

Jeanne M. VanBriesen

Vice Provost for Faculty
Duquesne Light Company Professor
Carnegie Mellon University

5000 Forbes Avenue, WH 513 Pittsburgh, PA 15213-3890

Phone : (412) 580-4660 email: jeanne@cmu.edu

<https://faculty.ce.cmu.edu/vanbriesen/>

<https://www.cmu.edu/faculty-office/meet-the-vice-provost/index.html>

Education

Ph.D. Civil (Environmental) Engineering, Northwestern University (1998) Dissertation: "Modeling coupled biogeochemical processes in mixed waste systems." Advisor: Bruce Rittmann

M.S. Civil (Environmental) Engineering, Northwestern University (1993) Thesis: "The role of light at night in extremely low frequency electromagnetic field studies." Advisor: Herman Cember

B.S. Education (Chemistry), Northwestern University (1990)

Licensure and Certification

Registered Professional Engineer (PE), State of Delaware

Board Certified Environmental Engineer (BCEE)

ABET Program Evaluator (PEV)

Positions and Work Experience

Carnegie Mellon University. Pittsburgh, PA

Vice Provost for Faculty (7/2019 – present)

Department of Civil and Environmental Engineering.

Duquesne Light Company Professor of Civil and Environmental Engineering (7/14-present)

Professor (7/08 - present); Associate Professor (7/05 - 7/08); Assistant Professor (7/99 - 7/05)

Director, Center for Water Quality in Urban Environmental Systems (2008-present)

Director, Educating at the Interface: Nanotechnology-Environmental Effects and Policy (NEEP)

IGERT Program (2010 – 2017)

Faculty Senate Vice Chair (2016-2017) and Chair (2017-2019)

Northwestern University. Department of Civil Engineering. Evanston, IL.

Visiting Assistant Professor (9/98 to 6/99)

New Precision Technology, Inc. Wheeling, IL.

Officer and Business Manager (1996 – 1999)

Department of Energy. Center for Risk Excellence at Argonne National Laboratory. Argonne, IL

Environmental Engineering Intern, GS-11 (6/98 to 8/98)

Evanston Township High School. Evanston, IL.

Science Teacher (physics and chemistry) (9/91 to 6/92)

Waverly Junior-Senior High School. Waverly, NY.

Chemistry Teacher (9/90 to 8/91); Drafted District-wide Chemical Hygiene Plan

Honors and Awards

- 2019** SIGKDD 2019 Test-of-Time paper award for “Cost-effective Outbreak Detection in Networks.” KDD-2007, by Jure Leskovec, Andreas Krause, Carlos Guestrin, Christos Faloutsos, Jeanne VanBriesen, Natalie Glance.
- 2019** PA AWWA Special Recognition Award to honor years of service and dedication to the water industry.
- 2019** Fellow, Association of Environmental Engineering and Science Professors (AEESP)
- 2018** Fellow, American Society of Civil Engineers (ASCE)
- 2016** Achievement Rewards for College Scientists (ARCS) Alumni Hall of Fame
- 2016** Fellow, Environmental and Water Resources Institute (EWRI)
- 2015** Carnegie Mellon University Barbara Lazarus Award *recognizes exemplary contributions to fostering a welcoming and nurturing environment for graduate students and young faculty*
- 2015** Carnegie Science Center Environmental Award
- 2015** Margaret S. Peterson Award *for an outstanding woman in environmental and water resources.* American Society of Civil Engineers. Environmental and Water Resources Institute.
- 2013** Philip L. Dowd Fellowship. *In recognition of educational contributions and to encourage the undertaking of an educational project.* Carnegie Mellon University. College of Engineering
- 2011** National Academy of Engineering Armstrong Endowment for Young Engineers Gilbreth Lectureship
- 2010** Association for Environmental Engineering and Science Professors (AEESP) Distinguished Service Award
- 2010** Selected Presenter at NAE Frontiers of Engineering Education Symposium
- 2009** Aldo Leopold Leadership Program Fellowship
- 2009** McGraw-Hill/ AEESP Award for Outstanding Teaching in Environmental Engineering and Science. Presented by Association for Environmental Engineering and Science Professors
- 2009** West Chester East High School Hall of Fame (Alma Mater)
- 2009** Professor of the Year. American Society of Civil Engineers (ASCE) Pittsburgh Chapter
- 2008** Selected Presenter NAE Indo-U.S. Frontiers of Engineering Symposium, Infrastructure
- 2008** Best Research Paper. Journal of Water Resources Planning and Management (JWRPM) for “Efficient Sensor Placement Optimization for Securing Large Water Distribution Networks,” by Andreas Krause, Jure Leskovec, Carlos Guestrin, Jeanne VanBriesen, and Christos Faloutsos
- 2007** Pennsylvania Water Environment Association Professional Research Award
- 2005** Paul Christiano (E 1964, 1965, 1968) and Norene Christiano (MM 1964, 1971) Faculty Fellowship; Carnegie Mellon University
- 2002** George Tallman Ladd Award for outstanding research and professional accomplishments and potential, College of Engineering, Carnegie Mellon University
- 2001** National Science Foundation Career Award “Coupled Processes and Intermediate Formation in the Biodegradation of EDTA.”
- 1993-1998** Achievement Rewards for College Scientists (ARCS) Foundation annual merit award and summer research stipend

Research and Education Productivity Summary

Research Funding (as PI or co-PI):

National Science Foundation:	\$ 5,829,000
Other Federal (DOD, DOE, VA):	\$ 1,016,118
Foundation Support:	\$ 1,858,500
State:	\$ 269,355
Corporate Gifts:	\$ 30,000
NGO Support:	\$ 149,000
Internal Competitive Sources:	<u>\$ 459,900</u>
	\$ 9,611,873

Productivity (as of July 2020)

Citations: **6098**

h-index: **33**

i10-index: **61**

Journal Publications (**70 published**)

Books and Book Chapters (**12 published; 1 in press**)

Conference Proceedings Papers (**11 published**)

Conference Proceedings Abstracts (**68 published**)

Conference Presentations (**80**)

Invited Research Seminars and Presentations (**82**)

Educational Presentations (**26**)

Ph.D. Students Supervised (**22 completed, 4 in progress**)

M.S. Students Supervised (**28 completed**)

Undergraduate Students Supervised (**22 completed**)

Post-doctoral Researchers Supervised (**3 completed**)

Pre-college (Chemistry and Physics, **2 years**)

Undergraduate Courses Taught (Civil and Environmental Engineering, **16 years**)

Graduate Courses Taught (Water Quality, Wastewater Treatment, Sustainability, **20 years**)

Graduate Program Development (IGERT, GAANN)

Leadership Experience

Vice Provost for Faculty, Carnegie Mellon University (July 2019-present)
Chair, Faculty Senate, Carnegie Mellon University (May 2017-April 2019)

Director, Center for Water Quality in Urban Environmental Systems (2008-present)
Director, Educating at the Interface: Nanotechnology-Environmental Effects and Policy (NEEP)
IGERT Program (2010 – 2017)

Leadership Roles and Responsibilities

Vice Provost for Faculty, Carnegie Mellon University

July 2019-present

The Office of the Vice-Provost for Faculty supports activities in three broad areas: (1) Faculty recruitment and retention; (2) reappointment, promotion and tenure; (3) professional and leadership development for faculty. Diversity, equity and inclusion and support for a positive climate cross all three focus areas, and the office is committed to increasing communication and transparency with the faculty. In each area, the VPF office manages operational components as well as specific projects each year to enhance future operations.

Faculty Search

- Affirmative action compliance monitoring and OFCCP reporting (for all faculty tracks, post-docs, instructional staff, adjunct faculty)
- Anti-bias training for search committees
- Dual career program management
- Review appointment letters for non-tenure track faculty appointments and track changes
- FY20 Project. Leadership training (all dean, associate deans, department heads) on AA/EO and use of Interfolio for search pool analysis

Faculty Appointments and Life-Cycle

- Faculty leave program management
- COACHE Faculty Satisfaction Survey Coordination Committee
- Collaboration with HR on Workday transformation
- FY20: Special Faculty Policy Revision
- FY21: Teaching Faculty Policy Revision
- FY21: Ad hoc Committee on Innovative Faculty Appointments
- FY21: Faculty Salary Equity Study Plan Committee
- FY21: Emeritus Faculty Policy Revision (initiative by Faculty Senate)

Reappointment, Promotion and Tenure Support

- University Tenure Committee
- University Non-tenure Committee
- Teaching Track Committee (re-instated after 5 year hiatus)
- Special Faculty Committee (re-instated after 5 year hiatus)
- FY20 Developed and deployed new confidentiality agreement for reappointment, promotion and tenure (RPT) meetings
- FY20 Expanded onboarding for all new members of university committees

- FY20 Special Review Committee Department Head (co-chair)
- FY20 College Dean Review Committee

Faculty Professional Development

- Incoming Faculty Orientation
- Presidential Post-Doctoral Fellowship Program
- Department Heads and Academic Leadership Meetings
- Associate Deans for Faculty Development Meetings
- FY20: Ad hoc Committee on Professional Development for Faculty supporting Student Mental Health (co-chair)
- FY21: Ad hoc committee on Professional Development for Faculty on Civil Workplace
- FY21: Ad hoc Committee on Professional Development for Faculty on Anti Racism

Diversity, Equity and Inclusion Activities

- Faculty Committee on Diversity, Inclusion, and Development (FCDID) (chair)
- Committee on AAAS SeaChange Program (chair)
- NAE/NAS Collaboratory on Prevention of Sexual Harrassment (representative)
- FY20 Support NSF Advance Proposal for Institutional Transformation
- FY20 & FY21 Committee on Revision to Title IX Policy and Procedures

In addition, the Vice Provost for Faculty serves on the following committees at the request of the Provost:

- Climate Steering Committee
- Consensual Intimate Relationship Policy Development Committee
- Family Care Committee
- Data Stewardship Committee
- Institutional Rankings Committee
- Task Force on the CMU Experience

And on the Faculty Senate Committee on Faculty Affairs.

During the Response to COVID-19, additional service on the following working groups:

- Academic Matters Committee for COVID-19 response
- Long-term Planning and Vision Committee for post-COVID -19
- Review of Surveillance and Testing Plan for Fall 2020 return (co-chair)

In consultation with the Office of General Council, I drafted and deployed guidance on:

- (1) Conducting confidential RPT meetings in Zoom;
- (2) COVID-19 reappointment, promotion and tenure review delay and tenure clock extension;
- (3) COVID-19 faculty accommodation and workplace adjustment;
- (4) COVID-19 faculty unpaid leaves with continuing benefits;
- (5) processes and procedures for shipping materials in support of remote teaching;
- (6) processes for support of research and teaching assistants in remote locations.

Faculty Senate. Carnegie Mellon University.

Vice-Chair, 2016-2017 and Chair, 2017-2019

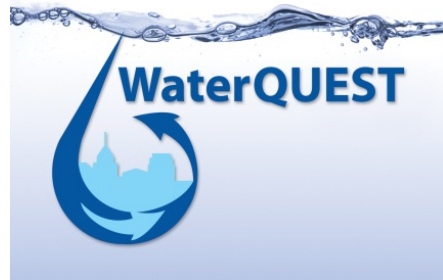
- Set agenda for Senate Activities.
 - 2017-2018: Develop White Paper on State of the University in support of the Presidential Search; review emeritus faculty appointment process; review budget model change and metrics
 - 2018-2019: Review Special Faculty track; post-doctoral mentoring; sustainability in practice, research, and education; consensual relationship policies
- Set agendas and chair meetings for Senate and Executive Committee
- Recruit and appoint chairs for senate committees (Faculty Affairs, Budget & Finance, University Libraries, Nominating). Set charges for each committee.
- Recruit and appoint vice-chairs for university standing committees (University Education Council, University Research Council, University Student Affairs Council). Collaborate with Vice-Provosts to set charges for each committee.
- Nominate faculty for service on University Disciplinary Committee, Academic Review Board, ad hoc inquiry committees, search committees, task forces, and working groups and appoint faculty to University Committees on promotion and tenure
- Represent the faculty at University Department Heads meetings and the Elected Leadership Council meetings
- Serve on the University Board of Trustees. Give annual Senate presentation.
- Meet with faculty on campus in Qatar (annually)
- Provide confidential counsel to faculty on a wide range of issues.

University Research Council (URC). Carnegie Mellon University.

Vice Chair 2011-2013

- The URC is tasked with special projects associated with research administration, as requested by the URC chair (Vice President for Research) and the Faculty Senate.
- Year 1. Revised university policy with respect to conflict of interest in research, as necessitated by changes in federal law.
- Year 2. Reviewed and recommend changes to university policy on royalty payments to staff members.

Center for Water Quality in Urban Environmental Systems (Water QUEST)



Co-Director 2005-2008; Director 2008-present

- Lead faculty team responses to center-level funding opportunities.
- Engage with corporate and foundation sponsors.
- Present center research at Dean's Weekend, President's Weekend, Trustee Partners Weekend, and other select alumni development events.
- Present center research to foundation program managers and boards.
- Coordinate with watershed research groups in Southwestern Pennsylvania and build relationships with regional NGOs and university partners.
- Brief local, state and national regulatory agencies regarding research results.
- Coordinate field work with drinking water utilities.
- Manage budget and supervise assessment and purchase of laboratory equipment.
- Hire and supervise laboratory manager.

Nanotechnology-Environmental Effects and Policy (NEEP) Program, a NSF Integrative Graduate Education and Research Traineeship (IGERT)

Lead Principal Investigator 2010-2017

- Lead faculty team that wrote the proposal to leverage NSF/EPA Center on Environmental Implications of Nanotechnology (CEINT) to create the IGERT.
- Hire and supervise IGERT program coordinator.
- Select members and manage interactions with external advisory board.
- Prepare and deliver program briefings and presentations.
- Coordinate educational program across five engineering departments.
- Lead faculty through admissions, selection and regular evaluation of students.
- Mentor graduate students in the program.
- Prepare and deliver professional development seminars to IGERT students on topics including: adjusting to graduate school, interacting with your advisor, finding a mentor, organizing your time, giving presentations, avoiding procrastination, and project planning.



Professional and Leadership Development

ELATE (Executive Leadership in Academic Technology and Engineering). 2015-2016.

ELATE is a leadership development program for women in science, technology, engineering, mathematics, (STEM) and related disciplines. Topics include strategic finance and resource management, organizational dynamics, and personal and professional leadership effectiveness. <http://drexel.edu/provost/initiatives/elate/>

HERS (Higher Education Resource Services) Leadership Training. 2011.

HERS provides leadership and management development for women in higher education administration. Topics in the two week immersive experience included: leading and managing change, negotiating, conflict management, budgeting and higher educational financial management, and legal issues in higher education. <http://hersnet.org/>

IDEAL (Institute for the Development of Excellence in Assessment Leadership). 2009.

IDEAL provides a week-long training in leading faculty in development and implementation of program assessment, consistent with ABET. Topics include: assessment fundamentals (outcomes, rubrics, surveys, documentation); change management (planning, communications, working with faculty); facilitation skills (management of groups, meeting agendas, leading teams). <http://www.abet.org/ideal/>

Aldo Leopold Leadership Program. Fellow. 2009-2010. Reunion training 2010.

A year-long fellowship that includes two weeks of intensive training in translation of knowledge to action through communication and leadership skill development. Topics include: building and leading teams; communications in print and social media; envisioning, planning and problem solving; working with congress; handling challenging conversations; strategic thinking and planning. <http://leopoldleadership.stanford.edu/> My blog post on [Tips for Effective Meetings with Graduate Students](#) was a top hit in 2013!

LEAD (Leadership Excellence for Academic Diversity). 2008.

Weeklong workshop focused on learning practical strategies and tools to improve department culture and climate. Topics included: recruitment and selection of faculty; evaluation of faculty performance; conflict resolution; communication skills; managing up and down; mentoring for leadership. <http://www.engr.washington.edu/lead/>

WELI (Women in Engineering Leadership) Institute. 2006

One day workshop focused on understanding leadership roles and responsibilities, communication skills, and networking. <http://www.me.iastate.edu/jmvance/women-in-engineering-leadership-institute-weli/>

Research Interests

My current research interests are broadly in the areas of (1) urban water system sustainability and the built environment water cycle, and (2) the energy-water nexus and watershed decision making. I'm particularly interested in how natural and engineering water systems interact across space and time and how biogeochemistry alters water quality through these transitions. These research foci are inter-related and the broad theme of sustainable water could describe my work if there was an agreed-upon definition of that! My prior research included (1) biodegradation of recalcitrant organic compounds (specifically chelates and PCBs) and (2) modeling bacterial system thermodynamics and diversity.

The thread that runs through all my work is the integration of multiple engineering and natural environments, or multiple biogeochemical processes, to understand complex systems of systems. Making time-critical engineering and policy decisions and designing regulations based on simplified representations of complex biogeochemical and engineering systems is fraught with challenges. Solving problems in this domain requires expertise and/or collaborators in chemistry, biology, environmental science and engineering, computer science, statistics, decision science, and policy.

Video Presentations Available:

[VanBriesen Water Research](#). (2018)

[Resources, Rivers and Regrets: How Energy Choices Affect Drinking Water](#). Scott Institute Andy Talk (2017)

[Rain Rivers and Resources](#). Carnegie Science Center (2015)

[Water-Energy Nexus at Sustainability EXPO](#) (2013)

[Energy and shale/water interactions](#) (2012)

[Water and Sewer Challenges. Intellirights](#) (2011)

Research Support

Sole Principal Investigator

1. "Anthropogenic Bromide Loads in the Monongahela Basin and their Contribution to Bromide Concentrations at Drinking Water Intakes," Principal Investigator. [The Heinz Endowments](#). \$40,000. January 2018 – December 2018.
2. "Assessing changing risk from drinking water disinfection byproducts in Southwestern Pennsylvania," Principal Investigator. [The Heinz Endowments](#). \$30,000. January 2017 – June 2018.
3. "Assessing and managing bromide discharges from coal-fired power plants," Principal Investigator. [Colcom Foundation](#). \$150,000. July 2015 – June 2017.
4. "Evaluation of Monongahela River Conductivity Sensor Network for Early Warning of Source Water Impairment for TDS and bromide: leveraging field study data to answer new questions," Principal Investigator. [Colcom Foundation](#). \$50,000. Jan-Dec 2014.

5. "RAPID: cyberinfrastructure development for Dunkard Creek watershed," Principal Investigator. National Science Foundation. \$99,000. Jan 2010- Dec 2011.
6. "Measuring bacterial biomass for evaluation of yield," Principal Investigator, Berkman Faculty Development Fund. \$5,000. Dec 2002 – Dec 2003.
7. "Synergy of EDTA and antibiotics against medical implant biofilm infections," Principal Investigator, Sam and Emma Winters Foundation. \$8,500. Sept 2003 – Aug 2004.
8. "CASIAU: Complexing Agents: Science, industry, authorities: Conference travel support," Principal Investigator. National Science Foundation. \$15,000. Jan 2007 – May 2007.
9. "Waters Network Support Activities," Principal Investigator. Subcontract from UCSB for \$26,000 and subcontract from UIUC for \$124,000 and contract from Shaw Environmental for \$100,000. Oct 2008 to March 2011.
10. "Panther Hollow Water Quality Assessment," Principal Investigator. Pittsburgh Parks Conservancy. \$14,000. May 2006 – April 2008.
11. "Bacterial Thermodynamics for Modeling Biodegradation of Anthropogenic Compounds," Principal Investigator, National Science Foundation. \$330,000. April 2003-March 2006.
12. RET (Research Experience for Teachers) Supplement to CAREER. Principal Investigator, National Science Foundation. \$20,000. June 2001-Aug 2001.
13. REU (Research Experience for Undergraduates) Supplement to CAREER. Principal Investigator, National Science Foundation. \$6000. May 2004-Dec 2005.
14. "CAREER: Coupled Processes and Intermediate Formation in the Biodegradation of EDTA," Principal Investigator, National Science Foundation. \$375,000. Feb 2001 to Jan 2006.
15. "Measuring Complexing Agents in Natural Systems," Principal Investigator, Carnegie Mellon Faculty Development Fund, \$6,900, Jan 2000-Dec 2000.

Lead Principal Investigator

16. "Understanding the Pittsburgh Water and Sewer Authority (PWSA) Lead Sampling Data" Lead Principal Investigator. Co-principal investigator Jared Cohon (CEE and EPP, CMU) Metro 21 Program at Carnegie Mellon University. Phase I: \$50,000. June 2016 – December 2017. Phase II: \$110,000. June 2018 – December 2019.
17. "Assessing climate change and energy choice impacts on drinking water quality changes in Pennsylvania," Lead Principal Investigator. Co-principal investigators Costa Samaras (CEE, CMU) and Matteo Pozzi (CEE, CMU). Pennsylvania Water Resources Research Center. Total budget \$64,585 [\$21,195 state and \$43,390 non-federal match]. April 2016-March 2017.
18. "Characterizing the effects of urban water conservation on municipal wastewater collection and treatment," Lead Principal Investigator. Co-principal investigator Costa Samaras (CEE, CMU). Natural Resources Defense Council (NRDC). \$50,000. September 2015 – August 2016.
19. "Evaluation of Green Stormwater Infrastructure (GSI) to mitigate sewage overflows in the Nine Mile Run Watershed in Frick Park, Pittsburgh, PA," Lead Principal Investigator. Co-principal investigators Costa Samaras (CEE, CMU) and Matteo Pozzi (CEE, CMU). Metro 21 Program at Carnegie Mellon University. \$75,000. January 2015 – May 2016.
20. "Evaluation of membrane fouling potential of dissolved organic matter using parallel factor analysis of fluorescence spectroscopy (PARAFAC)," Lead Principal Investigator. Co-principal investigators Dave Dzombak (CEE) and Meagan Mauter (CHE/EPP). Pennsylvania Infrastructure Technology Alliance (PITA). \$50,000 plus \$30,000 from Aquatech, Inc. January 2013-May 2014.
21. "Advancing a bromide standard for drinking water sources," Lead Principal Investigator. Co-principal investigator Mitchell Small (CEE/EPP). Colcom Foundation, \$50,000. October 2012 – December 2013.

22. "SEER: Bromide standard for drinking water sources," Lead Principal Investigator. Co-principal investigator Mitchell Small (CEE/EPP). SEER Fellowship Student Support. \$37,000. January – December 2013.
23. "IGERT: Education at the interface: Nanomaterial Environmental Impacts and Policy" Lead Principal Investigator. Co-principal investigators are Greg Lowry (CEE at CMU), Liz Casman (EPP at CMU), Kim Jones (CEE at Howard), and Lorraine Fleming (CEE at Howard). National Science Foundation. \$3,200,000. July 2010 – June 2015.
24. "Understanding the interaction of source water bromide with drinking water treatment to reduce disinfection by-product formation in the Monongahela River basin," Lead Principal Investigator. Co-principal investigator is Mitchell Small. Colcom Foundation. \$200,000. January 2011-December 2012.
25. "Baseline aquatic resources and water quality assessment in the Monongahela River," Lead Principal Investigator. Co-principal Investigators are Dave Argent (Cal U) and John Rawlins (CMNH). The Heinz Endowments. \$100,000. January 2010-December 2011.
26. "Expand baseline aquatic resources and water quality data collection through summer 2011," Lead Principal Investigator. Co-principal Investigators are Dave Argent (Cal U) and John Rawlins (CMNH). The Heinz Endowments. \$74,000. January 2011-June 2012.
27. "Creating public understanding of water quality impacts from shale gas production in PA," Lead Principal Investigator. Co-principal investigator is Kelvin Gregory (CEE). Colcom Foundation. \$100,000. July 2009 to December 2010.
28. "SEER: Brominated DBPs in Mon River," Lead Principal Investigator. Co-principal Investigators Kelvin Gregory (CEE) and Mitchell Small (CEE/EPP). SEER Fellowship Student Support. \$30,000. January-December 2009.
29. "SEER: Development of Novel Contaminant Source Tracking with Molecular Microbiology," Lead Principal Investigator. Co-Principal Investigators David Dzombak (CEE) and Mitchell Small (CEE/EPP). SEER Fellowship Student Support. \$30,000. January-December 2007.
30. "PITA: Raman Chemical Imaging Spectroscopy for Evaluation of Biological Agents in Water," Lead Principal Investigator. Co-Principal Investigator David Dzombak (CEE). Pennsylvania Infrastructure Technology Alliance (PITA) October 2002-May 2005. \$49,007 for 2002/2003 and \$49,995 for 2003/2004 and \$44,158 for 2004/2005.
31. "PITA: Inhibition of pathogenic biofilm formation on re-usable medical devices using ethylenediaminetetraacetate (EDTA)," Lead Principal Investigator. Co-Principal Investigator Todd Przybycien (BME). Collaborative with Derick Brown, Lehigh University. PA Company: Medrad, Inc. Pennsylvania Infrastructure Technology Alliance (PITA) \$55,000. January 2005 - December 2005.
32. "Cyberinfrastructure for Water Quality Evaluation and Educational Activities using a Ship of Opportunity in the Pittsburgh Region." Co-principal Investigator with David Dzombak (CEE). Collaborative with Pittsburgh RiverQUEST (formerly Pittsburgh Voyager). The Heinz Endowments. \$56,000. May 2007 – June 2009.
33. "Evaluation of the potential for citizen group monitoring of microbial indicators in a pilot watershed in Pittsburgh," Lead Principal Investigator. Co-principal investigators Dave Dzombak (CEE) and Mitchell Small (CEE/EPP). Three Rivers Wet Weather, Inc. \$85,000. January 2007 – May 2008.
34. "REU: Sensors and sensor networks," Lead Principal Investigator. Supplement to NSF project. National Science Foundation. June 2005-July 2006. \$6,000.
35. "Placement and operation of an environmental sensor network to facilitate decision making regarding drinking water quality and security," Lead Principal Investigator. Co-Principal Investigators are Christos Faloutsos (SCS), Anatassa Ailamki (SCS), Paul Fischbeck (SDS and EPP), and Mitchell Small (CEE and EPP). National Science Foundation. August 2003-July 2006. \$1,500,000.

36. "Modeling and decision support tools based on the effects of sediment geochemistry and microbial populations on contaminant reactions in sediments," Lead Principal Investigator. Co-principal investigators are Mitchell Small (EPP/CEE), Greg Lowry (CEE), Ned Minkley (Biology), and Kelvin Gregory (CEE). Collaborative with U.S. Army Engineer Research and Development Center (ERDC). Department of Defense Strategic Environmental Research and Development Program (DOD SERDP). April 2006 to June 2010. \$933,000 to Carnegie Mellon.

Co-Principal Investigator

37. "Collaborative Research: Impacts of Energy Extraction and Coal-Fired Power Plants on Disinfection By-Product Formation in Water," Co-principal investigator with Susan Richardson (University of South Carolina) and Michael Plewa (University of Illinois). National Science Foundation, \$269,990 (CMU sub contract for \$60,000); Jan 2015- Dec 2017.
38. "Regulatory interactions and unintended environmental impacts in the power generation sector," Co-principal Investigator with Paulina Jaramillo (EPP, CMU) and Costa Samaras (CEE, CMU). Wilson E. Scott Institute for Energy Innovation. Carnegie Mellon University. \$75,000. January 2015-May 2016.
39. "Role of reactive oxygen species in microbial chlorine resistance," Co-principal Investigator with G.K. Suraishkumar (IIT-Madras). Indo US Frontiers of Engineering Support. \$25,000. July 2008 – June 2010.
40. "Effects of sediment biogeochemistry on the environmental fate and persistence of polychlorinated biphenyls (PCBs)," Co-Principal Investigator with David Dzombak (CEE – Lead PI), Mitchell Small (CEE and EPP), Edwin Minkley (CMRI, now BME), and William Brown (Biology). Packard Foundation Interdisciplinary Science Program. \$1,000,000. September 2001 – August 2004.
41. "Effect of Dissolved Organic Carbon (DOC) on Regrowth and Disinfection of *Legionella* in Water Distribution Systems," Co-Principal Investigator with Dr. Victor Yu (Special Pathogens Section, Veterans Administration Medical Center and the University of Pittsburgh), U.S. Veterans Administration, \$48,118, September 2000-May 2002.
42. "Technical Support Services for Risk-Related Material," Co-Principal Investigator with Mitchell Small (EPP/CEE), Argonne National Laboratories, \$10,000, February 2000-December 2000.
43. "The Interaction of Biodegradation and Sorption in the Fate and Transport of Mixed Waste Contaminants," Co-PI with David Dzombak (CEE) and Scott Brooks (Oak Ridge National Laboratory), Carnegie Mellon Seed Fund, \$35,000, October 1999-September 2000.

Participating Researcher

44. "GAANN: Advanced Infrastructure Systems," Participating researcher. U.S. Department of Education, \$900K to support Ph.D. students. 2019 – 2023.
45. "Center for Environmental Implications of Nanotechnology (CEINT)." NSF center at Duke, Carnegie Mellon, VaTech and Howard. Participating researcher. Total award at Carnegie Mellon \$2.5M. 2008-present. [Lead Principal Investigator on CEINT Supplement focused on Cyberinfrastructure. September 2013-August 2015; \$120,000.]
46. "PITA: Characterization of Integrated Chloride and Chlorine Sensor," Participating researcher. Pennsylvania Infrastructure Technology Alliance (PITA) \$50,000. January 2006 – March 2007.
47. "Comparing Laboratory predicted performance of sorbent amended sediment caps with measured field performance," Participating researcher. CICEET: the cooperative institute for coastal and estuarine environmental technology. \$225,185. Sept 2005 – Aug 2008.

Journal Publications (70 published)

1. Schwetschenau, S., Small, M., VanBriesen, J.M. "Using compliance data to understand uncertainty in drinking water lead levels in southwestern Pennsylvania" accepted and published online. *Environmental Science and Technology*. <https://pubs.acs.org/doi/abs/10.1021/acs.est.9b07303>
2. Kolb, C., Good, K.D., and VanBriesen, J.M. (2020) "Modeling trihalomethane increases associated with source water bromide contributed by coal-fired power plants in the Monongahela River Basin," *Environmental Science and Technology* 54:2:726-734.
3. Bergman, L., Jones, K.L., VanBriesen, J.M. (2020) "Fluorescence characterization of organic matter and fouling: case study in a full scale reverse osmosis membrane plant, *Water Environment Research*, 92:2:161-172.
4. Cook, L.M., VanBriesen, J.M., Samaras, C. (2019) "Using rainfall measures to evaluate hydrologic performance of green infrastructure systems under climate change," *Sustainable and Resilient Infrastructure*. <https://doi.org/10.1080/23789689.2019.1681819>
5. Xu, Y., Gregory, K.B., VanBriesen, J.M. (2019) "Reduction in sulfate inhibition of microbial dechlorination of polychlorinated biphenyls in Hudson and Grasse River sediment microcosms through fatty acid supplementation," *Chemosphere* 233:81-91.
6. Good, K.D. and VanBriesen, J.M. (2019) "Coal-fired power plant wet flue gas desulfurization bromide discharges to U.S. watersheds and their contributions to drinking water sources," *Environmental Science and Technology* 53 (1): 213-223.
7. Cadwallader, A. and VanBriesen, J.M. (2019) "Temporal and spatial changes in bromine incorporation into drinking water disinfection byproducts in Pennsylvania," *ASCE Journal of Environmental Engineering* 145(3).
8. McGivney, E., Avellan, C., Xiao, Y., Casman, E., Lowry, G., VanBriesen, J.M., and Gregory, K.B. (2018) "Biogenic cyanide production promotes biodissolution of gold nanoparticles in soil," *Environmental Science and Technology* 53:3:1287-1295
9. McGivney, E., Jones, K.E., Weber, B., Valentine, A.M., VanBriesen, J.M., Gregory, K.B. (2018) "Quorum sensing signals form complexes with Ag⁺ and Cu²⁺ cations," *ACS Chemical Biology* 13(4): 894-899.
10. Xu, Y., Gregory, K.B., VanBriesen, J.M. (2018) "Effects of Ferric Oxyhydroxide on Anaerobic Microbial Dechlorination of Polychlorinated Biphenyls in Hudson and Grasses River Sediment Microcosms: Dechlorination Extent, Preferences, Ortho Removal, and its Enhancement, *Frontiers in Microbiology* 20July 2018.
11. Cook, L.M., Samaras, C., VanBriesen, J.M. (2018) "A mathematical model to plan for long-term effects of water conservation choices on dry weather wastewater flows and concentrations," *Journal of Environmental Management*, 206: 684-697.
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34. Helbling, D. and VanBriesen, J.M. (2009) “Modeling chlorine response to microbial contamination in drinking water distribution systems,” 11th Annual Water Distribution Systems Analysis (WDS) Symposium at the ASCE EWRI World Environmental and Water Resources Congress.
35. Thompson, S.L. and VanBriesen, J.M. (2009) “Bacterial Diversity Methods in Drinking Water Detection,” 11th Annual Water Distribution Systems Analysis (WDS) Symposium at the ASCE EWRI World Environmental and Water Resources Congress.
36. Thompson, S.L. and VanBriesen, J.M. (2009) “Bacteria Diversity-Based Method for Detecting Waterborne Pathogens,” Association for Environmental Engineering Professors (AEESP) Conference Proceedings.
37. Thompson, S.L. and VanBriesen, J.M. (2009) “Using Q-PCR Based autochthonous bacterial indicators to detect contamination in drinking water,” Proceedings of the 109th General Meeting of the American Society of Microbiology,
38. Wilson, J.M. and VanBriesen, J.M. (2009) “Capillary Electrophoresis Analysis of Halacetic Acids: When does it work?” American Chemical Society 238th National Meeting Abstracts.
39. Hughes, A., VanBriesen, J.M., Small, M.J. (2009) “Objective Identification of Structural Properties Associated with Polychlorinated Biphenyl Dechlorination Processes,” DOD SERDP Environmental Technology Technical Symposium & Workshop.
40. Hughes, A., VanBriesen, J.M., Small, M.J. (2009) “Bayes Monte Carlo Model to Identify the Most Likely Polychlorinated Biphenyl Dechlorination Pathways and Processes,” DOD SERDP Environmental Technology Technical Symposium & Workshop.
41. Thompson, S.L., Xu, Y., Gregory, K., and VanBriesen, J.M. (2009) “Bacterial Population Shifts Related to Anaerobic Reductive Dechlorination of PCB Tracker Pairs in Hudson and Grasse River Sediment,” DOD SERDP Environmental Technology Technical Symposium & Workshop.
42. Xu, Y., Thompson, S.L., Gregory, K. and VanBriesen, J.M. (2009) “Reductive dechlorination of polychlorinated biphenyls (PCBs) Tracker Pairs in Hudson and Grasse River Sediment Microcosms,” DOD SERDP Environmental Technology Technical Symposium & Workshop.
43. Mitchell, A., Hughes, A., Karcher, S.C., Small, M.J., and VanBriesen, J.M. (2009) “PCB analytical method uncertainty and evaluation of PCB transformations in natural systems,” DOD SERDP Environmental Technology Technical Symposium & Workshop.
44. VanBriesen, J.M., Small, M.J., Karcher, S. (2009) “Evaluation of reductive dechlorination of polychlorinated biphenyls (PCBs) in Sediment Core Samples using Tracker Pairs,” DOD SERDP Environmental Technology Technical Symposium & Workshop.
45. Thompson, S.L. and VanBriesen, J.M. (2008). “Bacterial Diversity as a Biological Indicator in Drinking Water Distribution Systems.” 2008 Annual Conference, Pennsylvania Section - American Water Works Association, **1st place in Fresh Ideas Poster Competition.**
46. Thompson, S.L. and VanBriesen, J.M. (2008). “Bacterial Diversity as a Biological Indicator in Drinking Water Distribution Systems.” Annual Conference and Exposition, American Water Works Association.
47. Thompson, S.L. and VanBriesen, J.M. (2008). “A Novel QPCR-Based Method for Detecting Bacterial Contamination in Drinking Water” American Society of Microbiology Allegheny Branch Meeting.
48. Hughes, A., J.M. VanBriesen, M.J. Small. (2008) “Dechlorination Pattern Augmentation and Bayesian Modeling of Polychlorinated Biphenyl (PCB) Dechlorination in Sediment,” DOD SERDP Environmental Technology Technical Symposium & Workshop.
49. Xu, Y., Yu, Y, Gregory, K., Minkley, E., VanBriesen, J. (2008) “Bacterial Communities Analysis with Q-PCR in PCB-contaminated Sediment Core,” DOE SERDP Environmental Technology Technical Symposium & Workshop.

50. Helbling, D.E. and J.M. VanBriesen (2007) "Real-Time Monitoring of Free Chlorine Response to Microbial Contamination in a Model Distribution System," American Chemical Society 234th National Meeting Abstracts.
51. Hughes, A., VanBriesen, J.M., Small, M.J. (2007) "Bayesian Modeling of PCB Dechlorination in sediment for remediation decision support," American Chemical Society 234th National Meeting Abstracts.
52. Thompson, S.L. and VanBriesen, J.M. (2007) "Microbial Diversity as a Water Quality Indicator in Drinking Water Distribution Systems." Proceedings of 107th General Meeting of the American Society of Microbiology.
53. VanBriesen, J.M. (2007) "CORON: Collaborative Ohio River Observatory Network," Proceedings of the ASCE EWRI World Environmental and Water Resources Congress.
54. Yu, Y., Thompson, S.L., VanBriesen, J.M., Minkley, E.G. Jr., Brown, W.E. (2007) "Microbial diversity and community profiles in PCB contaminated sediments from Hudson and Grasse Rivers," Proceedings of 107th General Meeting of the American Society of Microbiology.
55. Hughes, A., VanBriesen, J.M., Small, M.J. (2007) "Bayesian Modeling of PCB Dechlorination in sediment for remediation decision support," The Society of Environmental Toxicology and Chemistry (SETAC) North American 28th Annual Meeting.
56. Hughes, A., VanBriesen, J.M., Small, M.J. (2007) "Bayesian Modeling of PCB Dechlorination in Sediment for Remediation Decision Support," Proceedings of DOD SERDP Environmental Technology Technical Symposium & Workshop.
57. Yu, Y., VanBriesen, J.M., Minkley, E.G. Jr., Brown, W.E. (2007) "Investigation of Microbial Community Structures and PCB Dechlorination Patterns in River Sediments," Proceedings of DOD SERDP Environmental Technology Technical Symposium & Workshop.
58. Escoriza, M., Stewart, S., Maier, J., VanBriesen, J.M. (2004) "Raman spectroscopy and digital imaging for identification and enumeration of bacteria in water," Abstracts of the Biomedical Engineering Society Annual Meeting.
59. Kim, H-J, Dorn, V.L., VanBriesen, J.M. (2004) "The efficacy of ethylenediaminetetraacetic acid (EDTA) against biofilm bacteria," Abstracts of the Biomedical Engineering Society Annual Meeting.
60. VanBriesen, J.M., Blough, M., Brown, W., Minkley, E.G., Jr. (2004) "Critical oxygen concentrations for biodegradation of PCBs," American Chemical Society 228th National Meeting Abstracts.
61. Wang, C., VanBriesen, J.M., Brown, W.E., Minkley, E.G., Jr., (2004) "Microbial communities in two river sediments demonstrate distinct anaerobic PCB dechlorination patterns," American Chemical Society 228th National Meeting Abstracts.
62. Karcher, S.C., Small, M.J., VanBriesen, J.M. (2004) "Statistical method to evaluate the occurrence of PCB transformations in river sediments," American Chemical Society 228th National Meeting Abstracts.
63. Wang, C., Minkley, E., Jr., VanBriesen, J.M., Blough, M., Brown, W. (2004) "Characterization of the anaerobic dechlorinating microorganisms in two PCB contaminated river sediments," Abstracts of the 104th Annual Meeting of the American Society of Microbiology.
64. Yuan, Z. and VanBriesen, J.M. (2003) "Measuring Cell Yields on NTA, EDTA and Their Biodegradation Intermediates Using Batch Reactors," American Chemical Society 226th National Meeting Abstracts.
65. Yuan, Z. and VanBriesen, J.M. (2002) "Yield Prediction and Modeling for Multi-Step biodegradation catalyzed by oxygenase enzymes," Abstracts of the American Society for Microbiology 102nd Annual Meeting.
66. Yuan, Z. and VanBriesen, J.M. (2002) "Analysis of intermediates of EDTA biodegradation by HPLC," American Chemical Society 224th National Meeting Abstracts.
67. Rittmann, B.E., VanBriesen, J.M., Schwartz, A. (2002) "Modeling Coupled Biogeochemical Processes," Association for Environmental Engineering and Science Professors Research

and Education Conference, Meeting Abstracts.

68. Sidari, F.P., Stout, J.E., VanBriesen, J.M., Bowman, A.M., Grubb, D., Neuner, A., Yu, V.L., (2002) "Chlorine Dioxide: A point of entry treatment technology for the control of Legionella in sensitive secondary distribution systems," American Water Works Association Water Quality Technology Conference Proceedings, **1st Place in Poster Competition**.
69. VanBriesen, J.M. and Rittmann, B.E. (2000) "Modeling Biogeochemical Interactions in Co-Contaminant Systems," American Chemical Society 220th National Meeting Abstracts.

Published Reports (4)

VanBriesen, J.M. (2019) Methods to Assess Anthropogenic Bromide Loads from Coal-fired Power Plants and their Potential Effect on Downstream Drinking Water Utilities, American Water Works Association. [Full Report Available](#).

Hammer, R. and VanBriesen, J.M. (2012) In Fracking's Wake: new rules are needed to protect our health and environment from contaminated wastewater, Natural Resources Defense Council. [Issue Brief and Full Report Available](#).

Stine, D., VanBriesen, J.M., Robinson, A., Griffin, M., Mitchell, A., Casman, E., Adams, P., Gregory, K., Hendrickson, C., Jaramillo, P., Jiang, M., Roy, A. (2013) Scott Institute for Energy Innovation. Shale Gas and the Environment, Policy Briefing. [Full Report Available](#).

VanBriesen, J.M., and Karcher, S.C. (2011) Sustainable Water Innovation Initiative for Southwestern Pennsylvania. [Full Report Available](#).

Select Press Coverage

With Gas Boom, Pennsylvania Fears New Toxic Legacy

NPR's "All Things Considered" | May 14, 2012. [Available here](#).

Water, Water, Everywhere

NPR's State Impact Blog | May 9, 2012. [Available here](#).

Bromide: a concern in drilling wastewater

Post-Gazette | March 13, 2011. [Available here](#).

The Nation's Big Water Repair Bill

New York Times Room for Debate | April 11, 2010. [Available here](#).

Presentations (Conferences; more than 80)

1. Schwetschenau, S., Cohon, J. VanBriesen, J.M. "Fifty years of water distribution system modeling: are we there yet?" Water Distribution System Invited Keynote at Environmental Water Resources Institute Annual Meeting, June **2019**.
2. Cook, L., VanBriesen, J.M., Samaras, C. "Using rainfall measures to evaluate hydrologic performance of green infrastructure systems under climate change," American Geophysical Union, San Francisco, CA, December **2019**.
3. VanBriesen, J.M. and Cadwallader, A. "Impact of nitrogen removal in wastewater treatment on DBP formation at downstream drinking water treatment plants," PA American Water Works Association and Pa Water Environmental Association Technology Summit, State College, PA, November 1, **2018**.
4. VanBriesen, J.M., Good, K.D., Kolb, C., Cadwallader, A. "Engineering and policy decisions at the energy production – drinking water nexus," Invited Keynote at Consortium of Universities for the Advancement of Hydrologic Sciences (CUAHSI) Biennial Meeting, Shepherdstown, WV, August 1, **2018**.
5. VanBriesen, J.M. "Resources, Rain, Rivers, and Regret: Energy and Water System Choices in the Ohio River Basin" Invited Keynote at University Council on Water Resources (UCOWR)/National Institutes for Water Resources (NIWR) Annual Meeting, Pittsburgh, PA, June 26, **2018**.
6. Good, K.D., and VanBriesen, J.M. "Evaluation of bromide contributions from coal-fired power plant discharges to concentrations in Pennsylvania drinking water sources," PA Association of Environmental Professionals, State College, PA, May 3, **2018**.
7. VanBriesen, J.M., Wilson, J.M., Wang, Y., Strahs, L., Good, K.D., Kolb, C., Cadwallader, A. "Downstream drinking water impacts of fossil fuel extraction and utilization choices," Mid Atlantic Water Resources Conference, Shepherdstown, WV. October 13, **2017**.
8. VanBriesen, J.M., Wilson, J.M., Wang, Y., Strahs, L., Good, K.D., Kolb, C., Cadwallader, A. "Energy Choices and Climate Change Alter Source Waters: What does this mean for DBPs?" Keynote at Gordon Research Seminar at the Gordon Research Conference on Drinking Water Disinfection By-Products, South Hadley, MA. July 30-August 4, **2017**.
9. VanBriesen, J.M., Wilson, J.M., Wang, Y., Good, K.D., "Anthropogenic surface water bromide changes, finished water health risks, and regulatory control of sources," American Water Works Association (AWWA) Annual Conference and Exposition, Philadelphia, PA. June 12-14, **2017**.
10. VanBriesen, J.M., Wilson, J.M., Wang, Y., Strahs, L., Good, K.D., Kolb, C., Cadwallader, A. "Source water bromide concentration changes and altered risk in finished drinking water in Pennsylvania," Association for Environmental Engineering and Science Professors (AEESP) Conference, June 22, **2017**.
11. VanBriesen, J.M., Wilson, J.M., Wang, Y., Good, K.D. "Downstream Drinking water impacts of fossil fuel extraction and utilization choices," Pennsylvania Section American Water Works Association (PA AWWA) Annual Conference, Hershey, PA. April 26, **2017**.
12. VanBriesen, J.M., Good, K.D., Wilson, J.M., Wang, Y. "Downstream drinking water impacts of fossil fuel extraction and utilization choices, Ohio River Basin Consortium for Research and Education Annual Meeting, Youngstown, OH, September 28-29, **2016**.
13. Wang, Y. and VanBriesen, J.M. "Assessing the Risk Associated with Increasing Bromide in Drinking Water Sources in the Monongahela River," American Chemical Society Annual Meeting, August 21-25, **2016**.
14. VanBriesen J.M. "Sensors in Water," Technology for America's Water Future: Disruptive Resilience, Invited Presentation, February 29, **2016**.

15. VanBriesen, J.M., Wilson, J.M., Wang, Y., Good, K.D., "Downstream drinking water impacts of fossil fuel extraction and utilization choices," International Society of Exposure Science, Invited Keynote. October 18-22, **2015**.
16. VanBriesen, J.M. "The future of water infrastructure: 2050 and beyond," American Water Symposium, September 15, **2015**.
17. VanBriesen, J.M., Wilson, J.M., Wang, Y., Good, K.D. "Effects of fossil fuel extraction and utilization wastewaters on drinking water treatment processes," Association for Environmental Engineering and Science Professors (AEESP) Conference, June 14-17, **2015**.
18. VanBriesen, J.M., Wilson, J.M., Wang, Y., Good, K.D. "Effects of fossil fuel extraction and utilization wastewaters on drinking water treatment processes," Invited AEESP lecture at AWWA ACE, June 7-10, **2015**.
19. VanBriesen, J.M., Wang, Y., Diao, Y., Good, K., Wilson, J.M. "Drinking water disinfection by-product challenges from changing source water quality," Mid-Atlantic Regional Water Conference, September 24-25, **2014**, Shepherdstown, WV.
20. VanBriesen, J.M. "Complex mixtures, analytical limitations, and risk-based decision-making in natural and engineered environments," American Chemical Society Annual Meeting, August 10 - 13, **2014**. San Francisco, CA.
21. VanBriesen, J.M., Wang, Y., Diao, Y., Good, K. "The role of fossil fuel extraction and utilization activities and their effect on formation of disinfection by-products in downstream drinking water plants," American Chemical Society Annual Meeting, August 10-13, **2014**. San Francisco, CA.
22. VanBriesen, J.M., Wilson, J.M., Wang, Y. "Management of Produced Water in Pennsylvania: 2010-2012," ASCE Shale Energy Engineering Conference, July 21-23, **2014**, Pittsburgh, PA.
23. VanBriesen, J.M. and Wilson, J.M. "The role of fossil fuel extraction and utilization on source water bromide challenges – current conditions and expected future loads," ACE14: American Water Works Association Annual Conference and Exposition, Boston, MA, June 8-12, **2014**.
24. VanBriesen, J.M. and Wilson, J.M. "Challenges in assessing effects of shale gas produced water on drinking water treatment plants," Facing the Challenges: Research on Shale Gas Extraction Symposium at Duquesne University, November 25, **2013**.
25. VanBriesen, J.M. "Sustainable Water Innovation Initiative for Southwestern Pennsylvania," presented at the Pennsylvania Economic Development Association Annual Conference, Pittsburgh PA, October 22, **2013**.
26. VanBriesen, J.M. "Engineered and natural water systems: sensing and modeling at interfaces," presented at the Society for the Advancement of Chicano and Native American Scientists Annual Meeting, San Antonio, TX, October 3, **2013**.
27. Wilson, J.M., VanBriesen, J.M., Wang, Y. "Source water challenges from energy extraction activities in Pennsylvania," presented at American Chemical Society Conference, Indianapolis, IN, September 11, **2013**.
28. VanBriesen, J.M. and Wilson, J.M. "Effects of produced water management options on drinking water treatment systems in Pennsylvania," presented at Engineering Conferences International "Overcoming the Environmental and Community Challenges of Hydraulic Fracturing for Shale Gas," Boulder, Colorado, August 6, **2013**.
29. VanBriesen, J.M., Gregory, K, Robinson, A., Griffin, W.M., Mitchell, A. "Unconventional Gas Development: what are the key environmental questions?" AEESP Conference, Colorado School of Mines, Golden, Co, July 16, **2013**.
30. Wilson, J.M. and VanBriesen, J.M. "Source Water and Treatment Plant Operational Effects on Disinfection By-product speciation," ASCE World Environmental and Water Resources Congress, Cincinnati, OH, May 22, **2013**.

31. Wilson, J.M. and VanBriesen, J.M. "Oil and gas produced water management in Pennsylvania during the rapid expansion of Marcellus shale gas drilling: 2008-2011," ASCE EWRI World Environmental and Water Resources Congress, Cincinnati, OH, May 22, **2013**.
32. Karcher, S.C., VanBriesen, J.M., Nietch, C. "Improved land use layer method in SWAT for spatially-informed watershed decision-making," ASCE World Environmental and Water Resources Congress, Cincinnati, OH, May 22, **2013**.
33. VanBriesen, J.M., Wilson, J.M., Wang, Y. "Challenges in measuring and monitoring for effects of shale gas produced water on drinking water treatment plants," PittCon, March 18, **2013**.
34. VanBriesen, J.M. and Wilson, J.M. "State of the Monongahela River 2012," State of the Monongahela River Conference, November 8, **2012**.
35. VanBriesen, J.M. and Wilson, J.M. "Energy Related Activities and Water Quality in Southwestern Pennsylvania," West Virginia Water Conference, October 30, **2012**.
36. VanBriesen, J.M. "Southwestern Pennsylvania Water Resources and Water Consortium Launch," ASCE EWRI Pittsburgh Meeting, October 12, **2012**.
37. VanBriesen, J.M. "Sustainable drinking water management with changing energy extraction choices: shale gas produced waters and drinking water disinfection by-products," American Chemical Society Annual Meeting, August 21, **2012**.
38. VanBriesen, J.M. "Source Water Challenges from Energy Extraction Activities and their role in DBP Formation in Drinking water," Gordon Research Conference on Disinfection By-Product Formation in Drinking Water, August 8, **2012**.
39. Wilson, J. and VanBriesen, J.M. "Effects of Speciation on Brominated Disinfection By-Products in Drinking Water from the Monongahela River," ASCE EWRI World Environmental and Water Resources Congress, May 23, **2011**.
40. VanBriesen, J.M. "Intelligent Infrastructure for Water," ASCE EWRI World Environmental and Water Resources Congress, May 19, **2012**.
41. VanBriesen, J.M., Karcher, S.C., Nietch, C.T. "2050 Vision: from watershed through drinking water plants," ASCE EWRI World Environmental and Water Resources Congress, May 19, **2012**.
42. VanBriesen, J.M. "Monongahela River bromide issues," Pennsylvania Rural Water Association Meeting, March 30, **2011**.
43. VanBriesen, J.M. "Water Consortium for SW Pa," Ohio River Basin Consortium for Research and Education Annual Meeting, October 18, **2010**.
44. VanBriesen, J.M. "Source Water Bromide and brominated DBPs in the Monongahela River Basin," State of the Monongahela River, Pittsburgh, PA, September 16, **2010**.
45. VanBriesen, J.M. "Water Consortium for SW Pennsylvania," ASCE Pittsburgh Section Meeting, September 9, **2010**.
46. VanBriesen, J.M. "Water 2050: cyber-physical infrastructure needs for water," 6th International Conference on Sustainable Water Environment, Newark, De, July 29-31, **2010**.
47. VanBriesen, J.M. "Engineered and Natural Water Systems: Sensing and Modeling at the Interfaces," CUAHSI bi-annual meeting, Boulder, Co, July 20, **2010**.
48. VanBriesen, J.M. "River Alert Information Network," presented at Fifth Annual Monongahela River Summit, Morgantown, WV, April 19, **2010**.
49. VanBriesen, J.M., Small, M.J., Schoen, M. "How many water quality samples are enough?" Three Rivers Wet Weather Annual Conference, September 29-30, **2009**.
50. Thompson, S.A. and VanBriesen, J.M. "Bacteria Diversity-Based Method for Detecting Waterborne Pathogens," Association for Environmental Engineering Professors (AEESP) Conference, Iowa City, Iowa, July 28, **2009**.
51. Xu, J., VanBriesen, J.M., Small, M.J., Fischbeck, P. "Decision making under information constraints," ASCE EWRI World Environmental and Water Resources Congress, May 17-21, **2009**, Kansas City, Missouri, USA.

52. Helbling, D. and VanBriesen, J.M. "Modeling chlorine response to microbial contamination in drinking water distribution systems," 11th Annual Water Distribution Systems Analysis Symposium at the ASCE EWRI World Environmental and Water Resources Congress, May 17-21, **2009**, Kansas City, Missouri, USA.
53. Thompson, S.A. and VanBriesen, J.M. "Bacterial Diversity Methods in Drinking Water Detection," 11th Annual Water Distribution Systems Analysis Symposium at the ASCE EWRI World Environmental and Water Resources Congress, May 17-21, **2009**, Kansas City, Missouri, USA.
54. Hughes, A., VanBriesen, J.M., Small, M.J. "Dechlorination Pattern Augmentation and Bayesian Modeling of Polychlorinated Biphenyl (PCB) Dechlorination in Sediment," The Tenth International Symposium on In Situ and On-Site Bioremediation held by Battelle. Baltimore, Maryland, May 5-8, **2009**.
55. Xu, Y., Yu, Y., Gregory, K., VanBriesen, J.M., "Comparison of Bacterial Populations Related to PCB Microbial Biodegradation in PCB-contaminated Rivers," The Tenth International Symposium on In Situ and On-Site Bioremediation held by Battelle. May 5-8, **2009**. Baltimore, Maryland, USA.
56. Karcher, S., VanBriesen, J.M., Small, M.J. "Tracker Pair elucidation of congener transformations in PCB contaminated sediment," The Tenth International Symposium on In Situ and On-Site Bioremediation held by Battelle. May 5-8, **2009**. Baltimore, Maryland, USA.
57. VanBriesen, J.M. "Urban Water and Global Implications," presented at Ohio River Basin Consortia for Research and Education Annual Meeting, October 25-26, **2008**. Pittsburgh PA.
58. Xu, Y., VanBriesen, J.M., Gregory, K. "Physical Source Tracking in Pine Creek Watershed, Allegheny County, PA." Ohio River Basin Consortium for Research and Education Annual Meeting, October 25-26, **2008**. Pittsburgh, PA.
59. Xu, Y., VanBriesen, J.M., Gregory, K. "Physical Source Tracking Using Multiple Molecular Microbial Methods in Pine Creek Watershed, Allegheny County PA," Ohio River Basin Consortia for Research and Education Meeting, October **2007**.
60. VanBriesen, J.M., Walker, D., Brainsteitter, A. "Case Study: Bacterial Monitoring and Contaminant Source Tracking in Pine Creek Watershed," Proceedings of the 9th Annual Three Rivers Wet Weather Sewer Conference, October **2007**.
61. VanBriesen, J.M. "CORON: collaborative Ohio River observatory network," ASCE EWRI World Environmental and Water Resources Congress **2007**, Tampa Florida.
62. Escoriza, M.F., VanBriesen, J.M., Stewart, S., Maier, J., Treado, P., "Raman spectroscopy for detection, identification, quantification and viability assessment of bacteria in water," Association of Environmental Engineering and Science Professors (AEESP) Biannual Meeting, July **2007**.
63. VanBriesen, J.M., Montgomery, J., Haas, C., Minsker, B., Schnoor, J., "Integrated Hydrologic Science and Environmental Engineering Observatory: A preliminary program plan for the WATERS Network," Engineering Sustainability Conference, Pittsburgh PA, April **2007**.
64. VanBriesen, J.M. "Intermediate formation in the biodegradation of EDTA and NTA," presented at the International conference on Complexing Agents Science, Industry, Authorities in Ascona Switzerland, March **2007**.
65. VanBriesen, J.M. "Water QUEST: an introduction," presented at the Ohio River Basin Consortia for Research and Education (ORBCRE) annual meeting in Murray, Kentucky, October **2006**.
66. VanBriesen, J.M. "CORON: Collaborative Ohio River Observatory Network," presented at the Ohio River Basin Consortia for Research and Education (ORBCRE) annual meeting in Murray, Kentucky, October **2006**.
67. VanBriesen, J.M. "CLEANER: cyberinfrastructure planning for the environment," presented at the Ohio River Basin Consortia for Research and Education (ORBCRE) annual meeting in Murray, Kentucky, October **2006**.

68. VanBriesen, J.M. "Panther Hollow Bacterial Water Quality," presented at the Ohio River Basin Consortia for Research and Education (ORBCRE) annual meeting in Murray, Kentucky, October **2006**.
69. VanBriesen, J.M. "Water QUEST: an introduction," presented at the Three Rivers Wet Weather Annual Conference, Mars, PA, September **2006**.
70. VanBriesen, J.M. "Battle of Water Sensor Networks," presented at the ASCE Water Distribution System (WDSA) Conference, Cincinnati Ohio, August **2006**.
71. VanBriesen, J.M. and Faloustos, C., "KDD: Water quality sensors tutorial," presented at the Knowledge Discovery in Databases (KDD) Conference, Philadelphia PA, August **2006**.
72. VanBriesen, J.M. "Water Supply and Water System Vulnerabilities," presented at the Carnegie Mellon University Conference on Crisis Readiness, Washington DC, February 28, **2006**.
73. VanBriesen, J.M. "Water Quality Data and Infrastructure Decision Making," presented at Sewage Facilities and Land Use: Collaborating for a Sustainable Future, October **2005**.
74. VanBriesen, J.M. "Water Quality in Southwestern PA – where do we go from the NRC study," presented at the Ohio River Basin Consortia for Research and Education (ORBCRE) Meeting. Marshall University. West Virginia. October **2005**.
75. VanBriesen, J.M., Small, M.S., Brown, W., Minkley, E. Jr., Karcher, S., Wang, C. "Collaborative Statistical and Molecular Microbiological Research to Elucidate Complex Systems involving Polychlorinated Biphenyls," presented at the Association of Environmental Engineering and Science Professors (AEESP) conference. Clarkson University, Potsdam NY. July **2005**.
76. Yuan, Z. and VanBriesen, J.M., "Intermediate formation in the biodegradation of chelating agents," Poster presentation and poster brief presented at the Association of Environmental Engineering and Science Professors (AEESP) conference. Clarkson University, Potsdam NY. July **2005**.
77. VanBriesen, J.M., Blough, M., Brown, W., and Minkley, E. Jr., "Critical oxygen concentrations for biodegradation of PCBs," 228th American Chemical Society National Meeting. August **2004**.
78. VanBriesen, J.M. "Pittsburgh Water Quality Data," presented at "Water: Assets and Liabilities," a conference sponsored by the Engineering Society of Western Pennsylvania. May 4, **2004**.
79. VanBriesen, J.M. and Rittmann, B.E. "Modeling Biogeochemical Interactions in Co-Contaminant Systems," American Chemical Society (Washington, DC, August 21st, **2000**).
80. VanBriesen, J.M. and Rittmann, B.E. "Modeling Recalcitrant intermediate formation during biodegradation," 2nd International Conference on the Remediation of Chlorinated and Recalcitrant Compounds (Monterey, CA May 22-25, **2000**).
81. VanBriesen, J.M., Rittmann, B.E., Bolton, H. Jr., Girvin, D.C. "Model Analysis of Intermediate Formation in the Biodegradation of Nitrilotriacetic Acid by *Chelatobacter heintzii*," Presented at the 21th Annual Environmental Chemistry Workshop, University of Michigan, October 18, **1998**.
82. VanBriesen, J.M., Banaszak, J.E., Quinn, J., Reed, D.T., Rittmann, B.E. "A Systematic Study of Coupled Chemical and Biological Reactions in the Aerobic Degradation of Nitrilotriacetic Acid by *Chelatobacter heintzii*." Presented at the *Symposium on the Influence of Coupled Processes on Contaminant Fate and Transport* at the Soil Science Society of America Annual Meeting, Anaheim CA, October 26-30, **1997**.
83. Banaszak, J.E., VanBriesen, J.M., Rittmann, B.E., Joshi-Tope, G., Francis, A.J. "Mathematical Modeling of Speciation Dependent Biodegradation," Presented at *Mathematical Issues in Bioremediation*, Los Alamos National Laboratory, June 11-13, **1997**.

Presentations (Invited Seminars; more than 80)

1. VanBriesen, J.M. "Effects of wastewater from energy extraction and utilization on drinking water sources and risk," Invited Seminar at the Water Institute at the University of Waterloo, March 18, **2019**.
2. VanBriesen, J.M. "Effect of Energy Extraction and Utilization on Source Water Bromide Concentration and Drinking Water Risk," Invited Seminar at University of Arizona, January 30, **2019**.
3. VanBriesen, J.M. "Effect of Energy Extraction and Utilization on Source Water Bromide Concentration and Drinking Water Risk," Invited Seminar at Arizona State University, October 18, **2018**.
4. VanBriesen, J.M. "Effect of Energy Extraction and Utilization on Source Water Bromide Concentration and Drinking Water Risk," Invited Seminar at Utah State University, October 9, **2018**.
5. VanBriesen, J.M. "Resources, Rain, Rivers, and Regret: Energy and Water System Choices in the Ohio River Basin" Invited Seminar for Carnegie Mellon Chi Epsilon (civil engineering honor society), Pittsburgh, PA, September 5, **2018**.
6. VanBriesen, J.M. "When Does Bromide matter?" Invited Presentation for Heinz Endowments. January 9, **2017**.
7. VanBriesen, J.M. "When does Bromide matter?" Invited Webinar sponsored by Sierra Club. February 9, **2017**.
8. VanBriesen, J.M. "Resources, Rivers and Regret: how energy choices affect drinking water," Presented at Energy Week, Carnegie Mellon University, March 29, **2017**.
9. VanBriesen, J.M., Wilson, J.M., Wang, Y., Good, K.D., "Anthropogenic surface water bromide changes, finished water health risks, and regulatory control of sources," Invited Presentation for Board of Ohio River Valley Water Sanitation Commission (ORSANCO). October 4, **2017**.
10. VanBriesen, J.M., Wilson, J.M., Wang, Y., Strahs, L., Good, K.D., Kolb, C., Cadwallader, A. "Energy extraction and utilization effects on source water bromide concentration and altered risk in finished drinking water," Yale School of Forestry Invited Seminar, November 1, **2017**.
11. VanBriesen, J.M. "Effect of fossil fuel extraction and utilization on drinking water treatment processes," Presented at Penn State University, April 6, **2016**.
12. VanBriesen, J.M. "Effect of fossil fuel extraction and utilization on drinking water treatment processes," Presented at Northwestern University, April 3, **2015**.
13. VanBriesen, J.M. "Effect of fossil fuel extraction and utilization on drinking water treatment processes," Presented at University of Southern California, March 11, **2015**.
14. VanBriesen, J.M. "Effects of fossil fuel extraction and utilization on drinking water treatment processes," Chi Epsilon, Carnegie Mellon Chapter, December 3, **2014**.
15. VanBriesen, J.M. "Effects of fossil fuel extraction and utilization on drinking water treatment processes," Cornell University, Environmental & Water Resources Distinguished Speaker Seminar Series, November 13, **2014**.
16. VanBriesen, J.M. "The role of changes in fossil fuel extraction and utilization on source water quality in southwestern Pennsylvania and its effect on drinking water disinfection by-products," Northeastern University, Department of Civil and Environmental Engineering, October 27, **2014**.
17. VanBriesen, J.M. "Analytical limitations and molecular advances for microbial water quality assessment and decision-making," Princeton University Department of Civil and Environmental Engineering, May 5, **2014**.
18. VanBriesen, J.M. "Analytical limitations and molecular advances for microbial water quality assessment and decision-making," University of Minnesota BioTechnology Institute Seminar Series, March 13, **2014**.

19. VanBriesen, J.M. "One Water: the water-energy nexus," Sustainability EXPOsed, December 10, **2013**.
20. VanBriesen, J.M. "Challenges in measuring and monitoring for effects of shale gas produced water on drinking water treatment plants," presented to the Department of Geology and Planetary Science, University of Pittsburgh, October 10, **2013**.
21. VanBriesen, J.M. "Energy and Water Nexus," presented at Sloan Foundation Event for future screen writers, September 25, **2013**.
22. VanBriesen, J.M. "Shale Gas Development and Water," presented at the NAE Meeting on Energy, Carnegie Mellon University, April 4, **2013**.
23. VanBriesen, J.M. "Shale Gas Development: what's the story with WATER?" CIT Dean's Advisory Council, November, **2012**.
24. VanBriesen, J.M. "Source Water Challenges from Energy Extraction Activities and their role in DBP Formation in Drinking water," presented to visiting team from the Natural Resources Defense Council, Pittsburgh, PA September 28, **2012**.
25. VanBriesen, J.M. "Southwestern Pennsylvania Water Resources and Water Consortium Launch," presented at Allegheny Conference for Community Development event, September 27, **2012**.
26. VanBriesen, J.M. "Source Water Challenges from Energy Extraction Activities and their role in DBP Formation in Drinking water," presented to Shale Gas Initiative: Water Working Group, Pittsburgh, PA September 24, **2012**.
27. VanBriesen, J.M. "Shale Gas Development: what's the story with WATER?" Scott Institute Launch Event, September 21, **2012**.
28. VanBriesen, J.M. "Water and Energy Nexus and Shale Resources," presented to U.S. Department of State Foreign Service Officers (FSO) Coal and Power Training Course, at the National Energy Technology Laboratory (NETL), July 19, **2012**.
29. VanBriesen, J.M. "Water Infrastructure in the 21st Century," Gilbreth Lecture at the National Academy for Engineering, October 16, **2011**.
30. VanBriesen, J.M. Water-Energy and Marcellus, Carnegie Mellon's College of Engineering Washington Speaker Series, September 15, **2011**.
31. VanBriesen, J.M. "Surrogates, Lumped Terms and Decision Making," University of Delaware Seminar, November 19, **2010**.
32. VanBriesen, J.M. "Water 2050: Challenges and Opportunities in Drinking water Infrastructure, presented at Howard University, September 30, **2010**.
33. VanBriesen, J.M. "Source water bromide and brominated DBPs in the Monongahela River Basin," presented to ORSANCO Ohio River Users Group, September **2010**.
34. VanBriesen, J.M. "Water Quantity and Quality Issues in Unconventional Gas Development," Panel Presentation at Marywood University Forum on Marcellus Gas, August 19, **2010**.
35. VanBriesen, J.M. "Water for Marcellus Shale development," panel presentation at the Pennsylvania Environmental Council, Marcellus Shale Policy Conference, May 3, **2010**.
36. VanBriesen, J.M. "Water 2050: Challenges and Opportunities in Drinking Water Infrastructure," presented at Johns Hopkins University, April 27, **2010**.
37. VanBriesen, J.M. "Sensing at Engineered and Natural Water System Interfaces," Webinar for CUAHSI, April 2, **2010**.
38. VanBriesen, J.M. "Water 2050: Challenges and Opportunities in Drinking Water Infrastructure," presented at Duke University, March 31, **2010**.
39. VanBriesen, J.M. "Why water matters," presented at the organizing committee for Water Matters conference for World Environment Day, March 11, **2010**.
40. VanBriesen, J.M. "Water 2050: cyberinfrastructure for water systems," presented at the University of Michigan, February 3rd, **2010**.
41. VanBriesen, J.M. "Regional Water Quality," Presented to teacher workshop, Pittsburgh PA, November 21, **2009**.

42. VanBriesen, J.M. "Water Infrastructure in the Digital Age," presented at the Missouri University of Science and Technology, October **2009**.
43. VanBriesen, J.M. "Urban Water and Global Climate Change," US NSF and Chinese NSF Workshop, Washington, DC, October **2009**.
44. VanBriesen, J.M. "Water Infrastructure in the Digital Age," presented at the University of Arizona, April **2009**.
45. VanBriesen, J.M. "Water Infrastructure in the Digital Age," presented at the University of Maryland, Baltimore-County, April **2009**.
46. VanBriesen, J.M. "Water Infrastructure in the Digital Age," presented at Villanova University, February **2009**.
47. VanBriesen, J.M. "Water Infrastructure in the Digital Age," presented at University of Pittsburgh, January **2009**.
48. VanBriesen, J.M. "Water Infrastructure in the Digital Age," presented at the University of Nevada – Reno, November 13, **2008**.
49. VanBriesen, J.M. "Water Infrastructure in the 21st Century," presented at the Indo American Frontiers of Engineering Meeting, February **2008**.
50. VanBriesen, J.M. "Bacterial Thermodynamics and Yield Prediction," presented to Biotechnology Seminar Series University of Minnesota, October **2007**.
51. VanBriesen, J.M. "Source Tracking in Pine Creek," presented to the PaDEP and 3RWW Volunteer Appreciation Event, October **2007**.
52. VanBriesen, J.M. "Global Water Sustainability: urban issues in clean water," Global Academic Partnership Workshop, Research in Sustainable Community Development, sponsored by the Center for Latin American Studies and the Mascaro Sustainability Initiative, Pittsburgh PA April **2007**.
53. VanBriesen, J.M. "Water supply and distribution system vulnerabilities," presented to Regional University Research Administrators Meeting, March **2007**.
54. VanBriesen, J.M. "Sensors for drinking water distribution systems," presented at NSF workshop on Sensor Networks, December **2006**.
55. VanBriesen, J.M. "Panther Hollow Bacterial Water Quality," presented to the Pittsburgh Parks Conservancy Executive Meeting, December **2006**.
56. VanBriesen, J.M. "Statistical and Molecular Microbiological Research to Elucidate Complex Systems involving Polychlorinated Biphenyls," presented at University of Texas, Austin, November **2006**.
57. VanBriesen, J.M. "Water QUEST: an introduction," presented to the Carnegie Mellon University Alumni Group in Austin, Texas, November **2006**.
58. VanBriesen, J.M. "The NRC Report on Southwestern PA," presented to the Southwestern Pennsylvania Planning Group, October **2006**.
59. VanBriesen, J.M. "Water QUEST: an introduction," presented to the Pittsburgh Water and Sewer Authority, July **2006**.
60. VanBriesen, J.M. "Water QUEST: an introduction," presented to the Southwestern PA Water Quality Roundtable, July **2006**.
61. VanBriesen, J.M. "Water Supply and Distribution System Vulnerabilities," presented to University Research Administrators Meeting, Carnegie Mellon University, April **2006**.
62. VanBriesen, J.M. "Water Distribution System Vulnerabilities and Sensor Networks," presented at Ohio State University, April **2006**.
63. VanBriesen, J.M. "Water Supply and Distribution System Vulnerabilities," presented at University of Cincinnati, April **2006**.
64. VanBriesen, J.M. "Water QUEST: An introduction," presented at the Ohio River Valley Water Sanitation Commission (ORSANCO), April **2006**.
65. VanBriesen, J.M. "Water QUEST: State of the Center," presented at Annual Steinbrenner Institute for Environmental Education and Research retreat, March **2006**.

66. VanBriesen, J.M. "Biodegradation of Polychlorinated biphenyls – can we realize the potential," presented at Washington University in St. Louis, February **2006**.
67. VanBriesen, J.M. "Raman Spectroscopy for enumeration and viability assessment of pathogens in drinking water," presented at University of Illinois, Urbana-Champaign, February **2006**.
68. VanBriesen, J.M. "Control of pathogenic biofilms on medical devices using EDTA," presented at Carnegie Mellon University, Biomedical Engineering Department Seminar, February **2006**.
69. VanBriesen, J.M. "Biodegradation of Polychlorinated biphenyls – can we realize the potential," presented at Cornell University, November **2005**.
70. VanBriesen, J.M. "Southwestern PA Water Quality – the National Research Council Study," presented to the Science Advisory Board, Three Rivers Wet Weather, Inc. September **2005**.
71. VanBriesen, J.M. "Southwestern PA Water Quality," presented to the Departmental Graduate Research Seminar, Civil and Environmental Engineering, Carnegie Mellon University. April **2005**.
72. VanBriesen, J.M. "Biodegradation of Polychlorinated Biphenyls – can we realize the potential," presented at Arizona State University, March **2005**.
73. VanBriesen, J.M. "Control of pathogenic biofilms on medical devices using EDTA," presented at Arizona State University, Biodesign Institute, March **2005**.
74. VanBriesen, J.M. "Biodegradation of Chelating Agents," presented at Lehigh University, Graduate Seminar, February **2005**.
75. VanBriesen, J.M. "Biodegradation of Chelating Agents," presented at Environmental Engineering Graduate Seminar, Carnegie Mellon University, April **2004**.
76. VanBriesen, J.M. "Biodegradation of Recalcitrant Organics," Presented at Environmental Science Seminar, Chatham College, January 16, **2002**.
77. Environmental Engineering, Stanford University, December 3, **2001**.
78. VanBriesen, J.M. "Risk Issues in the U.S. Department of Energy," presented for graduate seminar in Engineering and Public Policy Program, Carnegie Mellon University, April 18, **2000**.
79. VanBriesen, J.M. "Intermediate Formation in the Biodegradation of Anthropogenic Compounds," presented at Graduate seminar in Department of Biology, Duquesne University, April 7, **2000**.
80. VanBriesen, J.M. "Modeling Complex Biogeochemical Reactions: An exploration of controlling factors in the biodegradation of synthetic chelating agents" presented at Oak Ridge National Laboratory, January 11, **2000**.
81. VanBriesen, J.M. "Modeling Intermediate Formation in Biological Degradation Reactions," presented at Environmental Health Engineering Seminar, Northwestern University, March 11, **1998**.
82. VanBriesen, J.M. "Modeling Chemical and Biological Reactions in Real-World Systems," presented at Environmental Health Engineering Seminar, Northwestern University, October **1996**.
83. VanBriesen, J.M. "Modeling Coupled Processes Involving Reactive Co-Contaminants," presented at Pacific Northwest National Laboratory, February 13, **1996**.
84. VanBriesen, J.M., Rittmann, B.E., Valocchi, A.J. "Modeling of Coupled Processes in Subsurface Transport of Reactive Contaminants," presented at DOE Subsurface Science Program Co-Contaminant Chemistry Research Subprogram meeting, Gaithersburg MD, January 23-25, **1996**.
85. VanBriesen, J.M. "Model Demonstration and Analysis," presented at the DOE Workshop on "Integrating Modeling and Experimentation on Coupled Biodegradation and Chemical Reactions Involving Metal-Chelate Complexes," held at Northwestern University, March 22-23, **1995**.

Teaching Experience and Educational Activities

Pre-college

- Chemistry; Physics

Undergraduate

- Introduction to Civil and Environmental Engineering
- Environment Today
- Introduction to Environmental Engineering
- Environmental Engineering Laboratory

Graduate

- Environmental Organic Chemistry
- Fundamentals of Water Quality Engineering
- Biological Wastewater Treatment
- Sustainable Engineering
- Nanotechnology-Policy Seminar

Teaching Evaluations

(Average Instructor Evaluation Score. Scale 1-5, with 5 high)

Course Name	Years Taught	Overall Rating of Teaching (Average)
Biological Wastewater Treatment (Grad)	2000-2019	4.6
Environmental Organic Chemistry (Grad)	2006-2007	4.4
Fundamentals of Water Quality (seniors and MS students)	2008-2010	4.7
Environmental Engineering Fundamentals (sophomores)	2000-2005	4.2
Environmental Engineering Laboratory (sophomores)	2000-2005	4.2
Introduction to Civil and Environmental Engineering (freshmen) (co-taught 2010 & 2011)	2010-2013	3.8
Sustainable Engineering Projects (co-taught)	2013	4.6
Drinking Water Treatment (co-taught)	2013	4.4
Environment Today: The 3 E's of Water (co-taught)	2013	Not rated
Sustainable Engineering (seniors and MS students)	2014-2016	4.8

Educational Service Activities

- Water Works Operators of PA David Long Scholarship Selection Committee (2003-2011)
- American Association of University Women (AAUW) Selected Professions Fellowship Selection Committee 2003-2004.
- Association for Women in Science (AWIS) Fellowship Selection Committee 2004
- U.S. Environmental Protection Agency (EPA) Science to Achieve Results (STAR) Fellowship Selection Committee 2004.
- Advisory Board, Content for Girls Math and Science Project; Family Communications Inc. (2002)

Educational Outreach Activities

- Pittsburgh Teachers Institute Workshops on water resources (2001), regional water quality (2009), and shale gas development (2012). Prepared and delivered half-day and full day tutorials with hands on learning activity for science teachers.
- Society of Women Engineers "Engineering Your Future" and High School Day. Developed and delivered hands on activities on aquifer contamination and drinking water filtration.
- Summer Achievement for Minority Scholars (SAMS) at Carnegie Mellon University.

- Developed a three week research program for high school students in water quality.
- RET: Research Experience for Teachers Program through National Science Foundation. Hosted six high school teachers for research experiences over four summers.
- ASCE Future Cities Competition: engineering coach to middle school team (2010-2012).
- Individual school visits for grades 1, 3, 5, 7, 9, 10. “What is Engineering?;” “Engineering your water;” “Stormwater and Green Infrastructure;” “Groundwater Pollution and Remediation.”

Educational Presentations (26)

1. VanBriesen, J.M. “Mentoring and Professional Development,” Gordon Research Seminar on Disinfectants and Disinfectant By-Products, Mentoring Panel, July 27, **2019**.
2. VanBriesen, J.M. “Mentoring: enabling the success of future colleagues,” Society of Women Engineers Annual Conference, October 29, **2016**.
3. VanBriesen, J.M. “Rain, Rivers and Resources: how watersheds change drinking water,” Café Scientifique at the Carnegie Science Center, November 9, **2015**.
4. VanBriesen, J.M. “Why graduate school? A primer on the state of higher education, the meaning of a Ph.D. degree, and the reason for the nexus of research and teaching,” Fusion Forum Recruitment event, November 6, **2015**.
5. VanBriesen, J.M., “Service through mentoring: enabling the success of future colleagues,” presented at the ASCE EWRI Congress, May 16-21, **2015**.
6. VanBriesen, J.M. “Frontiers: Openings, Closings, Endlessness,” Presented at the Carnegie Science Center Science Fair Award Ceremony, March 28, **2015**.
7. VanBriesen, J.M. “Why graduate school? A primer on the state of higher education, the meaning of a Ph.D. degree, and the reason for the nexus of research and teaching,” Fusion Forum Recruitment event, October 24, **2014**.
8. VanBriesen, J.M. “Who Says: Career and life choices for the uncertain now,” presented at the “We are Women in Engineering,” event in the Department of Civil, Construction and Environmental Engineering at North Carolina State University, March 6, **2014**.
9. VanBriesen, J.M. “Why graduate school? A primer on the state of higher education, the meaning of a Ph.D. degree, and the reason for the nexus of research and teaching,” Fusion Forum Recruitment event, November 1, **2013**.
10. VanBriesen, J.M. Why graduate school? A primer on the state of higher education, the meaning of a Ph.D. degree, and the reason for the nexus of research and teaching, Fusion Forum Recruitment event, October, 26, **2012**.
11. VanBriesen, J.M. “Self-Directed Learning,” Workshop on Frontiers in Environmental Engineering Education, AEESP Education and Research Conference, July 11, **2011**.
12. VanBriesen, J.M. “Linking Teaching and Research,” NSF Career Proposal Workshop Presentation, AEESP Education and Research Conference, July 10, **2011**.
13. VanBriesen, J.M. “Self-Directed Learning,” presented at NAE Frontiers of Engineering Education Symposium, December 14, **2010**.
14. VanBriesen, J.M. “Teaching and Research: What’s the Connection,” Presented to teachers and students at the Siemens Math, Science and Technology Competition, at Carnegie Mellon University, November 20th, **2009**.
15. VanBriesen, J.M. “Lecturing at the College Level,” presented to the Future Faculty Series at Carnegie Mellon University, March 3, **2009**.
16. VanBriesen, J.M. “Work Family Balance and Juggling,” presented at Graduate Women’s Connecting Lunch, Carnegie Mellon University, November **2008**.
17. VanBriesen, J.M. “Assertiveness and Communication in Graduate School,” Presented at Graduate Women’s Connecting Lunch, Carnegie Mellon University, September **2007**.
18. VanBriesen, J.M. “Smart Women’s Job Search: The two body problem,” presented at Graduate Women’s Connecting Lunch, Carnegie Mellon University, April **2004**.
19. VanBriesen, J.M. “Advisors, Mentors, Friends, Boundaries.” presented at Graduate

- Women's Connecting Lunch, Carnegie Mellon University, November 18, **2003**.
20. VanBriesen, J.M. "Putting Graduate Research in Perspective," presented at Graduate Women's Connecting Lunch, Carnegie Mellon University; April 18, **2002**.
 21. VanBriesen, J.M. "Teaching and Research: what is the connection?" presented for the Carnegie Mellon Teaching Center, March 20, **2002**.
 22. VanBriesen, J.M. "The Research/teaching nexus: *a priori* truth or myth? Tomorrow's Professor ListServ, #360, October 18, **2001**.
 23. VanBriesen, J.M. "Teaching and Research: What's the Connection," Presented to Research Experience for Teachers, at Johns Hopkins University, July 13, **2001**.
 24. VanBriesen, J.M. "Preparing Exams and Homework Assignments," presented at the series, Preparing for a Faculty Career, Carnegie Mellon University, April 3, **2001**.
 25. VanBriesen, J.M. "Putting Graduate Research in Perspective," presented at Regional Duquesne University Chemistry Symposium, Invited Keynote Speaker. August 11, **2000**.
 26. VanBriesen, J.M. "Presenting your work at conferences," presented at the series, Preparing for a Faculty Career, Carnegie Mellon University, **2000**.

Students Supervised

Ph.D. Students (22 completed; 4 in progress)

1. Zhiwen Yuan "The role of oxygenation and intermediate formation in the biodegradation of chelating agents," May **2004**. Supported by the National Science Foundation. Currently a Professor at Tongji University, Shanghai, China.
2. Sandra Karcher "Statistical analysis of PCB biodegradation through intermediates," May **2005**. Co-advised with Mitchell Small (CEE/EPP) Supported by the Packard Foundation. Currently a Research Associate at the University of Pittsburgh Drug Discovery Institute.
3. Maria Escoriza "Detection waterborne pathogens using Raman chemical imaging and spectroscopy," May **2006**. Co-advised with David Dzombak (CEE). Supported by the Pennsylvania Infrastructure Technology Alliance (PITA). Currently with Occidental Petroleum Argentina.
4. Christine Wang "Application of molecular biology to identify and enumerate microorganisms involved in PCB biodegradation," August **2006**. Co-advised with Edwin Minkley (Biological Sciences) and William Brown (Biological Sciences). Supported by the Packard Foundation. Currently with ScinoPharm, Shan-Hua, Tainan, Taiwan.
5. Jinghua Xiao "Thermodynamics of Yield Prediction," August **2006**. Supported by the National Science Foundation. Currently with American Water, Philadelphia, PA.
6. Stacia Thompson "Decision support for drinking water distribution system sensors," December **2008**. Co-advised with Mitchell Small (CEE/EPP) and Paul Fischbeck (EPP/SDS). Supported by Department of Homeland Security Fellowship. Currently with UNESCO Engineering Initiative, Paris, France.
7. Damian Helbling "Biosensors for the detection of pathogens in drinking water systems," May **2008**. Co-advised with Mitchell Small (CEE/EPP). Supported by the National Science Foundation. Currently an Assistant Professor at Cornell University.
8. Shannon Isovitsch-Parks "Sensor networks for water distribution system modeling and security," August **2008**. Supported by the National Science Foundation. Currently an Assistant Professor at the University of Pittsburgh-Johnstown. Formerly with Alcoa, Inc.
9. Mary Schoen "Volunteer data collection in watersheds: implications for TMDLs," May **2008**. Supported by Three Rivers Wet Weather, Inc. Co-advised with Mitch Small (CEE/EPP). Currently with Soller Environmental, Inc.

10. Royce Francis "Disinfection by-products in drinking water," August **2009**. Supported by National Science Foundation Fellowship. Co-advised with Mitch Small (CEE/EPP). Currently an Associate Professor in Engineering Management and Systems Engineering at George Washington University.
11. Amanda Hughes "Decision support for PCB remediation in sediments," December **2010**. Co-advised with Mitch Small (CEE/EPP). Supported by DOD SERDP. Currently with Geosyntec, Inc. Chicago, IL.
12. Yan Xu "Microbial-catalyzed reductive dechlorination of polychlorinated biphenyl (PCBs) in Hudson and Grasse River Sediment – shifts of microorganisms, PCB tracker pairs and geochemical properties," December **2011**. Co-advised with Kelvin Gregory (CEE). Supported by DOD SERDP. Currently an Assistant Professor at Southeast University, Nanjing, China.
13. Jessica Wilson "Challenges for Drinking Water Plants from Energy Extraction Activities," May **2013**. Supported by Dean's Fellowship, SEER Fellowship, and the Colcom Foundation. Currently an Assistant Professor at Manhattan College. 2nd Place 2014 Academic Achievement Award for Doctoral Dissertation from the American Water Works Association.
14. Mohan Jiang "Integrating Water Use and Water Quality into Environmental Life Cycle Assessment: Limitations and Advancements Derived from Applications," December **2013**. Co-advised with Chris Hendrickson (CEE). Supported by Dean's Fellowship and Department award. Currently a Senior Data Scientist at LinkedIn.
15. Yuxin Wang "Changing source water characteristics in large rivers and brominated DBP formation," December **2014**. Supported by Dean's Fellowship, Steinbrenner Fellowship, and the Colcom Foundation. Currently a post-doctoral researcher at Cornell University.
16. Lauren (Strahs) Bergman "Predicting Water Treatment Challenges From Source Water Natural Organic Matter Characterization," August **2016**. Co-advised by Kim Jones (Howard University). Supported by NSF IGERT and PITA and the Colcom Foundation. Currently at Tighe and Bond Consultants, Boston MA.
17. Eric McGivney "Understanding the Relationship Between Nanoparticles and Bacterial Group Behavior: Autolysis and Quorum Sensing," December **2017**. Co-advised with Kelvin Gregory (CEE). Supported by NSF IGERT and Bertucci fellowship. Currently a post-doctoral researcher at Stockholm University.
18. Adam Cadwallander "Impacts of Bromide and Nitrogen Wastewater Discharges on Downstream Drinking Water Treatment Plant Disinfection Byproducts," May **2018**. Supported by NSF IGERT, the Colcom Foundation, and the Heinz Endowments. Currently at the U.S. Environmental Protection Agency (EPA) Office of Water. Office of Groundwater and Drinking Water, Division of Standards and Risk Management.
19. Chelsea Kolb "Climate change adaptation for urban water and wastewater infrastructure," December **2018**. Co-advised with Costa Samaras (CEE) and Matteo Pozzi (CEE). Supported by College of Engineering and Department of Civil and Environmental Engineering and the PA Water Resources Research Project (USGS 104B). Fullbright Scholar in Costa Rica in 2017.
20. Lauren Cook "Climate effects on water infrastructure," December **2018**. Co-advised with Costa Samaras (CEE). Supported by Natural Resources Defense Council (NRDC) and NSF. Will assume a post-doctoral position at EAWAG in January 2019.
21. Kelly D. Good "Effects of energy extraction and utilization on discharges of bromide to drinking water sources," December **2018**. Supported by NSF IGERT and NSF GRF and Siebel Scholarship.
22. Sara Schwetschenau "Benefits and Challenges of Distributed Drinking Water Treatment Systems," August **2019**. Co-advised by Jared Cohon (CEE/EPP). Supported by College of Engineering and NSF IGERT and CMU's Metro21.
23. Duygu Altintas "Monongahela River water quality biological baseline," co-advised with

Mitchell Small (CEE/EPP) and Costa Samaras (CEE). Supported by CMU's Metro21. Currently on leave at the Ethos Collaborative in Pittsburgh PA.

24. Vasikan Vijayashanthar "Assessment of risk from drinking water lead exposure of children affected by the Stay-at-Home order during COVID-19," expected completion May 2022, Co-advised by Mitchell Small (CEE/EPP). Supported by College of Engineering.
25. Uwakmfon Ibekwe, "Assessing the role of climate change on source water treatability in the Ohio River Basin," expected completion May 2023, Co-advised by Costas Samaras (CEE). Supported by GAANN.
26. Katherine Beaudoin, "Urban water system management under uncertainty," expected completion May 2024," Co-advised by David Dzombak (CEE). Supported by GAANN.

Master's Students (28 supervised)

1. Frank Sidari "Evaluation of chlorine dioxide as a *Legionella*-specific disinfectant in potable water." May **2002**. Thesis. Supported by the Veterans' Administration Research Fund. Currently at Malcolm-Pirnie Pittsburgh Office.
2. Vanessa Brisson "Synergy of Ethylenediaminetetraacetic Acid (EDTA) and Vancomycin Against a *Staphylococcus epidermidis* Biofilm." August **2003**. Thesis. Supported by a National Science Foundation Fellowship. Subsequently completed Ph.D.
3. Yamira Izzara "Bacterial Contamination in the Allegheny County Watersheds." May **2003**. Project.
4. Maria Escoriza "Raman Chemical Imaging Spectroscopy for Evaluation of Biological Agents in Water." December **2003**. Project. Co-advised with David Dzombak (CEE). Supported by the Pennsylvania Infrastructure Technology Alliance (PITA). Subsequently completed Ph.D.
5. Chris Weber "Fate and transport of ethylenediaminetetraacetic acid (EDTA) and its effect on eutrophication." December **2004**. Thesis. Co-advised by Mitchell Small (CEE/EPP). Supported by National Science Foundation CAREER project. Subsequently completed Ph.D.
6. Shannon Isovitsch "Sensor networks for water distribution system modeling and security." May **2005**. Thesis. Subsequently completed Ph.D.
7. Meghan Smith "Natural growth variance and reproducibility of reactor biofilms," May **2006**. Thesis. Biomedical Engineering.
8. Kristen Wright "Evaluating bacterial monitoring methods in Panther Hollow Lake," May **2006**. Project. With support from Pittsburgh Parks Conservancy and Three Rivers Wet Weather.
9. James Gower "Urban stream restoration survey," May **2008**. Project.
10. Tanya Spellman "Drinking water pilot plant survey," August **2009**. Project.
11. Amanda Mitchell "Uncertainty in PCB analytical methods," May **2009**. Thesis. Supported by Water QUEST.
12. Harini Venugopal "Monongahela River Modeling with HSPF," August **2009**. Project.
13. Charan Rajan "Effect of produced water on wastewater treatment," May **2010**. Project.
14. Tarun Anumol "Produced water effects on sludge quality," May **2010**. Project.
15. Xiaodi Duan, "Determination of decay constant for bacterial self-oxidation," May **2010**. Project.
16. Zheng Wang "Historical Monongahela River Water Quality," May **2010**. Project.
17. Balaji Seshasayee "Effect of chlorine boosters on DBP speciation in urban water system." December **2010**. Project.
18. Ali Oppfelt "Desalination options for Australia," December **2010**. Project.
19. Swapna Sridharan "Evaluation of methods and feasibility to use acid mine drainage water as source water in the Marcellus shale drilling operations," May **2011**. Project.
20. Sourjya Bhattacharjee "Biological treatment of oil field produced water," May **2011**. Project.
21. Kaushik Sivasubramanian "Estimation of water use in various processes in steam electric power generation units along Monongahela River," May **2011**. Project.

22. Sichu Shrestha "Nutrient removal in constructed wetland," December **2011**. Co-advised with Dave Dzombak (CEE). Project.
23. Xiao Ma "Assessment of microbial diversity tool for source tracking in Pine Creek Watershed," December **2011**. Project.
24. Yuxin Wang "Quantitative PCR for evaluation of reductive dechlorination potential in PCB contaminated core sediments," December **2011**. Project.
25. Li Chen "Bromide associated with power plants," December **2011**. Project.
26. Yujie Diao "Disinfection by-product formation kinetics," December **2013**. Project.
27. Maureen Golan "Monongahela River Bromide Data Analysis," December **2017**. Project.
28. Genna Waldvogel, "Monongahela River Power Plant Bromide Loads," December **2017**. Project.

Undergraduate Students (22 supervised)

1. Hyo-Jin Kim "Effect of EDTA against Biofilm Bacteria." Civil Engineering. Supported by the Winters Foundation. Completed project Summer **2004**.
2. Dacia Young "Bacterial measurement methods." Civil Engineering. Supported through Intel Freshman Year Research Experience (IFYRE). Completed project Summer **2004**.
3. Nur Azlina Abdul Aziz "Statistical Analysis of Cell Counting Methods." Biomedical Engineering. Completed project Summer **2004**.
4. Raihan Rozlee "Statistical distributions for cell enumeration techniques." Biomedical Engineering. Completed project Fall **2004**.
5. Meghan Smith "Biofilms and exopolymeric substances." Civil Engineering. Completed project Fall **2004**.
6. Therese Medalle "EDTA and Biofilm prevention." Biomedical Engineering Senior Research Project. Completed Project Summer **2006**.
7. Alan Eaton "Bacterial Monitoring in Panther Hollow Watershed." Civil Engineering. Supported by Pittsburgh Parks Conservancy. Completed Project Summer **2006**.
8. Amanda Mitchell "Bacterial Monitoring in Panther Hollow Watershed." Civil Engineering. Research Experience for Undergraduates (NSF). Completed Project Summer **2006**. Continued for MS degree.
9. Elena Goldstein "Bacterial Monitoring in Panther Hollow Watershed." Civil Engineering. Supported by Pittsburgh Parks Conservancy. Completed Project Summer **2006**.
10. Meenah Park "Bacterial Monitoring in Panther Hollow Watershed," Civil Engineering. Research Experience for Undergraduates (NSF). Completed Project Summer **2006**
11. Erika Carter "Drinking Water Quality on Carnegie Mellon's Campus." Civil Engineering. Completed Project Spring and Summer **2007**.
12. Marco Arienzo "Drinking Water Quality on Carnegie Mellon's Campus." Civil Engineering. Completed Project Spring and Summer **2007**.
13. Galit Fryndman "Water Quality in Hot Dog Dam in Schenley Park, Pittsburgh PA." Biology. Completed project Summer **2007**.
14. Alison Retotar "Population diversity in relation to disinfection by-products in drinking water." Biology. Completed project Summer **2009**.
15. Nicholas Doiron "Cyberinfrastructure for Dunkard Creek." Civil Engineering. Completed project Summer **2010**.
16. John Sourbeer "Monongahela River Modeling in GIS." Civil Engineering. CIT Senior Honors Thesis, Completed academic year **2009-2010**.
17. Thomas Walko "Quantitative PCR Analysis in PCB contaminated sediment." Civil Engineering. Completed **2010**.
18. Kunal Desai "Quantitative PCR analysis in PCB contaminated sediment." Civil Engineering. Completed **2010**.

19. Alyssa Downs "Monongahela River Macroinvertebrate Baseline." Civil Engineering. Completed Project Summer **2011**.
20. Christina Miller "Monongahela River Water Sampling." Civil Engineering. Completed Project Summer **2011**.
21. Juan Medina "Monongahela River Drinking Water Sampling." Civil Engineering. Completed Project Academic Year **2011-2012**.
22. Esther Urena "Impacts of Water Efficiency Measures on Water Infrastructure Systems." Engineering and Public Policy. Completed Project Spring **2013**.

Post-Doctoral Researchers (3 supervised)

1. Youngseob Yu "Sediment microbial community response to PCBs: effective characterization for decision support." March 2006-December **2008**. Supported by DOD SERDP.
2. Stacia Thompson "Population diversity in PCB sediments," February 2009 – September **2010**. Supported by DOD SERDP.
3. Sandra Karcher "Examining the Feasibility of Water Quality Trading in the East Fork Watershed," March 2009 – August 2012. Supported by NSF Waters Network and EPA. Then, "Cyberinfrastructure for Nanotechnology Data Management," May 2014 – August **2015**. Supported by NSF.

Service on Graduate Student Qualifying, Proposal and Thesis Committees

Amit Kaldate (2000)
 Anping Zheng (2001)
 Martin Schultz (2001)
 Dominic Boccelli (2002)
 Joe Bushey (2003)
 Kathleen McDonough (2005)
 Jianhua (Sally) Xu (2007)
 Bundhit Chucherdwatanasak (2010)
 Zhiqiang Li (2010)
 Ranjani Theregowda (2010)
 Mei Sun (2011)
 Kazi Tasneem (2011)
 Djuna Gulliver (2012)
 Arvind Mohan (2012)
 Marion Sikora (2013)
 Megan Leitch (2015)
 John Stegemier (2015)
 Brian Vencalek (2015)

Professional Service with Organizations and Societies

National Service

- ABET. Engineering Accreditation
Program Evaluator (PEV) for Civil Engineering. (2012-present)
- Consortium of Universities for the Advancement of Hydrological Sciences (CUAHSI)
Elected Board Member (2016-present)
Executive Committee at large member (2016-2017)
Chair-Elect (2018); Chair (2019); Past-chair (2020)
- Association for Environmental Engineering and Science Professors (AEESP)
Membership Committee (2001-2004)
Elected Board Member (2007-2010)
Secretary (2008-2010)
Conference Planning Selection Committee (2010-2015)
- American Society of Civil Engineers (ASCE)
EWRI New Professional Council, Chair (2014-2016)
EWRI Students Council (2014-2018)
EWRI Professional Practices Council (2014-2018)
EWRI Education Council (2010-2018)
EWRI Member Services Ex Com, Vice-Chair (2014- 2016); Chair (2016-2017)
EWRI Board Member (2016-2017)
EWRI 2015 Congress Planning Committee (New Professionals Track)
EWRI 2014 Shale Conference Water Track Co-Chair
- American Chemical Society (ACS) Environmental Division
Chair, Book revenue committee (2002-2007)
Member-at-Large (2004-2005)
- National Research Council (NRC)
Committee on Water Quality in Southwestern Pennsylvania (2002-2004)
- American Water Works Association (AWWA)
Organic Contaminants Research Committee (2002-2004)
- Society for Women Engineers (SWE)
Women in Academia (WIA) Committee (2013-2016)
- Women in Engineering Leadership Institute
Awards subcommittee (2013-2015)

State and Regional Service

- Pennsylvania Department of Environmental Protection (PaDEP)
Water Resources Advisory Council (WRAC) (2015-2017)
National Academies Committee on Science for DEP (2016)
- PA Water Environment Association (PWEA; state WEF)
Research Committee Member (2007-2013)
Research Committee Chair (2009-2011)
- Ohio River Basin Consortia for Research and Education (ORBCRE)
Executive Committee Member and Trustee (2004-2012)
Secretary (2008-2009)
- Ohio River Valley Water Sanitation Commission (ORSANCO)
Research Committee Member (2007-2017)

Pittsburgh and Southwestern Pennsylvania Service

- Allegheny County Lead Task Force (2017-2018)
- Engineering Sustainability Conference Planning Committee (2016 – 2019)

- Pittsburgh Water and Sewer Authority (PWSA)
 - Water Quality Committee (2016-2018)
 - Advisory Committee (2011)
 - Green Infrastructure Monitoring Committee (2014- 2016)
- Nine Mile Run Watershed Association (NMRWA)
 - Monitoring Committee (2007-2018)
 - Monitoring Committee Chair (2013 – 2015)
 - Board Member (2012-2015)
 - Rosedale Runoff Reduction Community Project Advisory Group (2014- 2017)
- Allegheny Front and West Virginia Public Broadcasting. Advisory Committee for Ohio River Reporting Project (2016-2017)
- Society for Women Engineers Pittsburgh Chapter (Pittsburgh SWE)
 - Vice President for Programming (2014 – 2015)
- Three Rivers Wet Weather, Inc.
 - Wet Weather Working Group Water Quality Sub-committee (2014-2016)
- American Society of Civil Engineers Pittsburgh Chapter
 - Government Relations Committee (2016)
 - EWRI Southwestern Pennsylvania Local Chapter Executive Committee (2007)
- University of Pittsburgh
 - Green Infrastructure Implementation Project Advisory Board (2015)
 - Institute of Politics (IoP) Regional Water Management Task Force Technical Advisory Committee (2007-2008)
- Carnegie Science Center Award Selection Committee (2015-2017)
- Achievement Rewards for College Scientists Foundation (ARCS)
 - Member (2003- present)
 - Steering Committee for new chapter development (2002)
 - Membership and Recruiting Chair (2003-2005)
 - Board Member (2003-2005)
 - Presentation to scholars and donor community at Scholar Showcase (2013)
- Pittsburgh Parks Conservancy (PPC) Panther Hollow Advisory Committee (2011)
- River Alert Information Network (RAIN) Advisory Committee (2010-2012)
- Turtle Creek Watershed Association (TCWA) Advisory Committee (2007-2009)
- International Water Conference: Engineers Society of Western Pa. Academic Advisory Council Liaison (2007)

Professional Service Editorial and Review Activities

- National Science Foundation
 - Advisory Committee for Directorate of Engineering (2019-present)
 - Advisory Committee for Environmental Research and Education (2019-present)
- U.S. Environmental Protection Agency Science Advisory Board (SAB)
 - Member, Chartered SAB (2012 – 2018)
 - Chair, Environmental Engineering Committee (2013 – 2016)
 - Member, Committee to review research plan for hydraulic fracturing (2011-2012)
- ASCE Journal of Infrastructure Systems. Associate Editor. (2011-2015)
- ASCE Journal of Computing in Civil Engineering. Specialty Editor. (2008-2009)
- ASCE Journal of Environmental Engineering, Guest Editor for special issue on unconventional shale development (2012-2013)
- Pittsburgh Engineer. Specialty Editor. Marcellus Shale Focus (Spring 2011)

Program Reviewer (not including confidential ABET reviews)

- External Advisory Board. Internet of Water. Duke University (2019-present)
- External Advisory Board. Chair. School of Civil & Environmental Engineering. Cornell. (2018)
- External Advisory Board. Department of Civil and Environmental Engineering. Lafayette College (2011)
- External Advisory Board. WaterCAMPWS. University of Illinois Urbana Champaign (2007)

Journal Reviewer

Biodegradation; Biotechnology and Bioengineering; Environmental Engineering Science; Energy Policy; Environmental Science and Technology; *Geochimica et Cosmochimica Acta*; Journal of Soil and Sediment Contamination; ASCE Journal of Environmental Engineering; Management Science; Mathematical Biosciences, ASCE Journal of Water Resources Planning and Management; Journal of Contaminant Hydrology, ASCE Journal of Infrastructure Systems; Journal of American Water Works Association.

Proposal Reviewer

- National Science Foundation Water Sustainability and Climate Program
- National Science Foundation, Hydrological Sciences Program
- National Science Foundation, Integrative Graduate Education and Research Traineeship (IGERT) program
- National Science Foundation Biocomplexity Competition
- National Science Foundation Small Business Innovative Research (SBIR) Program
- National Science Foundation Unsolicited Panel for Division of Bioengineering and Environmental Systems (BES)
- National Science Foundation Science and Technology Centers (STC) Program
- U.S. Civilian Research and Development Foundation Cooperative Grants Program
- U.S. Army Research Center – Chemical Science Division
- Canadian Science Foundation – Water Centers Program
- U.S. Department of Energy Environmental Management Science Program
- U.S. Department of Energy, Natural and Accelerated Bioremediation (NABiR) Program
- American Water Works Association Research Foundation (AWWARF; now WRF)

Book Reviewer

McGraw-Hill Publishing; ACS Symposium Monograph Series

Professional Service at Carnegie Mellon

University-Level Service

- Faculty Senate Chair (2017-2019) [see additional details under leadership below]
- Faculty Senate Vice Chair (2016-2017)
- University President Search Committee Co-chair (2017-2018)
- University Working Group on Doctoral Student Mentoring. Co-chair (2017-2019)
- Faculty Senate Budget and Financial Affairs Committee (2013-2019)
- Middle States Accreditation Self-Study Report. Governance (Standard 7). (2017-2018)
- University Benefits Medical Vendor Re-compete Committee. (2017-2018)
- Risk Initiatives Executive Steering Committee (2016-2017)
- Faculty Senate University Research Council Vice Chair (2011- 2013)
- University Committee Responsible Conduct of Research (2010- 2011)
- University Committee Promotion and Tenure (2010-2012)
- University Committee on Professional MS Degree Programs (2011-2012)
- Engineering Dean's Search Committee (2004)
- University Task Force on Advising (2004)
- Ryan Teaching Award Selection Committee (Co-chair 2006-2007)
- Vira I Heinz International Scholarship – Selection Committee (2004)
- Mulach Scholarship Selection Committee (2004-2006)
- Meeting of the Minds Undergraduate Research Symposium Judge (2002)
- Cyert Center for Early Childhood Development (Carnegie Mellon Childcare) Parent Advisory Board, Fundraising Working Group Chair (2001-2007)

Carnegie Institute of Technology (Engineering College) Service

- Faculty Awards Committee. Co-Chair (2016-2019)
- Advisory Committee, Scott Institute for Energy (2016 – present)
- Undergraduate Curriculum Assessment Coordination Committee (2010 – 2015)
- Faculty Coordinator for Minor in Environmental Engineering and Sustainability (2007–2013)
- Advisory Committee to Director of Steinbrenner Environmental Education and Research (SEER) Center (2006-2012)
- Committee on Promotion and Tenure (2008-2009; 2015-2016)
- Faculty Search Committee. College-wide Search in Biotechnology. Chair (2005)
- Dean's Review Committee (2001)
- Faculty Sponsor, Undergraduate Biomedical Engineering Society (2002)
- Biomedical Health Engineering Curriculum Committee (1999-2000)

Department of Civil and Environmental Engineering Service

- Awards Committee. Co-Chair (2013-2019)
- Graduate Curriculum Committee. (2001-2003; Chair: 2017-2019)
- Program Assessment Committee Chair and ABET Lead (2008-2015)
- Faculty Search Committee. Energy Research. Chair (2012-2013)
- Strategic Planning Committee (2006-2019)
- Facilities Committee (2006-2013)
- Graduate Recruiting and Admissions Committee (2008-2012)
- Faculty Search Committee. Systems Engineering. (2011)
- Undergraduate Recruitment Committee Chair (2006-2008)
- Faculty Search Committee. Environmental Microbiology. Chair (2004-2005)
- Undergraduate Curriculum Committee (2001-2003; 2013-2016)
- Faculty Search Committee. Water Quality (2001)