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Meeting Date: December 4, 2018  
Staff Contact: Diane Agnew, Water Quality Hydrologist

**TITLE: C-18-40 - Appointment of Dr. Caroline Scruggs to the Water Protection Advisory Board**

**ACTION: Approval Requested**

**SUMMARY:**

Water Authority staff request the appointment of Dr. Caroline Scruggs to the Water Protection Advisory Board (WPAB) to serve a three-year term as one of two of the Water Authority's appointees on the board.

The purpose of the WPAB is to study and advise the Water Authority, City and County on surface and groundwater protection concerns, oversee the implementation of the Water Quality Protection Policy and Action Plan, and assist with the development of policies and strategies necessary to enhance protection of surface and groundwater quality in the Albuquerque Basin.

Dr. Scruggs is an associate professor of Community and Regional Planning at the University of New Mexico (UNM) in Albuquerque, New Mexico. She received her PhD in Environment & Resources at Stanford University and her Master of Science (Environmental Engineering) and her Bachelor of Science (Civil Engineering) at Virginia Tech. Dr. Scruggs designs and teaches courses on water and energy in New Mexico, stakeholders and environmental policy, and planning healthy and sustainable communities. She is also an affiliate professor for the Center for Water and Development, Water Resources Program, Geography & Environmental Studies, and Sustainability studies at UNM. Dr. Scruggs has participated in a wide variety of research in topics such as potable reuse in arid land, chemical policy in the United States, and public awareness, information flow to minimize negative consequences for health and the environment.

**FISCAL IMPACT:**

None

## CURRICULUM VITAE

### CAROLINE E. SCRUGGS, PhD, PE

University of New Mexico  
School of Architecture and Planning  
Pearl Hall - MSC04 2530  
Albuquerque, NM 87131

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#### EDUCATION

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

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

#### ACADEMIC EXPERIENCE

**Associate Professor**, Community and Regional Planning, University of New Mexico, 2018-present. **Courses designed and taught:** Planning Healthy and Sustainable Communities; Water and Energy in NM: Conversations on Our Common Future; Environmental Issues, Stakeholders, and Politics; Analytical Methods for Planners; Stakeholders and Environmental Policy; Societal Impacts and Design of Everyday Things; Thesis Prep. **Affiliated faculty with:** Center for Water & the Environment, Water Resources Program, Geography & Environmental Studies, and Sustainability Studies at UNM.

**Assistant Professor**, Community and Regional Planning, University of New Mexico, 2012-2018.

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

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

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

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

#### PROFESSIONAL EXPERIENCE

**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.
- Engaged in ChemSec's work and lobbying efforts in the European nonprofit sector.

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

- Co-designed 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.
- Analyzed and applied REACH and GHS legislations through conferences, meetings, projects, and interviews with KemI staff and external experts in Stockholm.
- Assessed REACH's effects on numerous stakeholder groups and their reactions to the new legislation.

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

- Lead process specialist 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.

## PUBLICATIONS

### **Published Peer-Reviewed Articles** (\*designates student co-authors)

The Costs of Direct and Indirect Potable Water Reuse in a Medium-sized Arid Inland Community, *Journal of Water Process Engineering*, (2017) 19:239-247, DOI: 10.1016/j.jwpe.2017.08.003, \*J.G. Herman, C.E. Scruggs, and B.M. Thomson.

Opportunities and Challenges for Direct Potable Water Reuse in Arid Inland Communities, *Journal of Water Resources Planning and Management*, (2017) 143(10), DOI: 10.1061/(ASCE)WR.1943-5452.0000822, C.E. Scruggs and B.M. Thomson.

Improving Information Flow on Chemicals in Electronic Products and E-waste to Minimize Negative Consequences for Health and the Environment, *Resources, Conservation, and Recycling*, (2016) 113:149-164, DOI: 10.1016/j.resconrec.2016.06.009, C.E. Scruggs, N. Nimpuno, and \*R.B.B. Moore.

Challenges and Opportunities in Stimulating Public Awareness and Engagement on US Chemicals Policy, *Journal of Environmental Studies and Sciences*, (2016) 6(3):569-579, DOI: 10.1007/s13412-016-0387-4, C.E. Scruggs and \*R.B.B. Moore.

Five Ways to Support Interdisciplinary Work Before Tenure, *Journal of Environmental Studies and Sciences*, (2015) 6(2):260-267, DOI: 10.1007/s13412-015-0326-9, M.H. Benson, C.D. Lippitt, R. Morrison, B. Cosens, J. Boll, B.C. Chaffin,

A.K. Fremier, R. Heinse, D. Kauneckis, T.E. Link, C.E. Scruggs, M. Stone, V. Valentin.

Effect of Company Size on Potential for REACH Compliance and Selection of Safer Chemicals, *Environmental Science and Policy*, (2015) 45:79-91, DOI: 10.1016/j.envsci.2014.10.001, C.E. Scruggs, L. Ortolano, M.P. Wilson, M.R. Schwarzman.

Why Leading Consumer Product Companies Develop Proactive Chemical Management Strategies, *Business & Society*, (2016; published online first in 2014) 55:635-675, DOI: 10.1177/0007650314536393, C.E. Scruggs and H. Van Buren.

The Role of Chemical Policy in Improving Supply Chain Knowledge and Product Safety, *Journal of Environmental Studies and Sciences*, (2014) 4:132-141, C.E. Scruggs, L. Ortolano, M.R. Schwarzman, M.P. Wilson.

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

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

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.

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

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

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.

#### ***Peer-Reviewed Articles in Review*** (\*designates student co-authors)

Direct Potable Water Reuse in Five Arid Inland Communities: An Analysis of Factors Influencing Public Acceptance, *Journal of Environmental Planning and Management*, \*C. Pratesi, C.E. Scruggs, and J.R. Fleck.

#### ***Conference Proceedings*** (\*designates student co-authors)

Potable Water Reuse in the Inland Southwest: Understanding Public Perceptions, *Association of Collegiate Schools of Planning (ACSP) Annual Conference*, October 2018, C.E. Scruggs, \*L. Distler, and \*K. Rumsey.

Survey Design on Potable Water Reuse: Lessons Learned from Focus Groups in Albuquerque, New Mexico, *Association of Collegiate Schools of Planning (ACSP) Annual Conference*, October 2017, C.E. Scruggs and \*L. Distler.

Potable Water Reuse in Arid Inland Communities: Understanding the Social, Technical, and Economic Opportunities and Constraints, *Association of Collegiate*

*Schools of Planning (ACSP) Annual Conference*, November 2016, C.E. Scruggs, \*J.G. Herman, \*C. Pratesi, \*L. Distler, and J. Fleck.

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.

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.

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.

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

### ***Published Professional Reports and Articles***

*The Cost of Direct and Indirect Potable Water Reuse in a Medium-Sized Arid Inland Community*, Technical Completion Report for the New Mexico Water Resources Research Institute (WRRI), April 2017, \*J.G. Herman and C.E. Scruggs.

*Measuring the Impact of Cost Increases on Consumer Acceptance of Potable Water Reuse in the Albuquerque Area*, Technical Completion Report for the New Mexico Water Resources Research Institute (WRRI), December 2016, \*J.G. Herman and C.E. Scruggs.

*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.

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

### **Academic Publications and Reports**

*Bike Share Mobility: Exploring Cultural and Financial Viability in Albuquerque,* supervised and edited the work of Andrea Aragon, Taylor Blueher, Ray Holland, Ashley Hooper, Estacia Huddleston, Priscila Poliana, and Michel Wingard in Planning Sustainable Communities course, a deliverable to the City of Albuquerque and interested community members, December 2013.

*Bike Share Guide for the City of Albuquerque,* supervised and edited the work of Maria Lohmann and Shavone Otero in Planning Sustainable Communities course, a deliverable to the City of Albuquerque and interested community members, December 2012.

*Sustainable SITES Final Report,* supervised and edited the work of Joe Affinati, Lesley Maurer, and Michaela Shirley in Planning Sustainable Communities course, a deliverable to the City of Albuquerque Parks and Recreation and interested community members, December 2012.

*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.

## **PRESENTATIONS *Invited Lectures***

Featured speaker on Water Reuse for the American Water Works Association/Water Environment Association New Mexico chapter's November 2018 meeting, Albuquerque, NM, C.E. Scruggs.

*Opportunities and Challenges in Implementing Potable Water Reuse,* Invited lecture in the UNM Geography & Environmental Studies Fall 2018 Colloquium Series, August 2018, C.E. Scruggs.

Invited speaker on the Public Engagement and Potable Reuse panel at the American Water Works Association's 2018 International Symposium on Potable Reuse, Austin, Texas, January 2018, C.E. Scruggs.

*Unique Opportunities for Building Resilience in Water Supply Systems,* Invited speaker on the Resilience of Water Infrastructure Panel at the UNM 2017 Resilience

Colloquium, Urban Resilience: Research Gaps and Implementation Roadmap, August 2017, C.E. Scruggs.

*Planned Potable Water Reuse in New Mexico*, Invited lecture in the UNM Geography & Environmental Studies Fall 2015 Colloquium Series, October 2015, C.E. Scruggs.

*Planned Potable Water Reuse: Technical, Social, and Legal Considerations*, Invited lecture in the UNM Department of Civil Engineering 2015 Seminar Series, April 2015, C.E. Scruggs.

*Unregulated Hazardous Chemicals in Consumer Products: Interdisciplinary Research on an Environmental Health Problem*, Invited lecture to the UNM Department of Economics, April 2013, C.E. Scruggs.

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

*Removing EDCs from Wastewater – How and Where?*, Invited talk at the 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).

**Conference Presentations** (\*designates student co-authors)

Potable Water Reuse in the Inland Southwest: Understanding Public Perceptions, *Association of Collegiate Schools of Planning (ACSP) Annual Conference*, October 2018, C.E. Scruggs, \*L. Distler, and \*K. Rumsey.

The Effectiveness of Albuquerque's "There Is No Poop Fairy" Campaign (poster presentation), *UNM Shared Knowledge Conference*, November 2018, \*S. Lozoya and C.E. Scruggs.

An Inland Perspective on Public Acceptance: Public Attitudes toward Potable Reuse and the Effect of Educational Materials in Albuquerque, New Mexico, *33<sup>rd</sup> Annual WateReuse Symposium*, September 2018, \*L. Distler, C.E. Scruggs, and \*K. Rumsey.

Potable Water Reuse in the Southwest: Understanding Public Perceptions, *15<sup>th</sup> Annual Rocky Mountain Section of the American Water Works Association/Water Environment Association Student Conference*, May 2018, \*L. Distler and C.E. Scruggs.

Potable Water Reuse in the Southwest: Understanding Negative Public Perceptions, *Emerging Researchers National (ERN) Conference in STEM*, February 2018, \*L. Distler and C.E. Scruggs.

Survey Design on Potable Water Reuse: Lessons Learned from Focus Groups in Albuquerque, New Mexico, *Association of Collegiate Schools of Planning (ACSP) Annual Conference*, October 2017, C.E. Scruggs and \*L. Distler.

Public Acceptance of Potable Water Reuse in Arid Inland Communities: The Importance of Perceptions, Education, and Outreach, *Association for Environmental Studies and Sciences 2017 Conference: Environment, Wellness, & Community*, June 2017, C.E. Scruggs, \*J.G. Herman, \*C. Pratesi, \*L. Distler, and J. Fleck.

Advancing Interdisciplinary Collaboration to Stimulate Public Awareness and Engagement on US Chemicals Policy, *Association for Environmental Studies and Sciences 2017 Conference: Environment, Wellness, & Community*, June 2017, C.E. Scruggs and \*R.B.B. Moore.

Potable Water Reuse in the Arid Southwest: The Effect of Educational Strategies on Public Acceptance, *Emerging Researchers National (ERN) Conference in STEM*, March 2017, \*L. Distler and C.E. Scruggs.

Potable Water Reuse in Arid Inland Communities: Understanding the Social, Technical, and Economic Opportunities and Constraints, *Association of Collegiate Schools of Planning (ACSP) Annual Conference*, November 2016, C.E. Scruggs, \*J.G. Herman, \*C. Pratesi, \*L. Distler, and J. Fleck.

Challenges and Opportunities in Stimulating Public Awareness and Engagement on US Chemicals Policy (poster presentation), *Association of Collegiate Schools of Planning (ACSP) Annual Conference*, November 2016, C.E. Scruggs and \*R.B.B. Moore.

Costs and Acceptance of Potable Water Reuse Alternatives for Albuquerque, NM (poster presentation), *New Mexico Water Resources Research Institute's 60th Annual New Mexico Water Resources Conference*, October 2015, \*J. Herman and C. Scruggs.

Potable Water Reuse in Arid Inland Communities: Understanding the Technical, Social, Legal, and Economic Opportunities and Constraints, *Joint New Mexico APA/ASCE Conference*, September 2015, C. Scruggs and \*J. Herman.

Direct Potable Water Reuse: Confronting Scientific Frontiers and Social and Legal Boundaries, *Association for Environmental Studies and Sciences 2015 Conference: Confronting Frontiers, Borders, and Boundaries*, June 2015, C.E. Scruggs.



Public Perception of Direct Potable Water Reuse: Small Inland Communities versus Large Coastal Cities, *UNM Shared Knowledge Conference*, April 2015, \*C. Pratesi and C.E. Scruggs.

Engaging Students and the Community through Service-Learning on Bikeshare, *52<sup>nd</sup> Paving and Transportation Conference*, January 2015, C.E. Scruggs.

Bike Share: A Catalyst for Community Action and Engaged Learning, *New Mexico APA 2014 Conference*, September 2014, C.E. Scruggs, P. Morris, J. Luna, C. Malagodi, \*M. Lohmann.

Public Perception and Understanding Related to Hazardous Chemicals in Consumer Products, *Association for Environmental Studies and Sciences 2014 Conference: Welcome to the Anthropocene - From Global Challenge to Planetary Stewardship*, June 2014, C.E. Scruggs and J. Thacher.

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.

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

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, *Kansas State University 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, *Kansas State University 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.

### ***Conference Panel Organization and Moderation***

Creator, Organizer, and Facilitator of roundtable discussion for the 2017 *Association of Environmental Studies and Sciences Conference: Environment, Wellness, & Community* at University of Arizona entitled "Rethinking US Chemicals Policy to Account for Potable Water Reuse".

Chair of a research presentation panel for the 2017 *Association of Environmental Studies and Sciences Conference: Environment, Wellness, & Community* at University of Arizona entitled "Influences and Strategies Affecting Public Perception of Water Scarcity: New Research to Promote Informed Decision Making for Natural Resource Sustainability".

Co-chair of a research presentation panel for the 2015 *Association of Environmental Studies and Sciences Conference: Confronting Frontiers, Borders, and Boundaries* at UC San Diego entitled "Multi-disciplinary Approaches to Mitigating Environmental Health Challenges".

Creator, Organizer, and Facilitator of roundtable discussion for the 2015 *Association of Environmental Studies and Sciences Conference: Confronting Frontiers, Borders, and Boundaries* at UC San Diego entitled "Frontiers in Scholarship: What Defines "Excellence" in an Interdisciplinary Academic Career?"

Co-organizer of a 5-speaker panel for 2014 *NM American Planning Association Annual Conference* in Albuquerque, NM (with Petra Morris), entitled "Bike Share: A Catalyst for Community Action and Engaged Learning".

Creator, Organizer, and Moderator of 3-part, 10-speaker panel series for 2014 *Association of Environmental Studies and Sciences conference* at Pace

University in New York City, entitled “Synthetic Chemicals and Society: Research and Perspectives on Ethics, Environmental Health, Governance, and Education”.

Creator, Organizer, and Moderator of Panel for the *2005 Water Environment Federation conference* in Washington, D.C., entitled “Surface Water Quality and Ecology: EDCs in Wastewater: Implications for the Water Quality Industry”.

### ***Invited Guest Lectures in SA+P Courses***

CRP 588 Professional Project/Thesis Prep: Fall 2012-2017

CRP 265 Sustainable Community Planning Methods: Fall 2012, 2014, 2015, 2016

ARCH 551 Architecture Research Methods: Spring 2015

CRP 431/531 Foundations of Community Development: Spring 2013, 2014

CRP 580 Community Growth and Land Use Planning: Spring 2013

CRP 577 The Practice of Policy Development: Fall 2012

ARCH 662 Urban Innovation: Spring 2018

### ***Public Scholarship***

Co-author of letters from the Albuquerque Bernalillo County Water Protection Advisory Board to the Mayor, City Council, and the Mid-Region Council of Governments advocating for environmentally-protective oil and gas ordinances in the City and County, March-April, 2018.

*Chama Peak Land Alliance’s “Beyond the Mirage: The Future of Water in the West” film screening event*, Invited panel speaker to discuss potable water reuse and desalination and their potential use in New Mexico, October 8, 2016, C.E. Scruggs.

*US Toxic Substances Control Act reform events with Senator Tom Udall*, Invited presentations to highlight the importance of federal TSCA reform to community health and the environment, May 31 and June 3, 2016, C.E. Scruggs.

*Bikeshare Mobility: Exploring Cultural and Financial Viability in Albuquerque*, Invited presentation to the Albuquerque-Bernalillo County Air Quality Control Board, January 2014, C.E. Scruggs, A. Hooper, R. Holland, M. Wingard.

## **RESEARCH ACTIVITY AT UNM**

### ***Grants Awarded***

**UNM Office of the Vice President of Research, Water in the West Research Investment Award**, *Rethinking US Chemical Policies to Account for Potable Water Reuse*, \$5,000, 1-year grant, PI, 2018.

**NSF CREST Center for Water and the Environment Phase II Preliminary Proposal – Selected (full proposal in preparation, due 12/7/2018)**, *Engaging Underrepresented Minority Students in STEM Careers through the Center for Water and the Environment*, \$5,000,000, 5-year grant, Senior Personnel/Collaborator (1/1/2020-12/31/2025).

**NM WRRRI Student Water Research Grant**, *Measuring the Impact of Rate Increases on Consumer Acceptance of Potable Water Reuse Options in the Albuquerque Area*, \$6,000, PI advising CRP/WR student Jason Herman (3/1/2016-12/31/2016).

**NM WRRRI Research Grant**, *Understanding the Costs of Arid Inland Communities’*

*Potable Water Reuse Options*, \$30,000, PI (3/1/2015-4/30/2017).

**SA+P Faculty Research Support Funds**, \$1,000 to partially support 3 CRP students on continuing scholarly research projects through Summer 2015, PI (Summer 2015).

**NSF CREST Center for Water and the Environment Grant**, *Engaging Underrepresented Minority Students in STEM Careers through the Center for Water and the Environment*, \$5,000,000, 5-year grant, Senior Personnel/Collaborator (4/1/2014-3/31/2019).

**UNM Research Allocation Committee Grant**, *Unregulated Hazardous Chemicals in Consumer Products: How Do Parents' Understanding, Perspectives, and Socioeconomics Influence Children's Exposure?* \$4,000, PI (7/01/2013-12/18/2014).

### ***Unfunded Research***

Collaboration with Local Businesses on Initiation of a Straw Ban in Albuquerque (as part of a UNM course), 2018.

Investigation of Bikeshare Feasibility in Albuquerque in Collaboration with City Planners (as part of a UNM service-learning course), 2012-14.

### ***Innovation Working Groups - NMEPSCoR***

*Settlement, Culture, Economics, and Technology through Time Along the Rio Grande Corridor*, led by Francisco Uvina, 2016.

*Water, Energy and Culture through Time in the San Juan Basin: Understanding Past Patterns, Present Conditions and Future Best Practices for Planning and Culture*, led by Geraldine Forbes Isais, 2012.

## **PROFESSIONAL DEVELOPMENT**

Associate Professor Orientation, UNM ADVANCE, September 14, 2018.

NSF Days at UNM, August 29, 2018.

2-Day NSF Communication Workshop, September 20-21, 2017.

Presenting Data and Information: A Course by Edward Tufte, October 17, 2016.

WaterReuse Research Foundation's *20<sup>th</sup> Annual WaterReuse Research* conference, Denver, CO, May 22-24, 2016.

American Chemical Society's (ACS) webinar entitled: *Tackling Toxics: The Chemical Class Approach towards Healthier Products and Materials*, April 22, 2016.

WaterReuse Research Foundation's webinar entitled: *Opportunities and Economics of Direct Potable Reuse*, May 13, 2015.

WaterReuse Research Foundation's *19<sup>th</sup> Annual Water Reuse & Desalination Research Conference*, Huntington Beach, CA, May 5-6, 2015.

The City of Albuquerque, UNM, and RWL Water's *Southwest Water & Energy Summit*, April 22, 2015.

WaterReuse Research Foundation's webinar entitled: *Fostering Public Acceptance of Direct Potable Reuse*, February 18, 2015.

WaterReuse Research Foundation's webinar entitled: *Deciding Between Potable and Nonpotable Reuse: A Decision Support Tool for Deploying Reclaimed Water Resources*, January 15, 2015.

NWRI's *Clarke Prize Conference on Urban Water Sustainability*, Huntington Beach,

CA, Nov 7, 2014.  
 Congresswoman Michelle Lujan Grisham's *Water Innovation Summit*, October 14, 2014.  
 National Water Research Institute (NWRI) and National Science Foundation's *Direct Potable Reuse Public Perception Workshop*, Fountain Hills, CA, February 25, 2014.  
 WaterReuse Research Foundation's webinar entitled: *Direct Potable Reuse: The Equivalency of Advanced Treatment Trains in the Protection of Public Health (Part II)*, February 20, 2014.  
 WaterReuse Research Foundation's webinar entitled: *Direct Potable Reuse: The Equivalency of Advanced Treatment Trains in the Protection of Public Health (Part I)*, February 13, 2014.  
 American Water Works Association's webinar entitled: *The Future of Direct Potable Reuse as a Water Supply*, February 12, 2014.  
 WRRI's *New Water Realities: Proposals for Meaningful Change* conference, November 21-22, 2013.  
*Transformative Solutions for Water in the West* conference; hosted by the Atlantic Council, Sandia National Laboratories, and NM Water Resources Research Institute (WRRI); September 5, 2013.  
 Designing Courses for Effective Student Learning (2-day workshop), May 16-17, 2013.  
 Effective Classroom Teaching and Learning with Student Groups, Nov 7, 2012.  
 Teaching with Wikis, Oct 30, 2012.  
 Defining, Assessing, and Using Learning Outcomes for your Program, Oct 24, 2012.  
 Service-Learning and Community Engagement Across the Curriculum, Oct 17, 2012.  
 Active Learning and Critical Thinking: Methods for Any Classroom, Oct 3, 2012.  
 Pulling It All Together and Getting Real Students to Really Discuss, Sept 26, 2012.  
 Using Cooperative Group Structures and Related Approaches to Promote Your and Your Students' Active Teaching and Learning in Mathematics, Sept 10, 2012.

## AWARDS & HONORS

Received the **2018 Best Policy Paper Award** from the Environmental & Water Resources Institute (EWRI) for paper titled "Opportunities and Challenges for Direct Potable Water Reuse in Arid Inland Communities" by Caroline Scruggs and Bruce Thomson. (J. Water Resources Planning and Management, Volume 143, issue 10, DOI: 10.1061/(ASCE)WR.1943-5452.0000822.)  
 Research Assistant Lauren Distler received 1<sup>st</sup> Place in Social Science out of 1300 students for her presentation on our NSF research. The presentation title and conference were: *Potable Water Reuse in the Arid Southwest: The Effect of Educational Strategies on Public Acceptance*, Emerging Researchers National (ERN) Conference in STEM, March 2017, L. Distler and C.E. Scruggs.  
 Udall Foundation Doctoral Fellowship, \$24,000, 2011-2012.  
 William C. and Jeanne M. Landreth Fellowship, \$35,000, 2010-2011.  
 Environmental Protection Agency's STAR Award, \$126,000, 2007-2010.  
 Stanford E-IPER Rudolph Grant, \$5,000, 2008.  
 Stanford School of Earth Sciences McGee Grant, \$8,000, 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.

## RESEARCH IN THE NEWS

Coverage in the UNM Center for Water and the Environment News and UNM ADVANCE about the Scruggs and Thomson 2018 Best Policy Paper Award from the Environmental & Water Resources Institute (EWRI): <http://cwe.unm.edu/news/index.html>, March 2018, and <https://advance.unm.edu/stem-highlights/>, August 2018.

Caroline Scruggs's research featured in "Meet the Researcher" in the January 2018 edition of NMWWRI's New Mexico Water eNews.

Coverage in the UNM Center for Water and the Environment News about Research Assistant Lauren Distler's 1<sup>st</sup> Place in Social Science at a national STEM conference: <http://cwe.unm.edu/news/2017/04/unm-survey-research-wins-1st-place-in-social-science-at-national-stem-conference.html>, April 2017.

Coverage in NMWWRI's New Mexico Water eNews of Research Assistant Jason Herman's research, article entitled "UNM Grad Student Reports on Albuquerque Residents' Willingness to Accept Costs Associated with Potable Water Reuse", December 2016.

Coverage of my chemical-related policy public scholarship in John Fleck's "Inkstain" blog: <http://www.inkstain.net/fleck/2016/06/toxic-materials-regulatory-reform/>, June 2016.

Coverage of Senator Udall's May and June 2016 chemicals policy reform events in which I participated in several outlets including: The Albuquerque Journal, KOB local news, Los Alamos Daily Post, Dakota Progressive, and several others (<https://www.abqjournal.com/783494/udall-touts-chemical-regulation-bill.html>, <http://www.kob.com/albuquerque-news/udall-pushes-ban-on-some-dangerous-chemicals-in-household-items/4155763/?cat=500#.V05XSdfbp4s>, <http://www.ladailypost.com/content/udall-rally-chemical-safety-reform-today>, <https://www.tomudall.senate.gov/news/press-releases/udall-moms-kids-discuss-importance-of-chemical-safety-reform-to-keep-children-safe-from-dangerous-substances>).

Coverage of my peer-reviewed article "Challenges and Opportunities in Stimulating Public Awareness and Engagement on US Chemicals Policy" in the Environmental Defense Fund's internationally circulated blog in a post entitled "Making 'Safer' Accessible to All", April 2016 (<http://blogs.edf.org/health/2016/04/04/making-safer-accessible-to-all/>).

Wide coverage of my Water & Energy in NM lecture series, from the Green Fire Times to Green Chambers of Commerce to Sierra Club Newsletters.

Coverage of our \$5M NSF CREST grant in UNM News: <http://news.unm.edu/news/center-for-water-and-the-environment-receives-5-million-nsf-crest-award>

Coverage of my Planning Sustainable Communities service learning course student project on bike share in the Daily Lobo: <http://www.dailylobo.com/article/2013/12/81-7-want-campus-bike-share-program> and the bike share program that our class research and community outreach contributed to as covered in the Albuquerque Journal: <http://www.bizjournals.com/albuquerque/news/2015/02/24/albuquerque-to-launch-its-first-bike-share-program.html?page=all>

## MENTORSHIP & ADVISING

**Thesis/Professional Project Chair** for: Rachel Erickson (MCRP), Jessica Sebring (MCRP), James Foty (MCRP), Zakia Afrin (MCRP), Cameron Weber

## AT UNM

(MCRP), Rachel Moore (MCRP), Jason Herman (WR/MCRP), Lauren Distler (WR/MCRP), Claudia Pratesi (WR/MCRP), Tyler Smith (WR/MCRP), Matthew Segura (WR/MCRP), Sergio Lozoya (MCRP).

**Thesis/Professional Project Committee member** for: Benjamin Wilde (MCRP), Anna Lopera (MCRP), Lesley Maurer (WR/MCRP), Maria Lohmann (MCRP), Gabriela de la Torre (MCRP), Charles Joslin (MCRP), Connie Maxwell (WR/MCRP), Amanda Hooker (LAS/MCRP), Julie Dickey (WR/MCRP), Alexis Donahue (WR/MCRP), Rachel Hertzman (WR/MCRP), Michael Foust (MCRP), Miranda Rivera (WR/MCRP), Lucas Curry (WR/MCRP), Sky Tallman (MCRP), Virginia Thompson (dissertation committee; Biology Dept.), Michael O'Donnell (dissertation committee; Economics Dept.), Michelle Hunter (WR), Meagan Oldham (WR), Angelique Maldonado (WR/MCRP).

**Academic Advisor** for 4-5 incoming CRP students per year.

**Graduate Reviews** for: Steven Bishop, Matthew Draper, Rachel Erickson, Jeremy Seaton, James Foty, Priscila Poliana, Jessica Sebring, Amanda Hooker, Tiffany Calabaza, Joseph Affinati, Danielle Gallegos, Zakia Afrin, Estacia Huddleston, Jason Kikel, Rachel Moore, Cameron Weber, Claudia Pratesi, Rachel Hassna, Megan Hosterman, Jeffrey Hertz, Rachel Hertzman, Michael Foust, Alexis Donahue, Miranda Rivera, Lucas Curry, Kate McMath, Lauren Distler, Matthew Segura.

**Research, Graduate, and Project Assistants funded** through sources external to the UNM School of Architecture & Planning: Lauren Distler (RA, 3.5 years), Jason Herman (RA, 1.5 years; PA, 0.5 year), Claudia Pratesi (GA, 1 year), Corinne Fox (PA, 0.5 year), Meagan Oldham (PA, 0.5 year), Alyssa Latuchie (PA, 0.5 year), Elyzabeth Esterly (PA, 0.5 year), Kellin Rumsey (PA, 2 years), Sergio Lozoya (RA, 2 years).

## PROFESSIONAL & COMMUNITY SERVICE

Art in the Schools volunteer for Albuquerque Public Schools, 2018.

Advisor to Senator Udall's staff on reform of the US Toxic Substances Control Act (TSCA) and community education and awareness about the importance of proposed reforms, 2014-17.

Appointed Member of Bernalillo Co. Water Protection Advisory Board, County Representative, 2012-15, reappointed for 2015-18 term.

Advisor for Healthy Communities Transformation Initiative, an initiative to develop healthy community indicators, sponsored by HUD and organized by the New Mexico Mortgage Finance Authority, 2015.

Organizer of Public Lecture Series on Water & Energy in NM (as part of a UNM course), 2013-18.

Consultant to the Urban Land Institute New Mexico on the theme of and speakers for the organization's 2017 lecture series, 2016.

Reviewer of grant applications for the NM Water Resources Research Institute, 2015.

Manuscript Reviewer for Journal of Cleaner Production, Journal of Environmental Planning and Management, PLOS ONE, Journal of Water Process Engineering, Water Environment Research, Sustainability, Science of the Total Environment, among others, 2012-present.

Advisor to Elevation Children's Center on hazardous chemicals in children's



products, cleaners, and furnishings, 2014-2017.  
 Member of Association of Collegiate Schools of Planning, 2015-present.  
 Member of American Planning Association, 2014-present.  
 Member of American Chemical Society, 2010-2015.  
 Student Advising Mentor to E-IPER PhD and Masters students, 2008-10.  
 Elected Representative of Graduate Student Program Committee, 2008-09.  
 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.

## UNM SERVICE

CRP Tenure and Promotion Review Committee, 2018.  
 Coordinator and facilitator of a student session to learn about the policy making process with staffers from Senator Udall's D.C. and NM offices, April-May 2018.  
 Reviewer for UNM limited competition PNM grant proposals, April 2018.  
 Coordinator of event recognizing Bill Fleming's career and contributions to CRP, March-May 2018.  
 Faculty host for 2018 SA+P Lecture Series speaker Dr. Arlene Blum, plus organizer of several meetings with local architects about green building design, 2018.  
 UNM Libraries Committee, 2017-present.  
 SA+P Tenure and Promotion Policy Committee, 2017-present.  
 Search Committee Member, CRP new Asst. Prof. faculty hire, 2017.  
 Faculty host for 2017 SA+P Lecture Series speaker Professor Christopher Scott, plus organizer of lunch session for students to discuss research and professional work with the speaker, 2017.  
 UNM Water Working Group, SA+P Representative, 2016.  
 Host of 4 Water Reuse Research Foundation webinars for UNM students and faculty, 2015-2016.  
 Search Committee Member, SA+P Contracts and Grants Administrator, 2015.  
 Search Committee Member, CRP/LAI new Asst. Prof. faculty hire, 2015.  
 Search Committee Member, CRP new Director hire, 2015.  
 Contributing Author of CRP PAB Self Study Report; Supervised Design, Implementation, and Analysis of 2 Surveys; and Report Editor for 2014 CRP Program Accreditation.  
 Consultant for CRP Advanced Planning Studio Course, Fall 2013.  
 CRP and SA+P Representative on UNM Water Resources Program Steering Committee, 2013-present.  
 CRP Student Learning Outcomes Committee, 2012-present.  
 CRP Personnel Committee, 2012-present.  
 Recommendation letters for numerous students for job, graduate school, and funding opportunities, 2012-present.  
 CRP student admissions committee, 2012-present.  
 SA+P PhD Committee, 2012-2014.  
 Search Committee Member, CRP new Asst. Prof. faculty hire, 2012.

Service on Dean's panels for SA+P water and environment research, 2012-13.  
Member of UNM Women's Caucus, 2012-2015.