abundance of Biphenyl Dioxygenase Genes" In Press, Environment International. 2009.
3. Karin Norström, Gertje Czub, Michael S. McLachlan\*, Dingfei Hu, Peter S. Thorne and Keri C. Hornbuckle. "External exposure and bioaccumulation of PCBs in humans living in a contaminated urban environment". In Press, Environment International, 2009. NIHMSID 143992.
4. H. Zhao, A. Adamcakova-Dodd, D. Hu, K.C. Hornbuckle, C.L. Just, L.W. Robertson, P.S. Thorne, H.-J. Lehmler\* "Development of a Synthetic PCB Mixture Resembling the Average Polychlorinated Biphenyl Profile in Chicago Air" In Press, Environment International 2009.
5. Wombacher, W.D. and Hornbuckle, K.C.\* "Synthetic Musk Fragrances in a Conventional Drinking Water Treatment Plant with Lime Softening" In Press, ASCE Journal of Environmental Engineering, 2009.
6. Martinez, A.; Norström, K.; Wang, K. and Hornbuckle, K.C.\* , Polychlorinated biphenyls in the surficial sediment of Indiana Harbor and Ship Canal, Lake Michigan. In Press, Environment International, 2009. NIHMSID 143982.
7. Persoon, C. and Hornbuckle, KC. \* "Calculation of passive sampling rates from both native PCBs and depuration compounds in indoor and outdoor environments" Chemosphere 74, 2009, 917–923. NIHMSID 96968.
8. Kania-Korwel, I.; Zhao, H.; Norstrom, K.; Li, X; Hornbuckle, K.C.; Lehmler, H-J.\*., "Simultaneous extraction and clean-up of polychlorinated biphenyls and their metabolites from small tissue samples using pressurized liquid extraction" In Press. J. Chromatogr. A (2008), doi:10.1016/j.chroma.2008.10.089.
9. Hu, D; Martinez, A; and Hornbuckle, K.C.\* "Discovery of non-Aroclor PCB (3, 3'-dichlorobiphenyl) in Chicago air" Environ. Sci. Technol. DOI: 10.1021/es801823r. 42, 2008, 7873-7877.
10. Kania-Korwel, I; Xie, W.; Hornbuckle, KC; Robertson, L.W.; and Lehmler, H-J\* "Enantiomeric Enrichment of 2,20,3,30,6,6-Hexachlorobiphenyl (PCB 136) in Mice After Induction of CYP

Enzymes" Arch Environ Contam Toxicol DOI 10.1007/s00244-007-9111-4. 2008, 55, 510-517.

11. Kania-Korwel, I; Hornbuckle, KC; Robertson, L.W.; and Lehmler, H-J\* "Influence of Dietary Fat on the Enantioselective Disposition of 2,2',3,3',6,6'-Hexachlorobiphenyl (PCB 136) in Female Mice." Food and Chemical Toxicol. 46, 2008, 637-644.
12. Kania-Korwel, I; Hornbuckle, KC; Robertson, L.W.; and Lehmler, H-J.\* "Dose-Dependent Enantiomeric Enrichment of 2,2',3,3',6,6'-Hexachlorobiphenyl in Female Mice". Environ Toxicol Chem., 27(2) 2008, 299–305.
13. Kania-Korwel, I; Shaikh, N; Hornbuckle, KC; Robertson, L.W.; and Lehmler, H-J\* "Enantioselective Disposition of PCB 136 (2,2',3,3',6,6'-Hexachlorobiphenyl) in C57BL/6 Mice After Oral and Intraperitoneal Administration." Chirality 19 (1):, 2007, 56-66.
14. Gooding, M.P.; Newton, T.J.; Bartsch, M.R. and Hornbuckle, K.C.\* "Toxicity of Synthetic Musks to Early Life Stages of the Freshwater Mussel *Lampsilis cardium*" Arch.Environ.Contam. Toxicol. 51 (4), 2006, p549-558.
15. Hornbuckle, K.C.\*; Carlson, D.L.; Swackhamer, D.L; Baker, J.E.; Eisenreich, S.J. "PCBs in the Great Lakes." In Persistent Organic Pollutants in the Great Lakes. R.A. Hites, editor. The Handbook in Environmental Chemistry Series Springer-Verlag, Heidelberg. 2006, p33-95.
16. Peck, A.M. and Hornbuckle, K.C. \* "Synthetic Musk Fragrances in Urban and Rural Air of North America." Atmos. Environ., 40 (32) 2006, 6101-6111.
17. Hornbuckle, K.C.\*; Carlson, D.L.; Swackhamer, D.L; Baker, J.E.; Eisenreich, S.J. "PCBs in the Great Lakes." In Persistent Organic Pollutants in the Great Lakes. R.A. Hites, editor. The Handbook in Environmental Chemistry Series Springer-Verlag, Heidelberg. 2006, p33-95.
18. Peck, A.M.\* and Hornbuckle, K.C. "Environmental Sources, Occurrence, and Effects of Synthetic Musk Fragrances" Journal of Environmental Monitoring 8 (9), 2006, 874-879
19. Peck, A.M., Linebaugh, E. and Hornbuckle, K.C. \* "Synthetic Musk Fragrances in Lake Erie and Lake Ontario Sediment Cores." Environ. Sci. Technol, 40(16), 2006, p5629-5635..
20. Kania-Korwel, I; Garrison, A.W.; Avants, J.K.; Hornbuckle, K.C.; Robertson, L.W.; Sulkowski, W.W.; Lehmler, H-J.\* "Distribution of Chiral PCBs in Selected Tissues in the Laboratory Rat." Environ. Sci. Technol, 40(12), 2006, pp 3704 - 3710.
21. Weldon, M.B. and Hornbuckle, K.C.\* "Concentrated Animal Feeding Operations, Row Crops and their Relationship to Nitrate in Eastern Iowa Rivers." Environ. Sci. Technol, 40(10), 2006, p3168-3173.
22. Boulanger, B, Vargo, JA, Schnoor, JL and Hornbuckle, KC\*, "Evaluation of Perfluorooctane Surfactants in a Wastewater Treatment System and in a Commercial Surface Protection Product." Environ. Sci. Technol, 39(15), 2005, p5524 – 5530.
23. Boulanger, B., Peck, AM, Schnoor, JL and Hornbuckle, KC\* "Response: Mass budget of perfluorooctane surfactants in Lake Ontario (vol 39, pg 74, 2005)." Environ Sci Technol 39(6), 2005, p1920-1920.
24. Kania-Korwel, I.; Hornbuckle, K. C.; Peck, A.; Ludewig, G.; Robertson, L. W.; Sulkowski, W. W.; Espandiari, P.; Gairola, C. G.; Lehmler, H.-J\*. "Congener specific tissue distribution of Aroclor 1254 and a highly chlorinated environmental PCB mixture in rats." Environ. Sci. Technol, 39(10), 2005, p3513-3520.
25. Boulanger, B.O; Peck, A.M.; Schnoor, J.L.; Hornbuckle, K.C\*. "A Mass Budget of Perfluorooctane Surfactants in Lake Ontario." Environ. Sci. Technol, , 39 (1), 2005 pp 74-79.

26. Peck, A. M. and K. C. Hornbuckle\* "Gas-phase concentrations of current-use pesticides in Iowa." *Environ Sci Technol* 39(9), 2005, p2952-2959.
27. Wethington, D.M. and Hornbuckle, K.C.\* "Milwaukee, WI as a source of Atmospheric PCBs to Lake Michigan." *Environ. Sci. Technol*, 39 (1), 2005 pp 57-63.
28. Swackhamer, D.L\*; Paerl, H.W.; Eisenreich, S.J.; Hurley, J.; Hornbuckle, K.C.; McLachlan, M.; Mount, J.; Muir, D; and Schindler, D. "Impacts of Atmospheric Pollutants on Aquatic Systems," Published by the Ecological Society of America in *Issues in Ecology*, No. 12, 2004.
29. Kania-Korwel, I.; Ludewig, G.; Robertson, L.W.; Hornbuckle, K.C.; Peck, A.; Espandiari, P.; Gairola, C.G.; Sukowski, W.W.; Lehmler, H.J.\* "Biochemical Effects of an Environmental Chlorofen Mixture in Comparison 1254 in Rats." *Organohalogen Compounds*, 66, 2004, p 2943-2950.
30. Lehmler, H-J.\*; Kania-Korwell, I.; Avants, J.K.; Hornbuckle, K.C.; Sulkowski, W.W.; Robertson, L.W.; Garrison, W.A. "Distribution of Chiral PCBs in Selected Tissues in the Laboratory Rat." *Organohalogen Compounds*. 66, 2004, p 441-448.
31. Kania-Korwel, I.; Hornbuckle, K.C.; Peck, A.; Sułkowski, W.W.; Ludewig, G.; Robertson, L.W.; Lehmler, H.J. \*"Comparison of PCB congener profiles in tissues of PCB treated rats." *Organohalogen Compounds*. 66, 2004, p 2874-2881.
32. Boulanger, B, Vargo, JA, Schnoor, JL and Hornbuckle, KC.\* "Detection of Perfluorooctane Surfactants in Great Lakes Water." *Environ. Sci. Technol* 38 (15), 2004 pp 4064-4070.
33. Peck, A. M.; Hornbuckle, K. C\*., "Synthetic musk fragrances in Lake Michigan." *Environ. Sci. Technol* 2004, 38, 367-372.
34. Hornbuckle, K.C.\* , Smith, G.L., Miller, S.M., Eadie, B.J., Lansing, M.L. "The Magnitude and Origin of Contaminants Resuspended in Southern Lake Michigan". *J Geophysical Research.- Oceans*, volume 109, Art. No. C05017 MAY 18, 2004.
35. Hornbuckle, K.C. \* and Green, M.L. "The Impact of an Urban –Industrial Region on the Magnitude and Variability of Persistent Organic Pollutant Deposition to Lake Michigan" *Ambio*, 32(6), 2003, pp406-411.
36. Peck, A.M. and Hornbuckle, K.C.\* "Use of a climate-controlled chamber to investigate the fate of gas-phase Anthracene," *Water, Air and Soil Pollution* 145, 2003, pp 17-34.
37. Hoff, S.J.\*, Hornbuckle, K.C., Thorne, P.S., Bundy, D.S., O'Shaughnessy, P.T. "Emissions and Community Exposures from CAFOs" In *Iowa Concentrated Animal Feeding Operations Air Quality Study, Final Report by the University of Iowa and Iowa State University Study Group*, J.A. Merchant and R.F. Ross, editors. 2002, 45-85.
38. Jerel J. Bogdan, Judith W. Budd, Brian J. Eadie, and Keri C. Hornbuckle. \* "The effect of a large resuspension event in Southern Lake Michigan on the short-term cycling of organic contaminants", *Journal of Great Lakes Research.*, 28(3), 2002, pp 338-351.
39. Miller, SM, Green, ML, DePinto, JV, Hornbuckle, KC\*. "Results from the Lake Michigan Mass Balance study: Concentrations and fluxes of atmospheric polychlorinated biphenyls and trans-nonachlor", *Environ. Sci. Technol.*, 35, 2001, pp. 278-285.
40. Green, ML, Depinto, JV, Sweet, C, Hornbuckle, KC\*. "Regional spatial and temporal interpolation of atmospheric PCBs: Interpretation of Lake Michigan mass balance data", *Environ. Sci. Technol.*, 34, 2000, pp 1833-1841.

41. Miller, SM, Sweet, CW, Depinto, JV, Hornbuckle, KC\*. "Atrazine and nutrients in precipitation: Results from the Lake Michigan mass balance study", *Environ. Sci. Technol.*, 34, 2000, pp 55-61.
42. Eisenreich, SJ\*, Hornbuckle, KC. "Air-Water Exchange of Semi-Volatile Organic Chemicals (SOCs) in the Great Lakes". In *Atmospheric Deposition of Contaminants to the Great Lakes and Coastal Water* Baker JE, ed., Society for Environmental Toxicology and Chemistry, 1997.
43. Pearson, RF, Hornbuckle, KC, Eisenreich, SJ, Swackhamer, DL\*. "PCBs in Lake Michigan water revisited", *Environ. Sci. Technol.*, 30, 1996, pp 1429-1436.
44. Hornbuckle, KC, Eisenreich, SJ\*. "Dynamics of gaseous semivolatile organic compounds in a terrestrial ecosystem - Effects of diurnal and seasonal climate variations", *Atmos. Environ.*, 30, 1996, pp 3935-3945.
45. Hornbuckle, KC, Sweet, CW, Pearson, RF, Swackhamer, DL, Eisenreich, SJ\*. "Assessing annual water-air fluxes of polychlorinated biphenyls in Lake Michigan", *Environ. Sci. Technol.*, 29, 1995, pp 869-877.
46. Hornbuckle, KC, Sweet, CW, Eisenreich, SJ\*. "Seasonal variations in air-water exchange of polychlorinated biphenyls in Lake Superior", *Environ. Sci. Technol.*, 28, 1994, pp 1491-501.
47. Jeremiason, JD, Hornbuckle, KC, Eisenreich, SJ\*. "PCBs in Lake Superior, 1978-1992: Decreases in water concentrations reflect loss by volatilization", *Environ. Sci. Technol.*, 28, 1994, pp 903-914.
48. Hornbuckle, KC, Achman, DR, Eisenreich, SJ\*. "Over-water and over-land polychlorinated biphenyls in Green Bay, Lake Michigan", *Environ. Sci. Technol.*, 27, 1993, pp 87-98.
49. Achman, DR, Hornbuckle, KC, Eisenreich, SJ\*. "Volatilization of polychlorinated biphenyls from Green Bay, Lake Michigan", *Environ. Sci. Technol.*, 27, 1993, pp 75-87.
50. Vlahos, P, Mackay, D\*, Eisenreich, SJ, Hornbuckle, KC. "Exchange of chemicals between the atmosphere and lakes". In *Physics and Chemistry of Lakes* Lerman A, Imboden DM, Gat JR, eds. Heidelberg, Springer-Verlag, 1995, 167-184.
51. Eisenreich, SJ\*, Achman, DR, Hornbuckle, KC, Baker, JE. "Volatilization of PCBs from the Great Lakes". In *Air-Water Mass Transfer* Wilhelm SC, Gulliver JS, eds. New York, NY, American Society of Civil Engineers, 1991, 400-412.
52. Eisenreich, SJ\*, Hornbuckle, KC. "Air-Water Exchange of Semi-Volatile Organic Chemicals (SOCs) in the Great Lakes". In *Atmospheric Deposition of Contaminants to the Great Lakes and Coastal Water* Baker JE, ed., Society for Environmental Toxicology and Chemistry, 1997.

\* Corresponding author