

PROFESSIONAL RECORD

CAROL J. MILLER, PhD, PE
Professor

EDUCATION

Graduate: The University of Michigan, Ann Arbor, Michigan, December 1984 (PhD)
The University of Michigan, Ann Arbor, Michigan, December 1980 (MSE)
Baccalaureate: The University of Michigan, Ann Arbor, Michigan, August 1979 (BSE)

PROFESSIONAL APPOINTMENTS

Co-Director, WSU One Health Initiative, 2021 – Present
Director, WSU Healthy Urban Waters, 2014 (December) – Present.
Chair, Department of Civil and Environmental Engineering, WSU, 2007 – 2012.
Board Member, Water Environment Research Federation (WERF), Arlington, VA, 2014 – Present.
U.S. Chair, Great Lakes Science Advisory Board, International Joint Commission, 2014 – 2017.
Professor, Department of Civil and Environmental Engineering, WSU, 1998 – Present.
Co-Director, Huron to Erie Alliance for Research and Training (HEART), 2012 – Present.
Co-Director, Urban Watershed Environmental Research Group (UWERG), WSU, 2010 – Present.
Director, Center for Research on Urban Watersheds (CRUW), WSU, 2014 – Present.
Appointed Member, International Joint Commission, Science Advisory Board (SAB), 2011– Present.
Chair, Wayne State University President's Standing Committee on Environmental Initiatives, 2008 – 2012.
Board Member, Wayne State University, College of Engineering, Academic Senate, 2020 – Present.
Chair, Wayne State University, College of Engineering, Faculty Assembly, 1998 – 1999.
US Army Corps of Engineers, IPA assignment, Flood Studies, Summer 1989.
Associate Professor, Department of Civil and Environmental Engineering, WSU, 1989 – 1998.
Assistant Professor, Department of Civil and Environmental Engineering, WSU, 1984 – 1989.

PROFESSIONAL REGISTRATION

Licensure: Professional Engineer Number 31003, Michigan, Continuous since 1989

PROFESSIONAL SOCIETY MEMBERSHIP

National Society of Professional Engineers
- SE Michigan Section Board (2005-2009) elected
American Society of Civil Engineers
International Association for Great Lakes Research (IAGLR)
Water Environment Research Federation

HONORS AND AWARDS

Board Member – Great Lakes Water Authority Surface Water Intake Protection Plan, 2020 - Present
Honorary Member – Chi Epsilon, University of Michigan Chapter, April 2020
Board Member – Water Environment Research Foundation, 2015 – Present
Invited Speaker – National Academy of Sciences, May 2014
Guest Editor – Sustainable Computing (Elsevier), Special Issue on Water & Energy, 2014 & 2021
Fellow – Engineering Society of Detroit, Inducted as Fellow, June 2012
Member – Chi Epsilon, National Civil Engineering Honor Society
Member – Tau Beta Pi – National Engineering Honor Society
Member – Sigma Xi
Career Development Chair Award, Wayne State University

Carol J. Miller

06/01/2021

Carol J. Miller, PhD, PE

Engineering Educator of the Year – Michigan Society of Professional Engineers
Engineer of the Year – Michigan Society of Professional Engineers, SE Michigan
Featured Faculty Speaker – Wayne State University Fall Convocation, 2009
Inaugural Chair Mentoring Session Speaker – Wayne State University, 2011
National Science Foundation, External Review (Committee of Visitors) of CMS Division
International Joint Commission, Science Advisory Board, 2010 – Present
– U.S. Chair, Science Advisory Board, 2015 – Present
Chair – State of Michigan Board of Licensing for Professional Engineers, 2001 – 2003
Rackham Dissertation Fellowship, The University of Michigan
H.W. King Hydraulics Fellowship, The University of Michigan

FUNDED RESEARCH AND GRANTS (SELECTED LISTING)

Pending

4. **NSF**, Co-PI, (W. Shi, PI), (5/1/22 - 4/30/27, \$1,952,698), SII-Center: The Center for Broad Explorations on Spectrum for Navigation, Environment, Surveillance and Transportation.
3. **National Institutes of Health**, P42 Superfund Center, MPI: Carol Miller and Melissa Runge-Morris, (2022-2027, \$13,175,442), Center for Leadership in Environmental Awareness and Research.
2. **NSF**, Co-PI, (U of Illinois, PI), (08/2021-08/2026, \$265,546), FORGE Sustainability: Forging Regional Governance for Equitable Sustainability in the Great Lakes.
1. **NIH/R21**, Co-PI, (J. Ram, PI), (12/2020 – 12/2023, \$275,000), SARS-CoV-2 & contaminants in sewage for early warning and comorbidity assessment.

Awarded

65. **The Erb Family Foundation, PI**, (5/2021-4/2024, \$450,000), Emerging Contaminants and Engagement with Watershed Organizations.
64. **Ford Community Corps, PI**, (12/2020 – 6/2021, \$3000), Tree planting data and map creation for Greening of Detroit.
63. **Environmental Protection Agency – P3 Grant, PI**, (6/2020-6/2021, \$26,416), GSI-Informed Urban Groundwater Monitoring Networks. Award #84016001.
62. **University of Michigan, PI**, (5/1/2020-10/31/2021, \$70,000), Biodiversity and ecosystem services of water mites from the Laurentian Great Lakes. Award # SUBK00012948.
61. **CIGLR**, Co-PI, (A. Steinman, PI), (2021, \$20,000), Groundwater in Crisis: Addressing Groundwater Challenge in Michigan as a Template for the Great Lakes Summit.
60. **MDHHS**, Co-PI, (W. Schuster, PI), (12/2020 – 12/2023, \$263,809), Dorm-level wastewater monitoring for SARS CoV-2 material: a process-based approach to inform early-warning and control (Wayne State U., Detroit MI). 2020-7510.
59. **CURES** (NIEHS Center for Urban Responses to Stressors), **PI**, (09/2020 – 03/2022, \$65,000), Exploring Mechanisms and Pathways of VOC Migration Beneath Detroit's Neighborhoods.
58. **Great Lakes Water Authority**, Co-PI (Y. Zhang PI), (05/01/2020 – 12/31/2021, \$195,000), The Occurrence and Fate of Microplastics in Wastewater and Drinking Water Treatment Processes. Contract 1904710.
57. **Great Lakes Water Authority**, Co-PI (T. Baker, PI), (4/1/2020-1/31/2022, \$182,153), PFAS Occurrence and Fate. Contract 1902151.
56. **The Erb Family Foundation, PI**, (2018-2021, \$800,000), Healthy Urban Waters – Phase II. Award # Banner 25SQ11.
55. **National Science Foundation, PI**, (2019-2020, \$80,000), Rapid: Investigations and Analysis Associated with Massive Sewage Blockage. Award #1903329.
54. **The Nature Conservancy, PI**, (2018-2019, \$20,000), Web-based Catalogue of Green Stormwater Infrastructure Resources. Award # Banner 25SVT1.
53. **CURES** (NIEHS Center for Urban Responses to Stressors), Co-PI (R.F-Valdivia, PI), (9/2019-3/2021, \$65,000), Decoding PFAS Exposure in Cancer Initiation and Progression.

52. **Richard Barber Interdisciplinary Research Program**, MPI Baker and Miller, (5/15/2020- 12/30/2020, \$25,000), PFAS and Emerging Contaminants in the Huron to Erie Corridor.
51. **Ford College Community Challenge (C3), PI**, (2019-2021, \$25,000), Sustainable Urban Landscape Collaborative. Award # BANNER 25T7Q1.
50. **National Science Foundation**, Co-PI (UWM – Wasley, PI), (2019, \$49,967), Linking Sustainable Urban Landscape Collaborative (Workshop). Award # 193405425.
49. **MDEQ/FEMA, PI**, (2018-2019, \$120,000), Urban Flood Mitigation – modeling, field measurements and surveys. Award # 3362-1701.
48. **Illinois Science & Energy Innovation Foundation (ISEIF), PI**, (1/1/2018–12/31/2019, \$100,000), Educate and enable Illinois residents to actively reduce home - and work-related carbon emissions using innovative Carbon Cash and LEEM Technologies. Award # Banner 25SJ81.
47. **TechTown Ventures, PI**, (2019, \$24,000), Erie Hack 2019 – Innovation Around Our Great Lakes. Award # Banner 25T641.
46. **TechTown Ventures, PI**, (2018, \$24,000), Erie Hack 2018 – Innovation Around Our Great Lakes.
45. **TechTown Ventures, PI**, (2017, \$25,000), Erie Hack 2017 – Innovation Around Our Great Lakes. Award # Banner 25S7P1.
44. **National Science Foundation**, Co-PI. (D. Kashian, PI), (2017-2021, \$2,999,976), NRT: Transformative Research in Urban Sustainability and Training T-RUST. Award #1735038.
43. **Michigan Tech University, PI**, (2016-7/2019, \$5,000), Creating Great Lakes Stewards to Promote Clean Water & Healthy Urban Watersheds in Detroit. Award # 1604013Z1.
42. **Great Lakes Protection Fund, Co-PI**, (Y. Zhang, PI). (2018-2021, \$929,000), Smart Management of Microplastic Pollution in the Great Lakes. Award # 1151.
41. **National Science Foundation**, Co-PI, (J. Rickli, PI), (11/01/2015 – 10/31/2018, \$370,642 total, share: \$24,000), Summer Academy in Sustainable Manufacturing, EEC-1461031 - REU.
40. **National Science Foundation, PI**, Field Stations and Marine Laboratories, (2016-2018, \$251,996), HEART Field Stations for HEALTHY URBAN WATERS. Award # 1624761.
39. **National Science Foundation**, Co-PI, (C. Wang, PI), (2015-2018, \$359,965), Identifying Generation and Emission Sources for Individual Loads at Specific Locations and Times: Toward Environmentally Sensitive and Guided Electricity Usage, ECCS-1508910.
38. **National Institute of Health**; National Institute of Environmental Health Sciences, Co-PI, (S. McElmurry, PI), (2016-2018, \$421,435), Rapid Response to Contaminants in Flint Drinking Water. Award # 1R21ES027199-01.
37. **American Water Works Association (AWWA), PI**, (2016, Total Grant \$550,000. WSU portion \$150,000), Accelerating the Shift to Environmentally Sensitive Electricity through Collaborative Competition. GLPF project #1072.
36. **Michigan Energy Office, PI**, (2017-2018, \$80,000, (two awards)), Benchmarking Energy Consumption in Detroit’s Municipal Buildings. Award # MEO-17-009.
35. **ERB Family Foundation, PI**, (2015-2018, \$650,000), Phase I: Healthy Urban Waters. Award # 838.
34. **National Science Foundation, PI**, (2015-2016, \$28,840), A Workshop for Integrative and Sustainable Food, Energy, and Water in Transitioning Urban Landscapes. CBET Award # 1541869.
33. **National Science Foundation, PI**, (2013-2014, \$24,958), Field Station and Marine Laboratory Planning Grant: HEART Field Center. Award # 1319002.
32. **US Army Corps of Engineers, PI**, (2014-2016), Dam Capacity II - Analysis under Changing Climate: Modeling, Radionuclide Dating, and Analysis. Award # W911XK-14-C-0023.
31. **DTE Energy, PI**, (2013-2014, \$44,650), Evaluation of Pressure Surge Failure of PVC Piping in Power Plant Operation: Valve Closure Features. Award # 4700670649.
30. **NOAA, Michigan Sea Grant, PI**, (2014-2016, \$ 150,000), Two-Stage Ditch Design in Macomb County, MI. Award # R/CCD-30.
29. **Great Lakes Protection Fund, PI**, (2013-2015), Real-Time Energy Impact Monitors for Residential, Industrial and Policy Use. Award # 991.
28. **State of Michigan**, Co-PI, (P. Muelle (HCMA), PI), (2014-2015, \$100,000), Beach Health Monitoring via Rapid Methods using qPCR: Pilot at Lake St. Clair Metropark Beach.
27. **Michigan Department of Environmental Quality**, Co-PI, (S. McElmurry, PI), (2012-2014), Great Lakes Large Aquatic Ecosystem Data Exchange. Award # Banner 23M8M1.
26. **Great Lakes Commission, PI**, (2010-2011), Delisting of Beneficial Use Impairments of the Detroit River Area of Concern. Award # Banner 25PP91.

25. **Ford Motor Company, PI**, (2011), Sustainable Technologies Workshops and Conference. Award # PO A AR PO11 584921.
24. **URC**, Co-PI with Love (UM) and Rose (MSU), (2010-2011), Innovation in Water Science and Technology, Education and Entrepreneurship - Creating Michigan's WaterHub through Academic-Government-Private Partnerships.
23. **University of Detroit Mercy**, Co-PI, (PI: Khasnabis), (2010), Incorporating Environmental Sustainability into Transit Oriented Development on Detroit LRT System. Report # MIOH UTC TS23p2 2010-Final.
22. **US Army Corps of Engineers, PI**, (2009-2012), Sediment Yield and Dam Capacity in the Great Lakes Watershed. Award # W911XK-10-C-0011.
21. **Great Lakes Protection Fund, PI**, (2008-2014), Real-Time System Optimization for Sustainable Water Transmission and Distribution. Award #881.
20. **National Science Foundation**, Co-PI, (2007-2010), Collaborative Project: Development of Materials for Teaching Design for Sustainability via Spiral Learning. Award #0736739.
19. **Wayne State University, PI** with McElmurry, Fotouhi, Pitts, Kashian. (2008-2009), Digital Library for Complex Environmental Analyses of the St. Clair Watershed. Wayne State University, Office of the Vice President for Research.
18. **Wayne State University**, Co-PI, (Baskaran, PI) (2007-2008), Assessment and Compilation of Data for the Digital Library for Urban Environmental Data and Watershed Management. Wayne State University, Office of Vice-President for Research.
17. **Michigan Department of Transportation and FHWA**, Co-PI, (2007-2010), A Critical Evaluation of Bridge Scour for Michigan-Specific Conditions. Award # 2006-0413 / 3.
16. **Wayne State University Faculty Global Grants Competition, PI**, (2006), Civil and Environmental Engineering Collaboration in Education and Research with Venezuelan Universities.
15. **National Science Foundation, PI**, (2003-2004, \$100,000), The Urban Environment as the Cornerstone of a Civil Engineering Curriculum for the 21st Century. Award # 0343086.
14. **American Water Works Association Research Foundation**, Co-PIs: The Windsor Utilities Commission – Oakland University – Wayne State University. Dr. Miller's portion is the hydraulic model of the Detroit River, (2003), Pharmaceuticals, Personal Care Products and Endocrine Disruptors --Occurrence, Fate and Transport in the Great Lakes Water Supplies and the Effect of Advanced Treatment Processes on Their Removal: AN AWWA RF TAILORED COLLABORATION PROPOSAL. Award # 25B29be.
13. **Detroit Water and Sewerage Department, PI** (2003), Pump System Training Program for DWSD Engineers and Operators. Award # 2417X.
12. **National Science Foundation, PI**, (2002-2003), REU supplement to 3-D Characterization and Analytical Description of Desiccation Cracking.
11. **Center for Urban Labor and Metropolitan Affairs, PI**, (2001), Professional Engineering Policy in Michigan: Implications of Globalization, 2001 Summer Faculty Research Support from the State Policy Center.
10. **National Science Foundation, PI**, (1998-2003, \$258,576), 3-D Characterization and Analytical Description of Desiccation Cracking. Award # CMS 9713922.
9. **U.S. EPA (Rouge Program Office; Camp Dresser and McKee), PI**, (1998-2001), Full Scale 2-D Numerical Model Calibration for Predicting Combined Sewer Overflow Treatment Basin Efficiency.
8. **Wayne State University** Internal Seed Funding Competition, Co-PI with G. Shreve, (1997-1998), Fate and Mobility of Polychlorinated Biphenyls (PCBs) in Landfills.
7. **National Science Foundation, PI**, (1995-1997, \$239,890), Containment and Remediation of Mixed Waste Streams. Award # 9550710.
6. **National Science Foundation, PI**, (1993-1995, \$136,087), Kinematic Wave Formulation for Flow Through Macro-Porous Soil. Award # 9123563.
5. **Foamseal Corporation**, Oxford MI, **PI**, (1993-1994), Evaluation of a Poly-urea Spray Elastomer for Landfill Cover Liner Applications: Phase II - Field Evaluation.
4. **Foamseal Corporation**, Oxford MI, **PI**, (1991-1993), Evaluation of a Poly-urea Spray Elastomer for Landfill Cover Liner Applications: Phase I - Material Design and Analysis.
3. **Barber Fund**, Co-PI with Prof. Robert Abrams of WSU Law School, (1990), Categorizing Hazardous Waste Sites to Obtain More Efficient Cost Allocations and Cleanups.
2. **National Science Foundation, PI**, (1987, \$45,000), Desiccation Cracking of Clay Liners. Award # 8708180.
1. **National Science Foundation, PI**, (1989, \$158,112), Fluid Transport Through the Macro-Pores of Cracked Clay Liners. Award # 8820676

SELECTED PUBLICATIONS

Chapters Published

In Review:

1. Kim, J., **Miller**, C., Norton, J., Zhang, Y., (2021) Occurrence and Removal of Microplastics in Drinking Water Systems. *Microplastics in Urban Water Management* (Chapter 2). 1st Edition, New York, N.Y.: John Wiley & Sons, Inc.

Authored:

6. **Miller**, C.J., (2014) Groundwater Monitoring. *Kirk-Othmer Encyclopedia of Chemical Technology*. Online Edition, New York, N.Y.: John Wiley & Sons, Inc. DOI: 10.1002/0471238961.0718152113091212.a01.pub2
5. **Miller**, C.J., (2003) Groundwater Monitoring. *Encyclopedia of Agrochemicals* (pp. 689-694). John Wiley & Sons, Inc.
4. **Miller**, C.J., (2002) Aquifer Pressure and Quality, *Kirk-Othmer Encyclopedia of Chemical Technology*, Online Edition, New York, N.Y.: John Wiley & Sons, Inc.
3. **Miller**, C.J., (1999) Groundwater Monitoring, In M. Grant (Ed.), *The Kirk-Othmer Concise Encyclopedia of Chemical Technology* (pp. 1010-1011), John Wiley and Sons Publishers.
2. **Miller**, C.J., (1998) Groundwater Monitoring, In R.A. Myers (Ed.), *Encyclopedia of Environmental Analysis and Remediation*, New York: John Wiley & Sons, Inc.
1. **Miller**, C.J. (1994) Groundwater Monitoring, In M. Grant (Ed.), *Encyclopedia of Chemical Technology* (pp. 786-795) John Wiley and Sons Publishers.

Co-Authored:

15. Silbergleit, M., Vasquez, A., **Miller**, C., Sun, J., Kato, I. (2020) Oral and intestinal bacterial exotoxins: potential linked to carcinogenesis, *The Microbiome in health and disease: Chapter 7 in Elsevier PMBTS 171* (pp. 131-193), Sun, Jun (Eds.). ISBN: 978-0-12-820000-1
14. Harris, C., **Miller**, C., Lyon, N., Pothukuchi, K., Treemore-Spears, L., Zhang, Y. (equal contribution) (2020) "Chapter 18 - Cities in the Nexus", *Introduction to the Food-Energy-Water Nexus*, Saundry, Ruddell (Eds.). ISBN-13: 978-3030299132.
13. Rouholamini, M., **Miller**, C., Wang, C., Mohammadian, M., Moghbeli, M. (2020) Visualizing CO₂ to Account for Emission Obligation in Power Systems, *Frontiers in Water-Energy-Nexus—Nature-Based Solutions, Advanced Technologies and Best Practices for Environmental Sustainability* (pp. 71-74), Naddeo, Vincenzo, Balakrishnan, Malini, Choo, Kwang-Ho (Eds.) ISBN 978-3-030-13068-8.
12. Peirovi, R., Moghaddam, A., **Miller**, C., Moteallemi, A., Rouholamini, M., Moghbeli, M. (2020) Optimal Chlorination Station Scheduling in an Operating Water Distribution Network Using GANetXL. *Frontiers in Water-Energy-Nexus—Nature-Based Solutions, Advanced Technologies and Best Practices for Environmental Sustainability*, (pp. 337-340), Naddeo, Vincenzo, Balakrishnan, Malini, Choo, Kwang-Ho (Eds.). ISBN 978-3-030-13068-8.
11. Rouholamini, M., **Miller**, C., Wang, C., Mohammadian, M., Moghbeli, M. (2020) Water Networks as Flexible Loads to Power Systems. *Frontiers in Water-Energy-Nexus—Nature-Based Solutions, Advanced*

Technologies and Best Practices for Environmental Sustainability, (pp. 443-445), Naddeo, Vincenzo, Balakrishnan, Malini, Choo, Kwang-Ho (Eds.). ISBN 978-3-030-13068-8.

10. Sadatiyan, S. Mohsen, **Miller**, C.J. (2019) PEPISO: Reducing Electricity Usage and Associated Pollution Emissions of Water, *Advanced Hydroinformatic Techniques for the Simulation and Analysis of Water Supply and Distribution Systems* (pp. 140-157), Online Edition, MDPI.
9. Pierson, D. M., Alqahtani, S. N., Muelle, R., and **Miller**, C. J. (2017) Approach to Developing a Sustainability Office at the University Level – Chapter 1 in *Sustainability Practice and Education on University Campuses and Beyond*, (pp. 1-28), A. Kumar and D.S. Kim, editors, Bentham Book Publishers. ISBN 978-1-68108-472-5.
8. Merayyan, S.M. and **Miller**, C.J. (2000) The Use of Thermocouple Psychrometer in the Retention Curve Determination, In Mohamed & Al Hosani (eds), *Geoengineering in Arid Lands* (pp. 275 – 282), ISBN 90-5809-160-0.
7. **Miller**, C., Merayyan, S. and Yesiller, N. (2000) Unsaturated Performance Comparison of Compacted Clay Landfill Liners, In eds. Shackelford, Houston, and Chang, ASCE Geotechnical Special Publication No. 99, *Advances in Unsaturated Geotechnics* (pp. 555 – 568).
6. Yesiller, N., Inci, G. and **Miller**, C. (2000) Ultrasonic Testing for Compacted Clayey Soils, In eds. Shackelford, Houston, and Chang, ASCE Geotechnical Special Publication No. 99, *Advances in Unsaturated Geotechnics* (pp. 54 – 68), ISBN 9780784405109.
5. **Miller**, C.J. and Mishra, M. (1994), Failure Mechanisms for Clay Cover Liners, In Ed. Christensen et al., E & FN Spon, London, a division of Chapman & Hall, Chapter 2.9 of *Landfilling of Waste: Barriers* (pp. 149-157), ISBN 0-419-15990-8.
4. **Miller**, C.J., Salim, I., and Howard, J. (1992), Heavy Metal Adsorption by Landfill Liners: Implications for Landfill Design, In Ed. Usmen and Alcar, A.A. Balkema Publishers, Chapter 3 of *Environmental Geotechnology* (pp.167-172), ISBN 90-5410-05-59.
3. **Miller**, C.J., Lee, J., and Menna, J. (1992), Effects of Freeze-Thaw on Clay Cover Liner Performance, In Ed. Usmen and Alcar, A.A. Balkema Publishers, Chapter 4 of *Environmental Geotechnology*, 1992, (pp. 205-212), ISBN 90-5410-05-59.
2. **Miller**, C.J. and Mishra, M. (1989), Hazardous Waste Containment for Clay Liners, In International Association of Hydrological Sciences, Publication No. 188, Chapter 2 of *Groundwater Management: Quantity and Quality* (pp. 191-201), 1989, ISBN 0-947571-32-9.
1. Wright, S.J. and **Miller**, C.J. (1982) Estimates of Seepage Through Clay Covers on Hazardous Waste Landfills, In Ann Arbor Science Publishers, Chapter 22 of *Hazardous Waste Management for the 80's* (pp. 343-356), ISBN 0-250-40429-X.

JOURNALS AND CONFERENCE PROCEEDINGS

In Review:

5. Vasquez, A., Ahmed, A., Carmona-Galindo, V., Sehgal, B., & Miller, C. (2021) “Historical changes, diversity analysis and abiotic impacts on the Detroit River phytoplankton community described from Detroit drinking water plant algae records”, *Journal AWWA*, (under review since 04/10/2021).

4. Larson, P. S., Gronlund, C., Thompson, L., Sampson, N., Washington, R., Steis, J., Lyon, N., **Miller, C.**, (2021) "Recurrent home flooding in Detroit, MI 2012-2020: Results of a household survey", *Science of the Total Environment*, (under review since March 2021).
3. Roostaei, J., Shi, W., Dittrich, T., **Miller, C.**, (2021) Gopalakrishnan, K., Zhang, Y. "IoT-based Edge Computing (IoTEC) for Smart and Sustainable Environmental Monitoring", *IEEE Internet Computing*, (under review since March 2021).
2. Aylesworth, B., **Miller, C.**, Baker, T., & Rost, S. (2021) "Serious Games for Environmental Education: an assessment of the development of the Fatberg Game", *International Journal of Gaming and Computer-Mediated Simulations (IJGMS)*, (under review since 4/27/2021).
1. Adrian Vasquez, **Miller, C.** (2020) "Historical changes and diversity analysis of the Detroit River plankton community", *Journal of Great Lakes Research*, (under review since 09/01/2020).

Published:

69. Teimoori, S., O'Leary, B., & **Miller, C.** (2021). Modeling shallow urban groundwater at regional and local scales: Case study in Detroit, MI, *Water*, 13, 11,1515. <https://doi.org/10.3390/w13111515>
68. Wang, C., Wang, Y., Rouholamini, M., & **Miller, C.** (2021). An Equivalent Circuit-Based Approach for Power and Emission Tracing in Power Networks, *IEEE Systems Journal*. doi: [10.1109/JSYST.2021.3067296](https://doi.org/10.1109/JSYST.2021.3067296)
67. Hu, T., Wang, C. and **Miller, C.** (2021). Identification of Marginal Generation Units Based on Publicly Available Information. *Applied Energy*. 281, article:116073. DOI: [10.1016/j.apenergy.2020.116073](https://doi.org/10.1016/j.apenergy.2020.116073)
66. **Miller, C.J.**, Runge-Morris M, Cassidy-Bushrow AE, Straughen JK, Dittrich TM, Baker TR, Petriello MC, Mor G, Ruden D, O'Leary B, Teimoori S, Tummala C, Heldman S, Agarwal M, Roth K, Yang Z, Baker BB. (2020). A review of volatile organic compound contamination in post-industrial urban centers: reproductive health implications using a Detroit lens. *Int J Environ Res Public Health*; 17, 23, 8755. <https://www.mdpi.com/1660-4601/17/23/8755>
65. Wang, J., Baskaran M., Kumar A., Bilhan O., **Miller, C.** (2020). Reconstruction of Temporal Variations of Metal Concentrations using Radiochronology (239+240Pu and 137Cs) in Sediments from Kizilirmak River, Turkey. *Journal of Paleolimnology*. DOI: [10.1007/s10933-020-00154-w](https://doi.org/10.1007/s10933-020-00154-w)
64. Steis Thorsby, J., Miller, C. J., Treemore-Spears, L. (2020). The Role of Green Infrastructure in Flood Mitigation (Detroit, MI, USA) – Case Study. *Urban Water Journal*, 17, 9, 838-846. DOI: <https://doi.org/10.1080/1573062X.2020.1823429>
63. Vasquez, A., Kabalan, B., Ram, J., **Miller, C.** (2020). The Biodiversity of Water Mites That Prey on and Parasitize Mosquitoes, *Diversity*, Online Edition, MDPI. P. 226. <https://doi.org/10.3390/d12060226>
62. Barkach, J. H., **Miller, C.**, Selegean, J. P., Bradley, E. A. (2020). Comparison of Watershed Sediment Delivery Estimates of 60 Michigan Rivers Using the USACE Great Lakes Regional Trendline and the Syvitski and Milliman Global BQART Equation. *Journal of Hydrology*, 582, article:124460. <https://doi.org/10.1016/j.jhydrol.2019.124460>
61. Rouholamini, M., **Miller, C. J.**, Wang, C. (2019). Determining consumer's carbon emission obligation through virtual emission tracing in power systems. *Environmental Progress & Sustainable Energy*, 39, 1. <https://doi.org/10.1002/ep.13279>

60. **(Best Paper Award)** Bilhan, O., Aydin, M.C., Emiroglu, M.E., **Miller, C.J.** (2018). Experimental and CFD Analysis of Circular Labyrinth Weirs. *Journal of Irrigation and Drainage Engineering*, 144, 6. DOI: <https://ascelibrary.org/doi/10.1061/%28ASCE%29IR.1943-4774.0001301>
59. Bilhan, O., Emiroglu, M. E., **Miller, C. J.**, Ulas, M. (2018). The evaluation of the effect of nappe breakers on the discharge capacity of trapezoidal labyrinth weirs by ELM and SVR approaches. *Flow Measurement and Instrumentation*, 64, 71-82. DOI: <https://doi.org/10.1016/j.flowmeasinst.2018.10.009>
58. Xu, L., **Miller, C.J.**, Olson, J. et al. (2018). Huron-to-Erie Water Quality Data Platform. *Environmental Processes*, 5, 465. <https://doi.org/10.1007/s40710-018-0322-7>
57. Sadatiyan, S. M., **Miller, C. J.** (2017). PEPISO: Reducing Electricity Usage and Associated Pollution Emissions of Water Pumps. *Water*, 9, 9, 640. <http://www.mdpi.com/2073-4441/9/9/640/htm>
56. Alighalehbabakhani, F., **Miller, C.J.**, Baskaran, M., Selegean, J., Barkach, J., Dahl, T., Abkenar, S.M. (2017). Forecasting the remaining reservoir capacity in the Laurentian Great Lakes watershed, *Journal of Hydrology*, 555, 926-937, <https://doi.org/10.1016/j.jhydrol.2017.10.052>
55. Zhao, Z., Wang, C., Wang, Y., **Miller, C.J.** (2017). Temporal and Spatial Load Management for Cost and Emission Reduction, *Canadian Journal of Electrical and Computer Engineering (CJECE)*, 40, 2, 83-92. <https://ieeexplore.ieee.org/document/7999298>
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53. Alighalehbabakhani, F., **Miller, C.J.**, Selegean, J.P., Barkach, J., Sadatiyan Abkenar, S. M., Dahl, T., Baskaran, M. (2016). Estimates of sediment trapping rates for two reservoirs in the Lake Erie watershed: Past and present scenarios. *Journal of Hydrology*, 544, 147–155. <https://doi.org/10.1016/j.jhydrol.2016.11.032>
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15. Wang, C., McElmurry, S.P., **Miller, C.J.**, and Zhao, J. (2012). An integrated economic/emission/load profile management dispatch algorithm, *Power and Energy Society General Meeting*, 2012 IEEE, 1-8. doi: [10.1109/PESGM.2012.6345405](https://doi.org/10.1109/PESGM.2012.6345405)
14. Wang, C., **Miller, C.J.**, Carter, T.H., McElmurry, S., Rogers, M., Miller, S.S., and Hutt, I.A. (2012). Linking Load Demands to Power Generation Pollutant Emissions Based on Locational Marginal Prices. Proceedings of the *IEEE Power Engineering Society Transmission and Distribution Conference*, Article No. 6281487. doi: [10.1109/TDC.2012.6281487](https://doi.org/10.1109/TDC.2012.6281487)
13. Baskaran, J., Kumar, A., **Miller, C.**, Selegean, J., and Creech, C. (2012). Reconstruction of Landuse Changes Using Carbon and Nitrogen Isotopes in Sediment Cores from Dams in Michigan. *International Association of Great Lakes Research*, Proceedings of the 2012 Annual Conference, Cornwall, ON. (refereed)
12. Kumar, A., Baskaran, J., **Miller, C.**, Selegean, J., and Creech, C. (2012). Sediment Dynamics in Three Dams in Michigan and Indiana Using excess Pb-210 and Cs-137 as Chronometers. *International Association of Great Lakes Research*, Proceedings of the 2012 Annual Conference, Cornwall ON, May 2012. (refereed)
11. Wang, C., McElmurry, S., **Miller, C.**, and Zhao, J. (2012, July). Load Management Integrated Economic/Environmental Electric Power Dispatch. Proceedings of the *2012 IEEE PES (Power and Energy Society) General Meeting*, San Diego, CA.
10. **Miller, C.**, Andersen, E., Baskaran, M., Selegean, J., Hui, J., Creech, C., and Barkach, J. (2012). Anthropogenic Impacts on Sediment Production in Great Lakes Watersheds. Proceedings of the *2012 Annual Conference, International Association of Great Lakes Research*, Cornwall ON, May 2012.
9. Carpenter, D., **Miller, C.**, Calappi, T., Hettiarachchi, H., and McClarren, M. (2011). Project # 85106 and 108493: A critical review of bridge scour for Michigan specific conditions, Final report submitted to Michigan Department of Transportation, Office of Best Practices, Lansing Michigan. https://rosap.nrl.bts.gov/view/dot/18639/dot_18639_DS1.pdf?download-document-submit=Download
8. Calappi, T., **Miller, C.**, and Carpenter, D. (2010). Revisiting the HEC-18 Scour Equation. *International Conference on Scour and Erosion (ICSE)*, San Francisco, CA. <https://ascelibrary.org/doi/10.1061/41147%28392%29111>
7. Calappi, T., **Miller, C.**, and Savolainen, P. (2009, March). Impact of Grain Size Characterization on the Froehlich Pier Scour Equation, *International Foundation Congress and Equipment Expo*
6. Sha, K., Zhan, G., Al- Omari, S., Calappi, T., Shi, W., and **Miller, C.** (2008, November 13-16). Data Quality and Failures Characterization of Sensing Data in Environmental Applications. *Collaborative Computing: Networking, Applications and Worksharing*, 4th International Conference, CollaborateCom, Orlando, FL, USA.
5. Merayyan, S., and **Miller, C.** (2006). Determination of the Soil-Water Characteristic Curve Using the Evaporation Technique, *Fourth International Conference on Unsaturated Soils*.

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4. Grabe, J; Kinzler, S; and **Miller, C.** (2006): Development of a scour monitoring system. *Proceedings 3rd International Conference on Scour and Erosion 2006*, Amsterdam, The Netherlands. Gouda (NL): CURNET. S. 246-249.
3. Marin, M., Franklin, L., and **Miller, C.** (2005, July). Soil-Lead Contamination Screening Tool, *World Water and Environmental Resources Congress*.
2. **Miller C.J.**, Kumar S., Jasim S., and Schweitzer L. (2005). Hydraulic modeling of PPCP discharges in the Detroit River. *World Water Congress 2005: Impacts of Global Climate Change - Proceedings of the 2005 World Water and Environmental Resources Congress*, Anchorage, Alaska
1. Al-Omari, S., Shi, W., and **Miller, C.** (2004). SESAME: A Sensor System Accessing and Monitoring Environment.

OTHER PUBLICATIONS:

3. dbusiness media article: “COVID-19 Update: State Extends Epidemic Order 12 Days, U-M and Stanford Develop More-responsive COVID-19 Wastewater Test, and More”, **Miller** quoted in [Media Article](#)
2. HERO DESCRIPTION FOR PUBLIC on YOUTUBE: Rogers, **Miller**, McElmurry, Wang at: <http://www.youtube.com/watch?v=BfLTY8sFiQ8>
1. Publication of HERO ANDROID APP at GooglePlay: Xu, Rogers, **Miller**, McElmurry, Shi, Wang at: https://play.google.com/store/apps/details?id=com.amaker.herotest&feature=search_result#?t=W251bGwsMSwyLDEsImNvbS5hbWFrZXIuaGVyb3Rlc3QiXQ. (copyright Xu, Rogers, Miller, McElmurry, Shi, Wang) March, 2013

INSTITUTIONAL SERVICE – SELECTED EXAMPLES

- College of Engineering Review Committee (2016 – present), recent output:
 - Report of the Review Committee 2016-2021
- Thesis reviewer for the MAGS Distinguished Master’s Thesis (Graduate School function) (2010,2012)
- Director, Healthy Urban Waters, HUW (2015 – Present)
- Co-Director, Urban Watershed Environmental Research Group (UWERG) (2010 – Present)
- University Field Station Design, (2014 – Present)
- Transborder Research University Network (TRUN), WSU Representative (2009 – Present)
- Hosting Visiting Professors (semester-long) from Turkey, USA and China (1998 – 2015)
- President’s Standing Committee on Environmental Initiatives, Chair (2008 – 2012)
- College of Engineering, Budget Committee (2012 – Present)
- Chi Epsilon, Student Chapter Faculty Advisor, (2002 – 2006)
- Panelist, WSU Department Chairs Mentoring Workshop, (October 14, 2011, March 7, 2014)
- Department P&T Committee, (2001 – 2007, 2012 – Present)
- College P&T Committee, (2001 – 2007, 2012 – Present)
- University P&T Committee, (1998, 2012, 2017)
- Graduate Council, (1994, 1995)
- Chair, COE Faculty Assembly (1998 – 1999)
- Society of Women Engineers, Student Chapter Faculty Advisor, (1998 – 2000)
- Over 30 University, College, and Department Committee Memberships

NATIONAL SERVICE – SELECTED EXAMPLES

- Board member, Great Lakes Water Authority Surface Water Intake Protection Plan, 2020 - Present
- Research Advisory Board, Water Environment Research Foundation, 2015 – 2019
- Session Chair and Host Committee, International Association for Great Lakes Research 2017 Conference, May 15-17, 2017.

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- National Science Foundation – Proposal Review Panels (many) including, most recently: FSML (2017), CAREER (2016) and US: China Water (2015), Geotechnical (2018, 19).
- National Science Foundation – Invited Member to the Committee of Visitors (COV) – an 8-member group of individuals to do an external review of the NSF. My focus group is CMS. On-site review in April and June, 2001.
- National Science Foundation, Proposal Review Panelist (10 Panels). Most recent is Graduate Research Fellowship Program (GRFP), meeting January 2014; CAREER Panel 2010.
- US EPA, Proposal Review Panelist (3 Panels)
- Proposal Review Panel for Natural Science and Engineering Research Council of Canada (NSERC), 2010
- Invited member of the National Council of Examiners for Engineering and Surveying (NCEES) committee on FE Examination Development – meetings held in Clemson, S.C. for purposes of developing a new examination module for Part I of the PE exam.
- Board of Sustainability Advisors to Detroit Renewable Energy (2012, 2013)
- International Joint Commission, Science Advisory Board (2011 – Present), recent output includes:
 - Great Lakes Science Advisory Board, Report: *An Evaluation of Stressor Interactions in the Great Lakes* September 2020. International Joint Commission. Available at: https://ijc.org/sites/default/files/2020-09/SAB-SPC_StressorInteractionsReport_2020.pdf
 - Great Lakes Science Advisory Board, Report: *Towards A Great Lakes Early Warning System* April 2020. International Joint Commission. Available at: https://ijc.org/sites/default/files/2020-06/SAB_GLEWSReport_April2020.pdf
 - Great Lakes Science Advisory Board, Report: *Potential Ecological Impacts of Crude Oil Transport in the Great Lakes Basin* October 2018. International Joint Commission. Available at: <https://ijc.org/sites/default/files/2019-01/Potential%20Ecological%20Impacts%20of%20Crude%20Oil%20Transport%20in%20the%20Great%20Lakes%20Basin%20-%20Oct%202018.pdf>
 - Great Lakes Science Advisory Board, Report: *Information Coordination and Flow in the Great Lakes Basin* January 2018. International Joint Commission. Available at: <https://ijc.org/sites/default/files/information-coordination-flow-great-lakes-basin-sab-2018.pdf>
 - Taking Action on Lake Erie Work Group (Miller chaired the urban portion of work group) Report: *Lake Erie Ecosystem Priority | Scientific Findings and Policy: Recommendations to Reduce Nutrient Loadings and Harmful Algal Bloom, Draft Summary Report*, August 2013. International Joint Commission. Available at: <http://www.ijc.org/files/tiny/mce/uploaded/Draft%20LEEP-Aug29Final.pdf>
 - Report of the Lake Erie Ecosystem Priority: *A Balanced Diet for Lake Erie: Reducing Phosphorus Loadings and Harmful Algal Blooms*. 2014. ISBN: 978-1-927336-07-6, <https://legacyfiles.ijc.org/publications/2014%20IJC%20LEEP%20REPORT.pdf>

PUBLICATION REVIEW ACTIVITY FOR:

- ASCE Journal of Environmental Engineering
- ASCE Journal of Hydraulic Engineering
- Air, Water, and Waste Management
- American Water Research Association
- Geoscience Journal
- Canadian Geotechnical Journal
- Journal of Geotextiles and Geomembranes
- Sustainable Computing and Informatics
- Applied Energy
- January, 2014 and 2016: Fellowship application review, National Science Foundation, Graduate Research Fellowship Program for Civil and Environmental Engineering.

PROFESSIONAL CONSULTATION PUBLIC PRESENTATIONS AS AN EXPERT IN DISCIPLINE

- “Working in the Environmental Engineering Field” The Society of Environmental Engineering and Sustainability (SEES) General Body Meeting, Wayne State University (2021)

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- "Communication & Climate Change: Engaging Communities in Environmental Issues", GLIER - T-RUST Virtual Seminar Series (2021)
- "Groundwater in Crisis: Addressing Groundwater Challenge in Michigan as a Template for the Great Lakes" Summit, Cooperative Institute for Great Lakes Research (2021)
- "Decoding PFAS exposure in breast and lung carcinogenesis", EGLE's Great Lakes PFAS Summit, Wayne State University (2020)
- "Foundations of Social Justice for Engineers" Webinar, American Society for Engineering Education co-hosted by the Engineering Society of Detroit (2020)
- "MicroPlastics in the Great Lakes", 2019 International Association for Great Lakes Research (IAGLR), Session Co-Chair, Brockport NY, June 10-12, (2019)
- "Urban Groundwater Training and Practice", International Association for Great Lakes Research (IAGLR), Session Co-Chair, Brockport NY, June 10-12, (2019)
- "The Future of the Great Lakes Science Advisory Board", 2018 International Association for Great Lakes Research (IAGLR), Session Chair, Toronto, May 20-25, (2018)
 - 2018 5th Annual Big Data & Business Analytics Symposium @ WSU – March 22-23 – POSTER Session Kamjou, A.; S. McElmurry; and C.J.Miller, Data integration for water network models to simulate historical operation

RECENT OUTREACH ACTIVITIES

- Collaboration with Greening of Detroit and City of Detroit for Brownfield Remediation using Dendroremediation (2011 - 2012)
- RWQIMS (Real-Time Water Quality Information Management System) developments for the Huron-Erie Corridor with Friends of Detroit River, Macomb County, and others (2010- Present)
- Transborder Research University Network (TRUN), WSU Representative (2009 - Present)
- Adopt-A-Beach, Belle-Isle, UWERG Activity (2011 - Continuous)
- Friends of Detroit River (FDR) and Friends of the Rouge Science Collaboration (2010 – Present)
- Developed and Presented a WSU component of "Shiver on the River" for FDR events on Belle Isle (2010,2011) with Dr. David Pitts (Pharmaceutical Sciences) and Dr. Jeffrey Ram (Physiology)
- Interactions with Directors of Natural Science Field Stations throughout the US as part of the WSU Field Station developments (2012-Present)

PHD DISSERTATION CHAIR (COMPLETED)

- **Mohsen Sاداتian**, "Optimization of Water Distribution Systems for Emission Reduction Using Genetic Algorithms", May 2016.
- **Fatemeh Alighalehbabakhani** "Evaluating Sediment Accumulation Behind Dams in the Great Lakes Watershed from Past to Present", May 2017.
- **Adim Al-Talibi**, "Energy Trilogy in WasteWater Treatment Design: Energy-Related Emissions Accounting", 2014.
- **Calvin Creech**, "Coupled Sediment Yield and Sediment Transport Model to Support Navigation Planning in Northeast Brazil", 2014.
- **Timothy Calappi**, "Investigation of Pressure Fluctuations in the Hyporheic Zone in Response to a Hydraulic Structure", 2013.
- **Maria Marin**, "Urban Soil-Lead Contamination and Humic Substance Forms", 2007.
- **Lance Franklin**, "Organic Fractionation and Chemical Characterization of Organometallic Forms of Lead in Contaminated Michigan Soils", 2005.
- **Dima Soued El-Gamal**, "Streamlined Remediation Decisions for Brownfield Redevelopment", 2005.
- **Saad Merayyan**, "Transient Analysis of Soil-Water Characteristic Curves Using Pressure Plate Methodology", 2001.
- **Sami Rifai**, "Fiber Additives as a Mechanism for Improved Performance of Clay Liners", 2000.
- **Maria Staab**, "Effects of Biodegradation on the Hydraulic Oil Constituents C10 – C34", 1999.
- **Kareem Yaldo**, "Impact of Soil Type and Compaction Conditions on Soil-Water Characteristic Curves", 1999.
- **Manoj Mishra**, "Mathematical Modeling of Leakage Through Macropores in Landfill Cover Liners", 1996.

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- **Hong Mi**, “Kinematic Wave Formulation for Flow Through Macroporous Soil”, 1995.
- **Imad Salim**, "Modeling the Sorption and Transport of Heavy Metals through Landfill Clay Liners", 1994.
- **J.Y. Lee**, "Freeze-Thaw Degradation of Landfill Covers Liners", 1994.

PHD DISSERTATION CHAIR (CURRENT)

- **Mohammadmahdi Farsiabi**, “Essays on Health Care Expenditures and Quality of the Environment”, (expected completion Summer 2020) Co-Chair with Dr. Allen Goodman, Chair (Economics).
- **John Barkach**, (Committee Chair) “Analysis of Watershed Sediment Delivery to 30 Usace Great Lakes Harbors and Navigation Channels”, (expected completion August 31, 2021).
- **Kate Osarhiemen Ekhator**, “Tree Canopy Cover and Water Quality Improvement in Urban Areas”, (expected completion 2022).
- **Brendan O’leary**, “Evaluating Volatile Organic Compound Exposure Pathways and Risk in a Variably-Saturated, Urban Landscape (Detroit, Mi)”, (expected completion 2022).
- **Amir Kamjou** “Assessment of Groundwater Infiltration into the Urban Sewer Collection Systems, Pilot Study: Detroit, Mi”, (expected completion 2022).
- **Sadaf Teimoori**, “Optimal Spatial Design of Groundwater Level Monitoring Networks using Machine Learning Methods”, (expected completion 2022).
- **Mahdi Rouholamini**, undecided at this time, With Dr. Caisheng Wang (Ece).

MS THESIS CHAIR (COMPLETED)

- **Katie Krupp**, “Using 210po/210pb Disequilibria to Characterize the Biogeochemistry and Quantify the Dynamics of Sea Ice in The Arctic”, January 2017
- **Jamie Steis**, “Improved Drain Design for Reduction in Phosphorus Loadings”, January 2015.
- **Jennifer Hui**, “Dam Capacity Analysis”, 2014.
- **Michelle Rogers**, “Timing of Residential Electric Loads to Reduce Air Emissions from Power Generation”, 2012.
- **Timothy Calappi**, “Scour at Bridge Crossings: Michigan-Specific Conditions”, 2010
- **Vismaya Tata**, “Hydraulic Modeling of Detroit River for Evaluation of PPCP Transport”, 2005.
- **Hong Dai**, “Heavy Metals in Ash Recovered from Detroit Incinerator”, 1995.
- **Hosam Hassanien**, “Desiccation Cracking of Clay Liners Under Repetitive Wet-Dry Cycles”, 1992.
- **Kathleen Aseltyn**, “Chloride Distribution in Michigan Aquifers”, 1989, co-Chair.

COURSES TAUGHT

- BIO 7310 Urban Sustainability Seminar
- CE 5410: Energy Emission Environment
- Honors 1000: City (1)
- BE 1200: Introduction to Engineering Design
- CEE 3250: Fluid Mechanics
- CEE 4995: Senior Capstone Design (shared among faculty)
- CEE 6130: Engineering Hydraulics (Open Channel Flow)
- CEE 6190: Groundwater Hydraulics
- CEE 6270: Environmental Management and Sustainable Development
- CEE 6580: GeoEnvironmental Engineering and Remediation
- CEE 7190: Advanced Groundwater Hydraulics
- FPH 7420: Water Infrastructure and Public Health (Lectures)
- Directed study at undergraduate, graduate and doctoral levels