

## **KERI C. HORNBUCKLE**

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### **Professional Preparation:**

Ph.D. University of Minnesota - Minneapolis, MN

Environmental Engineering. January 1996

B.A. Grinnell College, Grinnell, IA.

Chemistry May 1987

### **Appointments:**

7/2007–present Professor, Department of Civil and Environmental Engineering  
7/2007–present Robert and Virginia Wheeler Faculty Fellow of Engineering  
7/2007–present Professor, Department of Environmental and Occupational Health, College of Public Health, University of Iowa (Secondary Appointment)  
1/2007-7/2007 Visiting Professor, Department of Applied Environmental Science (ITM) and Department of Environmental Chemistry, Stockholm University, Sweden  
7/2006–7/2007 Associate Professor, Department of Environmental and Occupational Health, College of Public Health, University of Iowa (Secondary Appointment)  
4/2006–present Director, Analytical Core, Iowa Superfund Basic Research Program (NIEHS), University of Iowa  
7/2001-7/2007 Associate Professor w/tenure, Department of Civil and Environmental Engineering, University of Iowa  
7/1998–7/2001 Assistant Professor, Department of 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

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

Board Member, Assoc. Environmental Engineering and Science Professors (2006–present)

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 member, 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.

Board member, The International Joint Commission's Science Advisory Board (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).

### **Awards**

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

## Graduate Advisees and Current Institutions

Andres Martinez (current doctoral student) University of Iowa  
A. Karin Norstrom (current post-doctoral fellow)  
Iza Korwel (current post-doctoral fellow)  
Rachel Marek (current MS student)  
Mark Weldon (Ph.D., 2007) City of Ames, Iowa Power Plant  
William Wombacher (MS, 2007) University of Colorado  
Carolyn Persoon (MS 2006) University of Iowa  
Bryan Boulanger (Ph.D., 2004) Texas A&M  
Aaron M. Peck (Ph.D., 2004) Skidaway Institute of Oceanography  
Meredith Gooding (post-doctoral fellow) Winona State University, Winona, MN  
Emily Linebaugh, (MS, 2004) Veenstra and Kimm, Inc., Coralville, IA  
Sondra M. Miller (Ph.D., 2003) Boise State University  
David Wethington (MS, 2002), Army Corp of Engineers, Chicago  
Gretchen Smith (MS, 1999) Carolla Engineers, Portland, OR  
S. Nicole Brown (MS, 2000) URS Corp., Chicago, IL  
Jerel J Bodgdan (M.S., 1999), Malcolm-Pirnie, Inc., Buffalo, NY  
Mark L. Green (Ph.D., 2000) State University of New York at Buffalo  
Zunyu Tao (M.S., 1998) State University of New York at Buffalo

## Current Research Projects:

**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 03/11 )

**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 03/11 )

**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 03/11 )

**Prevalence and Control of Synthetic Musk Fragrances in Iowa Drinking Water.** Keri Hornbuckle and William Wombacher, Sponsor: Center for Health Effects of Environmental Contamination (1/2006 – 12/2006)

**Acquisition of Automated and High Sensitivity Instrumentation for the Analysis of Organic Compounds in Complex Matrices.** Hornbuckle, KC, NSF Major Research Instrumentation Program (2004-2006)

## Publications

1. 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.
2. 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.
3. 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, 549-558.
4. 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.
5. 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

6. 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..
7. 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.
8. 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.
9. 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.
10. 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.
11. Kania-Korwel, I; Hornbuckle, K. C.; Peck, A.; Ludewig, G.; Robertson, L. W.; Sulkowski, W. W.; Espandiar, 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.
12. 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.
13. Peck, A. M. and K. C. Hornbuckle\* "Gas-phase concentrations of current-use pesticides in Iowa." *Environ Sci Technol* 39(9), 2005, p2952-2959.
14. 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.
15. Swackhamer, D.L\*. and Hornbuckle, K.C. Assessment of Air Quality and Air Pollutant Impacts in Isle Royale National Park and Voyageurs National Park. Report to the National Park Service, September 1, 2004.
16. 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.
17. Kania-Korwel, I; Ludewig, G.; Robertson, L.W.; Hornbuckle, K.C.; Peck, A.; Espandiar, P.; Gairola, C.G.; Sulkowski, W.W.; Lehmler, H.J.\* "Biochemical effects of an environmental Chlorofen mixture in comparison 1254 in rats." *Organohalogen Compounds*. 66, 2004, p 2943-2950.
18. 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.
19. Kania-Korwel, I.; Hornbuckle, K.C.; Peck, A.; Sulkowski, 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.
20. 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.
21. Peck, A. M.; Hornbuckle, K. C\*. "Synthetic musk fragrances in Lake Michigan." *Environ. Sci. Technol* 2004, 38, 367-372.
22. 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.
23. 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.
24. 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.
25. Hornbuckle, K.C. (response) *J. Great Lakes Res.* 28 (3), 2003, pp338-351.

26. 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.
27. 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.
28. Tao, Z. and Hornbuckle, K.C.\* "Uptake of polycyclic aromatic hydrocarbons (PAHs) by broad leaves: analysis of kinetic limitations", *Water, Air and Soil Pollution: Focus*, 1, 2001, pp275-283.
29. 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.
30. 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.
31. 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.
32. 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.
33. Pearson, RF, Hornbuckle, KC, Eisenreich, SJ, Swackhamer, DL\*. "PCBs in Lake Michigan water revisited", *Environ. Sci. Technol.*, 30, 1996, pp 1429-1436.
34. 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.
35. Hornbuckle, K.C. and Eisenreich, S.J\*. (response) *Environ. Sci. Technol.* 29, 1995, p848.
36. 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.
37. 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.
38. 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.
39. 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.
40. 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.
41. Achman, DR, Hornbuckle, KC, Eisenreich, SJ\*. "Volatilization of polychlorinated biphenyls from Green Bay, Lake Michigan", *Environ. Sci. Technol.*, 27, 1993, pp 75-87.
42. 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.

\* Corresponding author

## **Selected Presentations (of >100 total)**

### Presentations at National and International Conferences

1. Wombacher, W and Hornbuckle, K.C. "The Fate of Eight Synthetic Musk Fragrances in a Conventional Water Treatment Facility with Lime Softening". Presentation at EMCON, The International Conference on Analysis of Emerging Contaminants in the Environment. York, UK. March 7-9, 2007.

2. Hornbuckle, K.C. Distribution of PCB congeners in urban/industrial Chicago: experimental design” Invited Presentation at the PCB Workshop in Zakopane, Poland. Sept 6-10, 2006.
3. Hornbuckle, K.C. Invited Keynote presentation at the Biennial meeting of the Association of Environmental Engineering and Science Professors (AEESP), “Pushing the Boundaries: Making research and education in environmental engineering and science count.” July 23-25, 2005. Potsdam, NY.
4. Boulanger, B.O. and Hornbuckle, K.C. Fluorinated Surfactants in the Great Lakes: Today, Yesterday, and Tomorrow. Invited presentation to the International Joint Commission Science Advisory Board. June 9, 2005. Toronto, Ontario.
5. Hornbuckle, K.C. Invited Keynote presentation at the Midwest Division of the Society of Toxicology. May 13, 2005. Atmospheric PCBs in the Great Lakes: Milwaukee as a Case Study. Chicago, IL.
6. Hornbuckle, K.C. Invited presentation to the Workgroup on Ecosystem Health. International Joint Commission Science Advisory Board Workshop. March 30, 2005. Fluorinated organic compounds in the Great Lakes. Chicago, IL.
7. Hornbuckle, K.C.; Peck, A.M.; Boulanger, B.O.; and Persoon, C. Industrial and Consumer Products in the Great Lakes: The role of the atmosphere. Invited Talk. Conference Proceedings of the Atmospheric Deposition Workshop. Sponsored by the European Commission Joint Research Center-Ispira. Stresa, Italy. October 17-19, 2005.
8. Hornbuckle, K.C. Concentration and deposition of atmospheric PCBs in Milwaukee. Invited presentation for the ASCE/SAME Engineering Conference. (Continuing Education credits for practicing engineers.) October 20, 2004. Davenport, Iowa.
9. Hornbuckle, K.C. Use of PCB congener profiles to identify sources of PCBs. Invited presentation at the PCB Workshop 2004. June 13-15<sup>th</sup>, 2004, Champaign IL.
10. Hornbuckle, K.C. June 26-30, 2000. Episodic large-scale sediment dynamics in large lakes: Organic contaminant cycling and the role of the atmosphere. Invited talk at the Gordon Research Conference on Environmental Sciences 2000: Water. Holderness School, New Hampshire.
11. Hornbuckle, K.C.; Green, M.L.; DePinto, J.V.; and Eisenreich, S.J. June 5-6, 2000. The effects of air temperature, wind direction and the Chicago urban plume on spatial and temporal variability of gas-phase organic compounds. Invited talk at the International Symposium on Atmospheric Deposition and Impact on Ecosystems, with particular reference to the Mid-East. Sponsored by the International Union of Pure and Applied Chemistry (IUPAC). Tel Aviv, Israel.
12. Hornbuckle, K.C.; Bodgan, J.J.; and Green, M.L. Nov. 14-18, 1999. The Chicago atmospheric contaminant plume and the Lake Michigan sediment resuspension plume: a toxic combination. Invited talk at the annual meeting of the Society for Environmental Toxicology and Chemistry. Philadelphia, PA.
13. Hornbuckle, K.C. October, 1998. Regional Atmospheric Cycling of Persistent Organic Compounds. Invited Keynote Presentation for the 21<sup>st</sup> Annual Midwest Environmental Chemistry Workshop. University of Michigan, Ann Arbor, MI.
14. Hornbuckle, K.C. March, 1998. Toxic Chemicals and Industrial Manufacturing. Invited Keynote speaker for the 3<sup>rd</sup> International Symposium of Industrial and System Engineers. Tecnologico de Monterrey, ITESM, Cd. Juarez Campus. Cd. Juarez, MEXICO.