

Eric W Peterson, Ph.D.

University Professor of Geology

Department of Geography-Geology, Illinois State University (ISU)

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CURRENT APPOINTMENTS:

2018-present: *University Professor*, Department of Geography, Geology and the Environment, ISU

2015-present: Coordinator, Hydrogeology Graduate Program, ISU

PAST APPOINTMENTS:

2012-2018: Professor, Department of Geography-Geology, ISU

2013-2015: Interim Chairperson, Department of Geography-Geology, ISU

2008-2012: Associate Professor, Department of Geography-Geology, ISU

2010-2011, 2012 (F): Acting Chair, Department of Geography-Geology, ISU

2007-2013: Coordinator, Hydrogeology Graduate Program, ISU

2002-2006: Assistant Professor, Department of Geography-Geology, ISU

1998-2002: Teaching Assistant, Department of Geology, University of Missouri

1996-1998: Teaching Assistant, Department of Geology, University of Arkansas

1995-1996: Teaching Assistant, Department of Mathematics, University of South Dakota

1993-1995: Research Assistant, Department of Earth Sciences, University of South Dakota

1993: Geology Intern, Dakota Environmental Consultants, Inc., Huron SD

1991-1992: Field Technician, Dakota Environmental Consultants, Inc., Huron SD

EDUCATION:

2002: Ph.D. Geology, Department of Geological Sciences, University of Missouri-Columbia

Dissertation: Transport & fate of 17 β -estradiol in karst systems of Missouri.

Advisor: Carol Wicks

1998: M.S. Geology, Department of Geology, University of Arkansas-Fayetteville

Thesis: Movements of nitrates in a regolith covered karst environment in Northwest Arkansas.

Advisor: Ralph Davis

1997: M.A. Mathematics, Department of Mathematics, University of South Dakota

Thesis: Solving hydrogeologic slug tests with the use of numerical analysis.

Advisor: Jose Flores

1995: B.Sc. Earth Science and Mathematics, University of South Dakota

HONORS AND AWARDS:

2021 Outstanding College Service Award by the College of Arts and Sciences, ISU

2018 University Professor, Illinois State University

2018 Kenneth A. and Mary Ann Shaw Teaching Fellowship

2013 Geological Society of America Fellow

2011 Outstanding College Teacher Award in Sciences by the College of Arts and Sciences, ISU

2006 Research Initiative Award, Illinois State University

2006 Service Initiative Award, Illinois State University

2000-2002 EPA Science to Achieve Results (STAR) Fellow

1998-2002 Huggins Fellow, University of Missouri

1998 Outstanding Geologist, University of Arkansas

TEACHING EXPERIENCE:

ISU: Typical teaching load: 2: 2

Hydrogeology (2002-present)
 Problems in Environmental Geology (2003-present)
 Hydrology (2004-present)
 Karst Hydrogeology (2005-present)
 Aquifer Systems (2012-present)
 Field Geology (2009-present)
 Thirsty Society (Interdisciplinary Water course) (2021-present)
 Introduction to Groundwater Modeling (2002-2016)
 Applied Groundwater Modeling (2003-2017)
 Seminar in Hydrogeology Research (2007-2012)
 Engineering Geology (2002-2007)
 Principles of Geology (2002-present)

RESEARCH INTERESTS:

Physical Hydrogeology: Surface water—ground water interaction in karst systems and in fluvial systems of glaciated terrain.

RESEARCH GRANTS, CONTRACTS, AND FELLOWSHIPS:

<u>Year of Tenure</u>	<u>Award</u>
2020-2021	Co-PI - City of Bloomington Stream Sampling, City of Bloomington, IL., \$175,000.
2020-2021	PI - Utilizing a tracer test to calculating the transport and fate of nitrate within a saturated buffer zone, Illinois Water Resource Center (IWRC) (award G16AP00051), Awarded, \$10,000
2019	PI - Assessment of floating water gardens to improve the water quality of the Chicago River, IWRC (award 079901-17703), Awarded, \$10,000
2018	PI - Diurnal and Seasonal Variation in Groundwater Nitrate-N Concentration in a Riparian Buffer Zone, IWRC, Awarded, \$10,000
2018	Illinois State University SSF Grant. ISU, Awarded \$5,000.
2018-2019	Co-PI - Illinois Corn Growers Association research support., \$19,714
2017-2019	Co-PI - City of Bloomington Stream Sampling, City of Bloomington, IL., \$98,504.
2017-2018	Co-PI - Illinois Corn Growers Association research support., \$20,664.
2017	PI - Surficial Geologic Map of the Gibson City West 7.5-Minute Quadrangle, McLean County, Illinois. USGS-EDMAP (award G17AC00114), Awarded \$15,635.
2017	PI - Diurnal and Seasonal Variation in Groundwater Nitrate-N Concentration in a Riparian Buffer Zone, (subaward 079901-16315) IWRC, Awarded, \$10,000
2016	PI - Spatial and temporal modeling of road salts in a watershed with urban and agricultural land use, IWRC, Awarded, \$10,000
2016-2017	Co-PI - Illinois Corn Growers Association research support., \$20,664.
2015-2016	Co-PI - City of Bloomington Stream Sampling Stations and Installation, City of Bloomington, IL., \$85,856.
2014	Co-PI – Schlumberger Software Contract, Schlumberger Information Solutions, Awarded \$1,239,037.
2013-2014	Co-PI - Nutrient and sediment inputs and sediment accumulation in the water reservoirs for the City of Bloomington, Phase 2, City of Bloomington, IL., Awarded \$22,804.
2012-2013	Co-PI - Nutrient and sediment inputs and sediment accumulation in the water reservoirs

- for the City of Bloomington, Phase 1, City of Bloomington, IL., Awarded \$9,900.
- 2012-2013 PI - Surficial Geologic Map of the Freeport East 7.5 Quadrangle, Stephenson County, IL. USGS-EDMAP, Awarded \$16,697.
- 2011-2012 PI - Quantifying estrogen compound and nutrient reduction in a coupled wetland and groundwater flow-through system. Illinois-Indiana Sea Grant, Awarded \$9,999.
- 2009-2010 PI - Surficial Geologic Map of the Warren 7.5 Quadrangle, Jo Daviess & Stephenson Counties, IL. USGS-EDMAP, Awarded \$13,317.
- 2009 Illinois State University, Research and Sponsored Programs, Undergraduate Research Fellowship, Awarded \$3,500.
- 2007-2008 PI - Streambed mobility in a low-gradient meandering stream, with implications on stream ecology. PADI Foundation, Awarded \$1,500.
- 2006-2007 Co-PI - Continuing education partnership between the Department of Geography-Geology (ISU) and the IEPA, Part 3. Illinois Environmental Protection Agency, Awarded \$20,000.
- 2006-2007 PI - Shallow Geophysical Analysis of the Geologic Formations in and above the Underground Gas Storage Field at Ancona, Illinois. NICOR Gas Company, Awarded \$66,750.
- 2006-2007 Illinois State University, CAS Research Enhancement Award, Awarded \$3,500.
- 2006 Illinois State University, Research and Sponsored Programs, Grant Writing Initiative Award, Awarded \$3,000.
- 2006 CO-PI - National Science Foundation, "Instrumentation to investigate ground water-surface water interactions in a low gradient, meandering, agricultural stream." \$192,647, not submitted, but received \$15,000 from the University.
- 2005-2006 Co-PI - Continuing education partnership between the Department of Geography-Geology (ISU) and the IEPA, Part 3. Illinois Environmental Protection Agency, Awarded \$12,500.
- 2005 Illinois State University Pre-tenure Faculty Initiative Grant. ISU, Awarded \$2,500.
- 2005 Illinois State University, CAS Travel Supplement Grant, Awarded \$406.
- 2005 Illinois State University, CAST Teaching-Learning Development Grant, Awarded \$2,000.
- 2004-2005 Co-PI - Continuing education partnership between the Department of Geography-Geology at ISU and the IEPA, Part 2. Illinois Environmental Protection Agency, Awarded \$25,000.
- 2004-2005 Co-PI - Petrophysical and Shallow Geophysical Analysis of the Geologic Formations in and above the Underground Gas Storage Field at Troy Grove, Illinois, NICOR Gas Company, Awarded \$33,440.
- 2004 Co-PI - A geostatistical analysis of the Mount Simon formation in and around the Manlove gas storage field, Champaign County, Illinois. Illinois State Geological Survey, Awarded \$18,000.
- 2004 Co-PI - Geostatistical analysis of the occurrence, productivity and future potential of oil fields in Illinois. Illinois State Geological Survey, Awarded \$6,000.
- 2004 PI - Ground Water Vista Software. Environmental Simulations, Inc., Awarded \$11,500
- 2004 Illinois State University, CTLT Travel Supplement Grant, Awarded \$300
- 2003-2004 Co-PI - Geostatistical analysis of the occurrence, productivity, and future potential of oil fields in Illinois. Illinois State Geological Survey, Awarded \$6,000.
- 2003-2004 Co-PI - Structural, stratigraphic, and hydrogeologic models of the Troy Grove Gas Storage Field, LaSalle County, IL, NICOR Gas Company, Awarded \$13,443.
- 2003-2004 Co-PI - Professional Development Classes in Geology and Hydrogeology. Illinois Environmental Protection Agency, Awarded \$25,000.
- 2003-2004 Illinois State University New Faculty Initiative Grant. ISU, Awarded \$2,500.
- 2002-2003 Co-PI - Geostatistical analysis of the occurrence, productivity, and future potential of oil fields in Illinois. Illinois State Geological Survey, Awarded \$5,000.
- 2000-2002 Environmental Protection Agency (EPA) Science to Achieve Results (STAR) Fellow, Dissertation award to offset costs of tuition and to provide research stipend, \$80,000.
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PUBLICATIONS: (* INDICATES GRADUATE STUDENT; ** INDICATES AN UNDERGRADUATE STUDENT PARTICIPANT)

1. **Peterson, E. W.**, Nicodemus, P., Spooner, E. A. *, and Heath, A. *, 2021, The Effectiveness of an Artificial Floating Wetland to Remove Nutrients in an Urban Stream: A Pilot-Study in the Chicago River, Chicago, IL USA: *Hydrology*, v. 8, no. 3, p. 14, doi:10.3390/hydrology8030115.
2. Oberhelman, A. *, and **Peterson, E. W.**, 2021, Seasonal and stormflow chloride loads in an urban-agricultural watershed in central Illinois, USA: *Environmental Earth Sciences*, p. 11, doi:10.1007/s12665-021-09744-x.
3. Bosompemaa, P. *, **Peterson, E. W.**, Perry, W., and Seyoum, W. M., 2021, Recycling of nitrate and organic matter by plants in the vadose zone of a saturated riparian buffer: *Water, Air, and Soil Pollution*, p. 14, doi:10.1007/s11270-021-05202-3.
4. Watson, A. *, **Peterson, E. W.**, Malone, D., and Tranel, L., 2020, Surficial geology and aquifer sensitivity of materials overlying the Mahomet Aquifer, central Illinois, USA: *Hydrology*, v. 7, no. 4, doi:10.3390/hydrology7040069
5. Oware, E. K. *, and **Peterson, E. W.**, 2020, Storm Driven Seasonal Variation in the Thermal Response of the Streambed Water of a Low-Gradient Stream: *Water*, v. 12, no. 9, doi:10.3390/w12092498.
6. Oberhelman, A. *, and **Peterson, E. W.**, 2020, Chloride source delineation in an urban-agricultural watershed: Deicing agents versus agricultural contributions: *Hydrological Processes*, doi:10.1002/hyp.13861.
7. Piske, J. *, and **Peterson, E. W.**, 2020, The role of corn and soybean cultivation on nitrate export from Midwestern US agricultural watershed: *Environmental Earth Science*, doi:10.1007/s12665-020-08964-x.
8. Harris, F.C. *, and **Peterson, E. W.**, 2020, 1-D vertical flux dynamics in a low-gradient stream: an assessment of stage as a control of vertical hyporheic exchange: *Water*, v. 12, no. 3, doi:10.3390/w12030708.
9. Chabela, L. P. *, and **Peterson, E. W.**, 2019, Relationship between peak stage, storm duration, and bank storage along a meandering stream: *Water*, v. 11, no. 1688, p. 16, doi:10.3390/w11081688.
10. Maas, B. *, **Peterson, E. W.**, Honings, J. *, Oberhelman, A. *, Oware, P. *, Rusthoven, I. *, and Watson, A. *, 2019, Differentiation of surface water and groundwater in a karst system using anthropogenic signatures: *Geosciences*, v. 9, no. 4, doi:10.3390/geosciences9040148.
11. Miller, J. *, **Peterson, E. W.**, and Budikova, D., 2018, Diurnal and seasonal variation in nitrate-nitrogen concentrations of groundwater in a saturated buffer zone: *Hydrogeology Journal*, v. 27, no. 4, p. 1373-1387, doi:10.1007/s10040-018-1907-y.
12. **Peterson, E. W.**, and Hayden, K. M. *, 2018, Transport and Fate of Nitrate in the Streambed of a Low-Gradient Stream: *Hydrology*, v. 5, no. 4, p. 55, doi:10.3390/hydrology5040055.
13. Ludwikowski, J. *, and **Peterson, E. W.**, 2018, Transport and fate of chloride from road salt within a mixed urban and agricultural watershed in Illinois (USA): assessing the influence of chloride application rates: *Hydrogeology Journal*, doi:10.1007/s10040-018-1732-3.
14. Francis, A. *, **Peterson, E. W.**, and Dogwiler, T. J., 2018, Lithology as an erosional control on the Cave Branch and Horn Hollow fluviokarst watersheds in Carter County, Kentucky, in Sasowsky, I. D., Byle, M. J., and Land, L., eds., 15th Multidisciplinary Conference on Sinkholes and the Engineering and Environmental Impacts of Karst and the 3rd Appalachian Karst Symposium, Volume 6: Shepherdstown, West Virginia, National Cave and Karst Research Institute, p. 279-288.
15. Lax, S. M. *, **Peterson, E. W.**, and Van der Hoven, S., 2017, Quantifying Stream chloride concentrations as a function of land-use.: *Environmental Earth Sciences*, v. 76, no. 708, p. 12, doi:10.1007/s12665-017-7059-x.
16. Rabie, A. *, **Peterson, E. W.**, Kostelnick, J. C., and Rowley, R. J., 2017, Optimizing DEM resolution inputs and number of stream gauges in GIS predictions of flood inundation: A case study along the Illinois River (IL), USA: *Environmental and Engineering Geoscience*, v. 23, no. 4, p. 345-357, doi:10.2113/EEG-1890.

17. Maxwell, E. L.*, **Peterson, E. W.**, and O'Reilly, C. M., 2017, Enhanced nitrate reduction within a constructed wetland system: nitrate removal within groundwater flow: *Wetlands*, v. 37, no. 3, p. 413-422, doi:10.1007/s13157-017-0877-5.
18. Avalos, E.*, Malone, D., **Peterson, E. W.**, Anderson, W. P., and Gehrels, R., 2016, Two-Dimensional Seismic Refraction Tomography of a Buried Bedrock Valley at Hallsands Beach, Devon, UK: *Environmental Geosciences*, v. 23, no. 4, p. 179-193, doi:10.1306/eg.07131615014
19. Flaherty, S. T.*, Thomason, J. F., Malone, D. H., and **Peterson, E. W.**, 2016, Surficial geological map of the Woodstock, IL 7.5 minute Quadrangle, McHenry County, Illinois, Scale 1:24,000: *Journal of Maps*, p. 1-5, doi:10.1080/17445647.2016.1227731.
20. Carlock, E.*, **Peterson, E. W.**, and Malone, D. H., 2016, Three-dimensional geologic modeling and groundwater flow modeling above a CO₂ sequestration test site: *Open Journal of Modern Hydrology*, v. 6, no. 3, p. 182-193, doi:10.4236/ojmh.2016.63015.
21. Lau, J.*, Malone, D. H., Thomason, J., and **Peterson, E.**, 2016, Modeling the Sediment Fill of the Upper Troy Pre-Glacial Bedrock Valley, McHenry County, Illinois, USA: *Journal of Geoscience and Environment Protection*, v. 4, no. 6, p. 107-122, doi:10.4236/gep.2016.46010
22. Lau, J.*, Thomason, J. F., Malone, D. H., and **Peterson, E. W.**, 2016, Three-Dimensional Geological Model of Quaternary Sediments in Walworth County, Wisconsin, USA: *Geosciences*, v. 6, no. 32, p. 14, doi:10.3390/geosciences6030032.
23. Seipel, L.*, **Peterson, E. W.**, Malone, D. H., and Thomason, J. F., 2016, Role of multiple high-capacity irrigation wells on a surficial sand and gravel aquifer: *Journal of Geoscience and Environment Protection*, v. 4, no. 5, p. 43-53, doi:10.4236/gep.2016.45005.
24. Carlock, D. C.*, Thomason, J. F., Malone, D. H., and **Peterson, E. W.**, 2016, Stratigraphy and Extent of the Pearl-Ashmore Aquifer, McHenry County, IL, USA: *World Journal of Environmental Engineering*, v. 4, no. 1-6, p. 6-18, doi:10.12691/wjee-4-1-2.
25. Wagle, J.*, Malone, D. H., **Peterson, E. W.**, and Tranel, L., 2016, Porosity controls on secondary recovery at the Loudon Field, south-central Illinois: *Interpretation*, v. 4, no. 1, doi:10.1190/INT-2015-0078.1.
26. **Peterson, E. W.**, and Hanna, L. A.*, 2016, Estrogen reduction in a coupled wetland and ground water flow-through system: *Environmental Earth Science*, v. 75, no. 5, p. 1-8, doi:10.1007/s12665-016-5259-4.
27. Bastola, H.*, and **Peterson, E. W.**, 2016, Heat tracing to examine seasonal groundwater flow beneath a low-gradient stream: *Hydrogeology Journal*, v. 24, no. 1, p. 181-194, doi:10.1007/s10040-015-1320-8.
28. Kron, N.*, Malone, D. H., and **Peterson, E. W.**, 2015, Three-Dimensional Geologic Model of the Pecatonica Gas Storage Field, Winnebago County, Illinois: *World Journal of Environmental Engineering*, v. 3, no. 4, p. 121-125.
29. Kimple, D.*, **Peterson, E. W.**, and Malone, D.H., 2015, Stratigraphy and porosity modeling of southern central Illinois Chester (Upper Mississippian) series sandstones: *World Journal of Environmental Engineering*, v. 3, no. 3, p. 82-86, doi: 10.12691/wjee-3-3-2.
30. Woodside, J.*, **Peterson, E. W.**, and Dogwiler, T., 2015, Longitudinal profile and sediment mobility as geomorphic tools to interpret the history of a fluviokarst stream system: *International Journal of Speleology*, v. 44, no. 2, doi: 10.5038/1827-806X.44.2.9.
31. Angel, J.C.*, and **Peterson, E. W.**, 2015, Nitrates in karst systems: comparing impacted systems to a relatively unimpacted system: *Journal of Geography-Geology*, v. 7, no. 1, doi 10.5539/jgg.v7n1p56
32. Ackerman, J.*, **Peterson, E.**, Van der Hoven, S., Perry, W., 2015, Quantifying nutrient removal from groundwater seepage out of a constructed wetlands receiving treated wastewater effluent: *Environmental Earth Science*, v. 74, no. 2, p. 1633-1645, doi:10.1007/s12665-015-4167-3.
33. **Peterson, E. W.**, Martin, L. I.*, and Malone, D. H., 2015, Identification of Potential Vertical Gas Migration Pathways above Gas Storage Reservoirs: *World Journal of Environmental Engineering*, v. 3, no. 2, p. 23-31, doi: 10.12691/wjee-3-2-1.
34. Doucette, R*. and **Peterson, E.W.**, 2014, Identifying water sources in a karst aquifer using thermal signatures: *Environmental Earth Science*, p. 5171-5182, DOI: 10.1007/s12665-014-3387-2.

35. Sickbert, T. B.*, and **Peterson, E. W.**, 2014, The effect of surface water velocity on hyporheic interchange: *Journal of Water Resource and Protection*, v. 6, no. 4, p. 327-336, DOI: 10.4236/jwarp.2014.64035
36. Jacoby B.S.*, **Peterson E.W.**, Kostelnick JC, Dogwiler T, 2013, Approaching Cave Level Identification with GIS: A Case Study of Carter Caves: *ISRN Geology*, v. 2013, no. 160397, pgs. 7
37. Beach, V.* and **Peterson, E. W.**, 2013, Variation of Hyporheic Temperature Profiles in a Low Gradient Third-order Agricultural Stream – A Statistical Approach: *Open Journal of Modern Hydrology*, v. 3, no. 2, p. 55-66, DOI: 10.4236/ojmh.2013.32008.
38. **Peterson, E. W.**, and Benning, C.*, 2013, Factors influencing nitrate within a low-gradient agricultural stream: *Environmental Earth Sciences*, v. 68, no. 5, 1233-1245, DOI 10.1007/s12665-012-1821-x.
39. Lanning, A.*, and **Peterson, E. W.**, 2012, Evaluating Subdivisions for Identifying Extraneous Flow in Separate Sanitary Sewer Systems: *Journal of Water Resource and Protection*, v. 4, no. 6, p. 334-341.
40. Jacoby, B.S.*, **Peterson, E. W.**, and Dogwiler, T., 2011, Identifying the Stream Erosion Potential of Cave Levels in Carter Cave State Resort Park, Kentucky, USA: *Journal of Geographic Information Systems*, v. 3, no. 4, p. 323-333.
41. Jacoby, B.S.*, **Peterson, E. W.**, Dogwiler, T., and Kostelnick, J.C., 2011, Estimating the timing of Cave Level Development with GIS: *Speleogenesis and Evolution of Karst Aquifers*, v. 11, p. 52-61.
42. **Peterson, E. W.**, Dogwiler, T., and Harlan, L.*, 2011, Using GIS to identify cave levels and discern the speleogenesis of the Carter Caves karst area, Kentucky, in Kuniansky, E.L., ed., *U.S. Geological Survey Karst Interest Group Proceedings*, Fayetteville, Arkansas (April 26-29, 2011), Scientific Investigations Report 2011-5031. Reston, Virginia, United States Geological Survey, p. 94-103.
43. **Peterson, E. W.**, and Hughes, K.*, 2011, Temporal Stability of Cave Sediments, in Kuniansky, E.L., ed., *U.S. Geological Survey Karst Interest Group Proceedings*, Fayetteville, Arkansas (April 26-29, 2011), Scientific Investigations Report 2011-5031. Reston, Virginia, United States Geological Survey, p. 57-65.
44. Wicks, C.M., Noltie, D.B., **Peterson, E. W.**, and Dogwiler, T.J., 2010, Disturbances in the habitat of *Macrocotyle glandulosa* (Kenk): *Ecohydrology*, v. 3, p. 116-125 DOI: 10.1002/eco.102.
45. Lax, S.*, and **Peterson, E. W.**, 2009, Characterization of chloride transport in the unsaturated zone near salted road: *Environmental Geology*, v. 58, p. 1041-1049 DOI 10.1007/s00254-008-1584-6.
46. **Peterson, E. W.**, and Lanning, A.*, 2009, Effectiveness of pilot-scale wetland designs in removing estrogenic compounds from municipal wastewater plant effluent: *Environmental Geosciences*, v. 16, p. 1-9 DOI:10.1306/eg.02100908006.
47. **Peterson, E. W.**, Sickbert, T.B.*, and Moore, S.L.*, 2008, High frequency stream bed mobility of a low-gradient agricultural stream with implications on the hyporheic zone: *Hydrological Processes*, v. 22, p. 4239-4248.
48. Van der Hoven, S., Fromm, N.*, and **Peterson, E. W.**, 2008, Quantifying nitrogen cycling beneath a meander of a low gradient, N-impacted, agricultural stream using tracers and numerical modelling: *Hydrological Processes*, v. 22, p. 1206-1215.
49. Moore, S.L.*, and **Peterson, E. W.**, 2007, Transport and fate of nitrate within soil units of glacial origin: *Environmental Geology*, p. DOI 10.1007/s00254-006-0597-2.
50. **Peterson, E. W.**, and Sickbert, T.B.*, 2006, Stream water bypass through a meander neck, laterally extending the hyporheic zone: *Hydrogeology Journal*, v. 14, p. 1443-1451.
51. **Peterson, E. W.**, and Wicks, C.M., 2006, Assessing the importance of conduit geometry and physical parameters in karst systems using the storm water management model (SWMM): *Journal of Hydrology*, v. 329, p. 294-305 doi:10.1016/j.jhydrol.2006.02.017.
52. **Peterson, E. W.**, and Wicks, C.M., 2005, Fluid and solute transport from a conduit to the matrix in a carbonate aquifer system: *Mathematical Geology*, v. 37, p. 851-868.
53. **Peterson, E. W.**, Wicks, C.M., and Kelley, C.A., 2005, Persistence of 17 β -estradiol in water and sediment-pore water from cave streams in central Missouri: *Environmental & Engineering Geosciences*, v. XI, p. 221-228.
54. Wicks, C.M., Kelley, C., and **Peterson, E. W.**, 2004, Estrogen in a karstic aquifer: *Ground Water*, v.

- 42, p. 384-389.
55. **Peterson, E. W.**, and Wicks, C.M., 2003, Characterization of the physical and hydraulic properties of the sediment in karst aquifers of the Springfield Plateau, Central Missouri, USA: *Hydrogeology Journal*, v. 11, p. 357-367.
 56. **Peterson, E. W.**, Davis, R.K., Brahana, J.V., and Orndorff, H.A., 2002, Movement of nitrate through regolith covered karst terrane, Northwest Arkansas: *Journal of Hydrology*, v. 256, p. 35-47.
 57. **Peterson, E. W.**, Davis, R.K., and Brahana, J.V., 2000, The use of regression analysis to predict nitrate-nitrogen concentrations in springs of Northwest Arkansas, in Sasowsky, I.D., and Wicks, C.M., eds., *Groundwater flow and contaminant transport in carbonate aquifers*. Rotterdam, Netherlands, A.A Balkema, p. 43-63.
 58. **Peterson, E. W.**, Davis, R.K., and Orndorff, H.A., 2000, 17 β -estradiol as an indicator of animal waste contamination in mantled karst aquifers: *Journal of Environmental Quality*, v. 29, p. 826-834.

PUBLICATIONS IN PROCESS: (* INDICATES GRADUATE STUDENT; ** INDICATES AN UNDERGRADUATE STUDENT PARTICIPANT)

Conley, E.*, **Peterson, E. W.**, Dogwiler, T., and Kostelnick, J., (*in review*), Assigning cave collapse probability using GIS: *Quaternary Research*

EDITED TECHNICAL REPORTS, DATA SETS, BOOK REVIEWS, & MAPS: (* INDICATES GRADUATE STUDENT; ** INDICATES AN UNDERGRADUATE STUDENT PARTICIPANT)

- Peterson, E. W.**, Nicodemus, P., and Spooner, E. A.*, 2021, Supporting data – Floating Gardens, Chicago River, April 29, 2018 to November 19, 2019, Faculty Publications-- Geography, Geology, and the Environment, Volume 3: <https://ir.library.illinoisstate.edu/fpgeo/3>.
- Peterson, E. W.**, Bosompemaa, P.*, Perry, W., and Seyoum, W. M., 2021, Supporting data - Recycling of nitrate and organic matter by plants in the vadose zone of a saturated riparian buffer, Faculty Publications-- Geography, Geology, and the Environment, Volume 2: <https://ir.library.illinoisstate.edu/fpgeo/2>.
- Peterson, E. W.**, and Oberhelman, A.*, 2019, Supporting dataset for chloride source delineation in an urban-agricultural watershed, deicing agents versus agricultural contributions, Faculty Publications-- Geography, Geology, and the Environment, Volume 1: <https://ir.library.illinoisstate.edu/fpgeo/1>.
- Peterson, E. W.**, 2019, Investigating Groundwater: *Groundwater*, v. 57, no. 6, p. 913-914, doi:10.1111/gwat.12945.
- Wirth, H.*, **Peterson, E. W.**, and Malone, D. H., 2018, Surficial Geologic of the 7.5-Minute Gibson City West Quadrangle, Champaign, Ford, and McLean Counties, Illinois: Illinois State Geological Survey, <http://isgs.illinois.edu/sites/isgs/files/maps/isgs-quads/gibsoncitywest-ed-sg.pdf> Illinois State Geological Survey.
- Ludwikowski, J.*, Malone, D. H., and **Peterson, E. W.**, 2016, Surficial Geologic Map, Bloomington East Quadrangle, McLean County, Illinois: Illinois State Geological Survey, <http://isgs.illinois.edu/maps/isgs-quads/surficial-geology/student-map/bloomington-east> Illinois State Geological Survey.
- Seipel, L.C.*, Thomason, J. F., Malone, D.H., and **Peterson, E. W.**, 2015, Surficial Geology of Garden Prairie 7.5-minute Quadrangle, Boone and McHenry Counties, Illinois, Illinois State Geological Survey: <https://www.isgs.illinois.edu/maps/isgs-quads/surficial-geology/garden-prairie> Illinois State Geological Survey.
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- Sickbert, T.B.*, and **Peterson, E.W.**, (2005) The Venturi effect and hyporheic flow: Geological Society of America Abstract with Programs, vol. 37, no 7, p. 106.
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- Peterson, E.W.**, Sickbert, T.B.*, and Moore, S.***, (2004) Stream bed mobility in a low-gradient, third-order perennial stream: Geological Society of America Abstract with Programs, vol. 36, no 5, p. 496.
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- Hunt, L.I.*, **Peterson, E.**, Malone, D., Nelson, R., and Pugin, A., (2004) Factors of Gas Migration within the Mt. Simon and Eau Claire Formations in the Underground Gas Storage Field at Troy Grove, Illinois, AAPG Student EXPO.
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- Peterson, E.W.** and Sickbert, T.B.*, (2003) Assessment of stream water bypass through a meander neck in a flood plain: Geological Society of America Abstract with Programs, vol. 35, no 7, p. 376.
- Sickbert, T.B.*, and **Peterson, E.W.**, (2003) The effect of lateral differences in stream velocity on hyporheic interchange, Geological Society of America Abstract with Programs, vol. 35, no 7, p. 376.

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- Peterson, E.W**, and Wicks, C. M., (2001) Numerically modeled tracer movement through a conduit-matrix system: Geological Society of America Abstract with Programs, vol 32, no. 7.
- Peterson, E.W** and Wicks, C.M., (2001) Simulating contaminant transport within a conduit-porous matrix system: implications for the applicability of a pipe-flow model: AEG News, v. 44, no. 4, p. 71.
- Peterson, E.W**, Wicks, C.M., and Kelley, C., (2001) Fate of 17 β -Estradiol in waters and sediments of karst systems of Missouri: United States Environmental Protection Agency, 2001 Science To Achieve Results (STAR) Program Annual Graduate Fellowship Conference, Silver Springs, MD.
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- Peterson, E.W**, and Wicks, C.M., (2000) Modeling groundwater through branchwork conduit systems using the Storm Water Management Model (SWMM), Eos, Transactions, American Geophysical Union, Vol. 81, No. 48, p. F529.
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- Peterson, E.W**, and Dogwiler, T., (1999) Water Quality: Perche Creek and Eagle Bluffs Bottom Lands: Missouri Groundwater Quarterly, v. 6, no. 1, p. 6-7.
- Orndorff, H. A., Davis, R.K., and **Peterson, E.W**, (1999) Dual-system flow characterization for the Batesville Sandstone Formation and underlying Boone Limestone Formation: Geological Society of America Abstract with Programs, v. 31, no. 1, p. 32.
- Peterson, E.W**, Davis, R. K., and Orndorff H. A., (1998) Movement of nitrate through regolith covered karst, Northwest Arkansas: Geological Society of America Abstract with Programs, v. 30, no. 7.
- Peterson, E.W**, (1998) Evaluation of animal waste on groundwater using Nitrate-Nitrogen, Bacteria, and 17 Beta-Estradiol: Missouri Groundwater Quarterly, v. 5, no. 3, p. 2.
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- Peterson, E.W**, Davis, R.K., and Brahana, J.V., (1997) The use of regression analysis in predicting nitrate-nitrogen concentrations in springs of Northwest Arkansas: Geological Society of America Abstract with Programs, v. 29, no. 6, p. 182.
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Davis, R. K., Carr, J. D., Dormedy, D., **Peterson, E.W**, Versch, M. X., Merrick, M., Saunsoci, Q., (1995) Identifying sources of surface water and ground water contamination within the reservation of the Omaha Tribe of Nebraska, Geological Society of America Abstract with Programs, v. 27, no. 6, p. 42.

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INVITED LECTURES AND COLLOQUIA:

Illinois State University – Department of Geography, Geology and the Environment (2020)
 C-U Hydraulic Engineering Luncheon -U.S. Geological Survey (2019)
 Peoria Academia of Science – Rock, Gem, and Fossil Show (2018)
 Illinois State University – Mornings with the Professors (2017).
 Illinois State University – Department of Geography-Geology (2016)
 Geological Society of America – Topical Session: Enhancing the toolkit for karst investigations (2015)
 Illinois State Geological Survey (2014)
 Winona State University - Department of Geoscience (2013)
 Geological Society of America – Topical Session: The Evolution of Karst Landscapes through Time in Response to Changing Hydrologic, Geomorphic, and Tectonic Conditions (2012)
 Eastern Illinois University – Department of Geology/Geography (2010)
 Northern Illinois University – Department of Geology and Environmental Sciences (2007)
 Wright State University – Department of Earth and Environmental Sciences (2007)
 University of Arkansas – Department of Geosciences, Distinguished Lecturer Hydrodays, (2006)
 Illinois State University – Department of Physics (2005)
 Michigan State University – Department of Geological Sciences (2003)
 Illinois State University – Department of Geography-Geology (2001)

GRADUATE COMMITTEE MEMBERSHIP/SUPERVISION:

Committee Chair - Hydrogeology Graduate Program M.S. (ISU)

1. Suzanna Moore (2003-2005) – Nitrate Cycling – CDM, Chicago
2. Timothy Sickbert (2002-2005) – Hyporheic exchange – Ph.D. Oklahoma State University
3. Lauren Hunt (2003-2006) – Hydrogeology/flow pathway – CH2M Hill, Chicago
4. Scott Maguffin (2004-2007) – Stream dynamics – Ph.D. University of Oregon
5. Vanessa Beach (2006-2008) – Hyporheic exchange – LBG, Connecticut
6. John Woodside (2005-2008) – Karst morphology – Cannon River Watershed Partnership, MN
7. Carol Benning (2006-2008) – Hyporheic exchange/nutrient cycling – Drilling company, IL
8. Lara Harlan (2007-2009) – Karst morphology – Environmental Firm, IL
9. Benjamin Maas (2008-2010) – Karst geochemistry – Ph.D. LSU
10. Erasmus Oware (2008-2010) – Hyporheic Exchange – Ph.D. Clemson University
11. Julie Angel (2004-2010) – Karst geochemistry/flow dynamics – Parkland College, IL
12. Hridaya Bastola (2008-2011) – Hyporheic Exchange – PhD Lehigh University
13. Kevin Hughes (2005-2011) – Karst Sediment – Ph.D. University of Illinois
14. Brianne Jacoby (2009-2011) – Karst/GIS – Civil & Environmental Consultants, PA
15. Jessie Ackerman (2008-2011) – Nutrient Cycling – Illinois State Geological Survey, IL
16. Adam Lanning (2008-2011) – Flow Modeling – Bloomington Normal Wastewater District, IL
17. Andrew Sergeant (2010-2012) - Sediment Transport, Environmental Firm, Indianapolis, IN
18. Ryan Doucette (2010-2012) – Karst Thermal Transport – Anadarko Petroleum, Houston, TX
19. Darren Kimple (2010-2012) (co-advisor) – Porosity Modeling – Petco, IL.
20. Randi Liescheidt (2009-2012) – Wetlands –Environmental Firm, Peoria, IL
21. Eric Dieck (2009-2012) – Dissolved gases – Lagan Engineering & Environmental Services, PA

22. Kelly Hayden (2011-2012) – Nutrients in Hyporheic Zone, Environmental Firm, Portland, OR
23. Laura Hanna (2011-2013) – Stream Sediment Transport, Anchor QEA, Portland, OR
24. Kat Schroeder (2012-2014) – Karst morphology
25. Anas Rabie (2012-2014) – GIS Modeling, PhD University of Indiana
26. Kristen Theesfeld (2012-2014) – Transient storage, Natural Resources Technology, Milwaukee, WI
27. Logan Seipel (2013-2015) – Groundwater modeling, Braun Intertec Corporation, Minneapolis, MN
28. Emma Rude (2013-2015) – Wetlands, NASA, Virginia
29. Eileen Maxwell (2013-2015) – Wetlands, ISGS
30. Jessica Ludwikowski (2013-2016) – Chloride Transport, Cook County
31. Zach Kisfalusi (2014-2016) – Thermal Transport, USGS, Boulder CO
32. Lucas Chabela (2015-2017) – Chloride Transport, Terracon, IL
33. Andrew Francis (2015-2017) – Karst genesis, Luhdorff & Scalmanini, Consulting Engineers (LSCE) CA
34. Mahawa-Essa Mabossani Akara (2015-2017) – Geophysics and water monitoring, PhD Western Michigan University
35. Joe Miller (2015-2017) – Diurnal and seasonal variation in groundwater nitrate-N concentration in a saturated buffer zone; American Water, Laurel NJ
36. Claire Harris (2016-2018) – Surface water-groundwater interaction using thermal transport; GEI Consultants, Denver CO
37. Hannah Wirth (2017-2019) - Surficial Geology, Aquifer of the Gibson City West 7.5 Minute Quadrangle, National Parks Service
38. Jacob Piske (2017-2019) – Correlation of Nitrate and Crop use in an Agricultural Watershed, Civil & Environmental Consultants, IL
39. Andrew Oberhelman (2017-2019) – Chloride dynamics in an urban-agricultural stream; PhD University of Florida
40. Andrew Watson (2017-2019) – Surficial Geology, Aquifer Sensitivity, and 3D Hydrogeologic Investigation of the Mahomet Bedrock Valley, Gibson City 15' Quadrangle, Illinois, Roux Consulting, Chicago, IL
41. Emmett Spooner (2018-Present) – The Role of Floating Gardens to Alter the Water Quality of the Chicago River: Chicago, IL, Roux Consulting, Chicago, IL
42. Patience Bosompemaa (2018-Present) – Nitrate transport in the unsaturated zone: PhD University of Kansas
43. Ethan Conley (2019-2021) – Isolating locations of potential episodes of cave collapse and their relationship to cave level development through major river system incision: PhD Virginia Tech
44. Eli Schukow (2019-2021) - Total suspended sediment and phosphorus transport in response to storm events in an agriculturally dominated watershed
45. Abigail Heath (2019-2021) – Natural nitrate removal in shallow subsurface stream flows: PhD Colorado School of Mines
46. Ashley DiVincenzo (2018-Present) - Using Seasonal Groundwater Shifts in Nitrate Isotopes to Examine the Transport and Fate of Nitrate within a Saturated Buffer Zone.
47. Jackson Wassik (2019-Present)
48. Jake Riedel (2020-Present)
49. Alhassan Sahad (2020-Present)

GRADUATE COMMITTEE MEMBER –

Hydrogeology Graduate Program M.S. (ISU) – 48 students (47 completed; 1 in residence)
 Geological Sciences PhD (Louisiana State University) – 1 student (2020-present)
 Biological Sciences M.S. (ISU) – 1 student (completed)

ADMINISTRATIVE EXPERIENCE IN THE ACADEME:

Interim Chair, Department of Geography-Geology, ISU - 2013 - 2015
Coordinator, Hydrogeology Graduate Program, ISU - 2007-2013, 2015-.
Acting Chair, Department of Geography-Geology, ISU - Fall 2010, Summer 2011 & 2012, Fall 2012

OTHER EXPERIENCE IN UNIVERSITY GOVERNANCE:

Department of Geography, Geology and the Environment, ISU.

By-Laws Committee (2016-)
Environmental Program Committee (2015-2016)
Awards Committee (2011-2015)
Facilities and Technology Committee (2011-2017)
Chair of faculty hiring committee –Hydrogeologist (2015 -2016)
Chair of faculty hiring committee - Mineralogist/Petrologist (2010 -2011)
Assessment Committee (2015-Present; 2009-2011, 2015-2017)
Department Faculty Status Committee (DFSC) (2008-2011, 2017-Present)
Hydrogeology Program Review – writer (2016, 2008)
Member, faculty hiring committee (2003, 2004, 2005, 2006, 2007 (2), 2008, 2019)
Chair review committee (2005-2006)
Budget committee (2015-2016; 2007-2010, 2017-)
Development Committee (2017-)
Space Committee (2007-2010)
Colloquium Committee (2002-2008, 2017)
Advancement Committee (2002-2006)
Library Liaison (2002-2013)
Curriculum Committee (ongoing)
Hydrogeology Guidance and Evaluation Committee (ongoing)

College of Arts and Sciences, ISU.

Five-Year Review: Department of Politics and Government Chair, Committee Chair (2021-)
College Strategic Plan Committee (2015-2016)
College Faculty Status Committee (CFSC) (2012-2013)
First Year Experience Panel (2012,2014)
Dean Search Committee (2011)
College Curriculum Committee (2005-2008)
Chair (2007-2008)
 College Council (2003-2005)
Secretary (2004-2005)
Budget Committee (2004-2005)
Service Award Committee (2004-2005)
Subcommittee – Underrepresented Groups Task Force (2003-2004)
Scholarship Subcommittee (2003-2004)
Stevenson Center (2006- 2010, 2013-2015)
 Board Member (2013-2015)
 Advisor (2006-2010)

University-level service, ISU.

Five-Year Review: Mennonite College of Nursing Dean, Committee Chair (2021)

Research and Graduate Studies FY21 VPAA Retreat Committee (2020-2021)
University Teaching Committee COVID-19 working group (2020)
Center for a Sustainable Water Future Advisory Board (2020-)
Academic Senate (2020-2021, 2008-2011)
 Academic Affairs Committee
 Rules Committee
 Planning and Finance Committee
Search Committee Chair – Associate VP of Research and Graduate Studies (2019-2020)
University Professor Committee (2018-Present)
Graduate Council (2015-2018)
 Membership/Student Awards Subcommittee, Chair (2017-2018)
University Teaching Committee (2012-2018)
Search Committee Chair – Associate VP of Research and Graduate Studies (2015-2016)
Panel of Ten (2015-2016, 20019-2020)
Undergraduate Research Symposium Faculty Evaluator (2004 – 2007)
Graduate Research Symposium Faculty Evaluator (2004 – 2007)

PROFESSIONAL SERVICE TO DISCIPLINE:

Geological Society of America

Birdsall-Dreiss Committee, Hydrogeology Division (2020-Present)
Secretary/Treasurer, Hydrogeology Division (2012-2018)
Student Reception co-convenor (2009-2011)
Student Paper Judge
Annual Meeting – Hydrogeology Division (2016-2020)
North Central/South Central Meeting (2010, 2016, 2017)
Topical Session Organizer (2003, 2005, 2006, 2007, 2009, 2011, 2018, 2020, 2021)

Illinois Groundwater Association

Chair (2012)
Vice-Chair (2011)
Secretary (2016-present)
Web Designer (2009-present)
Director (2008 - 2010)

Environmental & Engineering Geoscience

Co-Editor (2021-Present)

United States Geological Survey

Grant Review Panelist – 104g Program (2020)

15th Multidisciplinary Conference on Sinkholes and the Engineering and Environmental Impacts of Karst

Associate Editor, Proceedings (2017-2018)

Karst Waters Institute

Associate (2010-present)
Participant, “Future Directions in Karst Research”, May 3-5, 2007, San Antonio

Second Appalachian Karst Symposium

Technical Review Committee (2008)

Illinois Section of the American Water Resources Association

Panelist – “Student Career Night at Illinois Water” (2004)

Mackinaw River Ecosystem Partnership

Member-at-large (2003-2008)

Morning with Professors

Presenter (September 2017)

Washington Elementary School, Bloomington, IL

Science Club Leader (2004-2008)

Other Activities

Tenure/Promotion Portfolio Review

Missouri State University
Texas State University

Manuscript Reviewer

ACS ES&T Water
African Journal of Environmental Science and Technology
Applied and Environmental Soil Science
Brazilian Journal of Geology
British Journal of Applied Science & Technology
Chemosphere
Contaminant Hydrogeology
Ecological Engineering
Environmental and Engineering Geosciences
Environmental Earth Science
Environmental Geology
Environmental Monitoring and Assessment
Environmental Science and Pollution Research
Environmental Science and Technology
Environments
Entropy
Fresenius Environmental Bulletin
Geobiology
Geology
Ground Water
Hydrogeology Journal
Hydrological Processes
Hydrology
International Journal of Environmental Pollution
International Journal of Water Resources and Environmental Engineering
Journal of American Water Resources Association
Journal of Cave and Karst Studies
Journal of Contaminant Hydrology
Journal of Environmental Quality
Journal of Environmental Science
Journal of Geography, Environment and Earth Science International
Journal of Geoscience Education
Journal of Geoscience and Environment Protection,
Journal of Hydrology
Landscape and Urban Planning
Limnology and Oceanography
Nature Sustainability
Open Journal of Modern Hydrology
Physical Science International Journal
Remote Sensing
Sustainability
Water
Water, Air, & Soil Pollution
Water Environment Research

Water Resources Research

Grant Proposal Reviewer:

Austrian Science Fund
National Cave and Karst Research Institute (NCKRI)
National Science Foundation
National Geographic Society
United States Geologic Survey
University of Wisconsin Water Resources Institute

Textbook Reviewer:

Earth: Portrait of a Planet (Marshak)
The Good Earth (McConnell, Steer, Knight, Owens, Park)
Earth Science (Spencer)
Environmental Geology (Montgomery)

PROFESSIONAL DEVELOPMENT:

- 2013 National Association of Geoscience Teachers “Early Career Faculty in Geosciences: Teaching, Research, and Managing Your Career Workshop”, Leader, Washington, D.C.
- 2012 Geological Society of America “Near-surface geophysics for the non-geophysicist”, Charlotte, NC
- 2009 National Association of Geoscience Teachers “Assessing Geoscience Programs: Theory and Practice”, Carleton College, Northfield MN
- 2005 National Association of Geoscience Teachers “Teaching Hydrogeology in the 21st Century Workshop”, University of Nebraska
- 2003 National Association of Geoscience Teachers “Early Career Faculty in Geosciences: Teaching, Research, and Managing Your Career Workshop”, College of William and Mary

PROFESSIONAL MEMBERSHIPS:

Geological Society of America (GSA)
 Hydrogeology Division
 Karst Division
American Geophysical Union (AGU)
National Groundwater Association
International Association of Hydrogeologists
Sigma Xi Scientific Research Society
Illinois Groundwater Association
American Water Resources Association
Association of American Geographers
National Association of Geology Teachers
National Speleological Society