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EDUCATION

- Ph.D. Limnology & Marine Science, University of Wisconsin – Madison (2011)
Thesis title: “Monitoring and Modeling Hydroecological Changes at a Restored Floodplain, East Branch Pecatonica River, Wisconsin”
- M.S. Hydrologic Science, University of California – Davis (2006)
Thesis title: “Hydrologic variability of the Cosumnes River floodplain”
- B.S. Civil Engineering (Environmental option), University of Wisconsin – Madison (2004)
Research title: “Development of a stormwater audit to improve urban water resources in residential areas”

PROFESSIONAL POSITIONS

- 2020-present Associate Scientist - Ecohydrology
Department of Agronomy, Department of Civil & Environmental Engineering (affiliate),
Nelson Institute of Environmental Studies (affiliate)
University of Wisconsin – Madison
- 2019-present Lecturer
Nelson Institute of Environmental Studies (Water Resources Management Program)
University of Wisconsin – Madison
- 2014-2020 Assistant Scientist - Ecohydrology
Department of Agronomy, Department of Civil & Environmental Engineering (affiliate),
Nelson Institute of Environmental Studies (affiliate)
University of Wisconsin – Madison
- 2014 Lecturer
Department of Civil & Environmental Engineering
University of Wisconsin – Madison
- 2011-2014 Research Specialist, Water Sustainability & Climate Project
Department of Agronomy, Department of Civil & Environmental Engineering
University of Wisconsin – Madison



- 2007-2011 Research Assistant, Department of Civil & Environmental Engineering,
University of Wisconsin – Madison
- 2004-2006 Research Assistant, Geology Department and Center for Watershed Sciences,
University of California – Davis
- 2001-2004 Student Trainee (Hydrology), U.S. Geological Survey – Water Resources Division,
Middleton, WI

TEACHING ACTIVITIES

- UW-Madison **Water Resources Management Practicum (Fall 2019, Spring 2020)**
Lead advisor for six MS students on multidisciplinary project that explores pathways to increase flood resilience in the Coon Creek Watershed in southwestern Wisconsin through infiltration experiments, rainfall frequency re-analysis, and semi-structured interviews.
- UW-Madison **Hydroscience (Fall 2014)**
Lecturer for undergraduate level course on introductory water resources engineering. Topics included water cycle, water fluxes and stores, open channel hydraulics, flood frequency analysis, economic analysis, urban hydrology, groundwater flow, and contaminant transport.
- UW-Madison **Hydroscience (Fall 2007, Spring 2008, Fall 2009, Spring 2010)**
Teaching assistant for undergraduate level course on introductory water resources engineering. Led discussions, wrote and graded homeworks and exams, and gave several lectures.
- UC-Davis **Ecogeomorphology (Winter 2006)**
Teaching assistant for a mixed graduate-undergraduate level course that undertook an interdisciplinary effort to study the effects of Flaming Gorge Dam on the Green River in Utah and Colorado.
- UC-Davis **Fluvial Geomorphology (Fall 2005)**
Teaching assistant for a mixed graduate-undergraduate level course in Fluvial Geomorphology. Taught and aided in developing laboratory activities and field trips and graded laboratory assignments and exams.

REFEREED PUBLICATIONS

Booth, E.G., S.P. Loheide, D. Bart. *in prep.* Fen ecohydrologic trajectories in response to groundwater drawdown with an edaphic feedback. *Ecohydrology*.

Lark T.J., N.P. Hendricks, N. Pates, A. Smith, S.A. Spawn, M. Bougie, **E.G. Booth,** C.J. Kucharik, and H.K. Gibbs. *in prep.* Environmental outcomes from the US Renewable Fuel Standard. *Science*.

Campbell, T.A., **E.G. Booth**, C. Gratton, R.D. Jackson, C.J. Kucharik. *in review*. Landscape transformation needed to meet water quality goals in the Yahara River watershed of southern Wisconsin. *Ecosystems*.

Qiu, J., S.R. Carpenter, **E.G. Booth**, M. Motew, C.J. Kucharik. 2020. Spatial and temporal variability of future ecosystem services in an agricultural landscape. *Landscape Ecology*.

Bart, D., **E.G. Booth**, S.P. Loheide, T. Bernthal. 2020. The Impacts of Groundwater Extraction on Calcareous Fen Floristic Quality. *Journal of Environmental Quality*. DOI:

10.1002/jeq2.20059 <https://access.onlinelibrary.wiley.com/doi/abs/10.1002/jeq2.20059>

Wardropper, C.B., A.S. Mase, J. Qiu, P. Kohl, **E.G. Booth**, A.R. Rissman. 2020. Perceived importance of ecosystem services: the roles of ecological worldview, geography, and demographics. *Landscape and Urban Planning*. DOI: 10.1016/j.landurbplan.2020.103768

<https://www.sciencedirect.com/science/article/pii/S0169204619305869>

Nocco, M.A., S.C. Zipper, **E.G. Booth**, C.R. Cummings, S.P. Loheide, C.J. Kucharik. 2019. Combining Evapotranspiration and Soil Apparent Electrical Conductivity Mapping to Identify Potential Precision Irrigation Benefits. *Remote Sensing*. 10.3390/rs11212460

<https://www.mdpi.com/2072-4292/11/21/2460>

Motew, M., X. Chen, S.R. Carpenter, **E.G. Booth**, J. Seifert, J. Qiu, S.P. Loheide, M.G. Turner, S.C. Zipper, C.J. Kucharik. 2019. Comparing effects of climate and land use on surface water quality using future watershed scenarios. *Science of the Total Environment*.

10.1016/j.scitotenv.2019.07.290

<https://www.sciencedirect.com/science/article/pii/S0048969719334047>

Chen, X., M.M. Motew, **E.G. Booth**, S.C. Zipper, S.P. Loheide, C.J. Kucharik. 2019.

Management of minimum lake levels and impacts on flood mitigation: A case study of the Yahara Watershed, Wisconsin, USA. *Journal of Hydrology*. DOI:

10.1016/j.jhydrol.2019.123920

<https://www.sciencedirect.com/science/article/pii/S0022169419306407>

Qiu, J., S.C. Zipper, M. Motew, **E.G. Booth**, C.J. Kucharik, S.P. Loheide. 2019. Nonlinear

groundwater influence on biophysical indicators of ecosystem services. *Nature Sustainability*.

DOI: 10.1038/s41893-019-0278-2 <https://www.nature.com/articles/s41893-019-0278-2>

Druschke, C.G., **E.G. Booth**, E. Lundberg. 2019. Q-Rhetoric and Controlled Equivocation:

Revising 'the Scientific Study of Subjectivity' for Cross-Disciplinary Collaboration. *Technical Communication Quarterly*. DOI: 10.1080/10572252.2019.1583377

<https://www.tandfonline.com/doi/abs/10.1080/10572252.2019.1583377>

Zipper, S.C., M. Motew, **E.G. Booth**, X. Chen, J. Qiu, C.J. Kucharik, S.R. Carpenter, S.P.

Loheide II. 2018. Continuous separation of land use and climate effects on the past and future

water balance. *Journal of Hydrology*. DOI: 10.1016/j.jhydrol.2018.08.022
<https://www.sciencedirect.com/science/article/pii/S0022169418306188>

Qiu, J., S.R. Carpenter, **E.G. Booth**, M.M. Motew, S.C. Zipper, C.J. Kucharik, S.P. Loheide, M.G. Turner. 2018. Understanding relationships among ecosystem services across spatial scales and over time. *Environmental Research Letters*. DOI: 10.1088/1748-9326/aabb87
<http://iopscience.iop.org/article/10.1088/1748-9326/aabb87>

Motew, M., **E.G. Booth**, S.R. Carpenter, X. Chen, C.J. Kucharik. 2018. The synergistic effect of manure supply and extreme precipitation on surface water quality. *Environmental Research Letters*. DOI: 10.1088/1748-9326/aaade6 <http://iopscience.iop.org/article/10.1088/1748-9326/aaade6>

Carpenter, S.R., **E.G. Booth**, C.J. Kucharik. 2018. Extreme precipitation and phosphorus loads from two agricultural watersheds. *Limnology and Oceanography*. DOI: 10.1002/lno.10767
<http://onlinelibrary.wiley.com/doi/10.1002/lno.10767/full>

Qiu, J., S.R. Carpenter, **E.G. Booth**, M.M. Motew, S.C. Zipper, C.J. Kucharik, X. Chen, S.P. Loheide, J. Seifert, M.G. Turner. 2017. Scenarios reveal pathways to sustain future ecosystem services in an agricultural landscape. *Ecological Applications*. DOI: 10.1002/eap.1633
<http://onlinelibrary.wiley.com/doi/10.1002/eap.1633/full>

Motew, M., X. Chen, **E.G. Booth**, S.R. Carpenter, P. Pinkas, S.C. Zipper, S.P. Loheide, S.D. Donner, K. Tsuruta, P.A. Vadas, C.J. Kucharik. 2017. The Influence of Legacy P on Lake Water Quality in a Midwestern Agricultural Watershed. *Ecosystems*. DOI: 10.1007/s10021-017-0125-0 <https://link.springer.com/article/10.1007%2Fs10021-017-0125-0>

Booth, E.G., J. Qiu, S.R. Carpenter, J. Schatz, X. Chen, M. Motew, C.J. Kucharik, S.P. Loheide II, J.M. Seifert, M.G. Turner. 2016. From qualitative to quantitative environmental scenarios: Translating storylines into biophysical modeling inputs at the watershed scale. *Environmental Modeling & Software*. DOI: 10.1016/j.envsoft.2016.08.008
<http://www.sciencedirect.com/science/article/pii/S1364815216304935>

Booth, E.G., S.C. Zipper, S.P. Loheide II, C.J. Kucharik. 2016. Is Groundwater Recharge Always Serving Us Well? How Climate, Urbanization, and Agriculture Can Lead To Conflicting Views. *Ecosystem Services*. DOI: 10.1016/j.ecoser.2016.08.007
<http://www.sciencedirect.com/science/article/pii/S2212041616302315>

Gillon, S.T., **E.G. Booth**, and A.R. Rissman. 2016. Shifting drivers and static baselines in environmental governance: challenges for proving and improving water quality outcomes. *Regional Environmental Change*. DOI: 10.1007/s10113-015-0787-0
<http://link.springer.com/article/10.1007%2Fs10113-015-0787-0>

Zipper, S.C., M.E. Soylu, **E.G. Booth**, and S.P. Loheide II. 2015. Untangling the effects of shallow

groundwater and soil texture as drivers of subfield-scale yield variability. *Water Resources Research*. DOI: 10.1002/2015WR017522 <http://onlinelibrary.wiley.com/doi/10.1002/2015WR017522/abstract>

Carpenter, S.R., **E.G. Booth**, S.T. Gillon, C.J. Kucharik, S. Loheide, A.S. Mase, M. Motew, J. Qiu, A.R. Rissman, J. Seifert, E. Soylu, M.G. Turner, C.B. Wardropper. 2015. Plausible futures of a social-ecological system: Yahara watershed, Wisconsin, USA. *Ecology & Society*. DOI: 10.5751/ES-07433-200210 <http://www.ecologyandsociety.org/vol20/iss2/art10/>

Carpenter, S.R., **E.G. Booth**, C.J. Kucharik, and R.C. Lathrop. 2014. Extreme Daily Loads: Role in Annual Phosphorus Input to a North Temperate Lake. *Aquatic Sciences*. 77(1): 71-79. DOI: 10.1007/s00027-014-0364-5 <http://link.springer.com/article/10.1007/s00027-014-0364-5>

Spargo, A.T., I.F. Creed, J. Jones, J. Buttle, M.B. Adams, F.D. Beall, **E.G. Booth**, J. Campbell, D.W. Clow, A.P. Covich, K. Elder, C. Ford, N. Grimm, T.K. Harms, R. Pike, D.L. Spittlehouse, A. Saha, S.D. Sebestyen, S. Sterling, M. Williams, H. Yao. 2014. A Budyko curve approach to exploring water partitioning from headwater catchments under changing climatic conditions. *Global Change Biology*. 20(10): 3191-3208. DOI: 10.1111/gcb.12615 <http://onlinelibrary.wiley.com/doi/10.1111/gcb.12615/abstract>

Weber, M.D., **E.G. Booth**, and S.P. Loheide II. 2013. Dynamic ice formation in channels as a driver for stream-aquifer interactions. *Geophysical Research Letters*. 40(13): 3408-3412. DOI: 10.1002/grl.50620 <http://onlinelibrary.wiley.com/doi/10.1002/grl.50620/abstract>

Booth, E.G. and S.P. Loheide. 2012. Hydroecological model predictions indicate wetter and more diverse soil water regimes and vegetation types following floodplain restoration. *Journal of Geophysical Research - Biogeosciences*. 117(G2). DOI: 10.1029/2011JG001831 <http://onlinelibrary.wiley.com/doi/10.1029/2011JG001831/abstract>

Booth, E.G. and S.P. Loheide, 2012. Comparing surface effective saturation and depth-to-water-level as predictors of plant composition in a restored riparian wetland. *Ecohydrology*. 5(5): 637-647. DOI: 10.1002/eco.250 <http://onlinelibrary.wiley.com/doi/10.1002/eco.250/abstract> [#9 most accessed article for journal in 2013]

Loheide, S.P. and **E.G. Booth**, 2011. Effects of changing channel morphology on vegetation, groundwater, and soil moisture regimes in groundwater dependent ecosystems. *Geomorphology*. 126(3-4): 364-376. DOI: 10.1016/j.geomorph.2010.04.016 <http://www.sciencedirect.com/science/article/pii/S0169555X10002072>

Booth, E.G. and S.P. Loheide, 2010. Effects of evapotranspiration partitioning, plant water stress response, and topsoil removal on the soil moisture regime of a floodplain wetland: Implications for restoration. *Hydrological Processes*. 24(20): 2934-2946. DOI: 10.1002/hyp.7707 <http://onlinelibrary.wiley.com/doi/10.1002/hyp.7707/abstract>

Booth, E.G., S.P. Loheide, and R.H. Hansis, 2009. Postsettlement Alluvium Removal. A Novel Floodplain Restoration Technique (Wisconsin). *Ecological Restoration*. 27(2):136-139. DOI:

10.3368/er.27.2.136 <http://er.uwpress.org/content/27/2/136>

Booth, E.G., J.F. Mount, and J.H. Viers, 2006. Hydrologic Variability of the Cosumnes River Floodplain. *San Francisco Estuary and Watershed Science*. Vol. 4, Issue 2 [September 2006]. Article 2. <http://www.escholarship.org/uc/item/71j628tv>

BOOK CONTRIBUTIONS

Druschke, C.G., **E.G. Booth**, 2019. Lessons from the Driftless Area: The Importance of Human Dimensions Research for Stream Restoration and Fisheries Management. *in* Dauwalter, D.C., T.W. Birdsong, and G.P. Garrett, Multispecies and Watershed Approaches to Freshwater Fish Conservation. American Fisheries Society Symposium 91.

Booth, E.G. and S.P. Loheide, 2013. Human-Induced Floodplain Sedimentation in the Driftless Area of southwestern Wisconsin: Consequences on Riparian Ecosystems. Vignette *in* Bierman, P.R. and D.R. Montgomery, Key Concepts in Geomorphology <http://www.uvm.edu/~geomorph/textbook/>

Booth, E.G. and S.P. Loheide, 2013. The Drying of Sierra Nevada Wet Meadows by Channel Incision and Opportunities for Restoration. Vignette *in* Bierman, P.R. and D.R. Montgomery, Key Concepts in Geomorphology <http://www.uvm.edu/~geomorph/textbook/>

CONFERENCE ABSTRACTS

Booth, E.G., T.J. Lark, N. Hendricks, N. Pates, A. Smith, S. Spawn, M. Bougie, C.J. Kucharik, H. Gibbs. 2019. Water Quality Impacts of the U.S. Renewable Fuel Standard. American Geophysical Union, Fall Meeting 2019, San Francisco, CA. abstract # H34H-15.

Lark, T.J., N. Hendricks, N. Pates, A. Smith, S. Spawn, M. Bougie, **E.G. Booth**, C.J. Kucharik, H. Gibbs. 2019. Impacts of the U.S. Renewable Fuel Standard -- Linking Policy, Economics, and Environmental Outcomes. American Geophysical Union, Fall Meeting 2019, San Francisco, CA. abstract # GC21C-1268.

Booth, E.G., S.P. Loheide, D. Bart. 2019. Positive Feedback between Hydrology and Soil Properties May Make Fen Wetlands More Susceptible to Groundwater Drawdown. 43rd Annual Meeting of the American Water Resources Association – Wisconsin Section, Delavan, WI.

Ryzak, A.C., **E.G. Booth**, D. Bart, P.A. Townsend, S.P. Loheide. 2019. Hyperspectral Remote Sensing of Calcareous Fens. 43rd Annual Meeting of the American Water Resources Association – Wisconsin Section, Delavan, WI.



Hein, C., Z. Wu, N. Lottig, R. Smail, **E.G. Booth**, P.F. Juckem. 2019. Linking Groundwater and Climate to Understand Long-Term Lake Level Fluctuations in Wisconsin. 43rd Annual Meeting of the American Water Resources Association – Wisconsin Section, Delavan, WI.

Campbell, T.A., **E.G. Booth**, M.M. Motew, C.J. Kucharik. 2018. Transformative agricultural land management change required to improve ecosystem services under a changing climate. Ecological Society of America Annual Meeting, New Orleans, LA.

Qiu, J., S.R. Carpenter, **E.G. Booth**, M.M. Motew, C.J. Kucharik. 2018. Spatial and temporal variability of future ecosystem services in an agricultural landscape. Ecological Society of America Annual Meeting, New Orleans, LA.

Booth, E.G. et al. 2018. (INVITED) Integrating qualitative and quantitative scenarios to envision plausible futures to 2070 in the Yahara Watershed. Iowa Water Conference, Ames, IA.

Campbell, T.A., C.J. Kucharik, **E.G. Booth**. 2018. Evaluating Ecosystem Services in the Yahara Watershed under Land-Use Change, Varying Land Management, and a Changing Climate. 42nd Annual Meeting of the American Water Resources Association – Wisconsin Section, Appleton, WI.

Ryzak, A.C., **E.G. Booth**, D. Bart, P.A. Townsend, C.C. Kingdon, S.P. Loheide. 2018. Linking Hydrology, Spectroscopy, and Floristic Quality of Fens. 42nd Annual Meeting of the American Water Resources Association – Wisconsin Section, Appleton, WI.

Booth, E.G., S.P. Loheide, D. Bart. 2017. Fen ecohydrologic trajectories in response to groundwater drawdown with edaphic, floristic, and hydrologic feedbacks. American Geophysical Union, Fall Meeting 2017. abstract# H13M-02.

Qiu, J., S.C. Zipper, M. Motew, **E. Booth**, C.J. Kucharik, S.P. Loheide. 2017. Nonlinear ecosystem services response to groundwater availability under climate extremes. American Geophysical Union, Fall Meeting 2017. abstract# H43S-02.

Motew, M., **E. Booth**, S. Carpenter, X. Chen, C. Kucharik. 2017. Interacting Effect of Soil Phosphorus and Extreme Precipitation on Surface Water Quality. 41st Annual Meeting of the American Water Resources Association – Wisconsin Section, Elkhart Lake, WI.

LoBue, A.C., **E.G. Booth**, S.P. Loheide, 2017. Soil Moisture and Plant Root Distribution Influence on Root Water Uptake in Prairie, Forest, and Corn. 41st Annual Meeting of the American Water Resources Association – Wisconsin Section, Elkhart Lake, WI.

Booth, E., J. Seifert, 2016. Legacies and Long-Term Change: Rethinking Water Quality Improvement. 12th Annual Clean Rivers Clean Lake Conference, Southeastern Wisconsin Watersheds Trust, Inc.



Qiu, J., **E. Booth**, M. Motew, X. Chen, S. Zipper, S. Carpenter, C. Kucharik, M. Turner, 2016. Spatial-temporal dynamics of future ecosystem services in an urbanizing agricultural landscape. 101st Annual Meeting of the Ecological Society of America, Ft. Lauderdale, FL.

Lobue, A., **E. Booth**, S. Loheide, 2016. Plant Roots, Soil, and Hydrology Relations of Prairie, Wetland, and Forest Vegetation Communities within the Yahara River Watershed, Wisconsin. 40th Annual Meeting of the American Water Resources Association – Wisconsin Section, Wisconsin Dells, WI.

Booth, E., X. Chen, M. Motew, J. Qiu, S. Zipper, S. Carpenter, C. Kucharik, S. Loheide, 2015. From provocative narrative scenarios to quantitative biophysical model results: Simulating plausible futures to 2070 in an urbanizing agricultural watershed in Wisconsin, USA. American Geophysical Union, Fall Meeting 2015. abstract #H33I-1726.

Zipper, S., M. Soyulu, **E. Booth**, S. Loheide, 2015. Impacts of Shallow Groundwater and Soil Texture on Agricultural Drought Resistance. American Geophysical Union, Fall Meeting 2015. abstract #H13F-1606.

Chen, X., M. Motew, **E. Booth**, S. Carpenter, S. Loheide, C. Kucharik, 2015. Simulating Water and Nutrient Transport in an Urbanizing Agricultural Watershed with Lake-Level Regulation Using a Coupled Modeling Approach. American Geophysical Union, Fall Meeting 2015. abstract #H13C-1532.

Zipper, S., M. Soyulu, **E. Booth**, S. Loheide, 2015. Untangling the Influences of Shallow Groundwater and Soil Texture on Corn Yield Variability. ASA, CSSA & SSSA Annual Meeting.

Motew, M., **E. Booth**, S. Carpenter, C. Kucharik, 2014. Factors Affecting P Loads to Surface Waters: Comparing the Roles of Precipitation and Land Management Practices. American Geophysical Union, Fall Meeting 2014. abstract #B51D-0055.

Booth, E.G., C.J. Kucharik, S.P. Loheide II, 2014. Assessing Agricultural Vulnerability to Recent Climate Change and Variability in Wisconsin Using USDA Crop Insurance Indemnity Data. 38th Annual Meeting of the American Water Resources Association – Wisconsin Section, Wisconsin Dells, WI.

Booth, E.G., S.C. Zipper, S.P. Loheide II, C.J. Kucharik, 2013. Is Groundwater Recharge Always Serving Us Well? Water Supply and Crop Production in Conflict in the Yahara River Watershed, Wisconsin. American Geophysical Union, Fall Meeting 2013. abstract #H23P-01.

Zipper, S.C., **E.G. Booth**, S.P. Loheide II, 2013. Groundwater subsidies and penalties to corn yield. American Geophysical Union, Fall Meeting 2013. abstract #H21F-1119.

Qiu, J., **E.G. Booth**, S.R. Carpenter, M.G. Turner. 2013. Spatially explicit scenario analysis for hydrologic services in an urbanizing agricultural watershed. American Geophysical Union, Fall Meeting 2013. abstract #H24G-02.



Loheide, S.P., M. Weber, **E.G. Booth**. 2013. Dynamic ice formation drives stream-aquifer interactions. American Geophysical Union, Fall Meeting 2013. abstract #H41N-06.

Jones, J., I.F. Creed, A.T. Spargo, J. Buttle, M.B. Adams, F.D. Beall, **E.G. Booth**, J. Campbell, D.W. Clow, K. Elder, C. Ford, N. Grimm, P. Ramlal, A. Saha, S.D. Sebestyen, D.L. Spittlehouse, S. Sterling, M. Williams, R. Winkler, H. Yao. American Geophysical Union, Fall Meeting 2013. abstract #H14C-04.

Qiu, J., **E.G. Booth**, S.R. Carpenter, M.G. Turner. 2013. Spatially explicit assessment of ecosystem service vulnerability in an agricultural landscape under alternative future scenarios. 98th Annual Meeting of the Ecological Society of America, Minneapolis, MN.

Zipper, S.C., **E.G. Booth**, S.P. Loheide II, 2013. Shallow Groundwater Impacts on Corn Biophysics and Yield during a Drought, Yahara River Watershed, Wisconsin. 37th Annual Meeting of the American Water Resources Association – Wisconsin Section, Brookfield, WI.

Booth, E.G., S.C. Zipper, S.P. Loheide II, C.J. Kucharik, 2012. Recharge as an Ecosystem Service and Disservice in a Midwestern, Urbanizing, Agricultural Watershed with an Increasing Precipitation Trend. American Geophysical Union, Fall Meeting 2012. abstract #B23D-0480.

Campbell, J.L., S.D. Sebestyen, E.R. Boose, **E.G. Booth**, R.J. Stewart, W. Wollheim, E.H. Stanley. 2012. Climate change, snowpacks, and biogeochemical cycling in northern temperate forest ecosystems. 97th Annual Meeting of the Ecological Society of America, Portland, OR.

Booth, E.G. and S.P. Loheide, 2012. Yahara River Watershed Hydrologic Retrospective Analysis: Long-term Averages and Trends in an Urbanizing Agricultural Landscape. 36th Annual Meeting of the American Water Resources Association - Wisconsin Section, Wisconsin Dells, WI.

Loheide, S.P., **E.G. Booth**, C.J. Kucharik, S.R. Carpenter, C. Gries, E. Katt-Reinders, A.R. Rissman, M.G. Turner. 2011. Developing a framework to assess the water quality and quantity impacts of climate change, shifting land use, and urbanization in a Midwestern agricultural landscape. American Geophysical Union, Fall Meeting 2011. abstract #H41C-1050.

Booth, E.G. and S.P. Loheide, 2011. Floodplain restoration leads to wetter and more diverse soil water regimes and vegetation types: Insight from an integrated hydroecological model. American Geophysical Union, Fall Meeting 2011. abstract #H11E-1094.

Booth, E.G. and S.P. Loheide, 2011. Predicting wetland plant composition based on soil moisture regime using a quasi-3D variably-saturated groundwater flow model. 35th Annual Meeting of the American Water Resources Association - Wisconsin Section, Appleton, WI.

Booth, E.G. and S.P. Loheide, 2011. Development of a model to predict plant composition based on soil moisture regime in a restored floodplain wetland in southwestern Wisconsin. 2nd



Annual Upper Midwest Stream Restoration Symposium, Oconomowoc, WI.

Booth, E.G. and S.P. Loheide, 2010. Soil moisture versus depth-to-water-level: Which is better for predicting plant composition in a restored floodplain wetland? American Geophysical Union, Fall Meeting 2010. abstract #H43D-1280.

Booth, E.G. and S.P. Loheide, 2010. Controls on the soil moisture regime of a restored floodplain, East Branch Pecatonica River: A field and modeling investigation. 34th Annual Meeting of the American Water Resources Association - Wisconsin Section, Middleton, WI.

Booth, E.G. and S.P. Loheide, 2010. Monitoring and modeling the effects of floodplain restoration on the soil water regime and vegetation composition: Upper East Branch Pecatonica River, Wisconsin. 1st Annual Upper Midwest Stream Restoration Symposium, La Crosse, WI.

Booth, E.G. and S.P. Loheide, 2009. Quantifying the hydrologic interactions associated with the plant water stress function and evapotranspiration partitioning in a wetland ecosystem. Geological Society of America Annual Meeting. Portland, OR. abstract #165517.

Booth, E.G. and S.P. Loheide, 2009. Ecohydrogeomorphology of headwater valley wetlands in the Driftless Area of southwestern Wisconsin. Society of Wetland Scientists, Annual Meeting, Madison, WI.

Booth, E.G. and S.P. Loheide, 2008. A Case Where a Shallower Water Table Leads to Drier Soils Following the Restoration of a Pre-Settlement Floodplain Surface: Insight From Numerical Modeling. American Geophysical Union, Fall Meeting 2008. abstract #H33B-1005.

Loheide, S.P. and **E.G. Booth**, 2008. (INVITED) Effects of changing channel morphology on vegetation, groundwater, and soil moisture regimes in groundwater dependent ecosystems. American Geophysical Union, Fall Meeting 2008. abstract #H31H-05.

Pathak, N., **E.G. Booth**, and S.P. Loheide, 2008. Comparing Vadose Zone and Ground Water Uptake within Different Vegetation Communities in Disturbed Wetland Ecosystems. 53rd Annual Midwest Ground Water Conference, Dubuque, IA.

Booth, E.G. and S.P. Loheide, 2008. Evaluating the hydroecological effects of flood plain restoration in the headwaters of the East Branch Pecatonica River, Wisconsin. 21st North American Prairie Conference, Winona, MN.

Booth, E.G. and S.P. Loheide, 2008. Monitoring changes in subsurface hydrology, stream temperature, flood hydraulics, and vegetation following floodplain restoration on the East Branch Pecatonica River, WI. 32nd Annual Meeting of the American Water Resources Association - Wisconsin Section, Brookfield, WI.

Booth, E.G. and S.P. Loheide, 2007. Monitoring changes in subsurface hydrology and vegetation



following floodplain restoration on the East Branch Pecatonica River, WI in Trout Unlimited Driftless Area Restoration Effort - Science in the Driftless Area Conference, Decorah, IA.

Booth, E.G., J.F. Mount, J.H. Viers, 2006. Flood Regime Characterization: A method to classify streamflow variability. American Geophysical Union, Fall Meeting 2006, abstract #H43E-0525

Booth, E.G. and K.W. Potter, 2004. Development of a Stormwater Audit to Improve Urban Water Resources in Residential Areas. in University of Wisconsin – Madison Undergraduate Research Symposium. Spring 2004.

RESEARCH GRANTS AWARDED

National Science Foundation – CNH2: Dynamics of Integrated Socio-Environmental Systems. “CNH2-S: Interactive Dynamics of Stream Restoration and Flood Resilience in a Changing Climate”. \$611,445.

Kickapoo Valley (Nuzum) Reforestation Fund, College of Agricultural and Life Sciences, University of Wisconsin – Madison. “Riparian Forests, Stream Restoration, and Persistent Flooding in the Kickapoo Valley”. 2020-2022. \$45,974. (LEAD PI)

Borghesi-Mellon Workshops Program, Center for the Humanities, University of Wisconsin – Madison. “Greener Pastures”. 2020-2021. \$5,000.

Natural Resources Conservation Service. “Using stochastic storm transposition to update rainfall intensity-duration-frequency (IDF) curves for the Coon Creek and West Fork Kickapoo Watersheds”. 2020. \$10,165.

University of Wisconsin Seagrant College Program. “Assessing and improving policy and practice interventions to reduce nutrient runoff into the Great Lakes”. 2020-2022. \$239,142.

National Science Foundation - Innovations at the Nexus of Food, Energy, and Water Systems. “INFEWS/T1: Sustaining food, energy, and water security in agricultural landscapes of the Upper Mississippi River Basin”. 2019-2024. \$2,499,683. Award # 1855996.

USDA - National Institute of Food and Agriculture. Agriculture and Food Research Initiative Competitive Grants Program. Sustainable Agricultural Systems. “Grassland 2.0 – Agroecological transformation to perennial grassland agriculture”. 2019-2024. \$10,000,000.

Dane County, Wisconsin. “Development of a Phosphorus Budget for the Lake Mendota and Yahara River Watersheds”. 2019-2020. \$12,500.

National Wildlife Federation. “Water Quality Impacts of Removing Low-Yield Portions of Cropland from Production”. 2018. \$15,000.

Kickapoo Valley (Nuzum) Reforestation Fund, College of Agricultural and Life Sciences,



University of Wisconsin – Madison. “Riparian Forests as a Stream restoration Tool in the Kickapoo Valley Watershed - Differing Perspectives, Scientific Gaps, and Prospects for a Sustainable Future”. 2018-2020. \$47,840. (LEAD PI)

Wisconsin Water Resources Institute and Wisconsin Groundwater Coordinating Council Joint Solicitation, “Linking groundwater and nutrients to monitor fen ecosystems using airborne imaging spectroscopy”. 2017-2019. \$101,145. (LEAD PI)

University of Wisconsin – Madison, Office of the Vice Chancellor for Research and Graduate Education Bridge to the Future Grant, “Creating a safe operating space for resilient food-energy-water (FEW) systems in the Upper Midwest”. 2016-2017. \$132,000.

Environmental Protection Agency, FY15 Wetland Program Development Grant, “Developing Scenario Models to Analyze Impacts of Groundwater Withdrawal on Calcareous Fens”. 2016-2018. \$240,842.

Wisconsin Water Resources Institute and Wisconsin Groundwater Coordinating Council Joint Solicitation, “Linking groundwater and climate to understand long-term lake level fluctuations in Wisconsin”. 2016-2018. \$107,770.

INVITED LECTURES & SEMINARS

“Can riparian restoration really enhance flood resilience?”, an invited presentation at the Trout Unlimited Driftless Area Restoration Effort’s 10th Annual Driftless Area Science Symposium, La Crosse, WI. February 5-6, 2019.

“The Challenge of Improving Water Quality in the Yahara Watershed: Lessons learned from decades of science and changing drivers”, an invited presentation at the Great Lakes to Gulf Watershed Leadership Summit, Memphis, TN. February 21-22, 2018.

“Integrating Qualitative and Quantitative Scenarios to Envision Plausible Futures to 2070 in an Urbanizing Agricultural Watershed in Wisconsin” an invited presentation at the Navigating the Future of Water conference at the University of Wisconsin – Milwaukee. October 19, 2017.

“Yahara 2070: Challenges of developing provocative, yet plausible, scenarios to inspire transformative change in an urbanizing agricultural watershed” a presentation as part of the online conference *Early Career Perspectives on Future Earth: Ecology & Civilization* hosted by the [Future Earth Network](#). August 16, 2017.

“Yahara 2070: Possible Futures for the Yahara Watershed” a keynote address to the University of Wisconsin – Arboretum’s Science Day 2017. Madison, WI. February 9, 2017.

“The Challenge of Proving and Improving Water Quality Outcomes – The Case of Phosphorus in the Yahara River Watershed” guest lecture for the University of Wisconsin – Baraboo/Sauk County Environmental Geology course, October 27, 2016.



"Planning for the Future of a Watershed: Lessons from Yahara 2070" invited speaker with Chris Kucharik and Jenny Seifert for the North Central Region Water Network webinar series. <http://northcentralwater.org/mediaarchive/>

"Scenarios, Simulations and Sustainability Science: Future Planning for Complex Systems" invited speaker for American Water Resources Association Webinar Series, September 14, 2016. <http://awra.org/webinars/>

"The Challenge of Proving and Improving Water Quality Outcomes – The Case of Phosphorus in the Yahara River Watershed" guest lecture for the University of Wisconsin – Baraboo/Sauk County Environmental Ethics course, November 10, 2015.

"The Challenge of Proving and Improving Water Quality Outcomes – The Case of Phosphorus in the Yahara River Watershed" guest lecture for the University of Wisconsin – Baraboo/Sauk County Interdisciplinary Water Studies course, April 27, 2015.

"From Scenario Narratives to Simulation Inputs in The Yahara River Watershed, Wisconsin" invited presentation for a workshop entitled "Scenarios to Simulation" convened by the Scenarios, Services, and Society Research Coordination Network funded by the National Science Foundation. Dartmouth College, February 26, 2015.

"The Challenge of Proving and Improving Water Quality Outcomes – The Case of Phosphorus in the Yahara River Watershed" invited lecture for the University of Wisconsin – Baraboo/Sauk County Library's Sustainability Lecture Series, April 29, 2014.

"Water Quality Management & Engineering in the Yahara Lakes Watershed" (6) guest lectures and discussions for InterEgr 102: Introduction to Society's Engineering Grand Challenges, University of Wisconsin-Madison, Fall 2013 and Spring 2014.

"Monitoring and Modeling Restored Wetlands Along the East Branch Pecatonica River" invited lecture to University of Wisconsin Interface Colloquium, November 13, 2013.

"Developing a Framework to Assess the Water Quality and Quantity Impacts of Climate Change, Shifting Land use, and Urbanization in a Midwestern Agricultural Landscape" an invited webinar to the Consortium of Universities for the Advancement of Hydrologic Science. March 30, 2012.

"The Lakeshore Nature Preserve: A very brief natural and cultural history" an invited lecture for Environment On Tap, University of Wisconsin-Madison student organization, April 2012.

"Groundwater Modeling and Characterizing Oxygen and Water Stress Regimes" a guest lecture for CEE 619: Hydroecology, University of Wisconsin-Madison. February 28, 2012.

"Developing a Framework to Assess the Water Quality and Quantity Impacts of Climate



Change, Shifting Land use, and Urbanization in a Midwestern Agricultural Landscape” a keynote address to the University of Wisconsin – Arboretum’s Science Day 2012. Madison, WI. February 9, 2012.

“Exploring the relationship between hydrology and vegetation at a restored floodplain wetland in southwestern Wisconsin” an invited lecture to Boston College’s Earth and Environmental Science Department, Boston, MA. February 24, 2011.

“Monitoring and modeling floodplain restoration along the Upper East Branch Pecatonica River” an invited lecture to the U.S. Geological Survey’s Geomorphic Analysis of Fluvial Systems course, Wisconsin Water Science Center, Middleton, WI. April 21, 2010.

“Stream/Floodplain Restoration on the East Branch Pecatonica River, Wisconsin” an invited lecture to the Biology Club, Reclamation Club, Environmental Engineering Club, and local Trout Unlimited Chapter, University of Wisconsin, Platteville. December 3, 2007.

“Stream/Floodplain Restoration on the East Branch Pecatonica River, Wisconsin” an invited lecture to Water Resources Institutions and Policies (IES 865), University of Wisconsin, Madison. November 9, 2007.

AWARDS

Polygon Engineering Student Council Teaching Award. Department of Civil & Environmental Engineering. 2010.

Best Graduate Student Oral Presentation Award. 34th Annual Meeting of the American Water Resources Association – Wisconsin Section, Middleton, WI. 2010.

Vilas Travel Grant Award. University of Wisconsin – Madison Graduate School. 2009

Outstanding Student Paper Award. American Geophysical Union, Fall Meeting 2008

Polygon Engineering Student Council Teaching Award. Department of Civil & Environmental Engineering. 2008

Best Graduate Student Poster Award. 32nd Annual Meeting of the American Water Resources Association - Wisconsin Section, Brookfield, WI. 2008.

Wisconsin Idea Undergraduate Research Fellowship. University of Wisconsin – Madison, 2003

STUDENT MENTORING / SUPERVISING

- Kayla Edwards, Chemical Engineering, August 2016 – June 2018
- Allison Lobue, Geological Engineering, November 2013 – May 2017
- Jeffrey Hatzel, GIS certificate, November 2013 – August 2015

- Hannah Friedrich, Geography, April 2014 – May 2015
- Stephen Kochaver, Biology, March 2013 – May 2013
- Taylor Pomije, Biological Aspects of Conservation, March 2012 – December 2013
- Erin Gross, Civil & Environmental Engineering, June 2011 – December 2013
- Natalí Colom Cruz, Civil & Environmental Engineering, June 2010 – Sept. 2010
- Kira Langree, Civil & Environmental Engineering, January 2008 – June 2009

PROFESSIONAL SERVICE

Peer Review

- Climate Risk Management
- Climatic Change
- Ecohydrology
- Ecological Applications
- Ecological Indicators
- Ecological Restoration
- Ecosystem Services
- Environmental Modelling and Software
- Journal of Environmental Planning and Management
- Journal of Geophysical Research - Biogeoscience
- Journal of Great Lakes Research
- Journal of Hydrology
- Hydrological Processes
- Limnologica
- National Science Foundation
- Proceedings of the National Academy of Science
- Regional Environmental Change
- Restoration Ecology
- San Francisco Estuary & Watershed Science
- Science of the Total Environment
- Water Resources Research

UW-Madison Committees

- PhD Committees
 - Elizabeth McNamee, Agronomy (2018-current)
 - Arthur Ryzak, Water Resources Engineering (2017-current)
- MS Committees
 - Rachel Johnson, Biological Systems Engineering (2020-current)
 - Caroline Gottschalk-Druschke, Environment & Resources (2018-current)



- Post-Doc Search Committee, Department of Agronomy, 2014
- DELTA Certificate Student Committee of Jacob Walsh. 2014
- Academic Staff Search Committee, Department of Agronomy, 2013
- Faculty Search Committee, Department of Civil & Environmental Engineering. 2013

Professional Organization Leadership Positions

- Treasurer, American Water Resources Association – Wisconsin Section, 2014-present

Conference Session Chair Activities

- American Water Resources Association – Wisconsin Section 37th Annual Meeting, Brookfield, WI. 2013. Session title: Agricultural Hydrology and Management
- American Water Resources Association – Wisconsin Section 36th Annual Meeting, Wisconsin Dells, WI. 2012. Session title: Nutrients & Contaminants
- Society of Wetland Scientists Annual Meeting, Madison, WI. 2009. Session title: Wetland Geomorphology and Hydrology
- American Water Resources Association – Wisconsin Section 33rd Annual Meeting, Stevens Point, WI. 2009. Session title: Flooding

Student Award Judging

- American Geophysical Union 2015 Fall Meeting, Outstanding Student Paper Awards Judge.

Outreach Activities

- UW-Madison Nelson Institute Earth Day Conference – “Exploring Connections between Cheese, Water Quality, and Sustainability.” April 22, 2019
- Latino Earth Partnership: Colaboración Ambiental, UW Arboretum, gave presentation on Yahara and Starkweather Creek watersheds; co-led field trip of local K-12 teachers, June 28, 2016
- Healthy Places Learning Group of Dane County, Wisconsin, invited presentation on Yahara 2070, Possible Futures for the Yahara Watershed, February 8, 2016
- City of Madison Common Council, invited presentation on Yahara 2070, Possible Futures for the Yahara Watershed, November 17, 2015 [link](#)
- Bethel Lutheran Church, Caring for Creation lecture series, invited presentation on the Future of the Yahara Watershed and Madison Lakes, November 15, 2015 [link](#)
- Madison Metropolitan Sewerage District Commission Subcommittee on Adaptive Management – invited presentation on Water Quality Changes and Modeling in the Yahara River watershed, July 23, 2015
- Yahara Lakes 101, Clean Lakes Alliance – invited lecture on Water Quality Changes in the Yahara River watershed, July 9, 2015
- UW-Madison Nelson Institute Earth Day Conference – presentation of Yahara 2070 scenarios, April 20, 2015
- Yahara Lakes 101, Clean Lakes Alliance – invited lecture on the Development of the Yahara 2070 scenarios, July 10, 2014. [link](#)



- Latino Earth Partnership: Colaboración Ambiental, UW Arboretum, gave presentation on Yahara and Wingra watersheds and co-led field trip of local K-12 teachers in the process of connecting local issues with new national science standards, July 8, 2014
- Member, Clean Lakes Alliance - Strategic Direction Committee, 2013-present
- Earth Partnership, University of Wisconsin Arboretum, co-led 4 field trips of local K-12 teachers & general public exploring the Yahara River watershed & making connections to potential curriculum ideas. 2012/11/09, 2013/04/06, 2013/09/14, 2013/10/17
- Urban Ecology Center, led training workshop on Water Quality. October 10, 2011. [link](#)
- Friends of Retzer Nature Center Annual Meeting, invited presentation on Wisconsin wetlands. Waukesha, WI. April 26, 2010.
- Pecatonica River Watershed Summit, talk on Riparian Corridor Management to a diverse audience including Federal and State natural resources management agencies, non-profit organizations, and private landowners, Monroe, WI. March 29, 2008.
- Brookfield East High School, presentation to AP Environmental Science class on hydroecology and water-related challenges in the future. March 7, 2008

Science Writing for General Public

- Seifert, J., E. Booth, C. Kucharik. "Lakes, Cheese, and You" StoryMap. [link](#)
- Booth, E. 2016. "Measuring success with water quality requires balancing monitoring and modeling." *Yahara in situ*, the Yahara 2070 project blog, [link](#)
- Booth, E., and C. Wardropper, 2015. "The importance and challenges of monitoring water quality." *Yahara in situ*, the Yahara 2070 project blog, [link](#)
- Booth, E. 2014. "Nasty but necessary: The brief history of the Madison area's municipal waste water". *Yahara in situ*, the Yahara 2070 project blog, [link](#)
- Booth, E. 2014. "The brief story of the Madison area's drinking water". *Yahara in situ*, the Yahara 2070 project blog, [link](#)
- Booth, E. 2014. "Thinking Deep: The Short Story of Yahara's Geologic Past, Part Two". *Yahara in situ*, the Yahara 2070 project blog, [link](#)
- Booth, E. 2014. "Thinking Deep: The Short Story of Yahara's Geologic Past, Part One". *Yahara in situ*, the Yahara 2070 project blog, [link](#)

OTHER PROFESSIONAL ACTIVITIES

Teaching Skills Development

- Getting Started in Undergraduate Research Workshop, American Geophysical Union Fall 2012 Meeting, San Francisco, CA
- Teaching & Learning Symposium, UW-Madison, 2012
- Expeditions in Service Learning course, UW-Madison Delta program, Fall 2011
- Teaching Improvement Workshop, UW-Madison, 2007, 2009

Workshops

- (Co-leader) Wisconsin Wetlands Association – Wetland Science Conference. "Scenario



Modeling of the Impacts of Groundwater Withdrawal on Calcareous Fens". February 20, 2020. Delavan, WI.

- National Science Foundation – Scenarios, Services, and Society Research Coordination Network, "Scenarios to Simulation", February 26-27, 2015, Dartmouth College, NH.
- National Science Foundation – Long-Term Ecological Research Synthesis Working Group Workshop, "Social and ecological responses to climate change and land-use effects on water availability: contrasting resilience among major river basins of the US and Canada", November 16-19, 2011, Sevilleta Field Station, New Mexico.
- Stream Restoration Joint Workshop: Stillwater Sciences – Physical Modeling Experiments to Guide River Restoration Projects, National Center for Earth-Surface Dynamics Stream Restoration Partners Group, July 6-8, 2006, UC-Berkeley Richmond Field Station, Richmond, CA

Professional society memberships

- American Geophysical Union
- American Society of Civil Engineers
- American Water Resources Association
- Chi Epsilon (Civil Engineering Honor Society)
- Ecological Society of America
- Geological Society of America
- Society of Wetland Scientists

Media coverage

- Kickapoo Scout, "NRCS awards \$1,667,500 to study two watersheds where dams breached in 2018", February 13, 2020. [link](#)
- Grist, "Wisconsin's catastrophic flooding is a glimpse of the Midwest's drenched future", September 5, 2018. [link](#)
- Channel 3000 / News 3 Now, "More Rain Expected To Add to High Lake Levels", August 27, 2018. [link](#)
- Wisconsin State Journal, "Many help clean and study the lakes, but progress is elusive", August 5, 2018. [link](#)
- Wisconsin Public Television, "Yahara Watershed: A Place of Change", September 1, 2016. [link](#)
- Wisconsin State Journal, "Fixes come slowly for growing list of impaired lakes and streams" by Steven Verburg, April 17, 2016. [link](#)
- Madison Magazine, "Writer calls for long-term thinking about water quality" by Jenny Seifert, August 28, 2015. [link](#)
- Wisconsin Public Radio, The Larry Meiller Show, "Our Changing Lands and Waters". June 17, 2015. [link](#)
- Capital Times, "Report: Farms, climate change hampering efforts to clean lakes" April 27, 2015 [link](#)
- Newsleaf, Friends of the UW-Madison Arboretum Newsletter, "The Yahara Watershed: How Will it Look in 2070?" by Frank Court, October 2013, Vol. 28 (10)



- The Nature Conservancy, "Wisconsin – Restoring America's Heartland Takes Heart", December 2, 2011. [link](#)
- Perspective (UW-Madison College of Engineering newsletter), "River provides scientific basis for future restoration projects" Springs 2010. [link](#)
- WUWM Milwaukee Public Radio's Lake Effect, Ecological Restoration interview by Mitch Teich, September 30, 2008. [link](#)
- Wisconsin State Journal, "A move to reclaim a slice of the Pecatonica", August 31, 2008. [link](#)
- Perspective (UW-Madison College of Engineering newsletter), "Watershed study solidifies science behind ecosystem restoration projects" Fall 2008. [link](#)
- The Conduit (UW Civil & Environmental Engineering newsletter), "Student research looks to help storm water runoff" Summer 2004. [link](#)