

DAVID W. WATKINS, JR., Ph.D., P.E.

July 1, 2020

I. PROFESSIONAL AFFILIATION AND CONTACT INFORMATION

Present Position: Distinguished Professor, Department of Civil & Environmental Engineering,
Michigan Technological University

Office Address: Michigan Technological University, 1400 Townsend Drive, Houghton, MI 49931

Phone: (906) 487-1640, Fax: (906) 487-2943, E-mail: dwatkins@mtu.edu

II. EDUCATION

Ph.D. in Civil Engineering, University of Texas at Austin, Austin, TX, August 1997.

Dissertation: *Optimization Techniques for the Planning and Management of Robust Water Resources Systems*. (Advisor: Daene McKinney)

M.S. in Environmental Health Engineering, University of Texas at Austin, Austin, TX, December 1992.

B.S. in Civil Engineering, Washington University, St. Louis, MO, May 1991.

B.S. in Engineering and Public Policy, Washington University, St. Louis, MO, May 1991.

Licensures and Certifications

Professional Engineer, State of Michigan. (#6201060127)

III. PROFESSIONAL EXPERIENCE

Distinguished Professor, August 2018 – present,

Professor, August 2012 – present,

Associate Professor, August 2005 – July 2012,

Assistant Professor, August 1999 – July 2005,

Department of Civil & Environmental Engineering, Michigan Technological University, Houghton, MI

- Teach undergraduate and graduate level courses in hydrology and hydraulics, water resources planning and management, environmental systems analysis, and engineering for community development.
- Maintain an active research program in water and environmental systems engineering with support from the National Science Foundation, National Oceanic and Atmospheric Administration, U.S. Environmental Protection Agency, and Michigan Department of Transportation, among others.
- Direct an international capstone design program and advise a student chapter of Engineers Without Borders-USA.

Visiting Research Scientist (on sabbatical), September 2007 – December 2007,

International Research Institute for Climate & Society, Columbia University, Palisades, NY

- Assisted with development of integrated forecast-decision models for water management.
- Developed materials for training courses on climate risk management for the water resources sector.

Visiting Scholar (on sabbatical), January 2008 – June 2008,

Hydrologic Engineering Center, U.S. Army Corps of Engineers, Davis, CA

- Wrote preliminary design document for systems flood risk management software.
- Reviewed reservoir systems optimization model and advised on further development.

Research Hydraulic Engineer, July 1997 – July 1999,

Hydrologic Engineering Center, U.S. Army Corps of Engineers, Davis, CA

- Provided technical support to a number of operations and feasibility studies, including Upper Mississippi Basin flood impact mitigation, Sacramento River Basin flood mitigation, Panama Canal operations, and South Florida water supply planning.
- Assisted in the development of reservoir system analysis programs for optimal flood impact mitigation and multipurpose reservoir operations.
- Coordinated and conducted training courses and workshops on hydrologic modeling, flood warning systems, and water resources systems analysis.

Lecturer, January 1999 – March 1999,

Department of Civil and Environmental Engineering, University of California at Davis, Davis, CA

- Taught undergraduate course on civil and environmental engineering systems analysis.

Private Consultant, September 1999 – August 2016,

Houghton, MI

- David Ford Consulting Engineers, Sacramento, CA. Wrote user's manual for flood control optimization software. Provided technical support on hydrology/hydraulic modeling and water resources management studies (1999 - 2003).
- Wickwire Gavin, Attorneys at Law, Washington, DC. Served on technical panel reviewing failure of Silver Lake dam near Marquette, MI (June - Dec. 2003).
- Inland Seas Engineering, Inc., Traverse City, MI. Performed hydraulic analysis of a proposed culvert and channel modification (Aug. - Sept. 2003).
- Columbia University, International Research Institute for Climate and Society, Palisades, NY. Developed materials on climate risk management for World Bank Institute and UNESCO-International Hydrologic Program training courses (Apr. 2008 - Sept. 2009).
- David Ford Consulting Engineers, Sacramento, CA. Provided optimization modeling support for the International Upper Great Lakes Study (Jan. 2009 – Sept. 2011).
- City of Houghton, MI. Advised on development of a drainage ordinance (unpaid; Jan. - Aug. 2016).

IV. RESEARCH AND CREATIVE ACTIVITY

A. Interests and Specialties:

Water resources planning, management, and decision support, including hydrologic modeling and forecasting, flood risk management modeling, and systems optimization under uncertainty; climate change mitigation and adaptation planning; food-energy-water nexus; sustainable development engineering; global engineering education

B. Current Funded Projects:

1. Watkins, D. (PI), R. Shwom (Co-PI), C. Schelly (Co-PI), C. Wallace (Co-PI) (2020). "RAPID: COVID-19, Consumption, and Multi-dimensional Analysis of Risk (C-CAR)." National Science Foundation. Budget: \$190,764. Period: 6/1/20-5/31/21.
2. Gierke, J. (PI), A. Mayer (Co-PI), L. Bowman (Co-PI), A. Carter (Co-PI), F. Liu (Co-PI), D. Watkins (Senior Personnel), K. Henquinet (2019). "IRES Track III: Collaborative Research: Coupling Participatory and Hydrological Research for Adapting to Extreme Hydrometeorological Events in Agricultural Communities, El Salvador." National Science Foundation. Budget: \$582,752. Period: 5/15/19-6/30/22.
3. Watkins, D. (PI), R. Shwom (Co-PI), C. Schelly (Co-PI), B. Agusdinata (Co-PI), J. Evans (Co-PI) (2016). "INFEWS/T3: Reducing Household Food, Energy and Water Consumption: A Quantitative Analysis of Interventions and Impacts of Conservation." National Science Foundation. Budget: \$2,983,358. Period: 10/1/16-9/30/21.

4. Sidortsov, R. (PI), C. Schelly (Co-PI), T. Scarlett, C-W. Ten, D. Watkins (Senior Personnel), Q. Dai (2018). "Increasing electrical grid and community resilience through repurposing decommissioned mines into underground pumped storage facilities." Sloan Foundation. Budget: \$49,963. Period: 1/1/19-12/31/20.

C. Completed Funded Projects:

1. Watkins, M.K. (PI), B. Barkdoll (Co-PI), D. Watkins (Co-PI) (2018). "Highway Hydraulic Engineering State of Practice," NCHRP Synthesis 20-05/Topic 50-02, National Cooperative Highway Research Program. Budget: \$45,000. Period: 5/1/19-9/30/19.
2. Watkins, D. (PI, MTU) (2013). "Robust Decision Making for South Florida Water Resources by Ecosystem Service Valuation, Hydro-economic Optimization, and Conflict Resolution Modeling." National Science Foundation Water Sustainability and Climate Program. Budget (MTU): \$430,497. Period: 1/1/13-12/31/18.
3. Halvorsen, K. (PI), D. Watkins (Senior Personnel), et al. (2012). "Sustainability, Ecosystem Services, and Bioenergy Development across the Americas." National Science Foundation PIRE Program. Budget: \$4,841,735. Period: 9/1/12-8/31/18.
4. Wagenbrenner, J. (PI, MTU), C. Huckins (Co-PI), and D. Watkins (Co-PI) (2016). "Compiling a High Spatial-Resolution Database of Barriers to Aquatic Organism Passage in the North Branch of the Paint River Watershed." Great Lakes Fisheries Trust and U.S. Dept. of Agriculture. Budget (MTU): \$53,605. Period: 1/1/16-12/31/17.
5. Cai, X. (PI), and D. Watkins (Co-PI). (2016). "Workshop on Water Security." National Science Foundation. Budget: \$49,993. Period: 8/15/16-1/31/18.
6. Watkins, D. (PI), K. Halvorsen (co-PI), R. Shwom (co-PI), B. Agusdinata (co-PI), and J. Fuentes (co-PI) (2015). "Coupled Production-Consumption Systems for Climate Change Mitigation: Designing Equitable Food, Energy, and Water Conservation Strategies." National Science Foundation. Budget: \$47,120. Period: 7/1/15-1/31/16.
7. Auer, M. (PI), D. Watkins (Co-PI), and P. Xue (Co-PI) (2014). "Integrated Clean Water Act Planning Evaluation, Northeast Ohio Regional Sewer District, Phases I-III." Northeast Ohio Regional Sewer District. Budget: \$392,989. Period: 2/1/14-12/31/15.
8. Watkins, D. (PI), P. Block (Co-PI) (2013). "Integrated Seasonal Drought Forecast-Adaptive Management System for the Lower Colorado River Basin in Texas." National Oceanic and Atmospheric Administration, Climate Program Office, Sectoral Applications Research Program. Budget (MTU): \$197,200. Period: 9/1/2013-8/31/2016.
9. You, Z. (PI), J. Hiller (Co-PI), D. Watkins (Co-PI), J. Dong (Co-PI) (2013). "Improvement of Michigan Climatic Files in Pavement ME Design." Michigan Department of Transportation. Funds Received: \$177,000. Period: 10/1/2013-4/30/2015.
10. Watkins, D. (PI), D. Johnson (Co-PI), J. Pickens (Co-PI), J. Frendewey (Co-PI), B. Solomon (Co-PI), and G. Graman (Co-PI) (2009). "Center of Energy Excellence: Feedstock Supply Chain Model." Frontier Renewable Resources and Michigan Economic Development Corporation. Funds Received: \$385,000. Period: 10/1/09 – 9/30/11.
11. Watkins, D. (PI), K. Paterson (Co-PI), and D. Michalek (Co-PI) (2009). "People, Prosperity and the Planet (P3): Enhancing Performance and Social Acceptability of the Ventilated Improved Pit Toilet." U.S. Environmental Protection Agency. Funds Received: \$9,991. Period: 6/1/09 – 5/31/10.
12. Paterson, K. (PI), D. Watkins (co-PI), and V. Griffis (co-PI) (2008). "Developing Global Engineers and Scientists Through Collaborative Technological Innovation for Public Health

- Improvements in Tanzania.” National Science Foundation. Funds Received: \$144,150. Period: 6/1/09 – 5/31/12.
13. Watkins, D. (PI) (2008). “Intergovernmental Personnel Act Agreement.” U.S. Army Corps of Engineers. Funds Received: \$37,938. Period: 1/1/08 – 7/31/08.
 14. Mayer, A. (PI), J. Zimmerman, D. Watkins (Co-PI), S. Olmstead, J. Mihelcic, Q. Zhang (2007). “MUSES: Modeling and Analyzing the Use, Efficiency, Value and Governance of Water as a Material in the Great Lakes Region.” National Science Foundation, Funds Received (MTU): \$1,072,000. Period: 9/1/07 – 8/31/12.
 15. Mihelcic, J. (PI), K. Paterson (Co-PI), L. Phillips (Co-PI), D. Watkins (Co-PI), and B. Barkdoll (Co-PI) (2007). “Integration of an International Research Experience in Bolivia with Sustainable Development Engineering Education.” National Science Foundation. Funds Received: \$144,300. Period: 6/1/07-5/31/10.
 16. Watkins, D. (PI), A. Maclean (Co-PI), and B. Barkdoll (Co-PI) (2005). “Hydrologic Information System for Greenfield Site Development and Management.” General Motors Corporation. Funds Received: \$103,000. Period: 8/1/05 – 12/31/09.
 17. Watkins, D. (PI) (2004). “Research on Overlake Precipitation Estimates for Lakes Michigan and St. Clair.” U.S. Army Corps of Engineers-Detroit District. Funds Received: \$48,515. Period: 4/1/04 – 9/30/04.
 18. Sutherland, J. (PI), with other participants from Michigan Tech, including D. Watkins, and Southern U. in Baton Rouge (2004). “IGERT: Achieving Environmental, Industrial, and Societal Sustainability via the Sustainable Futures Model.” National Science Foundation. Funds Received: \$3,586,000. Period: 2/1/04 – 1/31/09.
 19. Mayer, A. (PI), B. Barna (co-PI), and other participants, including D. Watkins (2003). “Michigan Tech-UNISON Linkage: Training a Core of Water Resources Experts.” U.S. Agency for International Development. Funds Received: \$299,860. Period: 9/1/03 – 8/31/05.
 20. Watkins, D. (PI), and D. Nykanen (co-PI) (2002). “Use of Climate Forecasts in Multipurpose Reservoir System Management.” National Oceanic and Atmospheric Administration and National Aeronautics and Space Administration. Funds Received: \$150,000. Period: 9/1/02 – 8/31/05.
 21. Watkins, D. (PI), D. Nykanen (co-PI), and D. Johnson (co-PI) (2002). “Radar Rainfall Estimation for Southeast Michigan and the Lake Winnebago-Fox/Wolf River Watershed in Wisconsin.” U.S. Army Corps of Engineers-Detroit District. Funds Received: \$77,836. Period: 6/1/02 – 2/28/03.
 22. Watkins, D. (PI) (2002). “Fostering Interdisciplinary Research & Education in the Earth and Atmospheric Sciences: A UNIDATA Equipment Grant Proposal.” Michigan Tech University. Funds Received: \$3,400. Period: One-time award.
 23. Watkins, D. (PI), and D. Johnson (co-PI) (2001). “Development of Methodologies to Incorporate Radar Rainfall Estimates into Hydrologic Models.” U.S. Army Corps of Engineers-Detroit District. Funds Received: \$35,969. Period: 5/1/01 – 10/31/01.
 24. Watkins, D. (PI) (2001). “Stochastic Reservoir System Analysis.” Lower Colorado River Authority, Austin, TX (sub-contract with the University of Texas at Austin). Funds Received: \$20,000. Period: 4/1/01 – 12/31/01.
 25. Watkins, D. (PI) (2001). “Educating Stakeholders for Involvement in Watershed Planning and Management.” U.S. Environmental Protection Agency. Funds Received: \$37,580. Period: 2/1/01 – 1/31/02.

26. Watkins, D. (PI), and D. Johnson (co-PI) (1999). "Development of Rainfall Intensity-Duration-Frequency Estimates for Michigan." Michigan Department of Transportation. Funds Received: \$143,100. Period: 5/1/99 – 9/30-02.

D. Honors and Awards:

Service to the Profession Award, Planning and Management Council, Environmental and Water Resources Institute, American Society of Civil Engineers (ASCE), 2020

Graduate Advisor of the Year, Department of Civil and Environmental Engineering, 2019

Best Paper Award (with K. Paterson and C. Swan, American Society for Engineering Education, 2016

Editor's Citation for Excellence in Refereeing, *Water Resources Research*, American Geophysical Union, 2014

Outstanding Achievement Award, Planning and Management Council, Environmental and Water Resources Institute, ASCE, 2013

Outstanding Faculty Mentor, Michigan Tech University Graduate Student Government, 2012

Best Paper Award (with C. Trefry and D. Johnson), *Journal of Hydrologic Engineering*, ASCE, 2005

Best Practice-Oriented Paper Award (with D. McKinney), *Journal of Water Resources Planning and Management*, ASCE, 1999

Honorable Mention, Best Paper Award (with J. Chowdhury, M. R. Rahman, and M. F. Karim), *Water International*, International Water Resources Association, 1998

Universities Council on Water Resources Dissertation Award, 1998

Earnest and Agnes Gloyna Graduate Fellowship, University of Texas, 1994

National Science Foundation Graduate Fellowship, 1991

GTE/CoSIDA Academic All-America, 1991

E. Articles in Peer-Reviewed Journals (*Graduate student under my supervision):

1. Babbar-Sebens, M., Root, E., Rosenberg, D. E., Watkins, D., Mirchi, A., Giacomoni, M., and Madani, K. (2019). "Training Water Resources Systems Engineers to Communicate: Acting on Observations from On-the-Job Practitioners," *Journal of Professional Issues in Engineering Education and Practice*, 145(4), 04019012.
2. *Heidari, A., Mayer, A.S., and Watkins, D.W. (2019). "Hydrologic impacts and trade-offs associated with forest-based bioenergy development practices in a snow-dominated watershed, Wisconsin, USA," *Journal of Hydrology*, DOI: 10.1016/j.jhydrol.2019.04.067.
3. Alian, S., Mayer, A.S., Maclean, A., Watkins, D. and Mirchi, A. (2019). "Spatiotemporal dimensions of water stress accounting: Incorporating groundwater-surface water interactions and ecological thresholds," *Environmental Science & Technology*, 53(5), 2316–2323.
4. Yang, X., You, Z., Hiller, J.E., and Watkins, D.W. (2019). "Pavement performance zone based on mechanistic-empirical design and temperature indices," *Transportmetrica A: Transport Science*, 115(1), 91-115.
5. Mirchi, A., Watkins, D. W., Engel, V., Sukop, M. C., Czajkowski, J., Bhat, M., Rehage, J., Letson, D, Takatsuka, Y., and Weisskoff, R. (2018). "A hydro-economic model of South Florida water resources system," *Science of the Total Environment*, 628-629, 1531-1541.

6. Brown, C.E., Bhat, M.G., Rehage, J.S., Mirchi, A., Boucek, R., Engel, V., Ault, J., Mozumder, P., Watkins, D., and Sukop, M. (2018). "Ecological-economic assessment of the effects of freshwater flow in the Florida Everglades on recreational fisheries," *Science of the Total Environment*, 627, 480-493.
7. Takatsuka, Y., Niekus, M.R., Harrington, J., Feng, S., Watkins, D., Mirchi, A., Nguyen, H., and Sukop, M.C. (2018). "Value of irrigation water usage in South Florida agriculture," *Science of the Total Environment*, 626, 486-496.
8. Lanier, A.L., Drabik, J.R., Heikkila, T., Bolson, J., Sukop, M.C., Watkins, D.W., Rehage, J., Mirchi, A., Engel, V. and Letson, D. (2018). "Facilitating integration in interdisciplinary research: Lessons from a south Florida water, sustainability, and climate project," *Environmental Management*, 62(6), 1025-1037.
9. Spellman, P., Webster, V., and Watkins, D. (2018). "Bias correcting instantaneous peak flows generated using a continuous, semi-distributed hydrologic model," *Journal of Flood Risk Management*, e12342.
10. Yang, X., You, Z., Hiller, J., and Watkins, D. (2018), "Pavement performance zone based on mechanistic-empirical design and temperature indices," *Transportmetrica A: Transport Science*, 1-23.
11. Czajkowski, J., Engel, V., Martinez, C., Mirchi, A., Watkins, D., Hughes, J., and Sukop, M. (2017). "Economic impacts of urban flooding in south Florida: Potential consequences of managing groundwater to prevent salt water intrusion," *Science of the Total Environment*, 621, 465-478.
12. Yang, X., You, Z., Hiller, J., and Watkins, D. (2017). "Sensitivity of flexible pavement design to Michigan's climatic inputs using pavement ME design," *International Journal of Pavement Engineering*, 18(7), 622-632.
13. Yang, X., You, Z., Hiller, J., and Watkins, D. (2017). "Correlation analysis between temperature indices and flexible pavement distress predictions using mechanistic-empirical design," *Journal of Cold Regions Engineering*, 31(4), 04017009.
14. Moraes, M.M.G.A., Ribeiro, M.M.R., Watkins, D.W., Viana, J.H.N., Figueiredo, L.E.N., da Silva, G.S. and Carneiro, A.C.G. (2016). "Integrated economic models to support decisions on water pricing in biofuel production river basins: three case studies from Brazil," *Biofuels, Bioprod. Bioref.*, 10(3), 255-269.
15. Yang, X., You, Z., Hiller, J., and Watkins, D. (2016). "Updating and augmenting weather data for pavement mechanistic-empirical design using ASOS/AWOS database in Michigan," *International Journal of Pavement Engineering*, 1-9.
16. Zhang, F., Johnson, D., Johnson, M., Watkins, D., Froese, R., Wang, J. (2016). "Decision support system integrating GIS with simulation and optimisation for a biofuel supply chain," *Renewable Energy*, 85, 740-748.
17. Pouryousef, H., Lautala, P., Watkins, D. (2016). "Development of hybrid optimization of train schedules model for N-track rail corridors," *Transportation Research Part C: Emerging Technologies*, 67, 169-192.
18. Watkins, D., M. Moraes, H. Asbjornsen, A. Mayer, J. Licata, J. Gutierrez, T. Pypker, V. Molina, G. Marques, A. Carneiro, H. Nuñez, H. Önal, and B. Germano (2015). "Bioenergy Development and Integrated Water-Energy Management in Pan America," *Environmental Management*, 56(6), 1295-1314.

19. LaBeau, M., A.S. Mayer, V.W. Griffis, D.W. Watkins, D. Robertson, *R. Gyawali (2015). “The importance of considering shifts in seasonal changes in discharges when predicting future phosphorus loads in streams,” *Biogeochemistry*, 126(1-2), 153-172.
20. Wang Z., H. Song, D.W. Watkins, K.G. Ong, P. Xue, Q. Yang, and X. Shi (2015). “Cyber-physical systems for water sustainability: Challenges and opportunities,” *IEEE Communications Magazine*, 53(5), 216–222.
21. *Gyawali R., V.W. Griffis, D.W. Watkins Jr., and N.M. Fennessey (2015). “Regional regression models for hydro-climate change impact assessment,” *Hydrol. Process.*, 29(8), 1972–1985.
22. *Gyawali, R., D.W. Watkins Jr., V.W. Griffis, and B.F. Lofgren (2014). “Energy budget considerations for hydro-climatic impact assessment in Great Lakes watersheds,” *Journal of Great Lakes Research*, 40(4): 940–948, doi: 10.1016/j.jglr.2014.09.005.
23. *Mirchi, A., D.W. Watkins Jr., C.J. Huckins, K. Madani, and P. Hjorth (2014). “Water resources management in a homogenizing world: Averting the Growth and Underinvestment trajectory,” *Water Resour. Res.*, 50, doi:10.1002/2013WR015128.
24. *Ilorme, F., V.W. Griffis, and D.W. Watkins Jr. (2014). “Regional Rainfall Frequency and Ungaged Basin Analysis for Flood Risk Assessment in Haiti,” *Journal of Hydrologic Engineering*, ASCE, 19(1), 123–132.
25. Ray, P.A., D.W. Watkins Jr., R.M. Vogel, and P.H. Kirshen (2014). “A Performance-Based Evaluation of an Improved Robust Optimization Formulation,” *Journal of Water Resources Planning and Management*, ASCE, 140(6), 04014006.
26. Lofgren, B.M., A.D. Gronewold, A. Acciaioli, J. Cherry, A. Steiner, and D. Watkins (2013). “Methodological Approaches to Projecting the Hydrologic Impacts of Climate Change,” *Earth Interactions*, 17, 1–19.
27. Etkin, D., P. Kirshen, D. Watkins, G. Hoogenboom, M. Roncoli, et al. (2013). “Stochastic Programming for Improved Multi-Use Reservoir Operation in Burkina Faso, West Africa,” *Journal of Water Resources Planning and Management*, doi: 10.1061/(ASCE)WR.1943-5452.0000396.
28. *Mirchi, A., and D.W. Watkins Jr. “A Systems Approach to Holistic TMDL Policy: The Case of Lake Allegan, Michigan (2013). “*Journal of Water Resources Planning and Management*, 139(5), 544–553.
29. *Gyawali, R., and D.W. Watkins Jr. (2013). “Continuous Hydrologic Modeling of Snow-Affected Watersheds in the Great Lakes Basin Using HEC-HMS,” *Journal of Hydrologic Engineering*, 18(1), 29–39.
30. *Fry, L.M., D.W. Watkins Jr., N. Reents, M.D. Rowe, and J.R. Mihelcic (2012). “Climate Change and Development Impacts on the Sustainability of Spring-fed Water Supply Systems in the Alto Beni Region of Bolivia,” *Journal of Hydrology*, 468-469: 120-129.
31. *Mirchi, A., K. Madani, D.W. Watkins Jr., and S. Ahmad (2012). “Synthesis of System Dynamics Tools for Holistic Conceptualization of Water Resources Problems,” *Water Resources Management*, 26(9), 2421-2442.
32. Ghimire, S., D.W. Watkins Jr., and K. Li (2012). “Life Cycle Cost Assessment of a Rain Water Harvesting System for Toilet Flushing,” *Water Science and Technology: Water Supply*, 12(3): 309–320.

33. Ray, P.A., P.K. Kirshen, and D.W. Watkins Jr. (2012). “Stochastic Programming for Staged Climate Change Adaptation Planning for Amman, Jordan,” *Journal of Water Resources Planning and Management*, 138(5), 403-411.
34. Hallack-Alegria, M., J. Ramirez-Hernandez, and D.W. Watkins Jr. (2012). “ENSO-Conditioned Rainfall Drought Frequency Analysis in Northwest Baja California, Mexico,” *International Journal of Climatology*, 32(6), 831–842.
35. *Mellor, J.E., D.W. Watkins Jr., and J.R. Mihelcic (2012). “Rural Water Usage in East Africa: Does Collection Effort Really Impact Basic Access?” *Waterlines*, 31(3).
36. *Mirchi, A., and D.W. Watkins Jr. (2012). “A systems approach to holistic TMDL policy: The case of Lake Allegan, Michigan,” *Journal of Water Resources Planning and Management*, doi: 10.1061/(ASCE)WR.1943-5452.0000292.
37. Muñoz Hernandez, A., A.S. Mayer, and D.W. Watkins, Jr. (2011). “Integrated Hydrologic-Economic-Institutional Model of Environmental Flow Strategies for the Rio Yaqui Basin, Sonora, Mexico,” *J. Water Resour. Plng. & Mgmt.*, 137(2): 227-237.
38. *Wei, W., and D.W. Watkins Jr. (2011). “Data Mining Methods for Hydroclimatic Forecasting,” *Advances in Water Resources*, 34, 1390–1400, doi: 10.1016/j.advwatres.2011.08.001.
39. Thode, A., K. Landick, K. Paterson, and D. Watkins (2011). “Analyzing Methods to Achieve Successful Development,” *International Journal for Service Learning in Engineering*, 6(1), 95-105.
40. *Wei, W., and D.W. Watkins, Jr. (2011) “Probabilistic Streamflow Forecasts Based on Hydrologic Persistence and Large-Scale Climate Signals in Central Texas,” *Journal of Hydroinformatics*, 13(4), 760–774.
41. *Fry, L., J. Cowden, D. Watkins, T. Clasen, and J. Mihelcic (2010). “Quantifying Health Improvements from Water Quantity Enhancement: An Engineering Perspective Applied to Rainwater Harvesting in West Africa,” *Environmental Science & Technology*, 44(24), 9535-9541.
42. *Rucinski, D.K., D.W. Watkins Jr., M.T. Auer, S.W. Effler, and D.M. O’Donnell (2010). “Assessing Assimilative Capacity through a Dual Discharge Approach: Probabilistic Analysis and Management Application,” *Journal of Environmental Engineering*, ASCE, 136(7), 666-673.
43. Pingel, N., and D.W. Watkins, Jr. (2010). “Multiple Flood Source Expected Annual Damage Computations,” *Journal of Water Resources Planning and Management*, 136(3), 319-326.
44. *Bachmann-LeFevre, N.-J., D.W. Watkins, Jr., J.S. Gierke, and J. Brophy-Price (2010). “Monitoring Network Design for Underdrained Low Impact Development Stormwater Management System,” *Journal of Irrigation and Drainage Engineering*, 136(5), 333-339.
45. Mihelcic, J.R., K.G. Paterson, L.D. Phillips, Q. Zhang, D.W. Watkins, B. Barkdoll, V.J. Fuchs, *L.M. Fry, D.R. Hokanson (2008). “Educating Engineers in the Sustainable Futures Model with a Global Perspective,” *Civil Engineering and Environmental Systems*, 25(4), 255-263.
46. *Fry, L., J.R. Mihelcic, and D.W. Watkins, Jr. (2008). “Water and Non-Water-Related Challenges of Achieving Global Sanitation Coverage,” *Environmental Science and Technology*, 42(12), 4298-4304.
47. *Cowden, J.R., D.W. Watkins Jr., J.R. Mihelcic (2008). “Stochastic Rainfall Modeling in West Africa: Parsimonious Approaches for Domestic Rainwater Harvesting Assessment,” *Journal of Hydrology*, 361, 78-95.

48. *Rucinski, D.K., M.T. Auer, D.W. Watkins Jr., S.W. Effler, S.M. Doerr, D.M. O'Donnell, and R.K. Gelda (2007). "Assessing Assimilative Capacity: A Dual Discharge Approach," *J. Water Resources Plng. & Mgmt.*, 133(6), 474-485.
49. *Hallack-Alegria, M. and D.W. Watkins Jr. (2007). "Annual and Warm Season Drought Intensity-Duration-Frequency Analysis for Sonora, Mexico," *Journal of Climate*, 20(9), 1897-1909.
50. Watkins, D.W. Jr., H. Li, and *J.R. Cowden (2007). "Adjustment of Radar Precipitation Estimates for Great Lakes Hydrologic Modeling" *Journal of Hydrologic Engineering*, 12(3), 298-305.
51. Watkins, D.W. Jr., and D.A. Moser (2006). "Economic-Based Optimization of Panama Canal System Operations," *Journal of Water Resources Planning and Management*, 132(6), 426-438.
52. Mihelcic, J.R., L. Phillips, and D.W. Watkins Jr. (2006). "Integrating a Global Perspective into Education and Research: Engineering International Sustainable Development," *Environmental Engineering Science*, 23(3), 426-438.
53. *Fry, L., J.R. Mihelcic, and D.W. Watkins, Jr. (2006). "Improving Public Health by Improving Water Supply: Results from Springbox Projects in Cameroon," *Journal of Engineering for Sustainable Development*, 1(1): 33-42.
54. Kracman, D.R., D.C. McKinney, D.W. Watkins Jr., and L.S. Lasdon (2006). "Stochastic Optimization of the Highland Lakes System in Texas," *Journal of Water Resources Planning and Management*, ASCE, 132(2), 62-70.
55. *Trefry, C.M., D.W. Watkins Jr., and D.L. Johnson (2005). "Regional Rainfall Frequency Analysis for the State of Michigan," *Journal of Hydrologic Engineering*, 10(6), 437-449.
56. *Gerold, L.A., and D.W. Watkins Jr. (2005). "Short Duration Rainfall Frequency Analysis in Michigan Using Scale-Invariance Assumptions," *Journal of Hydrologic Engineering*, 10(6), 450-457.
57. Watkins, D.W. Jr., *G.A. Link, and D.L. Johnson (2005). "Mapping Regional Precipitation Intensity-Duration-Frequency Estimates," *Journal of the American Water Resources Association*, 41(1): 157-170.
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 2. ***Daignault, J.**, and Watkins, D.W. (2019). "The Water-Energy Nexus: A Case Study of the Midcontinent Independent System Operator (MISO) Region," World Environmental and Water Resources Congress, ASCE-EWRI, Pittsburgh, PA, May 22, 2019.
 3. **Watkins, D.W.** (2018). "Designing Resilient Food-Energy-Water Systems: Lessons from Bioenergy Sustainability Research," Advancing Food-Energy-Water System Resilience Through a Regional Resource Recovery Network, University of Illinois, Champaign, IL, April 11, 2018.
 4. **Watkins, D.W.** (2018). "Agricultural Land and Water Management for Soil Organic Carbon Sequestration," 8th World Water Forum, Brasilia, Brazil, March 21, 2018.
 5. **Watkins, D.W.** (2017). "Conservation and demand management for food, energy, and water security," ASCE/EWRI International Perspectives on Environmental and Water Resources, Wuhan, China, January 4-6, 2017.

6. ***Miller, Z.**, D.W. Watkins, and M.T. Auer (2017). “Urban field experiences for research and education,” International Association for Great Lakes Research Conference, Detroit, MI, May 15-19, 2017.
7. **Watkins, D.W.** (2016). “Understanding and Predicting Socioeconomic Drought in Central Texas,” Geosciences Seminar, Michigan Tech University, February 19, 2016.
8. ***Miller, Z.**, and D.W. Watkins (2015). “Management of Combined Sewer Overflows in Cleveland, Ohio,” International Association for Great Lakes Research Conference, Burlington, VT, May 25-29, 2015.
9. **Watkins, D.W.** (panelist) (2015). “Urban flood resiliency through adaptation to climate uncertainties,” 7th World Water Forum, Daegu, Republic of Korea, April 12-17, 2015.
10. **Grzegorzewski, M.**, D. Watkins, and P. Block (2015). “Coupling reservoir inflow forecasts and decision tools: Bolstering decision-making in the Lower Colorado River Basin,” World Environmental and Water Resources Congress (ASCE), Austin, TX, May 2015.
11. **Watkins, D.W.**, H. Asbjornsen, A. Mayer, J. Licata, J. Gutierrez Lopez, et al. (2014). “Bioenergy development and integrated water-energy management in Pan America,” RCN Conference on Pan American Biofuel and Bioenergy Sustainability, Recife, Brazil, July 23-24, 2014.
12. ***Mirchi, A.**, D. Watkins, (2014). “Hydroeconomic modeling of south Florida water management system,” World Environmental and Water Resources Congress, Portland, OR, June 2014.
13. **B. Zimmerman**, M. Grzegorzewski, P. Block, and D. Watkins (2014). “Advancing Statistical Seasonal Forecast Models for the Lower Colorado River Authority.” World Environmental and Water Resources Congress (ASCE), Portland, OR, June 2014.
14. ***Mirchi, A.**, D. Watkins (2013). “Optimization of best management practices for phosphorus load reduction in the Kalamazoo River Watershed: A systems perspective,” World Environmental and Water Resources Congress, Cincinnati, OH, May 2013.
15. ***Mirchi, A.**, M. Ballard-Labeau, D. Watkins, D. Muralidharan, and A. Mayer (2013). “Market-based policy instruments for non-point source phosphorous reduction in the Maumee Basin,” World Environmental and Water Resources Congress, Cincinnati, OH, May 2013.
16. ***Mirchi, A.**, and D. Watkins (2013). “Growth and Underinvestment System Archetype as a Guide to Holistic Water Quality Management,” American Geophysical Union Fall Meeting, San Francisco, CA, December 2013.
17. ***Mirchi, A.**, and D. Watkins (2012). A systems approach to TMDL policy assessment: The case of Lake Allegan, Michigan. World Environmental and Water Resources Congress 2012, Albuquerque, NM, May 2012.
18. **Mayer, A.**, D. Watkins, *A. Mirchi, *R. Gyawali, and K. Watson (2012). “Determination of water stress indices as a function of ecological flows,” World Environmental and Water Resources Congress, Albuquerque, NM, May 2012.
19. **Webster, V.L.**, *R. Gyawali, and D. Watkins (2012). “Climate Downscaling using Regional Regression and Physically Based Watershed Models,” AGU Fall Meeting, San Francisco, CA, December 2012.

20. ***Mirchi, A.** and D. Watkins (2011). “Integrated systems dynamics model for TMDL policy assessment: A Lake Allegan case study,” World Environmental and Water Resources Congress, Palm Springs, CA, May 22-26, 2011.
21. **Watkins, D.W.,** V. Griffis, and B. Faber (2011). “Systems Approaches to Flood Risk Management Modeling: Barriers and Directions for Research,” World Environmental and Water Resources Congress, ASCE, Palm Springs, CA, May 22-26.
22. ***Wei, W., D.W. Watkins,** and R. Anderson (2011). “Incorporation of Climate Forecasts in the Lower Colorado River Authority Short Range Forecast Model,” World Environmental and Water Resources Congress, ASCE, Palm Springs, CA, May 22-26.
23. ***Gyawali, R.,** B. Lofgren, and D. Watkins (2011). “Scaling Regional Climate Model Outputs to Hydrologic Model Boundaries,” World Environmental and Water Resources Congress, ASCE, Palm Springs, CA, May 22-26.
24. **Watkins, D.W.,** J.R. McConville, and J.R. Mihelcic (2008). “A Sustainability Matrix Approach to Project Planning and Evaluation,” World Environmental and Water Resources Congress, ASCE, Honolulu, Hawaii, May 12-16, 2008.
25. ***Fry, L.M.,** and **D.W. Watkins** (2008). “Environmental Sustainability in Developing Countries – Challenges and Opportunities for Research,” Keynote Address, D80 Conference, Houghton, MI, November 7.
26. **Watkins, D.W.** (2008). “Optimal Use of Climate Forecasts in Water Management,” Seminar presented at Univ. of California-Davis, Davis, CA, February 11.
27. **Watkins, D.W.** (2007). “Seasonal Forecasts for Water Management in Central Texas,” Seminar presented at the International Research Institute for Climate and Society, Columbia Univ., Palisades, NY, November 2007.
28. **Watkins, D.W.** (2007). “Systems Analysis Case Studies for Environmental and Water Resources Engineering Education,” INFORMS International Conference, Rio Del Mar, Puerto Rico, July 8-11.
29. ***Fry, L.M.,** J.R. Mihelcic, and D.W. Watkins, Jr. (2006). “Improving public health by improving groundwater supply: Results from springbox projects in Cameroon,” National Ground Water Association Summit, San Antonio, TX, April 22-27.
30. **Watkins, D.W.** (2006). “International Engineering Programs at Michigan Tech,” Presentation to the Upper Peninsula Chapter of ASCE, Houghton, MI, May 2006.
31. **Watkins, D.W.** (2006). “Water Resources Management for Global Change,” Presentation to GUIDE Fellows program, Michigan Tech University, Houghton, MI, March 2006.
32. **Suzuki, R., R. Schweitzer,** and **D.W. Watkins** (2006). “Building, Teaching, and Learning--One Community at a Time,” Engineers Without Borders-USA International Conference, Houston, TX, February 16-18.
33. **Watkins, D.W.,** *W. Wei, and D. Nykanen (2005). “Seasonal Forecasts Based on Hydrologic Persistence,” NOAA GAPP PI’s Meeting, Costa Mesa, CA, June 2005.
34. **Watkins, D.W.** (2004). “Over-lake Precipitation Estimates for Lakes Michigan and St. Clair,” Seminar at the National Weather Service North Central River Forecast Center, Chanhassen, MN, July 2004.
35. **Watkins, D.W.,** W. Wei, and D. Nykanen (2004). “Climate Forecasts for Water Management in Texas,” NOAA GAPP PI’s Meeting, Boulder, Colorado, August 2004.

36. **Watkins, D.W.** (2003). "The Global Water Crisis and What You Can Do About It," Earth Week presentation, Michigan Tech University, Houghton, MI, April 2003.
37. **Watkins, D.W.** (2003). "Water Quality Management in the 21st Century," Presentation to Society for Environmental Engineering, Michigan Tech University, Houghton, MI, September 2003.
38. **Watkins, D.W.** (2003). "Use of Radar Precipitation Estimates for Great Lakes Hydrologic Modeling," Seminar at the USACE – Detroit District, Detroit, Michigan, November 2003.
39. **Watkins, D.W.** (2003). "Climate Forecasting for Water Resources Decision Support," Seminar at the Lower Colorado River Authority, Austin, Texas, November 2003.
40. **Watkins, D.W.** (2002). "Decision Support System for the Highland Lakes in Central Texas," Seminar at the University of British Columbia, BC, Canada, November 1.
41. **Watkins, D.W.,** *S. O'Connell, *W. Wei, and D. Nykanen (2002). "Streamflow Ensemble Forecasts for Water Management," NOAA GAPP PI's Meeting, New Orleans, LA, April 2002.
42. **Watkins, D.W.** (2001). "Regional Rainfall Frequency Analysis for the Michigan Department of Transportation," Seminar at the National Weather Service Hydrology Lab, Silver Spring, MD, July 2001.
43. **Watkins, D.W.** (2001). "Ensemble Forecasts for Stochastic Reservoir Models," Seminar at the National Weather Service Hydrology Lab, Silver Spring, MD, July 2001.
44. **Watkins, D.W.** (2001). "GIS and Distributed Hydrologic Modeling," Remote Sensing Institute Seminar, Michigan Tech University, Houghton, MI, March 2001.
45. **Watkins, D.W.** (2000). "Hydrology and Stream Restoration," Presentation to Michigan Civilian Conservation Corps, Baraga, MI, June 2000.
46. **Watkins, D.W.** (2000). "Stochastic Programming for Flood Control Operations Support," INFORMS Annual Meeting, San Antonio, TX, November 5-8.
47. **Watkins, D.W.** (1999). "Activities of the MTU Watershed Improvement Center," Lake Superior Lakewide Management Plan Meeting, Michigan Tech University, Houghton, MI, December 1999.
48. **Watkins, D.W.** (1999). "Update on Hydrologic Engineering Center (HEC) Programs," 26th Annual Water Resources Planning and Management Conference, ASCE, Tempe, AZ, June 1999.
49. **Watkins, D.W.** (1995). "Geographic Information Systems for Water Resources Planning and Management," Bangladesh University of Engineering and Technology, Dhaka, Bangladesh, July 1995.
50. **Watkins, D.W.** (1995). "Stochastic Optimization Models of Water Resources Systems," Bangladesh University of Engineering and Technology, Dhaka, Bangladesh, July 1995.

V. TEACHING AND ADVISING ACTIVITY

A. Interests and Specialties:

Engineering Hydraulics and Hydrology, Water Resources Planning and Management, Environmental Systems Analysis, Optimization Methods, International Sustainable Development

B. Courses Taught

i. Undergraduate

1. Hydromechanics / Fluid Mechanics
2. Engineering Hydrology
3. Water Resources Engineering
4. Open Channel Flow / River & Floodplain Hydraulics
5. Hydraulic Structures
6. Stormwater Management and Low Impact Development
7. Optimization & Adaptive Decision Making
8. International Senior Design

ii. Graduate

1. Environmental Engineering Statistics
2. Water Resources Modeling
3. Water Resources Planning & Management
4. Civil & Environmental Eng. Systems Analysis
5. Engineering With Developing Communities

C. Teaching Honors/Certification:

Participant, *Excellence in Civil Engineering Education (ExCEED) Teaching Workshop*, United States Military Academy, July 29 – August 3, 2001.

ETOM Online Teaching Certification, Educational Technology Organization of Michigan, June 24, 2020.

D. Graduate Student Advisement:

i. Ph.D. Supervisions Completed

1. Joshua Cowden (2008). *Planning and Adaptation Measures for Urban Slum Communities in West Africa: Stochastic Rainfall Modeling Applied to Domestic Rainwater Harvesting and Climate Change Adaptation* (now Engineer, MWH Americas, Inc.) (with J. Mihelcic)
2. Lauren Fry (2010). *Water Resources, Health, and the Sustainability of Interventions to Achieve Water and Sanitation Targets of the Millennium Development Goals in a Changing World* (now Research Hydrologist, NOAA Great Lakes Environmental Research Laboratory, Ann Arbor, MI) (with J. Mihelcic)
3. Wenge Wei (2010). *Use of Hydroclimatic Forecasts for Improved Water Management in Central Texas* (now Private Consultant, Tampa, Florida)
4. Ali Mirchi (2013). *System Dynamics Modeling as a Quantitative-Qualitative Framework for Sustainable Water Resources Management: Insights for Water Quality Policy in the Great Lakes Region* (now Assistant Professor, Oklahoma State University)

5. Rabi Gyawali (2013). *A Hydro-climatic Modeling Framework for Adaptive Water Resources Management in the Great Lakes Basin* (now Research Hydrologist, Arizona Department of Water Resources) (with V. Griffis)
 6. Azad Heidari (2019). *Hydrologic Impacts and Trade-Offs Associated with Forest-Based Bioenergy Development Across the Americas* (now Consulting Engineer, GEI Consultants, Sacramento, CA) (with A. Mayer)
- ii. Ph.D. Supervisions In Progress
1. Jessica Daignault, expected date of completion, May 2021
 2. Lauren Mancewicz, expected data of completion, December 2021(with A. Mayer)
 3. Jessica Alger, expected date of completion, May 2023
- iii. M.S. Supervisions with Thesis/Report Completed
1. Greg Link (2000). *Modeling Spatial Variation in Rainfall Intensity-Duration-Frequency Estimates* (Engineer, Wade-Trim Consulting Engineers, Cleveland, OH)
 2. Christopher Trefry (2000). *Development of Regional Rainfall Intensity-Duration-Frequency Estimates for the State of Michigan* (Engineer, US Army Corps of Engineers, Rock Island, IL)
 3. Andrea M. Paladino (2001). *Educating Stakeholders for Involvement in Watershed Planning and Management* (Civil Engineer, USDA Natural Resources Conservation Service, Marquette, MI)
 4. Amy (Syens) Moore (2001). *Application of HEC-GeoHMS to the Rouge River Basin* (Civil Engineer, USDA Natural Resources Conservation Service, Appleton, WI)
 5. Laura (Arlt) Gerold (2002). *Design Storms for Stormwater Management in Michigan* (Environmental Engineering Technology Instructor/Coordinator, Northeast Wisconsin Technical College, Green Bay, WI)
 6. Greg Hoffman (2002). *Rainfall Runoff Model for the Maumee River Watershed* (Engineer, Center for Watershed Protection, Inc., Port Huron, MI)
 7. Sara M. O'Connell (2002). *The Use of Predictive Climate Signals in Synthetic Streamflow Development for Central Texas Water Management* (Hydraulic Engineer, US Army Corps of Engineers, Davis, CA)
 8. Daniel Rucinski (2003). *A Modeling Analysis of a Dual Discharge Strategy for a Major Municipal Wastewater Effluent* (Engineer, Limno-Tech, Inc., Ann Arbor, MI) (with M. Auer)
 9. Douglas Messenger (2004). *Technical, Organizational, and Social Challenges of Project Development in Rural Latin America: A Honduran Case Study* (Engineer, Sonoma County Water Agency, CA) (with J. Mihelcic)
 10. Ken Thiemann (2004). *A Laboratory Study of Sediment Behavior in Groyne Fields* (Ph.D. student, Michigan Tech Univ.) (with B. Barkdoll)
 11. Michelle Hallack-Alegria (2005). *Drought Frequency Analysis and Prediction in Sonora, Mexico* (Titular Professor of Civil Engineering, UABC, Tijuana, Mex.)
 12. Michael Stevens (2005). *Snowmelt Frequency Analysis and Implications for Engineering Design in the Upper Peninsula of Michigan* (Engineer, Michael Baker Corporation, Princeton, NJ)

13. Adam Ward (2006). *A Review of the Practice of Low Impact Development: Bioretention Design, Analysis, and Lifecycle Assessment* (Assistant Professor, Indiana University, Bloomington, IN)
14. Amber Buhl (2007). *Simulation and Cost-Effectiveness Analysis of Low-Impact Development Technologies for Stormwater Management* (Energy Engineer, Portland Energy Conservation, Inc., Portland, OR)
15. Nancy-Jeanne Bachmann LeFevre (2007). *Hydrologic Monitoring of an Integrated Low Impact Development (LID) Underdrained Stormwater Management System* (Project Supervisor at Locus Technologies, Mountain View, CA) (co-advised with J. Gierke)
16. Fredline Ilorme (2007). *Flood Risk Assessment in Haiti Using GIS and Remote Sensing* (Instructor & Post-doctoral Researcher, Seoul National University, Seoul, Rep. of Korea)
17. Erin Satchell (2009). *Genetic Algorithm Learning Module for Environmental Engineering Systems* (Engineer, Natural Resources Conservation Service and Mich. Dept. of Agricultural and Rural Development, Sault Ste. Marie, MI)
18. Brandon Braithwaite (2009). *Training Water Committees in Bocas del Toro, Panama: A Case Study of Peace Corps Volunteers' Initiative to Improve Rural Water System Management* (Engineer, MSA Professional Services, Madison, WI)
19. Jonathon Mellor (2009). *Water and Sanitation Accessibility and the Health of Rural Ugandans* (Assistant Professor, University of Connecticut)
20. Timothy Martin (2009). *An Analysis of Household Rainwater Harvesting Systems in Falelima, Samoa* (Zambia & Rwanda Program Manager, Bridges to Prosperity)
21. Fletcher McKenzie (2011). *A Study of Water Use and Supply in the District of Independencia, Peru* (Water Resources Engineer, URS Corporation, Denver, CO) (with B. Barkdoll)
22. Huihui Lin (2012). *Analysis of Spring Break-Up and Its Effects on a Biomass Feedstock Supply Chain in Northern Michigan* (Ph.D. student, Old Dominion University, Norfolk, VA)
23. Luke Barrett (2013). *Evaluating the Installation and Performance of Manually Drilled Wells in North-Eastern Madagascar* (Director at Ranontsika, Madagascar)
24. Jake Midkiff, (2013). *Post-Project Assessment of Pit Latrines in Rural Panama* (Project Environmental Engineer, Terracon, Des Moines, IA)
25. Erica Jones (2014). *Improvements in Sustainability of Gravity-fed Water Systems in the Comarca Ngäbe-Buglé, Panama: Spring Captures and Circuit Rider Model* (Engineer, U.S. Environmental Protection Agency, Atlanta, GA)
26. Chelsea Fagan (2015). *Evaluating the Potential for Passive Greywater Irrigation in Northern Ghana* (Engineer, SGM, Glenwood Springs, CO)
27. Ben Savonen (2015). *Criteria for Sustainable Product Design for 3D Printing in the Developing World* (Ph.D. student in Mechanical Engineering, Penn State University, State College, PA)
28. Alicia Sherrin (2015). *Water Use and System Reliability Under Diesel Generator and Solar Photovoltaic Powered Pumping Systems: A Case Study of Solla, Togo* (Project Engineer, Indian Health Service, Spokane, WA)
29. Jonathan Witham (2015) *Calibration, Verification, and Diagnosis of a Season-Ahead Drought Prediction Model: Limits to Predictability in Central Texas* (Engineer, Amec Foster Wheeler, Wichita, KS)

30. Annette Sparks (2016). *Use of LiDAR in the Design of Grassed Waterways: Case Study in Agricultural Management in Oklahoma* (Engineer, U.S. Navy, Norfolk, VA)
 31. Alexander Wohlgemuth (2016). *Evaluating Groundwater Recharge in the Saloum Region on Senegal* (Project Engineer, Indian Health Service, Spokane, WA) (with J. Gierke)
 32. Zoe Miller (2016). *Modeling Impacts of Combined Sewer Overflows in SWMM in Cleveland, Ohio* (Physical Scientist, U.S. Army Corps of Engineers, Detroit, MI)
 33. Leigh Miller (2016). *Source Protection and Water Quality in the Comarca Ngabe-Bugle, Panama* (Engineer, Alaska Native Tribal Health Consortium, Anchorage, AK)
 34. M.C. Moritz (2016). *The Effect of Community Connectivity in Water and Sanitation Systems in Rural Panama* (U.S. Peace Corps, Panama).
 35. Md. Khalid Samady (2017). *Continuous Hydrologic Modeling for Analyzing the Effects of Drought on the Lower Colorado River in Texas* (International Office Engineer, Caddell Construction Company, Montgomery, Alabama)
 36. Larry Schirmer (2017). *Design, Laboratory Testing, and Yield Line Analysis of a Ferrocement Pit Latrine Slab.*
 37. Frank Dubasik (2017). *Planning for Intermittent Water Supply in Small Gravity-fed Distribution Systems: Case Study in Rural Panama* (Project Engineer, GHD, Phoenix, AZ)
 38. Sarah Washko (2019). *Flood Inundation Mapping for Huron Creek, Houghton County, Michigan*
 39. Cameron Koizumi (2019). *Design of a Viability Test for Freshwater Prawn Aquaculture of Two Different Macrobrachium Species in Aneityum, Vanuatu*
- iv. M.S. Supervisions with Thesis/Report in Progress
1. Tristan Odekirk, expected date of completion, August 2020
 2. Brandi Rajala, expected data of completion, December 2020
 3. Karleigh Krieg, expected date of completion, May 2021
- v. Other Research Committee Membership: 25 Ph.D. (19 complete) and 71 Masters (68 complete)
- E. Other Advisement:
- i. Undergraduate Research Assistants
 1. Lara Beyer, "Watershed Modeling with the HEC-Hydrologic Modeling System," 2000.
 2. Mohammed Mahmoud, "Soil Moisture Reanalysis Data for Central Texas," 2001.
 3. Mingying Xue, "Hydrologic Characterization of the Otter River Watershed," 2001.
 4. Andy Erickson, "Precipitation Data Processing for the HEC-Hydrologic Modeling System," 2002.
 5. Mike Stevens, "GIS Processing of Radar-Based Precipitation Measurements," 2002-03.
 6. Jennifer Heglund, "Hydrologic and Hydraulic Study of the Salmon-Trout River Watershed and the Redridge Dams," 2005-06.
 7. Erin Satchell, "Review of Shared Vision Modeling Applications," 2006.
 8. Ashley Thode, "Water Purification: Effectiveness of Bone Char Columns in Removal of Fluoride," 2009.

9. Jeff Valensky, "Kalamazoo River Basin Watershed Model," 2009.
 10. Cara Hanson, "Wastewater Treatment at Peace House Secondary School: Appropriate Plants for Wetland Wastewater Treatment in Northern Tanzania," 2009.
 11. Steven Schaezner, "Water Purification: Fluoride Removal with the Use of Bone Char Bacteria Removal with the Use of Bone Char, Silk, and Cotton," 2010.
 12. Sara Maihofer, "Combined and Sanitary Sewer Overflows in Michigan," 2010.
 13. Alye Hannum, "Compilation and Analysis of Combined Sewer Overflow Data for Michigan," 2010-11.
 14. Natalie Helms, "Compilation and Analysis of Sanitary Sewer Overflow Data for Michigan," 2010-11.
 15. Steven Rutkowski, "Geographic Information System Analysis for Great Lakes Watershed Modeling," 2010-11.
 16. Viviana Gomez Molina, "Impacts of Bioenergy on Water Resources," 2013.
 17. Nathan Pranglely, "Hydrologic Modeling of Biofuel Feedstock Impacts in Great Lakes Watersheds" (sponsored by MiCUP program), 2016.
 18. Abdisalan Haji, "Life Cycle Assessment of Paper and Plastic Bags" (sponsored by MiCUP program), 2017.
 19. Karleigh Krieg, "Water and Energy Footprints of Agriculture in the Great Lakes Basin," 2018.
 20. Emily Rutledge, "Water Quality in Abandoned Mines," 2020.
- ii. Post-Doctoral Researchers
1. Hebi Li, "Radar-Based Precipitation Estimation and Hydrologic Modeling" (supported part-time), 2001-03.
 2. Santosh Ghimire, "Hydrologic Information System for Greenfield Site Development and Management" (supported part-time), 2009-10.
 3. Haihong Huang, "Biofuels Feedstock Supply Chain Model," 2010.
 4. Yue-Jun Yin, "Biofuels Feedstock Supply Chain Model," 2011.
 5. Ali Mirchi, "Water, Sustainability, and Climate: Systems Modeling of the South Florida Water Management System," 2013-15.
- iii. Visiting Scholar
1. Betul Saf, "Hydrologic Frequency Analysis and Ungauged Basins" (sponsored by Govt. of Turkey), Jan.-May 2007.

VI. UNIVERSITY SERVICE

A. University Service

Sustainable Futures Institute, Associate Director for Developing World Sustainability, 2015-2020.
Early Career Management Committee, Chair, Michigan Tech University, 2019-2020.
University Learning Goal Committee – Social Responsibility and Ethical Reasoning, 2013-2020.
Safe Place Program, 2001-2020.
Strategic Faculty Hiring Initiative Search Committee - Water, 2017-2019.
Graduate Faculty Council, 2008-2012.
Community Engagement Learning Task Force (*ad hoc*), 2015-2017.
Strategic Faculty Hiring Initiative Search Committee - Transportation, 2011-2012.
Strategic Faculty Hiring Initiative Search Committee, Cognate Reviewer, 2008, 2009, 2011.
Geosciences Investigations Teacher Institute, Guest Presenter, 2010-2012.
Committee on Educating for Responsible Relationships, 2005-2007.
Watershed Investigations Teacher Institute, Guest Presenter, June 2004.
Designed drainage facilities for University ski trails, 2002.

B. College Service

Promotion and Tenure Committee, College of Engineering, 2018-2020.
Engineers Without Borders-USA Student Chapter, Faculty Co-Advisor, 2005-2020.

C. Department Service

Diversity and Inclusion Committee, Chair, 2019-2020.
Industry and Alumni Contact Committee, 2019-2020.
International Senior Design Capstone Program, Director, 2008-2020.
Peace Corps Master's International Program, Acting Director, 2009; Co-Director, 2010-2020.
Graduate and Research Committee, 2005-2012, 2017-2018; Chair, 2008-2012.
Promotion, Tenure and Policy Committee, 2012-2018; Chair, 2014-2018.
Department Chair Search Committee, 2016-2017.
Graduate Program Review Committee, 2010.
Lab Steward for Hydraulic Engineering Laboratory, 2000-2007.
Curriculum and Assessment Committee, 2002-2005.
Water Resources Engineering Search Committees, 2000, 2002-2003, 2005-2006; Chair, 2003.
Computer Utilization Committee, 1999-2002.

VII. PROFESSIONAL SERVICE

A. Membership in Professional Associations

American Geophysical Union
American Society of Civil Engineers
American Society for Engineering Education
American Water Resources Association
Engineers Without Borders - USA

B. Offices Held and Honors

American Geophysical Union (AGU) – Session Convener, AGU Fall Meeting, 2013-2020.
American Society of Civil Engineers (ASCE) - Chief Editor, *Journal of Water Resources Planning and Management*, 2016-2020; Associate Editor, 2004-14.
ASCE-EWRI – Operations Management Committee, Member 1998-2017, Secretary 1998-99; Vice Chair 1999-00; Chair 2000-02, 2004-2007, 2015; Past Chair 2002-03, 2007-2008.
ASCE-EWRI - Task Committee on Environmental and Water Resources Systems Education, Chair, 2002-2012.
ASCE-EWRI - Environmental and Water Resources Systems Committee, Member 1995-2018; Secretary 2007; Vice Chair 2008; Chair 2009, Past Chair 2010.
ASCE-EWRI – International Council, Member 2007-2018; Secretary 2010-2011; Vice Chair 2011-2013, Chair 2013-2015.
ASCE-EWRI – World Water Council Activities Committee, Member 2011-2020.
ASCE-EWRI – River Basin Policy, Planning, and Operations Committee - Member 2017-2020.
ASCE-EWRI – Planning and Management Council Awards Committee, Member 2016-2020.
Engineers Without Borders-USA – Climate Change Committee, Member 2017-2019.
ASCE-EWRI - Planning Committee, Co-chair, *International Perspective on Water Resources and the Environment Conference*, Wuhan, China, January 2017.
ASCE-EWRI - Planning Committee, Member, *8th Operations Mgmt. Workshop*, Atlanta, GA, 2010.
ASCE-EWRI - Planning Committee, Member, *7th Operations Mgmt. Workshop*, Sacramento, CA, August 2006.
ASCE-EWRI - Planning Committee, Chair, *6th Operations Mgmt. Workshop*, Ft. Collins, CO, June 2000.
ASCE-EWRI - Session Chair, Water Resources Planning and Management Council at the *World Environmental and Water Resources Congress*, 2006-2020.
ASCE-EWRI - Task Committee on Climate Change & Variability, 2002-2005.
International Joint Commission – International Upper Great Lakes Study, Lake Superior Task Team, Member, 2007-2011.
Interagency – Hydrological Ensemble Prediction Experiment (HEPEX), Member, 2004.
National Oceanic and Atmospheric Administration, GEWEX Americas Prediction Project, Water Resources Applications Committee, Member, 2001-2004.

C. Short Courses/Workshops:

Workshop: “Water Security under a Changing Environment – Comparing Challenges and Approaches in the United States and China,” Co-organizer, Workshop sponsored by the National Science Foundation, Wuhan China, January 6, 2017.

Workshop: “Publishing in ASCE Journals,” Co-instructor, Workshop sponsored by the American Society of Civil Engineers, Beijing, China, January 4, and Wuhan, China, January 5, 2017.

Webinar: “Integrated Seasonal Drought Forecast-Adaptive Management System for the Lower Colorado River Basin in Texas,” with P. Block, NOAA National Integrated Drought Information System Program, September 20, 2016.

Workshop: “FEW: Coupled Production-Consumption Systems for Climate Change Mitigation: Designing Equitable Food, Energy, and Water Conservation Strategies,” Lead organizer, Workshop sponsored by the National Science Foundation, Houghton, MI, October 14-16, 2015.

Workshop: “Workshop for Training in Water and Climate Risk Management: Managing Hydroclimatic Risk in the Water Sector,” Co-instructor, United Nations Educational, Scientific and Cultural Organization-International Hydrological Program (UNESCO-IHP), Addis Ababa, Ethiopia, June 30 – July 2, 2009.

Workshop: “Designing Water Resources Education Programs for the Millennium Development Goals,” Co-instructor, 4th World Water Forum, Mexico City, Mexico, March 19, 2006.

D. Evaluation of Journal Manuscripts:

Advances in Water Resources

Agricultural and Forest Meteorology

Agricultural Systems

Canadian Journal of Civil Engineering

Environmental Science & Technology

Environmental Modeling

Environmental Modelling and Software

International Journal of Service Learning in Engineering

Hydrological Processes

Hydrology and Earth System Sciences

Journal of the American Water Resources Association

Journal of Climate

Journal of Environmental Quality

Journal of Environmental Management

Journal of Flood Risk Management

Journal of Great Lakes Research

Journal of Hydroinformatics

Journal of Hydrology

Journal of Hydrologic Engineering

Journal of Infrastructure Systems

Journal of Water Resources Planning and Management

Natural Hazards

Nature Climate Change
Operations Research
The Engineering Economist
Transportation Research E: Logistics & Transportation Review
Water International
Water Resources Management
Water Resources Research

E. Evaluation of Grant Proposals:

Canada First Research Excellence Fund, 2016, 2018.

Cooperative Inst. for Coastal & Estuarine Environmental Technology, 2007.

Illinois Water Resources Center, 2006.

Israel Science Foundation, 2015, 2017.

Michigan Great Lakes Protection Fund, 2006.

Michigan Sea Grant College Program, 2004.

Minnesota Pollution Control Agency, 2018.

National Oceanic and Atmospheric Administration, Climate and Global Change Program, 2002-2004.

National Science Foundation, 2001, 2005, 2008, 2009, 2010, 2015, 2018, 2020.

Netherlands Organization for Scientific Research, 2016.

Oregon Sea Grant, 2006.

U.S. Civilian Research and Development Foundation, 2006.

U.S. Department of Agriculture, 2008.

U.S. Geological Survey, National Institutes for Water Resources, 2006, 2016.