

## CAROLINE E. SCRUGGS, PhD, PE

Assistant Professor of Community and Regional Planning  
School of Architecture and Planning  
University of New Mexico  
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### EDUCATION

**PhD, Environment & Resources**, Stanford University, June 2012  
**MS, Environmental Engineering** (thesis option), Virginia Tech, June 1996  
**BS, Civil Engineering** (Cum Laude), Virginia Tech, August 1994

**Rising Environmental Leaders Program: Washington, D.C., Policy Bootcamp**,  
Stanford in Washington, March 2012  
**Design Thinking Training**, Stanford University, September 2011  
**Summer Institute for Entrepreneurship**, Stanford University, July 2008  
**Professional Engineer's (PE) License**, obtained in 2000 (still active)

### PAST POSITIONS

**Intern**, Swedish Chemicals Agency (KemI), Stockholm, Sweden, Fall 2008.

- Assisted with design of a research project prepared for dissenting EU Member States to study implications of different interpretations of hazardous chemical allowances in consumer products under the EU's REACH legislation.
- Learned about REACH and GHS legislations through conferences, meetings, projects, and interviews with KemI staff and outside experts in Stockholm.
- Examined REACH's effects on numerous stakeholder groups and their reactions to the new legislation.

**Intern**, International Chemical Secretariat (ChemSec, a nonprofit organization), Göteborg, Sweden, Fall 2008, 2009, and 2010.

- Interviewed companies participating in ChemSec's business group to learn about their voluntary chemicals management strategies, as well as how various international chemicals management policies affect their ability to control their supply chains and deliver safe products to the public.
- Learned about and participated in ChemSec's work and lobbying efforts in the European nonprofit sector.

**Lead Process Specialist**, Black & Veatch (B&V) Corporation's Advanced Environmental Technologies Division, 1996-2006.

- Lead process environmental engineer on local to global water quality projects, from small-scale studies to multi-billion dollar design projects.
- Collaborated with scientists, researchers, professors, manufacturers, and clients on environmental projects, presentations, and publications.
- Participated in project proposals and pursuits.
- Involved in numerous meetings involving stakeholders and/or community members for proposed and existing projects.
- Developed the emerging issue of *chemicals of concern and endocrine disrupting chemicals* in water and wastewater as a Strategic Initiative for B&V, helping B&V become a leader in this area.

**Graduate Research Assistant**, Environmental Engineering Division, VA Tech, 1995-96.

**Research Assistant**, Engineering Science and Mechanics Dept., VA Tech, 1993.

**Westinghouse Fellowship Researcher**, Engineering Science and Mechanics Dept., VA Tech, 1992.

## TEACHING

**Graduate Teaching Assistant**, Emmett Interdisciplinary Program in Environment and Resources (E-IPER), Stanford University, 2008.

**Visiting Lecturer/Course Developer**, School of Civil and Environmental Engineering, Virginia Tech, 2006.

**Visiting Lecturer**, School of Public Health, University of North Carolina, 2005-2006.

**Visiting Lecturer**, School of Medicine, University of Kansas, 2000-2004.

**Graduate Teaching Assistant**, School of Civil and Environmental Engineering, VA Tech, 1994-96.

## AWARDS & HONORS

Udall Foundation Doctoral Fellowship, 2011-2012.

William C. and Jeanne M. Landreth Fellowship, 2010-2011.

Environmental Protection Agency's STAR Award, 2007-2010.

Stanford E-IPER Rudolph Grant, 2008.

Stanford School of Earth Sciences McGee Grant, 2007.

Sussman Fellowship Award, 1995-96.

Pratt Scholarship Award, 1994-95.

Member of Chi Epsilon, Civil Engineering Honor Society, 1994-present.

Westinghouse Fellowship Award, 1992.

## PROFESSIONAL SERVICE

Appointed Member of Bernalillo Co. Water Protection Advisory Board, 2012-15.

Member of American Chemical Society, 2010-present.

Elected Representative of Graduate Student Program Committee, 2008-09.

Student Advising Mentor to E-IPER PhD and Masters students, 2008-10.

Member of Stanford's Environmental Forum Committee, 2007-09.

Member of American Assoc. for Advancement of Science (AAAS), 2007-present.

Member of American Water Resources Association, 2007-present.

Co-Chair of Technical Group for Water Environment Federation's Community of Practice on Endocrine Disrupting Chemicals, 2005-06.

Member of Black & Veatch's Leadership Institute, 2001-06.

Member of Water Environment Federation, 1994-2007.

Member of International Water Association, 1994-2002.

Member of American Society of Civil Engineers, 1992-98.

Student Engineers' Council Representative for VA Tech, elected position, 1992-94.

## PUBLICATIONS

*Reducing Hazardous Chemicals in Consumer Products: Proactive Company Strategies*, Journal of Cleaner Production, 44 (2013) 105-114, C.E. Scruggs.

*Minimizing Unregulated Hazardous Chemicals in Consumer Products: Challenges, Strategies, and Motivations of Proactive Companies*. Dissertation submitted to The Emmett Interdisciplinary Program in Environment and Resources and the Committee on Graduate Studies of Stanford University. Caroline Scruggs, April 2012.

*Creating Safer Consumer Products: The Information Challenges Companies Face*, Environmental Science and Policy, 14 (2011) 605-614, C.E. Scruggs and L. Ortolano.

*Information on Chemicals in Electronic Products: A study of needs, gaps, obstacles, and solutions to provide and access information on chemicals in electronic products*, Report for the United Nations Environment Program's (UNEP) Strategic Approach on International Chemicals Management (SAICM), August 2011, N. Nimpuno and C.E. Scruggs.

*Protecting Consumers and the Environment: A Comparison of Approaches to Developing Restricted Substance Lists by Makers of 'Stuff We All Use,'* Report for the International Chemical Secretariat (ChemSec, an international NGO), May 2009, C.E. Scruggs.

*Effects of Wastewater Treatment on Microconstituents and Endocrine Disrupting Compounds*, Technical Practice Update for the Water Environment Federation, June 2007, C.E. Scruggs.

*Disinfection Strategies: Not as Simple as They Used to Be*, North Carolina Water Environment Association Annual Conference Proceedings, November 2005, C.L. Wallis-Lage, G.L. Hunter, C.E. Scruggs.

*Endocrine Disrupting Chemicals in Wastewater*, North Carolina Water Environment Association Annual Conference Proceedings, November 2005, C.E. Scruggs.

*A Proactive Approach to Managing Nutrient Loads in Las Vegas Bay and Lake Mead*, Water Environment Federation Annual Conference Proceedings, October/November 2005, I. Rackley, C.E. Scruggs, T.L. Johnson, and D. Karafa.

*Are We Ready to Begin Permitting EDCs?*, Water Environment Federation Annual Conference Proceedings, October/November 2005, G.L. Hunter, E.A. Kobylinski, C.E. Scruggs.

*EDCs in Wastewater: What's the Next Step?*, Water Environment & Technology, March 2005, C.E. Scruggs, G.L. Hunter, E.M. Snyder, B. Long, and S. Snyder.

*Addressing EDCs in Wastewater*, South Carolina Water Environment Association Conference Proceedings, March 2005, C.E. Scruggs.

*Could EDC Control Change Disinfection Practices at WWTPs?*, Water Environment Federation Disinfection 2005 Conference Proceedings, February 2005, C.E. Scruggs, G.L. Hunter, C.L. Wallis-Lage.

*EDCs in Wastewater: What's Next?*, Water & Waste Treatment, January 2005, C.E. Scruggs and F. Rogalla.

*Not-So-Simple Disinfection Strategies*, Water Environment & Technology, December 2004, C.L. Wallis-Lage, C.E. Scruggs, G.L. Hunter, and R. Huber.

*Blend It or Treat It? Strategies for Dealing with Wet Weather Flows at WWTPs*, North Carolina Water Environment Association Conference Proceedings, November 2004, C. deBarbadillo, D. Pond, and C.E. Scruggs.

*EDCs in Wastewater*, Water Environment Federation WEFTEC Conference Proceedings, October 2004, C.E. Scruggs, G.L. Hunter, S. Snyder, B. Long, E.M. Snyder.

*GAOs or Secondary Release? Causes and Prevention of EBPR Failure*, Water Environment Federation Annual Conference Proceedings, October 2003, C.E. Scruggs and J.L. Barnard.

*Biological Phosphorus Removal*, Water Environment & Technology, February 2003, J.L. Barnard and C.E. Scruggs.

*Ballasted Flocculation: A Wet-Weather Treatment Solution?*, Water Environment Federation Annual Conference Proceedings, October 2001, C.E. Scruggs and C.L. Wallis-Lage.

*Evaluation of Filamentous Microorganism Growth Factors in an Industrial Wastewater Activated Sludge System*, Water Science and Technology, April 1998, C.E. Scruggs and C.W. Randall.

**PRESENTATIONS** *International Generation and Flow of E-waste: Consequences for Human and Environmental Health and Recommendations for a More Sustainable Future*, Association for Environmental Studies and Sciences Conference: Linking Rural & Urban Societies & Ecologies, June 2013, C.E. Scruggs and N. Nimpuno.

*Challenges of voluntary chemicals management strategies for protecting human and environmental health: lessons for Toxic Substances Control Act reform in the US*, Association for Environmental Studies and Sciences Conference: Linking Rural & Urban Societies & Ecologies, June 2013, C.E. Scruggs, L. Ortolano, M.P. Wilson, M.R. Schwarzman.

*A Business Case for Chemicals Policy Reform in the United States: Challenges of Voluntary Chemicals Management Strategies for Protecting Human and Environmental Health*, Elsevier's Environmental Health 2013: Science and Policy to Protect Future Generations Conference, March 2013, C.E. Scruggs, L. Ortolano, M.P. Wilson, M.R. Schwarzman.

*A Survey of Consumer Product Companies to Explore REACH Understanding and Compliance, Flow of Chemicals Information in Supply Chains, and Unmet Information Needs*, Elsevier's Environmental Health 2013: Science and Policy to Protect Future Generations Conference, March 2013, C.E. Scruggs.

*Creating Safer Consumer Products: The Information Challenges Companies Face*, Invited lecture at Lund University Centre for Sustainability Studies, Lund University, November 2010, C.E. Scruggs.

*Approaches of Several Proactive Multinational Companies to Removing Hazardous Substances from Products & Supply Chains*, American Chemical Society Conference, March 2010, C.E. Scruggs.

*Removing Hazardous Substances from Products & Supply Chains*, Invited talk at the Stanford University Product Realization Network's Sustainable Manufacturing Conference, June 2009, C.E. Scruggs.

*Removing Hazardous Substances from Products & Supply Chains: Observations from the EU*, Invited talk at the National Environmental Partnership Summit, May 2009, C.E. Scruggs.

*Roll-Out of the SIN List: Observations from the EU*, Invited talk at the City of San Francisco's Substitute It Now: Understanding the Origins and Exploring the Potential of ChemSec's Bold List of "Bad Actor" Chemicals Workshop, January 2009, C.E. Scruggs.

*California, KEMI, & Questions About Chemicals*, Invited Lecture at the Swedish Chemicals Agency (KEMI), November 2008, C.E. Scruggs.

*Managing Chemicals to Protect the Environment & Human Health*, Invited lecture in Stanford University's Civil and Environmental Engineering Department, February 2008, C.E. Scruggs.

*A Holistic Approach to Managing the EDC Issue*, Water Environment Federation Annual Conference, October 2006, C.E. Scruggs, A.E. Rimer, F. DiGiano.

*Removing EDCs from Wastewater – How and Where?*, U.K. Chartered Institution of Water and Environmental Management Specialty Conference: Endocrine Disrupting Chemicals in the Water Environment, March 2006, C.E. Scruggs and F. Rogalla.

Featured Speaker in *Emerging Contaminants in Wastewater* Webcast, Water Environment Federation Production, December 2005, D. Sedlak, S. Snyder, C.E. Scruggs, R. Deeb (over 1,000 participants via internet).

*Addressing EDCs in Wastewater*, North Carolina Water Environment Association Annual Conference, November 2005, C.E. Scruggs.

*Disinfection Strategies: Not as Simple as They Used to Be*, North Carolina Water Environment Association Annual Conference, November 2005, C.L. Wallis-Lage, G.L. Hunter, C.E. Scruggs.

*Are We Ready to Begin Permitting EDCs?*, Water Environment Federation Annual Conference, October/November 2005, G.L. Hunter, E.A. Kobylinski, C.E. Scruggs.

*A Proactive Approach to Managing Nutrient Loads in Las Vegas Bay and Lake Mead*, Water Environment Federation Annual Conference, October/November 2005, C.E. Scruggs, I. Rackley, T.L. Johnson.

*EDCs in Wastewater*, Georgia/South Carolina/North Carolina American Water Works Association Drinking Water Technology Forum, October 2005, C.E. Scruggs.

*Endocrine Disrupting Chemicals in Wastewater*, Kentucky/Tennessee Water Professionals Conference, September 2005, C.E. Scruggs.

*Removing EDCs from Wastewater: Reuse Concerns*, Georgia Water and Pollution Control Association Annual Conference, July 2005, C.E. Scruggs.

*Factoring the Removal of Endocrine Disrupting Chemicals into Wastewater Treatment Plant Design*, American Water Works Association Annual Conference and Exposition, June 2005, E.M. Snyder and C.E. Scruggs.

*Endocrine Disrupting Chemicals in Wastewater*, North Carolina Water Environment Association Spring Conference, April 2005, C.E. Scruggs.

*EDCs in Wastewater*, California Water Environment Association Annual Conference, April 2005, C.E. Scruggs.

*Addressing EDCs in Wastewater*, South Carolina Water Environment Association Annual Conference, March 2005, C.E. Scruggs.

*Endocrine Disruptors and Pharmaceuticals in the Environment: Overview and Implications for the Water Industry*, KU Environmental Conference, February 2005, E.M. Snyder and C.E. Scruggs.

*Could EDC Control Change Disinfection Practices at WWTPs?*, Water Environment Federation Disinfection 2005 Conference, February 2005, C.E. Scruggs.

*Blend It or Treat It? Strategies for Dealing with Wet Weather Flows at WWTPs*, North Carolina Water Environment Association Annual Conference, November 2004, C.E. Scruggs.

*EDCs in Wastewater: What's the Next Step?*, Water Environment Federation Annual Conference, October 2004, C.E. Scruggs, G.L. Hunter, S. Snyder, B. Long, E.M. Snyder.

*A Proactive Approach to Determining System Modification Requirements to Meet Stringent Limits on Nutrients and Other Contaminants*, California Water Environment Association Annual Conference, April 2004, C.E. Scruggs.

*Trouble-Shooting BPR*, California Water Environment Association Annual Conference, April 2004, C.E. Scruggs and J.L. Barnard.

*EDCs and PPCPs: What Are They, Where Do They Come From, and Why Do We Care?*, B&V Technology Transfer Session, October 2003, C.E. Scruggs.

*GAOs or Secondary Release? Causes and Prevention of EBPR Failure*, Water Environment Federation Annual Conference, October 2003, C.E. Scruggs and J.L. Barnard.

*Ballasted Flocculation: A Wet-Weather Treatment Solution?*, Water Environment Federation Annual Conference, October 2001, C.E. Scruggs.

*Stretching Technologies for Cost Effective Reuse*, South Carolina Environmental Conference, March 2001, C.L. Wallis-Lage and C.E. Scruggs.

*Retrofitting Plants for BNR*, KU Environmental Conference, February 2001, J.L. Barnard and C.E. Scruggs.

*Springfield, MO: A Plant-Wide Challenge*, Water Environment Federation Annual Conference, October 2000, C.E. Scruggs.

*BNR Challenges in Springfield, Missouri*, Missouri Water Environment Association, March 2000, C.E. Scruggs.

*Wastewater Treatment Plant Expansion for Nutrient Removal*, Southwestern Ohio Water Environment Association Annual Conference, March 2000, C.E. Scruggs.

*Wastewater Treatment Plant Expansion Requirements and Costs Associated with Various Nutrient Removal Objectives and Alternatives*, Water Environment Federation Annual Conference, October 1999, C.E. Scruggs.

*Evaluation of Microscopic Methods for Bulking Identification, Quantification, and Control*, Water Environment Federation Annual Conference, October 1998, C.E. Scruggs.

*Evaluation of Filamentous Microorganism Growth Factors in an Industrial Wastewater Activated Sludge System*, International Association on Water Quality: 2nd International Conference on Microorganisms in Activated Sludge and Biofilm Processes, Berkeley, California, July 1997, C.E. Scruggs and C.W. Randall.