

**Zachary M. Easton, Ph.D.**

Dept. Biological Systems Engineering, Virginia Tech

Phone 540/231/0689

Email zeaston@vt.edu

Lab Website: <https://eastonlab.bse.vt.edu/>

[Google Scholar Profile](#)

**Education**

**2007** Cornell University Ph.D.

**2004** Cornell University M.S.

**2000** University of Massachusetts Amherst B.S.

**Professional Experience**

**2020-present** Professor, Dept. Biological Systems Engineering, Virginia Tech

**2016-2020** Associate Professor, Dept. Biological Systems Engineering, Virginia Tech

**2011-2016** Assistant Professor, Dept. Biological Systems Engineering, Virginia Tech

**2009-2011** Research Associate, Dept. Biological and Environmental Engineering, Cornell University

**2007-2009** Postdoctoral Research Associate, Dept. Biological and Environmental Engineering, Cornell University

**2002-2007** Graduate Research Assistant, Cornell University

**Awards**

**2022** Virginia Tech National Distinction Program

**2020** Universities Council on Water Resources 2020 UCOWR Mid-Career Award for Applied Research

**2019** CALS Excellence in Applied Research Award

**2019** Virginia Tech National Distinction Program

**2019** North Central Association of State Ag Experiment Station Directors National Excellence in Multi-State Research Award – NCERA217: Drainage Design and Management to Improve Water Quality

**2018** Virginia Tech National Distinction Program

**2016** Scholar of the Week, Office of the Vice President for Research and Innovation, Virginia Tech

**2016** Virginia Tech National Distinction Program

**2014** Outstanding Assistant Professor, College of Engineering, Virginia Tech

**2013** Outstanding Reviewer, ASCE

**2008** USDA-CSREES Award for Mission Integration

**Refereed Publications** (\*group member, chronological)

- 1) Stephenson, K., L. Shabman, J. Shortle, **Z.M. Easton**. 2022. Confronting our agricultural nonpoint source control policy problem. Journal of the American Water Resources Association. <https://doi.org/10.1111/1752-1688.13010>

- 2) Deval, C., E.S. Brooks, M. Dobre, R. Lew, P.R. Robichaud, A. Fowler, J. Boll, A.S. Collick, **Z.M. Easton**. 2022. Pi-VAT: A web-based visualization tool for decision support using spatially complex water quality model outputs. Journal of Hydrology. <https://doi.org/10.1016/j.jhydrol.2022.127529>
- 3) Fleming, P., K.S. Stephenson, A.S. Collick, **Z.M. Easton**. 2022. Targeting for nonpoint source pollution reduction: a synthesis of lessons learned, remaining challenges, and emerging opportunities. Journal of Environmental Management. DOI: [10.1016/j.jenvman.2022.114649](https://doi.org/10.1016/j.jenvman.2022.114649)
- 4) Modi, P.\*, J. Czuba, **Z.M. Easton**. 2022. Coupling a land surface model with a hydrodynamic model for regional flood risk assessment due to climate change: application to the Susquehanna River. Journal of Flood Risk Management. <http://doi.org/10.1111/jfr3.12763>
- 5) Alamdari, N.\*, P. Claggett, D.J. Sample, Z.M. Easton, M. Yazdi. 2022. Evaluating the joint effects of climate and land use change on runoff and pollutant loading in a rapidly developing watershed. Journal of Cleaner Production. <https://doi.org/10.1016/j.jclepro.2021.129953>
- 6) Ketterings, Q. C. Twombly, A. Collick, J. Faulkner, **Z.M. Easton**. 2022. An evaluation BMP performance using a regional P Index and process-based watershed models. Journal of Environmental Quality (In Press).
- 7) Ebadi N.\*, D. Bosch, R.R. White, M. Wagena\*, A.S. Collick, **Z.M. Easton**. 2022. Costs of reducing emissions from a dairy farm: A constrained optimization approach. Agricultural Systems. (In Press).
- 8) Modi, P.\*, D.R. Fuka\*, **Z.M. Easton**. 2021. Impacts of climate change on terrestrial hydrological components and crop water use in the Chesapeake Bay watershed. Journal of Hydrology Regional Studies. <https://doi.org/10.1016/j.ejrh.2021.100830>
- 9) Modi, P.\*, D.R. Fuka\*, **Z.M. Easton**. 2021. Data in Short “Impacts of climate change on terrestrial hydrological components and crop water requirement in the Chesapeake Bay Watershed. Journal of Hydrology Regional Studies. <https://doi.org/10.6084/M9.FIGSHARE.14049569>
- 10) Stephenson, K., W. Ferris\*, E. Bock\*, **Z.M. Easton**. 2021. Treatment of legacy nitrogen as a compliance option to meet Chesapeake Bay TMDL requirements. Environmental Science & Technology. <https://doi.org/10.1021/acs.est.1c04022>
- 11) Fuka\*, D.R, **Z.M. Easton**. 2021. TopoSWAT Source. Data in Short. Figshare. <https://doi.org/10.6084/m9.figshare.1342823.v4>
- 12) Twombly, C.\*, J. Faulkner, A. Collick, **Z.M. Easton**. 2021. Identification of P Index improvements through model comparisons across topographic regions in a small agricultural watershed in Vermont, USA. Soil Science Society of America Journal. <http://doi.org/10.1002/saj2.20254>

- 13) Hood, R., G. Shenk, R. Dixon, W. Ball, J. Bash, P. Claggett, **Z.M. Easton**, M. Friedrichs, T. Ihde, L. Linker, A. Miller, G. Noe, K. Rose, J. Testa, R. Tian, T. Veith, L. Wainger, D. Weller, J. Zhang. 2021. The Chesapeake Bay Program management modeling system: progress, challenges, and prospects. Ecological Modeling.  
<https://doi.org/10.1016/j.ecolmodel.2021.109635>
- 14) Dos Reis B., **Z.M. Easton**, R.R. White and D.R. Fuka \*. 2021. A LoRa sensor network for monitoring pastured livestock location and activity. Translational Animal Science.  
<https://doi.org/10.1093/tas/txab010>
- 15) Dos Reis B., D.R. Fuka\*, **Z.M. Easton**, and R.R. White. 2021. An open-source research tool to study triaxial inertial sensors for monitoring selected behaviors in sheep. Translational Animal Science 4(4):01 Oct 2020. doi.org/10.1093/tas/txaa188
- 16) Dos Reis B., D.R. Fuka\*, **Z.M. Easton**, and R.R. White. 2020. An open-source microprocessor-based sensor for monitoring grazing animal behaviors. Journal of Dairy Science 103:9, 0022-0302
- 17) Xu, Y., D. Bosch, M. Wagena\*, A. Collick, and **Z.M. Easton**. 2020. Reducing costs of mitigating nitrogen loadings by within- and cross-county targeting. Journal of Environmental Management. <https://doi.org/10.1016/j.jenvman.2020.110333>
- 18) Wagena, M.B.\*, D.G. Goering, A.S. Collick, E.M. Bock\*, A.R. Buda, D.R. Fuka\*, and **Z.M. Easton**. 2020. A comparison of short-term streamflow forecasting using stochastic time series, neural networks, process-based, and Bayesian models. Environmental. Modeling & Software. <https://doi.org/10.1016/j.envsoft.2020.104669>
- 19) **Easton, Z.M.**, E.M. Bock\*, and K. Stephenson. 2020. Feasibility of employing bioreactors to treat legacy nutrients in emergent groundwater. Environmental Science & Technology.  
<http://dx.doi.org/10.1021/acs.est.9b04919>
- 20) Bock, E.\*, and **Z.M. Easton**. 2020. Export of nitrogen and phosphorus from golf courses in the Mid Atlantic, are current export rates accurate? Journal of Environmental Management. <https://doi.org/10.1016/j.jenvman.2019.109817>
- 21) Almadari, N.\*, D. Sample, A. Ross, and **Z.M. Easton**. 2020. Evaluating the impact of climate change on water quality and quantity in an urban watershed using an ensemble approach. Estuaries and Coasts. [1-17. 10.1007/s12237-019-00649-4.](https://doi.org/10.1007/s12237-019-00649-4)
- 22) Wagena, M.B\*., G. Bhatt, A.R. Sommerlot\*, E. Buell\*, D.R. Fuka\*, and **Z.M. Easton**. 2019. Quantifying structural model uncertainty using a Bayesian multi model ensemble. Environmental. Modeling & Software. <https://doi.org/10.1016/j.envsoft.2019.03.013>
- 23) Kleinman, P., R. Fanelli, B. Hirsch, A.R. Buda, L. Wainger, C. Brosch, M. Lowenfish, A. Collick, **Z.M. Easton**, A. Shirmohammadi, K. Boomer, J. Hubbart. 2019. Phosphorus and the Chesapeake Bay – Lingering issues and emerging concerns for agriculture. Journal of Environmental Quality 2019 48:1191-1203. <https://doi.org/10.2134/jeq2019.03.0112>
- 24) Xu, Y., D. Bosch, M. Wagena\*, A. Collick, and **Z.M. Easton**. 2019. Meeting water quality

- goals by spatial targeting under climate change. *Journal of Environmental Management*. DOI: [10.1007/s00267-018-01133-8](https://doi.org/10.1007/s00267-018-01133-8)
- 25) Coleman, B.S.\*, E.M. Bock\*, and **Z.M. Easton**. 2019. Biochar fails to enhance nutrient removal in woodchip bioreactor columns following saturation. *Journal of Environmental Management*. <https://doi.org/10.1016/j.jenvman.2018.11.074>.
  - 26) Wagena, M.B.\*, A.S. Collick, A. Ross, B. Rau, R. Najjar, A. Sommerlot\*, D.R. Fuka\*, P.J. Kleinman, and **Z.M. Easton**. 2018. Quantifying the impact of climate change and climate extremes on hydrologic and biogeochemical processes in the Chesapeake Bay Watershed. *Science of the Total Environment*. 637–638 (2018) 1443–1454. <https://doi.org/10.1016/j.scitotenv.2018.05.116>.
  - 27) Bosch, D.J., M. Wagena\*, A.C. Ross, A.S. Collick, **Z.M. Easton**. 2018. Meeting water quality goals under climate change in Chesapeake Bay watershed, USA. *Journal of the American Water Resources Association*. 1-19, <https://doi.org/10.1111/1752-1688.12684>
  - 28) Buchanan, B., D.A. Auerbach, J. Knighton, D. Evensen, D. R. Fuka\*, **Z.M. Easton**, M. Wiczorek, J.A. Archibald, B. McWilliams, and M.T. Walter. 2018. Estimating dominant runoff modes across the conterminous United States. *Hydrological Processes*. <https://doi.org/10.1002/hyp.13296>
  - 29) Bock, E.M.\*, and **Z.M. Easton**. 2018. Effect of biochar, hydraulic residence time, and nutrient loading on greenhouse gas emission in laboratory-scale denitrifying bioreactors. *Ecological Engineering*. 120. <https://doi.org/10.1016/j.ecoleng.2018.06.010>
  - 30) Bock, E.M.\* and **Z.M. Easton**. 2018. Performance of an under-loaded denitrifying bioreactor in the Virginia Coastal Plain. *Journal of Environmental Management*. 217 (2018) DOI: [10.1016/j.jenvman.2018.03.111](https://doi.org/10.1016/j.jenvman.2018.03.111)
  - 31) Wagena, M.B.\* and **Z.M. Easton**. 2018. Conservation practices can help mitigate the impact of climate change. *Science of the Total Environment*. 635 (2018) 132–143. DOI: [10.1016/j.scitotenv.2018.04.110](https://doi.org/10.1016/j.scitotenv.2018.04.110)
  - 32) **Easton, Z.M.**, P.J. Kleinman, A.R. Buda, D. Goering, N. Emberston, S. Reed, P.J. Drohan, M.T. Walter, P. Guinan, J.A. Lory, A.R. Sommerlot\*, and A. Sharpley. 2017. Short-term forecasting tools for agricultural nutrient management. *Journal of Environmental Quality*. doi:10.2134/jeq2016.09.0377.
  - 33) Christianson, L., A.S. Collick, E. Bock\*, P. Kleinman, and **Z.M. Easton**. 2017. Enhanced denitrification bioreactors hold promise for Mid-Atlantic ditch drainage. *Journal of Environmental Quality*. doi:10.2134/ael2017.09.0032.
  - 34) Kleinman, P., A. Sharpley, **Z.M. Easton**, J. Lory, D. Osmond, D. Radcliffe, N. Nelson, and T. Veith. 2017. The promise, practice and state of planning tools to assess site vulnerability to runoff phosphorus loss. *Journal of Environmental Quality*. 46: 6: 1243-1249. doi:10.2134/jeq2017.10.0395.

- 35) Sharpley, A., P. Kleinman, C. Baffuat, **Z.M. Easton**, J. Lory, D. Osmond, and T. Veith. 2017. Verification of phosphorus site assessment tools: Lessons from the U.S Journal of Environmental Quality. doi:10.2134/jeq2016.11.0427.
- 36) Sommerlot, A.R.\* and **Z.M. Easton**. 2017. Development of a free and open-source web-based interface for distributed short-term hydrologic forecasts to support agricultural decision-making. *Water*. 9, 604; doi:10.3390/w9080604.
- 37) Alamdari, N.\*, D. Sample, A. Ross\*, P Steinberg, and **Z.M. Easton**. 2017. Assessing the effects of climate change on water quantity and quality in an urban watershed using a hydrologic model and assisted calibration. *Water*. 9, 464; doi:10.3390/w9070464
- 38) DeBoe, G.\*, E.M. Bock\*, K. Stephenson, and **Z.M. Easton**. 2017. Nutrient biofilters in the Virginia Coastal Plain: Nitrogen removal, cost, and potential adoption pathways. *Journal of Soil and Water Conservation*. 2017 72(2):139-149; doi:10.2489/jswc.72.2.139
- 39) Sommerlot, A.R.\*, M.B. Wagena\*, D.R. Fuka\*, and **Z.M. Easton**. 2017. Coupling the short-term Global Forecast System weather data with a variable source area hydrologic model. *Environmental. Modeling & Software*. <http://dx.doi.org/10.1016/j.envsoft.2016.09.008>1364-8152.
- 40) Wagena, M.B.\*, A.R. Sommerlot\*, E.M. Bock\*, D.R. Fuka\*, and **Z.M. Easton**. 2017. Development of a nitrous oxide routine for the SWAT model to assess greenhouse gas emissions from agroecosystems. *Environmental. Modeling & Software*. <http://dx.doi.org/10.1016/j.envsoft.2016.11.013>.
- 41) Wagena, M.B.\*, A. Sommerlot\*, A. Abiy, D.R. Fuka\*, A.S. Collick\*, S. Langan, and **Z.M. Easton**. 2016. Regional climate change In the Blue Nile Basin: Implications for water resource availability and sediment transport. *Climatic Change*. doi: 10.1007/s10584-016-1785-z.
- 42) Fuka, D.R.\* , A.S. Collick\*, P. Kleinman, D. Auerbach, D, Harmel, and **Z.M. Easton**. 2016. Improving the spatial representation of soil properties and hydrology using topographically derived initialization processes in the SWAT model. *Hydrological Processes*. doi: 10.1002/hyp.10899.
- 43) Auerbach, D., **Z.M. Easton**, M.T. Walter, A.S. Flecker, and D.R. Fuka\*. 2016. Evaluation of alternative weather forcing for hydrologic modeling in tropical basins of Puerto Rico. *Hydrological Processes*. doi:10.1002/hyp.10860.
- 44) Collick, A.S.\* , T.L. Veith, D.R. Fuka\*, P.J.A. Kleinman, A.R. Buda, J.L. Weld, R.B. Bryant, P.A. Vadas, M.J. White, D. Harmel, and **Z.M. Easton**. 2016. Improved simulation of edaphic and manure phosphorus loss in SWAT. *Journal of Environmental Quality*. doi:10.2134/jeq2015.03.0135
- 45) Bock, E.M.\* , B. Coleman\*, and **Z.M. Easton**. 2016. Effect of biochar on nitrate removal in a field-scale denitrifying bioreactor. *Journal of Environmental Quality*. doi: 10.2134/jeq2015.04.0179.

- 46) **Easton, Z.M.**, M.E. Rogers\*, J.M. Davis\*, M. Eick and E.M. Bock\*. 2015. Mitigation of sulfate reduction and nitrous oxide emission in denitrifying environments with amorphous iron oxide and biochar. *Ecological Engineering*.  
<http://dx.DOI.org/10/1016/j.ecoleng20115.05.008>.
- 47) Kleinman, P.J.A., D.R. Smith, C.H. Bolster, and **Z.M. Easton**. 2015. Phosphorus fate, management and modeling in artificially drained systems. *Journal of Environmental Quality*. 44:460–466. doi:10.2134/jeq2015. 02.0090.
- 48) Radcliffe, D.E., D.K. Reid, K. Blombäck, C.H. Bolster, A.S. Collick\*, **Z.M. Easton**, W. Francesconi, D.R. Fuka\*, H. Johnsson, K. King, M. Larsbo, M.A. Youssef, A.S. Mulkey, N.O. Nelson, K. Persson, J.J. Ramirez-Avila, F. Schmieder, and D.R. Smith. 2015. Applicability of models to predict phosphorus losses in drained fields: A review. *Journal of Environmental Quality*. 44:614–628. doi:10.2134/jeq2014.05. 0220.
- 49) Rittenburg, R.A., A.L. Squires, J. Boll, E. Brooks, **Z.M. Easton**, and T.S. Steenhuis. 2015. Agricultural BMP Effectiveness and dominant hydrological flow paths: Concepts and a review. *Journal of the American Water Research Association*. DOI:10.1111/1752-1688.12293.
- 50) Brooks, E.S., S.M. Saia, J. Boll, L. Wetzel, and **Z.M. Easton**. 2015. Assessing BMP effectiveness and guiding BMP planning using process-based modeling. *Journal of the American Water Research Association*. DOI:10.1111/1752-1688.12296.
- 51) Boll, J., T.S. Steenhuis, E.S. Brooks, L. Kurkalova, R.A. Rittenburg, A.L. Squires, G. Vellidis, **Z.M. Easton**, and J.D. Wulfhorst. 2015. Featured collection introduction: Synthesis and analysis of Conservation Effects Assessment Projects for improved water quality. *Journal of the American Water Research Association*. DOI:10.1111/1752-1688.12297.
- 52) Bock, E.\*, N. Smith\*, M. Rogers\*, B. Coleman\*, M. Reiter, B. Benham, and **Z.M. Easton**. 2015. Nitrate and phosphate removal and nitrous oxide production in lab-scale denitrifying bioreactors. *Journal of Environmental Quality*. 44:605–613.  
doi:10.2134/jeq2014.03.0111.
- 53) Collick, A.S.\*, D.R. Fuka\*, P.J.A. Kleinman, A.R. Buda, J.L. Weld, M.J. White, T.L. Veith, R.B. Bryant, C.H. Bolster, and **Z.M. Easton**. 2015. Predicting phosphorus dynamics in complex terrains using a variable source area hydrology model. *Hydrological Processes*. DOI: 10.1002/hyp.10178.
- 54) Hoskins T.C., J.S. Owen, J.S. Fields, J.E. Altland, **Z.M. Easton** and A.X. Niemiera. 2014. Solute transport through a pine-bark based substrate under saturated and unsaturated conditions. *JAHS*. 139(6):634–641. 2014.
- 55) Fuka, D.R.\*, M.T. Walter, C.A. MacAllister, and **Z.M. Easton**. 2014. SWATmodel: A Multi-OS, Multi-Platform SWAT Model Package in R. *Journal of the American Water Research Association*. 1-5. DOI: 10.1111/jawr.12170.

- 56) Woodbury, J., C.A. Shoemaker, D. Cowan, and **Z.M. Easton**. 2014. A comparison of SWAT models for the Cannonsville Watershed with and without variable source area hydrology. *Journal of the American Water Research Association*. 1-15. DOI: 10.1111/jawr.12116.
- 57) Fuka, D.R.\*, C.A. MacAllister, A.T. Degaetano, and **Z.M. Easton**. 2013. Using the Climate Forecast System Reanalysis dataset to improve weather input data for watershed models. *Hydrological Processes*. DOI: 10.1002/hyp.10073.
- 58) **Easton, Z.M.** 2013. Defining spatial variability of hillslope infiltration characteristics using geostatistics, error modeling and autocorrelation analysis. *Journal of Irrigation and Drainage Engineering*. ASCE. 139(9) 718-727, DOI:10.1061/(ASCE)IR.1943-4774.0000602
- 59) Dahlke, H.E., **Z.M. Easton**, D.R. Fuka\*, M.T. Walter, and T.S. Steenhuis. 2013. Real-time forecast of hydrologically sensitive areas in the Salmon Creek Watershed, New York State, using an online prediction tool. *Water*. 5, 917-944; doi:10.3390/w5030917.
- 60) Flores-López, F., **Z.M. Easton**, L.D. Geohring, P.J. Vermeulen, V.R. Haden, and T.S. Steenhuis. 2013. Factors affecting phosphorous in ground water in an alluvial valley aquifer: Implications for best management practices. *Water*. 5. 2013. 540-559; doi:10.3390/w5020540.
- 61) Pradhanang, S., R. Mukundan, E.M. Schneiderman, M. Zion, A. Anandhi, D.C. Pierson, A. Frei, **Z.M. Easton**, D.R. Fuka\*, and T.S. Steenhuis. 2013. Streamflow responses to projected climate change: Analysis of hydrologic indicators in a New York City water supply watershed. *Journal of the American Water Research Association*. 1308-1326. DOI: 10.1111/jawr.12086.
- 62) Buchanan, B.P., **Z.M. Easton**, R. Schneider and M.T. Walter. 2013. Modeling the hydrologic effects of roadside ditch networks on receiving waters. *Journal of Hydrology*. doi: <http://dx.doi.org/10.1016/j.jhydrol.2013.01.040>.
- 63) Buchanan B.P., J.A. Archibald, **Z.M. Easton**, S.B. Shaw, R.L. Schneider, and M.T. Walter. 2013. A Phosphorus Index that combines critical source areas and transport pathways using a travel time approach. *Journal of Hydrology*. <http://dx.doi.org/10.1016/j.jhydrol.2013.01.018>.
- 64) Caballero, L.A., **Z.M. Easton**, B.K. Richards, and T.S. Steenhuis. 2013. Evaluating the hydrological impact of a cloud forest in Central America using a semi-distributed water balance model. *Journal of Hydrology*. 61, 2013, 1, 9 – 20 DOI: 10.2478/jhh - 2013-0003.
- 65) Saia, S., E.S. Brooks, **Z.M. Easton**, C. Baffaut, J. Boll, and T.S. Steenhuis. 2013. Incorporating pesticide transport into the WEPP-UI model for mulch tillage and no-tillage soil with an underlying claypan. *Transactions ASCE Applied Engineering in Agriculture*. 29(3):363-372.
- 66) Tilahun, S.A., R. Mukundan, B.A. Demisse, T.A. Engda, C.D. Guzman, B.C. Tarakegn, **Z.M. Easton**, A.S. Collick\*, A.D. Zegeye, E.M. Schneiderman, J.Y. Parlange, and T.S. Steenhuis. 2013. A saturation excess erosion model. *Transaction ASABE* 56(2): 681-695.

- 67) Buchanon, B.P., K. Falbo, R. Schneider, **Z.M. Easton**, and M.T. Walter. 2013. Hydrologic impact of roadside ditches in an agricultural watershed: Implications for non-point source pollutant transport. *Hydrological Processes*. 10.1002/hyp.9305.
- 68) Caballero, L., A. Rimmer, **Z.M. Easton**, and T.S. Steenhuis. 2012. Rainfall runoff relationships for a cloud forest watershed in Central America: Implications for water resource engineering. *Journal of the American Water Research Association*. 20 JUN 2012 | DOI: 10.1111/j.1752-1688.2012.00668.x
- 69) Buchanon, B.P., **Z.M. Easton**, R. Schneider, and M.T. Walter. 2012. Incorporating variable source area hydrology into a spatially distributed direct runoff model. *Journal of the American Water Research Association*. 48(1): 43–60. DOI: 10.1111/j.1752-1688.2011.00594.x
- 70) Fuka, D.R.\*, **Z.M. Easton**, E.S. Brook, J. Boll, T.S. Steenhuis, and M.T. Walter. 2012. Process-based snowmelt modeling: Integration into the SWAT model. *Journal of the American Water Research Association*. DOI: 10.1111/j.1752-1688.2012.00680.x
- 71) Dahlke, H.E., **Z.M. Easton**, S. Lyon, L.D. Brown, M.T. Walter, and T.S. Steenhuis. 2012. Dissecting the variable source area concept - Subsurface flow pathways and water mixing processes in a hillslope. *Journal of Hydrology*. doi:10.1016/j.jhydrol.2011.11.052.
- 72) Rao, N.S., **Z.M. Easton**, D.R. Lee, and T.S. Steenhuis. 2012. Economic analysis of best management practices to reduce watershed phosphorus losses. *Journal of Environmental Quality*. doi:10.2134/jeq2011.0165.
- 73) Dahlke, H.E., **Z.M. Easton**, M.T. Walter, and T.S. Steenhuis. 2012. A field test of the variable source area interpretation of the Curve Number rainfall-runoff equation. *Journal of Irrigation and Drainage Engineering*. ASCE. Vol. 138, No. 3, ISSN 0733-9437/2012/3-235–244.
- 74) **Easton, Z.M.**, M.T. Walter, D.R. Fuka\*, E.D. White\*, and T.S. Steenhuis. 2011. A simple concept for calibrating runoff thresholds in quasi-distributed variable source area watershed models. *Hydrological Processes*. doi:10.1002/hyp.8032, 2011.
- 75) White, E.D.\*, **Z.M. Easton**, D.R. Fuka\*, A.S. Collick\*, E. Adgo, M. McCartney, S.B. Awulachew, Y.G. Selassie, and T.S. Steenhuis. 2011. Development and application of a physically based landscape water balance in the SWAT model. *Hydrological Processes*. 25:915-925. doi:10.1002/hyp.7876, 2011.
- 76) Marjerison, R.D., **Z.M. Easton**, H.E. Dahlke, and M.T. Walter. 2011. A P-Index transport factor based on variable source area hydrology for New York State. *Journal of Soil Water and Conservation*. 66(3):149-157; doi:10.2489/jswc.66.3.149.
- 77) Flores-López, F., **Z.M. Easton**, L.D. Geohring, and T.S. Steenhuis. 2011. Factors affecting dissolved phosphorus and nitrate concentrations in ground and surface water for a valley dairy farm in the Northeastern United States. *Water Environmental Research*. 8392:116-127.



- 78) **Easton, Z.M.**, D.R. Fuka, E.D White, A.S. Collick, B.B Ashagre, M. McCartney, S.B. Awulachew, A.A. Ahmed, and T.S Steenhuis. 2010. A multi basin SWAT model analysis of runoff and sedimentation in the Blue Nile, Ethiopia. *Hydrology and Earth System Science*. 14(10):1827-1841. doi:10.5194/hess-14-1827-2010, 2010.
- 79) Tebebu, T.Y., A.Z. Abiy, A.D. Zegeye, H.E. Dahlke, **Z.M. Easton**, S.A. Tilahun, A.S. Collick, S. Kidnau, S. Moges, F. Dadgari, and T.S. Steenhuis. 2010. Surface and subsurface flow effects on permanent gully formation and upland erosion near Lake Tana in the northern Highlands of Ethiopia. *Hydrology and Earth System Science*. 14:2207–2217. doi:10.5194/hess-14-2207-2010.
- 80) Flores-López, F., **Z.M. Easton**, and T.S. Steenhuis. 2010. A multivariate analysis of covariance to determine the effects of near stream best management practices on nitrogen and phosphorus concentrations on a dairy farm in the New York City CEAP watershed. *Journal of Soil Water Conservation*. 65(6): 438-449. doi: 10.2489/jswc.65.6.438.
- 81) **Easton, Z.M.**, P.J. Sullivan, M.T. Walter, D.R. Fuka, A.M. Petrovic, and T.S. Steenhuis. 2010. A simple metric to predict stream water quality from storm runoff in an urban watershed. *Journal of Environmental Quality*. 39:1338-1348. doi:10.2134/jeq2010.0013.
- 82) Faulkner, J.W., **Z.M. Easton**, W. Zhang, L.D. Geohring, and T.S. Steenhuis. 2010. Design and risk assessment tool for vegetative treatment areas receiving agricultural wastewater: Preliminary results. *Journal of Environmental Management*. 91:1794-1801. DOI: 10.1016/j.jenvman.2010.03.019.
- 83) Dahlke, H.E., **Z.M. Easton**, D.R. Fuka, S. Lyon, and T.S. Steenhuis. 2009. Modeling variable source area dynamics in a CEAP watershed. *Ecohydrology*. 2(3): 337-349.
- 84) Steenhuis, T.S., A.S. Collick, **Z.M. Easton**, E.S. Leggesse, H.K. Bayabil, E.D. White, S.B. Awulachew, E. Adgo, and A.A. Ahmed. 2009. Predicting discharge and erosion for the Abay (Blue Nile) with a simple model. *Hydrological Processes*. doi: 10.1.1002/hyp.7513.
- 85) **Easton, Z.M.**, M.T. Walter, M. Zion, E.M. Schneiderman, and T.S. Steenhuis. 2009. Integrating source specific chemistry in basin scale models to predict phosphorus export from agricultural watersheds. *Journal of Environmental Engineering ASCE*. 135(1): 25-35.
- 86) Rao, N.S., **Z.M. Easton**, E.M. Schneiderman, M.S. Zion, D.R. Lee, and T.S. Steenhuis. 2009. Distributed modeling of agricultural best management practices to reduce phosphorus loading. *Journal of Environmental Management*. 90: 1385-1395.
- 87) Collick, A.S., **Z.M. Easton**, E. Adgo, S.B. Awulachew, Z. Gete, and T.S. Steenhuis. 2009. Application of a physically-based water balance model on four watersheds throughout the upper Nile basin in Ethiopia *Hydrological Processes*. 23, 3718–372. doi: 10.1002/hyp.7517.
- 88) Walter, M.T, J.A. Archibald, B. Buchanan, H. Dahlke, **Z.M. Easton**, R.D. Marjerison, A.N. Sharma, and S.B. Shaw. 2009. A new paradigm for sizing riparian buffers to reduce risks of polluted storm water: A practical synthesis. *Journal of Irrigation and Drainage Engineering ASCE*. 135(2): 200-209.

- 89) **Easton, Z.M.**, M.T. Walter and T.S. Steenhuis. 2008. Combined monitoring and modeling indicate the most effective agricultural best management practices. *Journal of Environmental Quality*. 37:1798–1809.
- 90) Lui, B.M., A.S. Collick, G. Zeleke, E. Adgo, **Z.M. Easton**, and T.S. Steenhuis. 2008. Rainfall-discharge relationships for a monsoonal climate in the Ethiopian Highlands. *Hydrological Processes*. 22:1059-1067.
- 91) **Easton, Z.M.**, D.R. Fuka, M.T. Walter, D.M. Cowan, E.M. Schneiderman, and T.S. Steenhuis. 2008. Re-Conceptualizing the Soil and Water Assessment Tool (SWAT) model to predict runoff from variable source areas. *Journal of Hydrology*. 348: 279-291.
- 92) de Alwis, D.A., **Z.M. Easton**, H.E. Dahlke, W.D. Philpot, and T.S. Steenhuis. 2007. Unsupervised classification of saturated areas using a time series of remotely sensed images. *Hydrology and Earth System Science*. 11: 1609-1620.
- 93) **Easton, Z.M.**, P. Gerard-Marchant, M.T. Walter, A.M. Petrovic, and T.S. Steenhuis. 2007. Identifying dissolved phosphorus source areas and predicting transport from an urban watershed using distributed hydrologic modeling. *Water Resources Research*. 43. W11414. doi:10.1029/2006WR005697.
- 94) Schneiderman, E.M., T.S. Steenhuis, D.J. Thongs, **Z.M. Easton**, M.S. Zion, G.F. Mendoza, M.T. Walter, and A.L. Neal. 2007. Incorporating variable source area hydrology into the curve number based Generalized Watershed Loading Function model. *Hydrological Processes*. 21:3420-3430. doi: 10.1002/hyp6556.
- 95) **Easton, Z.M.**, P. Gérard-Marchant, M.T. Walter, A.M. Petrovic, and T. S. Steenhuis. 2007. Hydrologic assessment of an urban variable source watershed in the Northeast United States. *Water Resources Research*. 43. W03413. doi:10.1029/2006WR005076.
- 96) Collick, A.S., **Z.M. Easton**, F.A. Montalto, B. Gao, Y.J. Kim, L. Day, and T.S. Steenhuis. 2006. Hydrological evaluation of septic disposal field performance in sloping terrains. *Journal of Environmental Engineering*. ASCE. 132(10) 1289-1297.
- 97) **Easton, Z.M.**, A.M. Petrovic, D.J. Lisk, I. Larsson-Kovach, and T.S. Steenhuis. 2005. Hillslope position effect on nutrient and pesticide runoff from turfgrass. *International Turfgrass Society Research Journal*. J.,10, 121-129.
- 98) Petrovic, A.M., **Z.M. Easton**, and T.S. Steenhuis. 2005. The role of turfgrass management in the water quality of urban environments. *International Turfgrass Society Research Journal*. 10, 55-69
- 99) **Easton, Z.M.** and A.M. Petrovic. 2004. Fertilizer source effect on ground and surface water quality in drainage from turfgrass. *Journal of Environmental Quality*. 33 645-655.

### **Book Chapters**

- 1) Scott, D.T., M. Rogers\*, and **Z.M. Easton**. 2016. Global models of river biogeochemical functioning. *In* J. Jones and E. Stanley, eds. *Streams in changing environment*. Elsevier. 21 Jul 2016. Pages 417–439. ISBN: 978-0-12-405890-3.

- 2) Saia, S., E.S. Brooks, **Z.M. Easton**, C. Baffaut, J. Boll, and T.S. Steenhuis. 2012. A Web-Based BMP Selection Tool to Minimize Pesticide Transport. Internet-First University Press.
- 3) Fuka, D.R. **Z.M. Easton**, M.T. Walter and T.S. Steenhuis. 2012. Hydrological Modeling Where No Meteorological Stations Exist. Internet-First University Press.
- 4) **Easton, Z.M.**, S.B. Awulachew, T.S. Steenhuis, A. Habte, B. Zemedam, Y. Seleshi, and K. Bashar. 2012. Hydrological processes in the Blue Nile River Basin. *In* S.B. Awulachew, V. Smakhtin, D. Molden and D. Peden, eds. The Nile River Basin: Water, Agriculture, Governance and Livelihoods. Earthscan Publishing. Nov 5. 344 pgs.
- 5) Steenhuis, T.S., **Z.M. Easton**, S.B. Awulachew, A. Ahmed, K. Bashar, Y. Selassie, E. Adgo, and S. Tiluhan. 2012. Erosion, sediment loss and land degradation with emphasis on the Blue Nile River Basin. *In* S.B. Awulachew, V. Smakhtin, D. Molden and D. Peden, eds. The Nile River Basin: Water, Agriculture, Governance and Livelihoods. Earthscan Publishing. Nov 5. 344 pgs.
- 6) McCartney, M., T. Alemayehu, Y. Seleshi, Shiferaw, Y.A. Ibrahim, **Z.M. Easton**, and S.B. Awulachew, 2012. Simulating current and future water resource development in the Blue Nile River Basin. *In* S.B. Awulachew, V. Smakhtin, D. Molden and D. Peden, eds. The Nile River Basin: Water, Agriculture, Governance and Livelihoods. Earthscan Publishing. Nov 5. 344 pgs.
- 7) Engda, T.A., H.K. Bayabil, E.S. Legesse, E. K. Ayana, S.A. Tilahun, A.S. Collick, **Z.M. Easton**, A. Rimmer, S.B. Awulachew, and T.S. Steenhuis. 2011. Watershed hydrology of the (semi) humid Ethiopian Highlands. *In* Nile River: Hydrology, Climate and Land Use. 145-162. A. Melesse, ed. New York, NY: Springer Science Publisher.
- 8) Steenhuis, T.S., J. Taylor, A.S. Collick, N. van de Giesen, J Liebe, M. Andreini, and **Z.M. Easton**. 2010. Rainfall-discharge relationships for monsoonal climates. *In* Andreini, Schuetz, and Harrington. Small Reservoirs Toolkit. (pgs 1-10)
- 9) Steenhuis, T.S., A.S. Collick, **Z.M. Easton**, E.S. Legesse, H.K. Bayabil, E.D. White, S.B. Awulachew, E. Adgo, and A. Abdalla-Ahmed. 2009. Predicting discharge and erosion for the Abay (Blue Nile) with a simple model. *In* Abteu and Melesse, eds Hydrology and ecology of the Nile River Basin under extreme conditions. National Science Foundation Office of International Science and Engineering. (pgs 200-212).
- 10) Collick, A.S., **Z.M. Easton**, E. Adgo, S.B. Awulachew, Z. Gete, and T.S. Steenhuis. 2009. Application of a physically-based water balance model on four watersheds throughout the upper Nile basin in Ethiopia. *In* Abteu and Melesse, eds. Hydrology and ecology of the Nile River Basin under extreme conditions. National Science Foundation Office of International Science and Engineering. (pgs 93-113).
- 11) Awulachew, S.B., M. Tenaw, T.S. Steenhuis, **Z.M. Easton**, A. Ahmed, K.E. Bashar, and A. Haileselassie. 2009. Impact of watershed interventions on runoff and sedimentation in Gumera watershed, Ethiopia. National Science Foundation Office of International Science and Engineering.

- 12) Steenhuis, T.S., A.S. Collick, S.B. Awulachew, A. Enyew Adgo, A. Abdassalam, and **Z.M. Easton**. 2009. Modeling Erosion and Sedimentation in the Upper Blue Nile *In: Eds. W. Abtew and A. M. Melesse*. Hydrology and ecology of the Nile River Basin under extreme conditions. National Science Foundation Office of International Science and Engineering. (pgs 93-113).
- 13) White, E.D. **Z.M. Easton**, D.R Fuka, A.S Collick, M. McCartney, S. Awulachew, T.S Steenhuis. 2009. A water balance-based Soil and Water Assessment Tool (SWAT) for improved performance in the Ethiopian highlands. *In* S.B. Awulachew, V. Smakhtin, D. eds. Improved Water and Land Management in the Ethiopian Highlands: Its Impact on Downstream Stakeholders Dependent on the Blue Nile. (pgs 152-165).
- 14) **Easton, Z.M.** and A.M. Petrovic. 2008. Determining nitrogen loading rates based on landuse in an urban watershed. *In* Nett, Carroll, Petrovic, and Horgan, eds. The fate of nutrients and pesticides in the urban environment. American Chemical Society. (pgs 19-42).
- 15) **Easton, Z.M.** and A.M. Petrovic. 2008. Determining phosphorus loading rates based on landuse in an urban watershed. *In* Nett, Carroll, Petrovic, and Horgan, eds. The fate of nutrients pesticides in the urban environment. American Chemical Society. (pgs 43-62).
- 16) **Easton, Z.M.** 2004. Data restructuring: I Changing raster values by selected area: II Changing raster values by geographic feature. *In* A. J. Lembo, ed. How do I do that in ArcGIS/Manifold: Illustrating Classic GIS Tasks. Cornell University DSpace. <http://hdl.handle.net/1813/165>.
- 17) **Easton, Z.M.** 2004. Vector overlay operations: Line in polygon. *In* A. J. Lembo, ed. How do I do that in ArcGIS/Manifold: Illustrating Classic GIS Tasks. Cornell University DSpace. <http://hdl.handle.net/1813/165>.

### **Extension Publications**

**(Peer reviewed)**

- 1) **Easton, Z.M.**, A.S. Collick and E.M. Bock\*. 2022. What to consider when considering an agricultural drainage system. BSE-208.
- 2) **Easton, Z.M.** and J.W. Faulkner. 2022. Communicating climate change to agricultural audiences. BSE-203P.
- 3) **Easton, Z.M.** and E.M. Bock\*. 2020. Hydrology basics and the hydrologic cycle. BSE-191P
- 4) Rogers, M.\*, E. Lassiter\*, and **Z.M. Easton**. 2019. Greenhouse gas emissions in agriculture: How producers can help to mitigate climate change. BSE-105P.
- 5) Bock, E.M.\*, A.S. Collick, and **Z.M. Easton**. 2018. Managing agricultural drainage quality with denitrifying bioreactors in the Mid-Atlantic. BSE-234P.
- 6) Lassiter, E.\* and **Z.M. Easton**. 2018. Denitrifying bioreactors: An emerging best management practice to improve water quality. BSE-55P. <http://pubs.ext.vt.edu/BSE/BSE-55/BSE-55-PDF.pdf>.
- 7) **Easton, Z.M.** and E. Lassiter\*. 2018. Denitrification management. BSE-54P.

- 8) **Easton, Z.M.** and E.M. Bock\*. 2016. Soil and soil water relationships. BSE-194P.
- 9) **Easton, Z.M.** and J.W. Faulkner. 2014. Climate change adaptation: Mitigating short and long-term impacts of climate on agriculture. BSE-109P.
- 10) Faulkner, J.W. and **Z.M. Easton**. 2014. Agricultural adaptation to climate change: improving resilience in row crop production. University of Vermont Extension.
- 11) **Easton, Z.M.** 2012 How do stream buffers reduce the offsite impact of pollution? VT/0712/web/BSE-38NP.

### **Proceedings**

- 1) Sharpley, A., P. Kleinman, C. Baffaut, **Z.M. Easton**, J. Lory, D. Osmond, and T. Veith. 2017. Verification of phosphorus site assessment tools: Lessons from the U.S. *In* Proceedings of the ASAE International Symposium, Honolulu, HI.
- 2) Sommerlot, A\*, D.R. Fuka\*, M. Wagena\*, and **Z.M. Easton**. 2015. Coupling the short-term Global Forecast System weather data with disturbed watershed models: implication for landscape management. *In* ASABE 1<sup>st</sup> Climate Change Symposium: Adaptation and Mitigation. Chicago Illinois.
- 3) **Easton, Z.M.**, R. Najjar, A. Sommerlot\*, M. Wagena\*, A. Ross, and D. Sample. 2015. Climate change and biogeochemical cycling, building models to predict field and watershed scale changes in biogeochemical cycling. *In* ASABE 1<sup>st</sup> Climate Change Symposium: Adaptation and Mitigation. Chicago Illinois.
- 4) Steenhuis, T.S. J. Taylor, **Z.M. Easton**, A. Collick, N. van de Giesen, J. Liebe, A.A. Ahmed, M. Andreini. 2013. Rainfall-discharge relationships for monsoonal climates. CGIAR Challenge Program on Water and Food. February 10-15, 2013.
- 5) Fuka, D.R.\*, C. MacAlister, S. Seyoum, A. Jones, R. Srinivasan, and **Z.M. Easton**. 2012. Re-dimensioned CFSR data for easy SWAT Initialization. *In*. Proceedings of the 13<sup>th</sup> Annual SWAT Conference, Delhi, India.
- 6) Fuka, D.R.\*, C. MacAlister, S. Seyoum, M.T. Walter, and **Z.M. Easton**. 2012. Simple toolbox for worldwide topography-based soils reclassification for initialization of SWAT. Proceedings of the 13<sup>th</sup> Annual SWAT Conference, Delhi, India.
- 7) MacAlister, C., S. Seyoum, Fuka, D.R.\*, and **Z.M. Easton**, T.S. Steenhuis. 2012. Applying Climate Reanalysis Data (CFSR) to force watershed models in the Ethiopian Highlands. Proceedings of the 13<sup>th</sup> Annual SWAT Conference, Delhi, India.
- 8) Saia, S., E.S. Brooks, **Z.M. Easton**, C. Baffaut, J. Boll, T.S. Steenhuis. 2012. Incorporating pesticide transport into the WEPP-UI model for mulch tillage and no-tillage soil with an underlying claypan. Proceedings of International Symposium on Erosion and Landscape Evolution, Anchorage, Alaska, September 18-21, 2011.
- 9) Boll J., **Z.M. Easton**, E.S. Brooks, and T.S. Steenhuis. 2011. Comparison of WEPP and SWAT for watershed hydrology and erosion prediction. International Symposium on Erosion and Landscape Evolution, Anchorage, Alaska, September 18-21, 2011.

- 10) Tilahun, S.A., R. Mukundan, B.A. Demisse, C. Guzman, B.C. Tarakegn, T.A. Engda, **Z.M. Easton**, A.S Collick, A.D. Zegeye, E.M. Schneiderman, J.Y. Parlange, and T.S. Steenhuis. 2011. A Saturation Excess Erosion Model. Proceedings of International Symposium on Erosion and Landscape Evolution, Anchorage, Alaska, September 18-21, 2011.
- 11) Singh, A., C. Shoemaker, J. Woodbury, **Z.M. Easton**. 2010. New Calibration Methods for Incorporating Variable Source Area Hydrology in an Application of SWAT to Phosphorous Transport in a Large Watershed in Northeastern U. S.
- 12) Pierson D., H. Markensten, E. Owens, E. Schneiderman, M. Zion, A. Anandhi, S. Pradhanang, A. Matonse, D. Kent, D.R. Fuka, **Z.M. Easton**, and T. Walter. 2010. Investigation of the impact of climate change on the timing and magnitude of streamflow for the Catskill Mountain region Eastern Snow Conference. Hancock, MA June 8-10, 2010.
- 13) Woodbury, J., C.A. Shoemaker, D.M. Cowan, and **Z.M. Easton**, 2009. A comparison of a SWAT model for the Cannonsville watershed with and without variable source area hydrology. *In* Proceedings of ASCE- Environment and Water Resources Institute Conference.
- 14) Fuka, D.R., **Z.M. Easton**, T.S. Steenhuis, M.T. Walter. 2009. Integration of a simple process-based snowmelt model into SWAT. *In*. Proceedings of the 4<sup>th</sup> Annual SWAT Conference, Boulder, CO.
- 15) **Easton, Z.M.**, E.D. White, D.R. Fuka, T.S. Steenhuis. 2009. SWAT Water Balance: Development and Application of a Physically Based Landscape Water Balance in the SWAT Model. *In*. Proceedings of the 4<sup>th</sup> Annual SWAT Conference, Boulder, CO.
- 16) Steenhuis, T.S., A.S. Collick, **Z.M. Easton** N. van de Giesen, J. Liebe, A.A. Ahmed, and M. Andreini. 2009. Rainfall discharge relationships for monsoonal climates. *In* Proceedings of the 2009 Nile Basin Initiative Up-Stream Down-Stream Project.
- 17) White, E.D., **Z.M. Easton**, D.R. Fuka, A.S. Collick, M. McCartney, S.B. Awulachew, and T.S. Steenhuis. 2009. A water balance-based Soil & Water Assessment Tool (SWAT) Model for improved performance in the Ethiopian Highlands. *In* Proceedings of the 2009 Nile Basin Initiative Up Stream Down Stream Project.
- 18) Dahlke, H.E., **Z.M. Easton**, **D.R.** Fuka, N.S. Rao, E.D. White, T. Veith, E.M. Schneiderman, and T.S. Steenhuis. 2008. An interactive web tool model for siting Best Management Practices in humid areas. 50th Anniversary Conference, NSL, Oxford, MS, September 3-5, 2008.
- 19) Steenhuis, T.S., A.S. Collick, S.B. Awulachew, A.E. Adgo, A. Abdassalam, and **Z.M. Easton**. 2008. Modelling erosion and sedimentation in the upper Blue Nile. *In* *Proceedings of the Workshop on the Hydrology and Ecology of the Nile River Basin under Extreme Conditions*. 2008.
- 20) Awulachew, S.B., M. Tenaw, T. Steenhuis, **Z.M. Easton**, A. Ahmed, K.E. Bashar. 2008. Blue Nile flow, sediment and impact of watershed interventions: case of Gumera Watershed. Second International Forum on Water and Food, Addis Ababa, Ethiopia, 10-13 November 2008.

### **Technical Reports**

- 1) National Academies of Sciences, Engineering, and Medicine. 2020. Review of the New York City Watershed Protection Program. Washington, DC: The National Academies Press. doi: <https://doi.org/10.17226/25851>
- 2) **Easton, Z.M.**, K., Stephenson, A. Collick, P.M. Fleming, E. Kellner, J. Martin, M. Ribaud, and G. Shenk. 2020. Increasing Effectiveness and Reducing the Cost of Non-Point Source Best Management Practice Implementation: Is Targeting the Answer? STAC Publication Number 20-002.
- 3) Bock, E.M.\* and **Z.M. Easton**. 2019. Review: Export of nitrogen and phosphorus from golf courses in the Mid Atlantic, are current export rates accurate? Technical Report, Dept Biological Systems Engineering.
- 4) Stephenson, K., C. Hershner, B. Benham, **Z.M. Easton**, J. Hanson, S. Julius, and E. Hinrichs. 2018. Consideration of BMP Performance Uncertainty in Chesapeake Bay Program Implementation. STAC Publication Number 18-003, Edgewater, MD. 33 pp.
- 5) **Easton, Z.M.**, D. Scavia, R. Alexander, K. Boomer, P. Kleinman, A. Miller, J. Pizzuto, D. Smith, and C. Welty. 2017. Scientific and Technical Advisory Committee review of the Chesapeake Bay Program Phase 6 Watershed Model. STAC Publication Number 17-007, Edgewater, MD. 47 pp.
- 6) **Easton, Z.M.**, M. Wagena\*, A. Abiy, A.S. Collick\*, S. Langan, R. Ritzema and D.R. Fuka\*. 2013. Regional climate change in the Blue Nile Basin, Ethiopia: Implications for water resource availability and sediment transport. Technical Report. Department of Biological Systems Engineering, Virginia Tech and International Water Management Institute, Nile Basin and East Africa Office.
- 7) Sharpley A.N., C. Bolster, J. Davis, **Z.M. Easton**, P. Kleinman, A. Mallinaro, D. Osmond, P. Vadas, and M. White. 2013. Technical guidance for assessing phosphorus indices. Southern Cooperative Series Bulletin No. 417 January, 2013. URL: <http://saaesd.ncsu.edu/docs/Assessing%20P%20Indices%20SERA17.pdf>
- 8) **Easton, Z.M.**, D.R. Fuka, T.S. Steenhuis, B. Rupp, P. Murawski. 2009. A Modified Soil and Water Assessment Tool (SWAT) Model for flow and sediment transport in the Genesee River Basin. Technical Report. Department of Biological and Environmental Engineering, Cornell University and US Army Corps of Engineers.
- 9) Awulachew, S.B., M. Tenaw, T.S. Steenhuis, **Z.M. Easton**, A. Ahmed, K.E. Bashar, and A. Haileselassie. 2009. Impact of watershed interventions on runoff and sedimentation in Gumera watershed. IN: CPWF. Fighting poverty through sustainable water use: Proceedings of the CPWF 2nd International Forum on Water and Food, Addis Ababa, Ethiopia, November 10—14, 2008: Volume I. Colombo: CGIAR Challenge Program on Water and Food

### **Grant Proposals Currently Funded**

**2021 USDA-Cooperative Agreement**

Fuka\*, D.R., **Z.M. Easton**, R.R. White. Developing and evaluating rapidly deployable inexpensive weather, soil moisture, shock, and streamflow sensors to aid the monitoring, inspection, and rehabilitation of aging dams. \$150,000. June 2021-Nov 2022.

**2021 USDA-Cooperative Agreement**

**Easton, Z.M.** Modeling the Lake Champlain Basin CEAP watersheds to understand and predict conservation effects on legacy phosphorus. \$134,223. Oct 2021-Sept 2023.

**2021 Virginia Tech CALS Strategic Plan Advancement**

**Easton, Z.M.**, R.R. White, K. Hamed, D.R. Fuka\*, M. Eick. Eyes in the Sky and Boots on the Ground: Collaborative Technologies for Monitoring and Managing Livestock Pastures. \$60,000. June 2021-May 2023.

**2021 NSF CPS (Cyber-Physical Systems)**

White, R.R., E. Feuerbacher, **Z.M. Easton**. Collaborative Research: CPS: Medium: Greener Pastures: A pasture sanitation cyber physical system for environmental enhancement and animal monitoring. \$998,232. June 2021-Nov 2023.

**2020 USDA NIFA**

Collick, A.S., **Z.M. Easton**, and R. Bryant. UMES Stormwater Management Research Facility: Investigating nutrient and sediment reduction from poultry house stormwater drainage systems. \$399,000. Sept 2020-Aug 2022.

**2020 USDA CEAP**

**Easton, Z.M.**, A Conservation Effects Assessment Project (CEAP) Watershed Assessment Study: A collaboration between the University of Vermont, Virginia Tech, the Natural Resources Conservation Service, and the Agricultural Research Service. \$179,668. Oct 2020-Sept 2023.

**2018 USDA-AFRI**

Stephenson, K., K. Cobourn, **Z.M. Easton**. Development and Evaluation of Market-like Pay-for-Performance Programs to Address Legacy Nutrients. \$500,000. Dec 2018-April 2023.

**Past Grant Proposals**

**2021 DARPA-USC**

**Easton, Z.M.** and D.R. Fuka\*. Integrating the SWAT Model into the MINT Framework. \$64,000. June 2021-Nov 2021

**2019 US EPA**

**Easton, Z.M.**, R. Najjar, J. Shortridge, K. Stephenson, L. Wainger. US EPA Chesapeake Bay Program. A Systematic Review of Chesapeake Bay Climate Change Impacts and Uncertainty: Watershed Processes, Pollutant Delivery, and BMP Performance. \$125,000. Sept 2019-July 2021.

**2019 VT-CALS**

White, R.R., **Z.M. Easton**, V. Mercadante, D. Ha, G. Morota. VT-CALS. A 2-Year Plan to Establish Sustainable Precision Animal Agriculture Infrastructure at Virginia Tech. \$350,000. Sept 2019-Aug 2021.

**2019 US EPA STAC**



- Easton, Z.M.**, K. Stephenson, M. Ribaud, G. Shenk, P. Fleming, J. Davis-Martin, A.S. Collick. Increasing Effectiveness and Reducing the Cost of Non-Point Source Best Management Practice Implementation: Is Targeting the Answer? A Proactive Workshop. \$10,000.
- 2020 NOAA-CBP**  
**Easton, Z.M.** A Systematic Review of Chesapeake Bay Climate Change Impacts on Tidal and Near Tidal BMPs. \$93,400. Oct 2020-Sept 2021.
- 2017 NSF Earth Cube**  
Stamps, D. **Z.M. Easton**, D.R. Fuka\*, D. Fuller, S. Peckahm. Collaborative Proposal: EarthCube Integration: Brokered Alignment of Long-Tail Observations (BALTO). \$1,695,122. Aug 2017-July 2021.
- 2016 USDA-NRCS Conservation Innovation Grant**  
**Easton Z.M.** Revising and Implementing Phosphorus Indices to Protect Water Quality in the Northeast US. \$96,000. Oct 2016-Sept 2021.
- 2017 NSF- NSF Water Sustainability and Climate Cat-1**  
**Easton, Z.M.** and D. Sample. Supplement to: WSC-Category 1 Collaborative Proposal: Coupled Multi-scale Economic, Hydrologic, and Estuarine Modeling to Assess Impacts of Climate Change on Water Quality Management. \$132,311. June 2017-May 2018.
- 2017 Delmarva Land Grant Institution Collaborative Research Seed Funding Program**  
Bosch, D. **Z.M. Easton**, R. White, A.S. Collick. An Agro-ecosystem Model to Achieve Agricultural Sustainability for the Delmarva. \$26,000. Aug 2017-July 2019.
- 2017 Pratt Endowment**  
Hannigan, M., **Z.M. Easton**, R. White. Integration of livestock feeding strategies into a nutrient loading, watershed model. \$286,600. Jan 2017-Dec 2020.
- 2017 ICTAS-REU**  
Stamps, D. and **Z.M. Easton** CODE-GEO. \$10,000. Nov 2017-Oct 2018
- 2015 USDA-NRCS Conservation Innovation Grant**  
Emberston, N. **Z.M. Easton**, M.T. Walter, P. Kleinman. Demonstration and Implementation of a Nutrient Management Risk Advisory System for Protection of Water Quality in Runoff Prone Climates. \$529,376. Sept 2015-Sept 2019.
- 2015 NSF Water Sustainability and Climate Cat-3**  
Ball, W., **Z.M. Easton**, C. Harman, L. Waigner, W. Kemp, D. Brady. WSC-Category 3 Collaborative Proposal: Impacts of Climate Change on the Phenology of Linked Agriculture-Water Systems. \$1,432,854. June 2015-May 2020
- 2014 NSF Water Sustainability and Climate Cat-1**  
**Easton, Z.M.**, R. Najjar, M. Li, D. Sample, D. Bosch. WSC-Category 1 Collaborative Proposal: Coupled Multi-scale Economic, Hydrologic, and Estuarine Modeling to Assess Impacts of Climate Change on Water Quality Management. \$600,000. June 2014-May 2018.
- 2014 Delmarva Land Grant Institution Collaborative Research Seed Funding Program**  
Shober, A. **Z.M. Easton**, A. Allen, A Buda, R. Bryant. Combining electrical resistivity imaging and conservative tracer tests to characterize and model subsurface phosphorus losses in ditch-drained Delmarva soils. \$26,000. January 2015-Dec 2017.

- 2013 USDA-NRCS Conservation Innovation Grant**  
**Easton, Z.M.**, K. Stephenson, A. Collick, P.J.A. Kleinman, R. Bryant, J. Adkins, A. Allen. Decreasing nitrogen and phosphorus in drainage waters using a comprehensive drainage management approach \$748,648. Dec 2013-Nov 2017.
- 2013 EPA Center for Nutrient Solutions**  
Shortle, J., R. Brooks, B. Bills, B. Boyer, A. Kremanian, R. Ready, M. Royer, T. Richard, D. Beegle, A. Allen P. Kleinman, C. Duffy, **Z. Easton**, A.S. Collick, A. Buda, T. Veith. Center for integrated Multi-scale Nutrient Solutions. \$4,550,740. Aug 2103- July 2017.
- 2014 Virginia Dept. Environmental Quality Implementation Grant**  
**Easton Z.M.** Bioreactors and biofilters as edge of field treatment practices to reduce nitrogen and phosphorus transfer to receiving waters. \$120,000. Feb 2014-July 2015.
- 2014 USDA-ARS**  
**Easton. Z.M.** P Index Modeling Support and Outreach. \$70,000. Oct 2014-Sept 2016.
- 2014 Virginia Tech College of Engineering Graduate Research Fellowship**  
**Easton, Z.M.**, and D. Sample. \$19,700. Aug 2015-May 2016.
- 2013 NSF Earth Cube**  
Jhoda, S., J. Pearlamn, **Z.M. Easton**, D.R. Fuka, O. Schofield, R. Duerr, G. Bowker. Brokering Building Block, (Bcube) building the next generation of data sharing protocols for the geosciences. \$1,592,233. Oct 2013-Sept 2016.
- 2012 USDA-NRCS Conservation Innovation Grant**  
Kleinman, P.J.A., **Z.M. Easton**, D. Beegle, F. Coale, Q. Ketterings, J. McGrath, and A.N. Sharpley. Refining and Harmonizing Phosphorus Indices in the Chesapeake Bay Region to Improve Critical Source Area Identification and to Address Nutrient Management Priorities. \$801,532. Oct 2012-Sept 2016
- 2012 USDA-NRCS Conservation Innovation Grant**  
Sharpley, A.N., P.J.A. Kleinman, **Z.M. Easton**, D. Beegle, F. Coale, Q. Ketterings, and J. McGrath. Identify Methods to Refine Phosphorus Indices and Synthesize and Extend Lessons and Outcomes from Three Regional Indexing Efforts. \$57,000. Oct 2012-Sept 2016.
- 2012 USDA –AFRI**  
Walter, M.T., **Z.M. Easton**, R. Stedman, J. Faulkner, E. Ling, B. Benham. Twenty-first century development of 21<sup>st</sup> century precision agriculture for water quality protection. \$499,387. Mar 2012-Dec 2015.
- 2013 Virginia Water Resources Research Council Grant**  
Bock, E.\* and **Z.M. Easton**. Optimization of denitrification and mitigation of greenhouse gas emission in a denitrifying bioreactor. \$5,000. Aug 2013-Aug 2014.
- 2012 Virginia Tech ICTAS Junior Faculty Collaborative Proposal**  
**Easton, Z.M.**, and B. Benham. Coupled Biochemical/Biophysical Systems to Remove Contaminants from Shallow Groundwater. \$120,000. (\$120,000). June 2013-May 2014.
- 2012 USDA-ARS**  
**Easton, Z.M.** Refining P Indices to comply with NRCS 590 standards. \$16,743. (\$16,743). Aug 2012-July 2013.
- 2012 Virginia Tech College of Agriculture and Life Sciences Graduate Student Recruitment**

- Easton, Z.M.** \$4000.
- 2010 EPA- Great Lakes Restoration Initiative**  
**Easton, Z.M.**, R. Entringer, T.S. Steenhuis, C.A. Shoemaker, and L. Gregory. A method to determine in stream total maximum daily loads for phosphorus in the Upper Black Creek, New York. \$305,000. Jan 2010-Aug 2013.
- 2009 US Army Corps of Engineers.**  
**Easton, Z.M.** Soil and Water Assessment Tool (SWAT) model for flow and sediment transport in the Genesee River Basin. \$44,000.
- 2009 Nile Basin Initiative**  
Steenhuis, T.S., **Z.M. Easton**, B. Damtie, S. Tilahun, E. Kaba, A.S Collick, S. Bekele, and M. McCartney. A GIS based model for design of effective best management practices for erosion and water control in the Abay Blue Nile Basin. \$120,000.
- 2009 USDA International Science and Education (ISE) Competitive Grants Program**  
Steenhuis, T.S., M.F. Walter, A. Pell, B. Damtie, E. Kaba, S. Tilahun, A.S. Collick, W. Poland, F. Montalto, **Z.M. Easton**, and A. Rimmer. Enhancing water sustainability in a water scarce region in Africa: Strengthening the global competence of students and faculty in agricultural water management. \$148,712.
- 2009 USAID Higher Education Development**  
Steenhuis, T.S., A. Pell, A. Collick, **Z.M. Easton**, E. Kaba, B. Damtie, and S. Bekele. Improved drinking water resource utilization through integrated university research, planning, and training initiatives in the Lake Tana region, Ethiopia. \$300,000.
- 2008 NYS Department of Environmental Conservation**  
Steenhuis, T.S., A. Simon, E. Langendoen, and **Z.M. Easton**. Erosion/Sedimentation analysis of the Ashokan Reservoir/Esopus Creek system. \$250,000.
- 2007 New York State Water Resources Institute**  
M.T. Walter, **Z.M. Easton**, T.S. Steenhuis, J.-Y. Parlange, and G.N. Nagle. Evaluation of sediment sources in the Hudson River watershed. \$20,000.
- 2006 New York State Farm Viability Act**  
D.R. Lee, T.S. Steenhuis, Q.M. Ketterings, L.D. Geohring, N.S. Rao, and **Z.M. Easton**. Best management practice selection and placement for cost-effective control of phosphorus loading in New York State. \$145,443
- 2006 USDA Natural Resource Concerns – Water Resources Objectives**  
Walter, M.T, T.S. Steenhuis, L.D. Geohring, **Z.M. Easton**, K. Czymmek, Q. Ketterings, B.K. Richards, M.F. Walter, and P.E. Wright. Improving the transport component of the P Index for nutrient management plans in the northeast. \$444,415.

## **Non Refereed Publications**

### **Abstracts/Presentations**

- 1) Fuka, D., White, R., Garna, R., Stamps, D., Buelle, E., Collick, A., & **Easton, Z.** (2021) Seamless Machine Learning Architecture Access to Long-Tail In-Situ Data through EarthCube's BALTO Cyberinfrastructure. In AGU Fall Meeting 2021

- 2) Fuka, D., White, R., Roqueto dos Reis, B., Kaveh Garna, R., Buell, E., Collick, A, **Easton, Z.** (2021). Ultra-Low-Power LoRa-Embedded Microcontrollers Simplifying Rapidly Deployable Inexpensive Weather, Soil, and Streamflow Sensor Designs. In AGU Fall Meeting 2021.
- 3) Kaveh Garna, R., Fuka, D., White, R., Faulkner, J., Buell, E., Roqueto dos Reis, B. **Easton, Z.** (2021). Watershed Model Parameter Estimation in Low Data Environments. In AGU Fall Meeting 2021.
- 4) National Academies of Science Engineering and Medicine. 2020. Review of the New York City Watershed Protection Program. Overview presentation to NYC DEP. Sept 2020
- 5) **Easton, Z.M.** and K. Stephenson. 2020. Increasing Effectiveness and Reducing the Cost of Non-Point Source Best Management Practice Implementation: Is Targeting the Answer? US EPA CBP WQGIT. Sept 2020
- 6) Stephenson, K., **Z.M. Easton**, L Shabman, J. Shortle. 2020. Increasing Effectiveness and Reducing the Cost of Non-Point Source Best Management Practice Implementation: Options to Incentivize BMP Targeting. CCMP Conference Panel. June 2020.
- 7) Bock, E\*, **Z.M. Easton**, R. Najjar, J. Shortridge, K. Stephenson, L. Wainger. Synthesis Preview: Impacts of Climate Change and Uncertainty on Watershed Processes, Pollutant Delivery, and BMP Performance. CCMP Conference. June 2020.
- 8) **Easton, Z.M.**, A. Collick, K. Stephenson. A Framework for Differential BMP Crediting Based on Targeting. CCMP Conference. June 2020.
- 9) Stamps, D., D.R. Fuka\*, S. Peckham, N. Potter, D. Fulker, and **Z.M. Easton**. 2019. The Open-Source EarthCube Cyberinfrastructure BALTO: Applications in Earth Science. IN11B-17. AGU Annual Meeting, San Francisco, CA, Dec 10-14.
- 10) Fuka, D.R.\*, M. Apple, D. Fulker, R. Duerr, M. Wagena\*, A. Collick, E. Bock\*, R. White, and **Z.M. Easton**. 2019. IoT Sensors and Their Pathway to HPC. NH33B-16. AGU Annual Meeting, San Francisco, CA, Dec 10-14.
- 11) Bock, E.\*, K. Stephenson, and **Z.M. Easton**. 2018. Artificial sinks to treat legacy nutrients in agricultural landscapes. B33E-2712. AGU Annual Meeting, Washington DC, Dec 10-14.
- 12) **Easton, Z.M.**, M.B. Wagena\*, A.S. Collick, A. Ross, B. Rau, R. Najjar, A. Sommerlot\*, D.R. Fuka\*, P.J. Kleinman. Impact of climate change and climate anomalies on hydrologic and biogeochemical processes in an agricultural catchment of the Chesapeake Bay Watershed, USA. B33E-2716. AGU Annual Meeting, Washington DC, Dec 10-14.
- 13) Collick, A.S., D.R. Fuka\*, and **Z.M. Easton**. Automated development of a farm management database for the SWAT Model. H41A-05. AGU Annual Meeting, Washington DC, Dec 10-14.
- 14) Fuka, D.R.\*, B. Mathews, A. Ameko, and **Z.M. Easton**. IS-GEO 2018 Summer Workshop: Bringing Scientists to the Sensors and Back Again, across 8 of the world's 11 ecosystems (Invited). IN21C-0726. AGU Annual Meeting, Washington DC, Dec 10-14.
- 15) Stamps. D., D.R. Fuka, J. Gallagher, and **Z.M. Easton**. Towards Brokered Alignment of Long-Tailed Observations (BALTO). IN31B-23. AGU Annual Meeting, Washington DC, Dec 10-14.

- 16) Wagena, M.\* and **Z.M. Easton**. Agricultural conservation practices can help mitigate the impact of climate change. OS43F-2152. AGU Annual Meeting, Washington DC, Dec 10-14.
- 17) Bock, E.\*, K. Stephenson, and **Z.M. Easton**. 2018. Opportunities and challenges for mitigating the water quality impacts of agricultural drainage with denitrifying bioreactors in the Chesapeake Bay Watershed. ChesMS Annual Meeting, Annapolis MD. June 2018.
- 18) Sommerlot, A. and **Z.M. Easton**. 2018. Addressing the limitations of implementing watershed models at fine scales. ChesMS Annual Meeting, Annapolis MD. June 2018.
- 19) Wilusz, D., D.R. Fuka\*, C. Cho, W. Ball, C. Harman, and **Z.M. Easton**. 2018. Using StorAge Selection functions to improve simulation of groundwater nitrate lag times in the SWAT modeling framework. ChesMS Annual Meeting, Annapolis MD. June 2018.
- 20) **Easton, Z.M.** and D.R. Fuka\*. 2018. A customizable dashboarding system for watershed model interpretation. ChesMS Annual Meeting, Annapolis MD. June 2018.
- 21) **Easton, Z.M.**, D.R. Fuka, A.R. Sommerlot, M.B. Wagena, A.S. Collick. 2018. Improved prediction of nutrient dynamics in complex landscapes using terrain models. ChesMS Annual Meeting, Annapolis MD. June 2018. (Invited).
- 22) Wagena, M.B.\* and **Z.M. Easton**. 2018. Agricultural conservation practices can help mitigate the impact of climate change. ChesMS Annual Meeting, Annapolis MD. June 2018.
- 23) Wagena, M.B.\*, A. Sommerlot, E. Buell, G. Bhatt, and **Z.M. Easton**. 2018. Quantifying structural model uncertainty using a Bayesian multi-model ensemble. ChesMS Annual Meeting, Annapolis MD. June 2018.
- 24) Collick, A., D. Fuka\*, T. Veith, A. Buda, P. Kleinamn, R. Bryant, and **Z.M. Easton**. 2018. Employing fine resolution spatial information and extensive field research to evaluate best management practice (BMP) scenario evaluations across the Chesapeake Bay. ChesMS Annual Meeting, Annapolis MD. June 2018.
- 25) Ni, W., M. Li, A. Ross, R. Najjar, M. Wagena\*, and **Z.M. Easton**. 2018. Climate downscaling projections of Chesapeake Bay hypoxia in the 21st century. ChesMS Annual Meeting, Annapolis MD. June 2018.
- 26) Collick, A.S., **Z.M. Easton**, P. Kleinman, and D.R. Fuka\*. 2017. Predicting phosphorus dynamics across physiographic regions using a mixed Hortonian non-Hortonian hydrology model H22C-03. 2017 AGU Annual Meeting. New Orleans, LA, 11-15 Dec.
- 27) **Easton, Z.M.**, A.S. Collick, M.B. Wagena, A.R.\*, Sommerlot\*, and D.R. Fuka\*. 2017. A customizable dashboarding system for watershed model interpretation H51P-08. 2017 AGU Annual Meeting. New Orleans, LA, 11-15 Dec.
- 28) Fuka, D.R.\*, S. Singer, A. Cunningham, and **Z.M. Easton**. 2017. Emailing drones: From design to test range to ARS offices and into the field NH31C-07. 2017 AGU Annual Meeting. New Orleans, LA, 11-15 Dec.
- 29) Wilusz, D., D.R. Fuka\*, C. Cho, W. Ball, C. Harman, and **Z.M. Easton**. Using StorAge Selection functions to improve simulation of groundwater nitrate lag times in the SWAT

- modeling framework NH31C-07. (Invited). 2017 AGU Annual Meeting. New Orleans, LA, 11-15 Dec.
- 30) Bosch, D., A.S. Collick, R. White, and **Z.M. Easton**. 2017. An Agro-ecosystem model to achieve agricultural sustainability for the Delmarva. Delmarva Landgrant Cooperative Research Meeting. Princess Anne, MD Dec 2017.
  - 31) **Easton, Z.M.** 2017. Modeling options to investigate and incorporate BMP performance uncertainty in the CBP Phase 6 Watershed Model. (Invited). STAC BMP Uncertainty Workshop. Vienna, VA. Nov 2017.
  - 32) Bosch D.J., M. Wagena\*, **Z.M. Easton**. 2017. Meeting water quality goals under climate change in Mahantango Watershed. STAC Optimization Workshop, Annapolis MD. Feb 17 2017.
  - 33) **Easton, Z.M.** 2017. Model optimization: techniques and cautionary tales. STAC Optimization Workshop, Annapolis MD. Feb 17 2017. (Invited).
  - 34) Archibald J, **Z.M. Easton**, D. Fuka\*, M.T. Walter. 2016. Assessing the effectiveness of manure application timing options to minimize P loss from fields. AGU Annual Meeting. San Francisco CA. Dec 2016.
  - 35) Fuka D.R.\* and **Z.M. Easton**. 2016. Expanding the performance curve of different weather data sources for hydrologic modeling in central Texas: a comparison of ground observations and the Climate Forecast System Reanalysis as watershed model inputs. AGU Annual Meeting. San Francisco CA. Dec 2016.
  - 36) **Easton Z.M.**, D.R. Fuka\*, A. Collick, M. Wagena\*, A. Sommerlot\*. 2016. Improving the spatial representation of soil properties and hydrology using topographically derived watershed model initialization processes. AGU Annual Meeting. San Francisco CA. Dec 2016.
  - 37) **Easton, Z.M.**, S. Khalsa, and D.R. Fuka\*. 2016. Using the NSF EarthCube BCube brokering interface to study the saturation excess/infiltration excess nexus within watershed initializations. AGU Annual Meeting. San Francisco CA. Dec 2016.
  - 38) Bryant R, E. Bock \*, P. Kleinman, and **Z.M. Easton**. 2016. Reducing nutrient losses employing edge-of-field and in-ditch strategies and monitoring approaches on the Delmarva Peninsula. ASA, CSSA, SSSA Annual Meeting, Phoenix AZ. Nov 2016
  - 39) **Easton Z.M.** 2016. Can hydrologic complexity simplify field scale modeling? SERA-17 Annual Meeting. Phoenix AZ. Nov 2016.
  - 40) Collick A.S., **Z.M. Easton**, and P. Kleinman. 2016. Understanding the unique hydrology of Maryland's Eastern Shore to better inform nutrient management planning. ASABE Annual Conference, Orlando FL. Jul 2016.
  - 41) Christianson L, A.S. Colick, **Z.M. Easton**, E. Bock\*, P. Kleinman, R. Bryant. 2016. In-ditch, stepped denitrifying bioreactor for treatment of agricultural ditch drainage. ASABE Annual Conference, Orlando FL. Jul 2016.

- 42) **Easton, Z.M.**, D. Fuka\*, A.S. Collick. 2016. Improving the spatial representation of soil properties and hydrology using topographically derived initialization processes in the SWAT Model. ASABE Annual Conference, Orlando FL. Jul 2016
- 43) Collick A.S., **Z.M. Easton**, D. Fuka\*, P. Kleinman, T. Veith. 2016. Impacts of normalizing the SWAT topographic index based on watershed size. ASABE Annual Conference, Orlando FL. Jul 2016
- 44) Bosch, D.J. M. Wagena\*, and **Z.M. Easton**. 2016 Meeting water quality goals for agriculture under climate change. Batsheva de Rothschild Workshop on Climate Changes and their Effect on Agriculture, Economics and the Environment. June 20-21, 2016. Rehovot, Israel.
- 45) **Easton, Z.M.**, M. Wagena\*. 2016 Development of a mechanistic nitrous oxide routine for the SWAT model to assess greenhouse gas emissions from agroecosystems. Chesapeake Modeling Symposium (ChesMS16) Williamsburg VA. Jun 2016. (Invited).
- 46) Sommerlot A, **Easton, Z.M.** 2016. Coupling the Short-Term Global Forecast System weather data with distributed watershed models: implication for real-time landscape management. Chesapeake Modeling Symposium (ChesMS16) Williamsburg VA. Jun 2016.
- 47) **Easton Z.M.** Do water quality BMPs work? combined monitoring and modeling hold the answer. Chesapeake Modeling Symposium (ChesMS16) Williamsburg VA.
- 48) **Easton, Z.M.**, R. Najjar, M. Li, D. Sample, D. Bosch, M. Berbero, N. Alamdari, J. Giuffria, A. Ross, W. Ni. 2016. WSC-Cat 1: Coupled multi-scale economic, hydrologic and estuarine modeling to assess the impacts of climate change on water quality. NSF WSC PI Meeting.
- 49) **Easton Z.M.** 2016. Needs assessment results from the climate and hydrological domains: What data does science need? NSF EarthCube All Hands Meeting, Arlington, VA. Mar 2016
- 50) **Easton, Z.M.**, A. Collick\*, M. Wagena\*, A. Sommerlot\* and D. Fuka\*. 2016. Improving the spatial representation of soil properties and hydrology using topographically derived watershed model initialization processes. AGU Annual Meeting. San Francisco CA.
- 51) Bock, E.\* and **Z.M. Easton**. 2015. Greenhouse gas analysis by GC/MS. AGU Annual Meeting. San Francisco CA.
- 52) Archibald, J.A., D. Fuka\*, **Z.M. Easton**, M.T. Walter and R. Schneider. 2015. Assessing the effectiveness of manure application timing options to minimize P loss from fields. AGU Annual Meeting. San Francisco CA.
- 53) Fuka, D.\* and **Z.M. Easton**. 2015. Expanding the performance curve of different weather data sources for hydrologic modeling in central Texas: a comparison of ground observations and the Climate Forecast System Reanalysis as watershed model inputs. AGU Annual Meeting. San Francisco CA.
- 54) Sommerlot, A\*, D.R. Fuka\*, M. Wagena\*, and **Z.M. Easton**. 2015. Coupling the short-term Global Forecast System weather data with disturbed watershed models: implications for landscape management. *In* ASABE 1<sup>st</sup> Climate Change Symposium: Adaptation and Mitigation. Chicago Illinois.

- 55) **Easton, Z.M.**, R. Najjar, A. Sommerlot\*, M. Wagena\*, A. Ross, and D. Sample. 2015. Climate change and biogeochemical cycling, building models to predict field and watershed scale changes in biogeochemical cycling. *In* ASABE 1<sup>st</sup> Climate Change Symposium: Adaptation and Mitigation. Chicago Illinois.
- 56) **Easton, Z.M.** 2015. Can hydrologic complexity simplify field scale modeling? SERA-17 Annual Meeting, Minneapolis MN. (Invited).
- 57) **Easton, Z.M.**, A. Collick\* P. Kleinman, D. Harmel, A. Sommerlot\*, M. Berbero\*, and D.R. Fuka\*. 2015. TopoSWAT: a ArcPy toolbox to improve the spatial representation of soil properties and hydrology using topographically derived initialization processes. SWAT Conference. Oct. 2015. Purdue University.
- 58) Collick, A\*. P. Kleinman, T. Veith, D. Harmel, M. White, P. Vadas, D. Beagle, J. Weld\*, D. Fuka\*, and **Z.M. Easton**. 2015. Improved simulation of soil and manure phosphorus loss in SWAT. SWAT Conference. Oct. 2015. Purdue University.
- 59) Fuka, D.\*, D. Auerbach\*, B. Bucahnnon\*, A. Collick\*, P. Kleinman, M. Berbero\*, A. Sommerlot\*, and **Z.M. Easton**. 2015. TauRkSWAT: An operating system independent SWAT model watershed initialization interface. SWAT Conference. Oct. 2015. Purdue University.
- 60) Falinski, K.\*, D. Auerbach\*, K. Olsen, D.R. Fuka\*, and **Z.M. Easton**. 2015. Evaluating weather observations and the Climate Forecast System Reanalysis as inputs for hydrologic modeling in the Hawaiian Islands 2015 SWAT Conference. Oct. 2015. Purdue University.
- 61) Berbero, M.\*, A. Sommerlot\*, D.R. Fuka\*, M. Davis\*, E. Bock\*, and **Z.M. Easton**. 2015. SWAT-GHG: A mechanistic greenhouse gas sub-model for SWAT. SWAT Conference. Oct. 2015. Purdue University.
- 62) Sommerlot, A.\*, M. Wagena\*, D.R. Fuka\*, and **Z.M. Easton**. 2015. Coupling the Short-Term Global Forecast System weather data with distributed watershed models: Implication for real-time landscape management. SWAT Conference. Oct. 2015. Purdue University.
- 63) **Easton, Z.M.**, J.M. Davis\*, B. Coleman\*, and E. Bock\*. 2015. Biochar Enhanced Nitrate and Phosphate Removal in Denitrifying Bioreactors. ASABE Special Session on Bioreactors. ASABE Annual Meeting, New Orleans, LA. July 29<sup>th</sup> 2015. (Invited).
- 64) **Easton, Z.M.**, A. Collick\*, P. Kleinman, A. Sommerlot\*, S.J. Kahlsa, and D.R. Fuka\*. 2015. Improving Representation of Soil Characteristics and Hydrology Using Topographically Derived Initialization Processes and Data Brokering. SWAT Conference. June 2015. Sardinia Italy.
- 65) Fuka, D.R.\*, A.S. Collick\*, D. Wright, S.J. Kahlsa, and **Z.M. Easton**. 2015. Simplifying SWAT Model Initialization. SWAT Conference. June 2015. Sardinia Italy.
- 66) Sommerlot, A.\*, M. Berbero\*, D.R. Fuka\*, and **Z.M. Easton**. 2015. Coupling the Short-Term Global Forecast System weather data with distributed watershed models: Implication for real-time landscape management. SWAT Conference. June 2015. Sardinia Italy.



- 67) **Boldrini, E.**, Z.M. Easton, D.R. Fuka\*, J. Pearlman, and S. Nativi. 2015. Brokering technologies to realize the hydrology scenario in NSF BCube. Geophysical Research Abstracts. Vol. 17, EGU2015-12630-3, 2015. EGU General Assembly 2015.
- 68) **Easton, Z.M.**, A. Collick\*, P. Kleinman, A. Sommerlot, S.J. Kalsa, C. McAlister, and D. Fuka\*. 2015. Using the BCube Brokering System to add topographic features for field scale processes into basin scale hydrological models. Geophysical Research Abstracts. Vol. 17, EGU2015-7752, 2015. EGU General Assembly 2015.
- 69) Fuka, D.R.\* , A. Collick\*, P. Kleinman, A. Sommerlot\*, S.J. Kalsa, C. McAlister, and **Z.M. Easton**. 2015. Using the BCube Brokering as a framework for hydrological model repeatability. Geophysical Research Abstracts. Vol. 17, EGU2015-7897-1, 2015. EGU General Assembly 2015.
- 70) **Easton, Z.M.** and E.M. Bock\*. 2015. biochar enhanced nitrate and phosphate removal in denitrifying bioreactors. ASABE Special Session on Bioreactors. ASABE Annual Meeting, New Orleans, LA. (Invited).
- 71) Sommerlot, A.\* and **Z.M. Easton**. 2015. Coupling the short-term Global Forecast System weather data with disturbed watershed models: implication for landscape management. ASABE Climate Change Meeting, Chicago IL.
- 72) **Easton, Z.M.**, M. Wagena\*, D.R. Fuka\*, and A. Sommerlot\*. 2015. Climate change and biogeochemical cycling, building models to predict field and watershed scale changes in biogeochemical cycling. ASABE Climate Change Meeting, Chicago IL.
- 73) **Easton, Z.M.**, 2015. Modeling and management to improve water quality in upland fields. SERA-43 Annual Meeting. Chicago IL. (Invited).
- 74) Coleman, B.\* , E. Bock\*, and **Z.M. Easton**. 2015. Managing nitrogen in agroecosystems: Practical approaches to reducing edge of field nitrogen loss. Geological Society of America Annual Meeting, Chattanooga TN.
- 75) Fuka, D.R.\* , A. Sommerlot\*, M. Wagena\* and Zachary Easton. 2015. Funded Project Showcase, NSF EarthCube 2015 All Hands Meeting. May, 2015. Arlington, VA.
- 76) **Easton, Z.M.**, D. Sample, D. Bosch, R. Najjar, M. Li. 2015. Coupled multi-scale modeling to assess impacts of climate change on water quality and management in the Chesapeake Bay. NSF Water Sustainability and Climate PI Meeting, Arlington VA.
- 77) Alamdari, N.\* , D. Sample, and **Z.M. Easton**. 2015. Climate change and BMP performance. NSF Water Sustainability and Climate PI Meeting, Arlington VA.
- 78) Fuka, D.R.\* , A. Sommerlot\*, **Z.M. Easton**. 2014. A simple method for assessing available weather data quality for site specific nutrient management. *Eos Trans. AGU*, 89(53), Fall Meet. Suppl., Abstract B51D-0053A.
- 79) **Easton, Z.M.**, D.R. Fuka\*, 2014. Hydrological modeling and repeatability with brokering. *Eos Trans. AGU*, 89(53), Fall Meet. Suppl., Abstract IN31D-3740.

- 80) **Easton, Z.M.**, A.S. Collick, and D.R. Fuka\*. 2014. Modeling P dynamics in complex terrains. ASA-CSSA-SSSA Annual Meeting, Long Beach, CA. (Invited).
- 81) **Easton, Z.M.** C. MacAlister, D.R. Fuka\*. 2013. Methods for interfacing IPCC climate change scenarios with higher resolution watershed management models in the Ethiopian Blue Nile Basin. *Eos Trans. AGU*, 89(53), Fall Meet. Suppl., Abstract A33E-0295.
- 82) Bock, E.M.\*, D.R. Fuka\*, and **Z.M. Easton**. 2013. Nitrogen fate across topographic gradients, from headwaters to riparian zones. *Eos Trans. AGU*, 89(53), Fall Meet. Suppl., Abstract B43E-0567.
- 83) Fuka, D.R.\* C. MacAlister; S.J.S. Khalsa; M.T. Walter; M.Z. Fuka; S.A. Pierce, and **Z.M. Easton**. 2013. Data de- and redimensioning for optimized brokering access. *Eos Trans. AGU*, 89(53), Fall Meet. Suppl., Abstract N51A-1531.
- 84) **Easton, Z.M.**, A.S. Collick, and D.R. Fuka\*. 2013. Modeling phosphorus transfer from fields to artificial drainage networks. *In Annual Meetings Abstracts [CD-ROM]*. ASA, CSSA, and SSSA, Madison, WI. (Invited).
- 85) Bock, E.M.\*, and **Z.M. Easton**. 2013. Quantification of denitrification in a denitrifying bioreactor with biochar amendment. *In Annual Meetings Abstracts [CD-ROM]*. ASA, CSSA, and SSSA, Madison, WI.
- 86) **Easton, Z.M.**, M.T. Walter, T. S. Steenhuis, S. D. Solomon, C. MacAlister, and D.R. Fuka\*. 2013. Using small watershed streamflow gaging stations coupled with watershed modeling systems as spatial precipitation networks. *American Meteorological Society*. 27(515): 2013.
- 87) Fuka, D.R.\* M.T. Walter, T.S. Steenhuis, S.D. Solomon, C. MacAlister, and **Z.M. Easton**. 2013. Spatial area and distance convergences in different parts of the world using CFSR to force watershed-modeling systems. *American Meteorological Society*. 27(55): 2013.
- 88) Lassiter E.M.\* and **Z.M. Easton**. 2012. Rate of denitrification and the accumulation of intermediates in a denitrifying bioreactor. *Eos Trans. AGU*, 89(53), Fall Meet. Suppl., Abstract B43F-0464.
- 89) Buchanan, B.P., M.T. Walter, S.B. Shaw, **Z.M. Easton**. 2012. A Phosphorus Index that combines critical source areas and transport pathways using a travel time approach. *Eos Trans. AGU*, 89(53), Fall Meet. Suppl., Abstract H53J-1661.
- 90) Archibald, J.A., M.T. Walter and **Z.M. Easton**. 2011. Applying the Variable Source Loading Function (VSLF) hydrologic model in R to predict phosphorus loads. *Eos Trans. AGU*, 89(53), Fall Meet. Suppl., Abstract H11B-1055.
- 91) Archibald, J.A., **Z.M. Easton**, and M.T. Walter. 2011. Digital soil mapping and hydroecological modeling. *Eos Trans. AGU*, 89(53), Fall Meet. Suppl., Abstract H11B-1055.
- 92) Pradhanang S.M., R. Mukundan, E.M. Schneiderman, M.S. Zion, A. Anandhi, D.C. Pierson, A. Frei, **Z.M. Easton**, D.R. Fuka, and T.S. Steenhuis. 2011. Streamflow responses and potential ecological implications of climate change in New York City water supply watershed. *Eos Trans. AGU*, 89(53), Fall Meet. Suppl., Abstract H43B-1204.

- 93) **Easton, Z.M.**, M.T. Walter, T.S. Steenhuis. 2010. Reconciling plot- to watershed-scale hydrologic and biogeochemical responses. *Eos Trans. AGU*, 89(53), Fall Meet. Suppl., Abstract H14B-04.
- 94) Dahlke, H. E., **Z. M. Easton**, S. W. Lyon, L. D. Brown, M. T. Walter, T. Steenhuis. 2010. Dissecting the variable source area concept – Flow paths and water mixing processes. *Eos Trans. AGU*, 90(53), Fall Meet. Suppl., Abstract H11C-0822.
- 95) Dahlke, H.E., **Z.M. Easton**, L. Brown, T.S. Steenhuis. 2010. The role of fragipan soils properties for hillslope subsurface flow dynamics. EGU General Assembly 2010 2-7 May, 2010 in Vienna, Austria, p.1008
- 96) **Easton, Z.M.**, M. T. Walter, T. S. Steenhuis. 2010. Investigating plot and watershed scale hydrologic and biogeochemical responses. *Eos Trans. AGU*, 89(53), Fall Meet. Suppl., Abstract H14B-04.
- 97) Saia, S. M., T. S. Steenhuis, **Z. M. Easton**, J. Boll, E. S. Brooks. 2010. Modeling the Impact of Landscape Variability on Nutrient and Pesticide Dynamics in CEAP Watersheds *Eos Trans. AGU*, 89(53), Fall Meet. Suppl., Abstract H33A-1118.
- 98) Fuka, D. R., **Z. M. Easton**, A. Wale, S. Pacenka, A. Collick, L. A. Caballero, V. Pereira, M. T. Walter, T. S. Steenhuis. 2010. Applications using the global GEONETCast satellite data feed to drive real-time watershed planning and forecasting models. *Eos Trans. AGU*, 89(53), Fall Meet. Suppl., Abstract H43B-1229.
- 99) Pradhanang, S. M., **Z. M. Easton**, E. Schneiderman, M. S. Zion, T. S. Steenhuis. 2010. Intercomparison of SWAT models in simulating hydrology of Cannonsville Reservoir Watershed. *Eos Trans. AGU*, 89(53), Fall Meet. Suppl., Abstract H53F-1103.
- 100) Steenhuis, T., **Z. Easton**, J. Boll, L. A. Caballero, H. E. Dahlke, E. S. Brooks, S. A. Tilahun, D. R. Fuka. 2010. Distributed watershed models: Back to the basics (Invited). *Eos Trans. AGU*, 89(53), Fall Meet. Suppl., Abstract H53K-06.
- 101) Faulkner, J.W., **Z.M. Easton**, W. Zhang, L.D. Geohring, T.S. Steenhuis. 2010. Hydrological evaluation and design of vegetative treatment areas. American Water Resources Association 2010 Annual Water Resources Conference, November 1-4, Philadelphia, PA.
- 102) Dahlke, H.E., **Z.M. Easton**, L.D. Brown, and T.S. Steenhuis. 2010. The role of fragipan soils properties for hillslope subsurface flow dynamics. General Assembly, European Geosciences Union, Vienna, Austria, May 2-7, 2010.
- 103) **Easton, Z.M.**, T.S. Steenhuis, M.T. Walter. 2010. Development and application of a physically based landscape water balance in the SWAT model. USDA National Water Conference, Hilton Head, SC. (Invited).
- 104) Singh, A., Shoemaker, C., Woodbury, J., and **Z.M. Easton**. 2010. New calibration methods for incorporating variable source area hydrology in an application of SWAT to phosphorous transport in a large watershed in Northeastern U. S. In *Proceedings from the 2010 AGU*

*Western Pacific Geophysics Meeting*. American Geophysical Union, 2000 Florida Ave., N. W. Washington DC 20009 USA.

- 105) **Easton, Z.M.**, T.S. Steenhuis, M.T. Walter. 2009. Up-scaling plot measures in a distributed watershed model. *Eos Trans. AGU*, 89(53), Fall Meet. Suppl., Abstract H32D-07.
- 106) Woodbury, J., C. A. Shoemaker, D. Cowan, **Z. M. Easton**, 2009. Effects of modeling variable source area hydrology on flow and phosphorous transport predicted by a SWAT model for the Cannonsville Watershed *Eos Trans. AGU*, 89(53), Fall Meet. Suppl., Abstract H51I-0873.
- 107) **Easton, Z.M.**, T.S. Steenhuis, M.T. Walter. 2009. Combined monitoring and modeling indicate most effective BMPs. North American Lake Management Society Annual Meeting, Hartford, CT.
- 108) **Easton, Z.M.**, E. D White, T.S. Steenhuis, M.T. Walter. 2009. SWAT Water Balance: Development and application of a physically based landscape water balance in the SWAT model. SWAT Conference, Boulder, CO.
- 109) **Easton, Z.M.**, P. Bishop, T.S. Steenhuis, and M.T. Walter. 2008. Do water quality BMPs work? Combined monitoring and modeling hold the answer. *Eos Trans. AGU*, 89(53), Fall Meet. Suppl., Abstract H13C-0949.
- 110) Fuka, D.R., **Z.M. Easton**, H.E. Dahlke, E.D. White, M.T. Walter, D. Cowan, and T.S. Steenhuis. 2008. Integrating "poor-man's" ensemble weather risk forecasts to calibrate and force spatial hydrologic modeling systems. *Eos Trans. AGU*, 89(53), Fall Meet. Suppl., Abstract H53H-08.
- 111) White, E.D., **Z.M. Easton**, D.R. Fuka, and T.S. Steenhuis. 2008. Improved Soil and Water Assessment Tool (SWAT) performance by removal of the Curve Number method. *Eos Trans. AGU*, 89(53), Fall Meet. Suppl., Abstract H43D-1035.
- 112) **Easton, Z.M.**, M.T. Walter, P. Bishop. 2008. Do water quality BMPs work? Combined monitoring and modeling hold the answer. *Eos Trans. AGU*, 89(53), Fall Meet. Suppl., Abstract H13C-0949.
- 113) Dahlke, H.E., **Z.M. Easton**, D.R. Fuka, N.S. Rao, and T.S. Steenhuis. 2008. Forecast of spatially distributed runoff dynamics in the Finger Lakes region using an interactive web tool and Python. *Eos Trans. AGU*, 89(53), Fall Meet. Suppl., Abstract H41G-0965.
- 114) Dahlke, H., N. Rao, E. White, T. L. Veith, **Z.M. Easton**, E. Schneiderman, and T. Steenhuis. 2008 Testing models for predicting BMP effectiveness in Town Brook, a CEAP watershed. *National Sedimentation Laboratory (NSL)-50 Years of Soil & Water Research in a Changing Agricultural Environment* (2008). (Invited).
- 115) Flores-López, F, **Z.M. Easton**, and T.S. Steenhuis. 2007. Ground water, surface water and land interactions for soluble reactive phosphorus and nitrate at a dairy farm in a Catskill Mountains' valley. *Eos Trans. AGU*, 89(53), Fall Meet. Suppl., Abstract H51B-0462.

- 116) Rao, N.S., **Z.M. Easton**, D.R. Lee, and T.S. Steenhuis. 2007. Combining water quality and cost-benefit analysis to examine the implications of agricultural best management practices. *Eos Trans. AGU*, 89(53), Fall Meet. Suppl., Abstract H31F-0724.
- 117) **Easton, Z.M.**, M.T. Walter, and T.S. Steenhuis. 2006. Phosphorus risk assessment using the Soil Moisture Distribution and Routing Model. SERA-17 Annual Meeting. (Invited).
- 118) Fuka, D., T.S. Steenhuis, **Z.M. Easton**, S. Lyon, and M.T. Walter. 2006. Incorporating VSA hydrology into SWAT model: an application to a watershed in the Catskill mountain range. *In Variable Source Area Hydrology and Targeting Water Quality Conservation Practices*. Soil and Water Conservation Society. Ankeny, Iowa.
- 119) **Easton, Z.M.**, M.T. Walter, and T.S. Steenhuis. 2006. Incorporating variable source area hydrology into curve number based watershed models. *In Variable Source Area Hydrology and Targeting Water Quality Conservation Practices*. Soil and Water Conservation Society. Ankeny, Iowa.
- 120) **Easton, Z.M.**, P. Gérard-Marchant, and T.S. Steenhuis. 2006. Hydrologic assessment of an urban variable source watershed in the Northeast US. *In Variable Source Area Hydrology and Targeting Water Quality Conservation Practices*. Soil and Water Conservation Society. Ankeny, Iowa.
- 121) **Easton, Z.M.**, P. Gérard-Marchant, and T.S. Steenhuis. 2006. Predicting dissolved phosphorus transport from an urban watershed using distributed hydrologic modeling. *In Variable Source Area Hydrology and Targeting Water Quality Conservation Practices*. Soil and Water Conservation Society. Ankeny, Iowa.
- 122) T.S. Steenhuis, C.A. Shoemaker, **Z.M. Easton**, J.R. Stedinger, S. Lyon, N.S. Rao, D. Cowan, D. Fuka, F. Flores-Lopez, and B.A. Tolson. 2006. Integrating data and models in the Catskills to assess effectiveness of Phosphorus BMP's. *In USDA-CSREES Water Quality Program abstracts*. San Antonio, TX. (Invited).
- 123) **Easton, Z.M.** and A.M. Petrovic. 2005. Landscape impact on urban runoff: Comparing dissolved and total phosphorus loading rates based on landuse. *In Annual Meetings Abstracts [CD-ROM]*. ASA, CSSA, and SSSA, Madison, WI.
- 124) **Easton, Z.M.**, P. Gerard-Marchant, T.S. Steenhuis, and A.M. Petrovic. 2005. Dissolved phosphorus transport from an urban watershed using distributed hydrologic modeling. *In Annual Meetings Abstracts [CD-ROM]*. ASA, CSSA, and SSSA, Madison, WI.
- 125) **Easton, Z.M.** and A.M. Petrovic. 2005. Landscape impact on urban runoff: determining nutrient loading rates based on land use. ACS symposium. The fate of nutrients and plant protection chemical in the urban environment.
- 126) **Easton, Z.M.** and A.M. Petrovic. 2004. Landscape impact on urban runoff: Determining phosphorus loading rates based on land use. *In Annual Meetings Abstracts [CD-ROM]*. ASA, CSSA, and SSSA, Madison, WI.

- 127) **Easton, Z.M.**, T.S. Steenhuis, and A.M. Petrovic. 2004. Urban watershed modeling: Using soil moisture distribution and routing to assess the impact of urban development. *In* Annual Meetings Abstracts [CD-ROM]. ASA, CSSA, and SSSA, Madison, WI.
- 128) **Easton, Z.M.**, T.S. Steenhuis, and A.M. Petrovic. 2004. Landscape impact on nutrient loading to surface waters in urban ecosystems. Baltimore Ecosystem Conference, Baltimore, MD. (Invited).
- 129) **Easton, Z.M.**, T.S. Steenhuis, and A.M. Petrovic. 2004. Urban watershed modeling: Using soil moisture distribution and routing to assess the impact of urban development. Baltimore Ecosystem Conference, Baltimore, MD. (Invited).

### **Extension/Outreach Presentations**

- 1) Stephenson, S., Benham, B., & **Z.M. Easton**. (2021). Chesapeake Bay: State of the Science 2025: Potential Proactive STAC Assessment Effort. Annapolis, MD.
- 2) Easton, Z. (2021). Modeling Agricultural Conservation Practices. USDA CEAP Modeling Group, Burlington VT.
- 3) **Easton, Z.M.** & White, R. (2021). VA Ag Expo: Demonstration of Animal-Environmental Sensing Technology. VA Ag Expo. Corbin Hall VA.
- 4) **Easton, Z.M.** (2021). Watershed Response: State of the Science: 2025. US EPA STAC. Annapolis MD.
- 5) **Easton, Z.M.** (2021). Developing Fine-Scale Modeling Capacity for the Phase 7 Model. CBP Modeling Work Group. Annapolis MD.
- 6) **Easton, Z.M.** (2021). VT CEAP Watersheds Advisory Meeting: Modeling Update. Burlington VT.
- 7) **Easton, Z.M.** (2021). CEAP Modeling Meeting Update. Burlington VT.
- 8) **Easton, Z.M.** (2021). VCE Ag Drainage basics. VCE Ag Today. Virtual
- 9) **Easton, Z.M.** and K. Stephenson. 2019. Overview of salient points from BMP targeting literature synthesis. US EPA CBP STAC BMP targeting workshop. Fairfax VA. Nov 2019.
- 10) **Easton, Z.M.** 2019. Chesapeake Hydrologic Model Visioning 2025. US EPA CBP. Annapolis MD. Sept 2019.
- 11) **Easton, Z.M.** and D.R. Fuka\*. 2018. Connecting to the CHORDS data portal using R. IS-GEO, Intelligent Systems in the Geo Sciences workshop. Hilo HI. Aug 2018.
- 12) **Easton, Z.M.** 2018. Privacy and security issues with sensor data. IS-GEO, Intelligent Systems in the Geo Sciences workshop. Hilo HI. Aug 2018.
- 13) **Easton, Z.M.** and D.R. Fuka\*. 2018. Creating custom dashboards for your sensor data. IS-GEO, Intelligent Systems in the Geo Sciences workshop. Hilo HI. Aug 2018.
- 14) **Easton, Z.M.** 2018. STAC P6 Watershed Model Review: Lessons Learned and Visioning 2020.

- 15) **Easton, Z.M.** and E.M. Bock\*. NRCS Ag Water Management and Drainage Mid Atlantic Tour. April 2017.
- 16) **Easton, Z.M.** and A.R. Sommerlot\*. 2107. The use of runoff risk advisory tools for water quality protection. eXtension Webinar. June 2017.
- 17) **Easton, Z.M.** and E.M. Bock\*. NRCS Ag Water Management and Drainage Mid Atlantic Tour. June 2016.
- 18) Bock, E.\*, J. Faulkner, and **Z.M. Easton**. Climate change adaptation for agriculture: Mitigating short- and long-term impacts of climate on crop production. 2016. Resilient Virginia Conference. Richmond, VA, 22-23 Mar. (invited).
- 19) **Easton, Z.M.** and E. Bock\*. 2015. Hydrology basics and the water cycle. Mid Atlantic Crop School, Ocean City, MD. Nov 2015. (invited).
- 20) Bock, E\*. and **Z.M. Easton**. 2015. Drainage basics and drainage water management. Mid Atlantic Crop School, Ocean City, MD. Nov 2015. (invited).
- 21) Bock, E\*. and **Z.M. Easton**. 2015. Ag water management and water quality. AgriDrain Field Day, Shirley Plantation, Charles City, VA. October 2015
- 22) **Easton, Z.M.** and E. Bock\*. 2015. Biofilter performance and GHG emissions. NRCS Biofilter Demonstration Day, Corbin Hall Farm, Waterview, VA. August 2015.
- 23) Bock, E\*. and **Z.M. Easton**. 2015. Drainage basics and drainage water management. 2015. Soil and Water Conservation Society Annual Meeting, Richmond, VA, 28 Oct. (invited).
- 24) **Easton, Z.M.** and E. Bock\*. 2014. Enhanced nitrogen and phosphorus removal and mitigation of greenhouse gases in denitrifying bioreactors amended with biochar. North Central Drainage Management Task Force Meeting, Findlay OH. (Invited).
- 25) **Easton, Z.M.** and E. Bock\*. 2014. Drainage Basics and New Technologies to Control Nutrient Loss. Drainage Demonstration Day, Shirley Plantation, Charles City, VA.
- 26) **Easton, Z.M.** 2014. The Water We Drink, VT Presidential Installment, Blacksburg, VA. (Invited).
- 27) **Easton, Z.M.** 2013. Can Incorporating Terrain Metrics into Watershed Models Improve Conservation Planning? Virginia Ag Conference, Belle Haven, VA.
- 28) **Easton, Z.M.** and E. Bock\*. 2013. Bioreactors as Edge-of-Field Practice to Reduce Nitrogen Export. Virginia Ag Conference, Belle Haven, VA.
- 29) **Easton, Z.M.** 2012. Agricultural water quality update. Virginia Ag Conference, Belle Haven, VA.
- 30) **Easton, Z.M.** 2012. Eliminating non-point from non-point source pollution. Virginia Crop Production School. Richmond, VA.
- 31) **Easton, Z.M.** 2012. What will the TMDL mean for the Eastern Shore. Virginia Ag Conference, Belle Haven, VA.

- 32) **Easton, Z.M.** 2012. Emerging technologies to identify hydrologically sensitive areas of the landscape. Virginia Crop Production Association Annual Meeting, Richmond, VA. (Invited).
- 33) **Easton, Z.M.** 2011. Eliminating non-point from non-point source pollution. Mid Atlantic Crop School, Ocean City, MD. (Invited).
- 34) **Easton, Z.M.** 2009. Protecting water quality in agriculture. American Farmland Trust-Planning for Farms, Food, and Energy. Syracuse, NY. (Invited).

### **Other Presentations**

- 1) **Easton, Z.M.** 2017. Modeling options to investigate and incorporate BMP performance uncertainty in the CBP Phase 6 Watershed Model. STAC Uncertainty Workshop, Vienna, VA. (Invited).
- 2) **Easton, Z.M.** 2017. Model optimization: Best practices and cautionary tales. STAC Optimization Workshop, Annapolis MD (Invited).
- 3) **Easton, Z.M.** and E.M. Bock\*. 2014. Coupled biophysical biochemical system to remediate nitrate in groundwater. VT ICTAS Grant Review, Blacksburg, VA.
- 4) **Easton, Z.M.** 2014. Can hydrologic complexity simplify watershed modeling? Interagency Steering Committee on Multimedia Environmental Models-NSF/USACE, Baltimore, MD. (Invited).
- 5) **Easton, Z.M.** and E.M. Bock\*. 2014. Lessons from agricultural drainage- modeling and management of ag drainage. Chesapeake Bay Science and Technical Advisory Committee, Re-Plumbing the Chesapeake, Easton, MD. (Invited).
- 6) **Easton, Z.M.** D.R. Fuka\*, and A.S. Collick. 2014. Phosphorus modeling with variable source hydrology. Chesapeake Bay Science and Technical Advisory Committee, Annapolis MD. (Invited).
- 7) **Easton, Z.M.** and D.R. Fuka\*. 2014. A Simple Routine to Modeling snow depth and snowmelt in complex terrains. Virginia Tech GIS and Remote Sensing Symposium, Blacksburg, VA. (Invited).
- 8) **Easton, Z.M.** M. Wagena\*, and D.R Fuka\*. 2013. Regional climate change in the Blue Nile Basin: Implication for water availability and sediment transport. University of Rhode Island Geoscience Seminar Series, Kingston, RI. (Invited).
- 9) **Easton, Z.M.** and E.M. Bock\*. 2013. Nitrogen speciation and nutrient mass reductions in field scale bioreactors. Cornell University Biological and Environmental Engineering Seminar Series, Ithaca, NY. (Invited).
- 10) **Easton, Z.M.** 2013. Can hydrologic complexity simplify watershed modeling? Penn State Water Colloquium, University Park, PA. (Invited).
- 11) **Easton, Z.M.** 2012. Redefining phosphorus index transport: integrating critical source areas and transport pathways. Virginia Tech Biological System Engineering Seminar Series, Blacksburg VA.



- 12) **Easton, Z.M.** and T.S. Steenhuis. 2009. Rainfall-runoff and sediment modeling in the Blue Nile Basin. International Water Management Institute Upstream Downstream/Nile Basin Initiative Stakeholders Meeting. Addis Ababa, Ethiopia. (Invited).
- 13) **Easton, Z.M.**, M.T. Walter, and T.S. Steenhuis. 2009. Quality of long-term data for model development. USDA-CSREES National Water Conference. Hilton Head, SC.
- 14) **Easton, Z.M.** M.T. Walter, and T.S. Steenhuis. 2009. Use of hydrology and water quality model's for BMP assessment. USDA-CSREES National Water Conference. Hilton Head, SC.
- 15) **Easton, Z.M.**, M.T. Walter, and T.S. Steenhuis. 2009. Framework for CEAP synthesis watershed results. USDA-CSREES National Water Conference. Hilton Head, SC.
- 16) **Easton, Z.M.**, and T.S. Steenhuis. 2008. SWAT modeling in the Blue Nile, Ethiopia: Applications to water allocation management. International Water Management Institute Upstream Downstream Meeting. Addis Ababa, Ethiopia. (Invited).
- 17) **Easton, Z.M.** and T.S. Steenhuis. 2008. SWAT modeling in the Blue Nile, Ethiopia: Applications to watershed modeling. International Water Management Institute Upstream Downstream Meeting. Addis Ababa, Ethiopia.
- 18) **Easton, Z.M.** and T.S. Steenhuis. 2007. Assessing hydrology and sediment loss in the Blue Nile Basin: Options and opportunities. International Water Management Institute-Upstream/Downstream Initiative Ethiopia.
- 19) **Easton, Z.M.**, D.R. Fuka, and T.S. Steenhuis. 2007. Identifying hydrologically sensitive areas with a time series of remotely sensed images. New York City Watershed Science Support Group, Kingston, NY.
- 20) **Easton, Z.M.** D.R. Fuka, and T.S. Steenhuis. 2007. Re-conceptualizing the Soil and Water Assessment Tool (SWAT) model for variable source area hydrology. New York City Watershed Science Support Group, Kingston, NY.
- 21) **Easton, Z.M.** 2007. Landscape engineering with limited data. Dept. of Biological and Environmental Engineering: Soil and Water Engineering Seminar Series. Cornell University. Ithaca NY.
- 22) **Easton, Z.M.** 2007. Identifying hydrologically sensitive areas with a time series of remotely sensed images Dept. of Biological and Environmental Engineering: Soil and Water Engineering Seminar Series. Cornell University. Ithaca NY.
- 23) **Easton, Z.M.** 2006. Re-conceptualizing the Soil and Water Assessment Tool (SWAT) model for variable source area hydrology. Dept. of Biological and Environmental Engineering: Soil and Water Engineering Seminar Series. Cornell University. Ithaca NY.
- 24) **Easton, Z.M.** 2005. Determining and modeling phosphorus loading rates based on land use in an urban watershed. Dept. of Biological and Environmental Engineering: Soil and Water Engineering Seminar Series. Cornell University. Ithaca NY.

### **Workshops and Short Courses Organized**

- 2019 STAC BMP Targeting Workshop.** Increasing effectiveness and reducing the cost of non-point source best management practice implementation: Is targeting the answer? Workshop Chair. Fairfax VA, Nov 2019.
- 2018 NSF Annual Meeting.** Biogeochemical cycling in estuaries, coastal waters, and their watersheds: natural variability, response to land use and climate change, and management implications. Session Organizer. Washington DC. Dec 2018
- 2018 IS-GEO.** Scientist to the sensors: Intelligent Systems in the Geo Sciences. Organizing committee. Hilo HI. Aug 2018.
- 2018 ChesMS.** Modeling of climate change consequences for Phase III Watershed Implementation Plans in the Chesapeake Bay Watershed. Panel Member. June 2018.
- 2018 ChesMS.** Change in the Chesapeake: Moving toward finer scales in watershed and estuarine modeling. Session Organizer. June 2018.
- 2018 STAC Modeling Workshop.** Model Visioning for 2025. Shepardstown, WV Jan 2018.
- 2017 STAC BMP Uncertainty Workshop.** Modeling options to investigate and incorporate bmp performance uncertainty in the CBP Phase 6 Watershed Model. Workshop Organizer. Vienna, VA. Nov 2017.
- 2016 Bioreactors and Biochar.** James River Association, Richmond VA. Nov 2016
- 2016 Mid Atlantic Drainage Tour.** VA, MD and DE. June 2016
- 2015 SWAT Boot Camp.** USDA-ARS, University Park, PA. Nov 2015
- 2013 Ensemble Modeling of IPCC AR4 Climate Change Scenarios for Water Resource and Sediment Transport in the Blue Nile Basin.** Abay Basin Authority, Bahir Dar Ethiopia. Feb 10-19
- 2013 SWAT Boot Camp Revisited.** Penn State, PA. Jan 23-25
- 2012 Refining P Indices to Comply with Nutrient Management Standards.** USDA-ARS, Temple TX. Oct 1-3
- 2012 Integrated Modeling Workshop: Coupling the SWAT model with agent based and flow routing models.** Utah Water Research Laboratory, USU, Logan UT. Aug 7-10
- 2012 SWAT Boot Camp.** Penn State, PA. July 10-14
- 2011 AGU 2011 Annual Meeting Session Chair.** R's Emerging Environmental Modeling Community. Session Organizer. Dec 2011.
- 2009 USDA CEAP Synthesis Symposium.** Hilton Head SC. Organizer.

## Software

- 1) **Sommerlot, A.R.\***, and Z.M. Easton. 2017-present. **StartML**. Description: The StartML package provides automatic training and ensembles for machine learning in R. Availability: [github](#)

- 2) **Sommerlot, A.R.\***, and Z.M. Easton. 2015-present. **HydroMet**. Description: The HydroMet package provides sourcing and formatting of meteorological and climate data for hydrologic modeling applications in R. Availability: <http://r-forge.r-project.org/projects/hydromet/>
- 3) **Fuka, D.R.\***, and Z.M. Easton. 2015-present. **VT BCube EcoHydro-Broker**. Description: The VT BCube EcoHydro-Broker is an NSF funded EarthCube data brokering interface that provides data sources in common formats used for watershed modeling and spatial analysis. The BCube Broker searches data stores in a user defined search space (e.g., bounding box, watershed extent, etc), displays data available for the search domain, and performs common geoprocessing tasks, such as re-projecting, clipping and mosaicing. Availability: <http://gradlab4.bse.vt.edu:8080/gi-cat-10.0.2/gi-portal/index.jsp>
- 4) **Easton, Z.M.** and D.R. Fuka\*. 2014-present. **TopoSoil**. Description: An ArcToolbox script that creates FAO based SWAT model topographic GIS layers and database files. The toolbox creates input that allows users to model VSA hydrology, energy budget processes, and alternative runoff generation sub-models in the SWAT model. Availability: <https://drive.google.com/drive/folders/0Bzd8SMclFw9dM1MwTnByLVJxLVU/0Bzd8SMclFw9dY29MTUtVMUFVTzA>
- 5) **Sommerlot, A.R.\*** and Z.M. Easton. 2011-present. **Hydrologically Sensitive Area Decision Support Tool (HSA-DSS)**. Description: Development and application of a web/mobile phone-based system to prioritize areas of the landscape where hydrologically sensitive areas are located. The tool predicts HSAs based on past rainfall and expected rainfall seven days in the future, employing ensemble forecasts of weather conditions. This tool utilizes the ArcIMS GIS platform, which has been implemented using web server, Java virtual machine and servlet engine technology to support data access and a dynamic display of geospatial information. In order to display the location of the HSA, the ArcIMS application server was coupled with a hydrologic assessment tool. The updated HSA maps display both current and 48-hr forecasted locations in the DSS using a management interface programmed in Python. Availability: <http://zachary.bse.vt.edu/beta>
- 6) **Sommerlot, A.R.\***, D.R. Fuka\*, and Z.M. Easton. 2014. **Real-time and Short-Term Climate Forecast System Reanalysis (CFSR) Data Access**. Description: We are in the beta testing stages of a data access tool that provides redimensioned GRIB2 CFSR data for real-time and short term forecast (16 days) applications. This access tool is built in the R computing language to allow open source access to the multi-petabyte CFSR dataset. Availability: Contact [zeaston@vt.edu](mailto:zeaston@vt.edu)
- 7) **Fuka D.R.\*** and Z.M. Easton. 2014-present **SWATmodel**. Description: A multi-OS implementation of the popular USDA-ARS developed SWAT model in R, which allows SWAT to be widely distributed and run as a linear-model-like function on multiple operating systems (OS) and processor platforms. In addition to simplifying the use of SWAT across computational platforms, the SWATmodel package allows SWAT modelers to utilize the analytical capabilities, statistical libraries, modeling tools, and programming flexibility inherent to R. The SWATmodel package we developed provides a linear-model-

like R interface to the SWAT modeling system, transforming weather data through a multi-parameter modeling space into a hydrological output response. A valuable feature of R analysis packages is their ability to work on most OS and system architectures. SWATmodel contains the public domain SWAT FORTRAN code, slightly modified to be GNU (GNU's Not Unix), multi-architecture, FORTRAN compiler compliant. This way the Comprehensive R Archive Network (CRAN) can confirm compliance, compile binaries, and distribute the SWAT model for most OS. SWATmodel supports SWAT2005 and SWAT2012. Availability: <http://cran.r-project.org/web/packages/SWATmodel/index.html>

- 8) **Fuka, D.R\***. and Z.M. Easton. 2013-2014. **IPCC AR4 Climate Change Scenario Builder**. Description: This R based tool allows users to easily select, process and download the closest grid point from the Intergovernmental Panel on Climate Change (IPCC) 2007 AR4 Special Report on Emission Scenarios (SRES). Specifically, we have built a parser to process the A1B, B1, A2, and non-SRES COMMIT climate change scenarios for all three future time periods included in the SRES AR4 scenarios (2011-2030, 2046-2065, and 2080-2099). Availability: Contact [drfuka@vt.edu](mailto:drfuka@vt.edu) or [zeaston@vt.edu](mailto:zeaston@vt.edu)
- 9) **Fuka, D.R.\*** and Z.M. Easton. 2013-present. **Climate Forecast System Reanalysis (CFSR)** **Data Access.** Description: The CFSR dataset consists of hourly weather forecasts generated by the National Weather Service's NCEP Global Forecast System. Forecast models are reinitialized every 6 h (analysis hours = 0000, 0600, 1200 and 1800 UTC) using information from the global weather station network and satellite-derived products. At each analysis hour, the CFSR includes both the forecast data, predicted from the previous analysis hour, and the data from the analysis utilized to reinitialize the forecast models. The horizontal resolution of the CFSR is 38 km. This dataset contains historic expected precipitation and temperatures for each hour for any land location in the world. Moreover, as the precipitation is updated in near-real time every 6 h, these data can provide real-time estimates of precipitation and temperature for hydrologic forecasting. This data access portal has had over 70,000 data queries and downloads. Availability: <http://cfsr.bse.vt.edu/swat-cfsr-v02.pl>
- 10) **Fuka, D.R\***. and Z.M. Easton. 2011-present. **EcoHydRology**. Description: The EcoHydRology package is a collection of useful functions related to hydrology and earth systems implemented in R. Functions include: radiation approximations based on temperature that allow us to approximate terrestrial radiation based on more easily-accessible data such as daily temperature, latitude, day of the year (Jday) and geographical parameters such as aspect and forest cover; solar radiation, including potential solar radiation at the edge of the atmosphere; atmospheric transmissivity; atmospheric and terrestrial longwave radiation. The software models important hydrologic processes that are a function of the radiation budget including snowmelt and snow accumulation and potential evapotranspiration. Legacy Hydrology Packages including TOPMODEL and SWAT. Availability: <http://cran.rproject.org/web/packages/EcoHydRology/index.html>

**Current and Former Students** (chronological)

**Buell, Elyce**, PhD current student

**Kaveh, Roja**, PhD current student

**Mehzabin, Sabrina**, PhD current student

**Asfaw, Binyam**, PhD current student

**Modi, Parthkumar**, MS 2020, Evaluating changes in terrestrial hydrological components due to climate change in the Chesapeake Bay watershed.

**Wagena, Moges**, PhD 2018, Quantifying the impact of climate change on water availability and water quality in the Chesapeake bay watershed.

**Dulaney, Heather**, Undergraduate research 2019: Impact of hydrological and energy fluxes change due to afforestation

**Bock, Emily**, PhD 2017, Performance, opportunities, and challenges for denitrifying biofilters in the Mid-Atlantic

**Sommerlot, Andrew**, PhD 2017, Coupling physical, statistical, and machine learning models with high-resolution information transfer and rapid-update frameworks for environmental applications

**Coleman, Brady**, MS 2017, Impact of biochar amendment, hydraulic retention time, and influent concentration on N and P removal in horizontal flow-through bioreactors

**Umstead, Russell**, MS 2017, Development of fungal bioreactors for water related treatment and disinfection applications

**Davis, Martin**, MS 2016, Biochar and pH as drivers of greenhouse gas production in denitrifying bioreactors

**Rogers, Mark**, PhD (did not finish)

**Douglass, Kathryn**, MS 2015 (did not finish)

**Wade, James**, MS 2015, Maximum adsorptive capacity of biotic and abiotic wood chip and biochar amended wood chip matrices on acetaminophen

**Lassiter, Emily**, MS 2014, Greenhouse gas production and nutrient reductions in denitrifying bioreactors

**Smith, Nick**, MS 2013, Enhanced nitrate and phosphate removal with biochar addition in a laboratory scale denitrifying bioreactor

**Haber, Justin**, Undergraduate research 2013-2017

**Shrading, Casey**, Undergraduate research 2013-2015

**Dechaiara, Colby**, Undergraduate research 2013

**Postdoctoral Fellow Training**

## Easton, C.V

Post Doc: Dr. Daniel Fuka

Degree and Institution: PhD. Cornell University

Employed: 2012-2016

Publications: 11

Meeting Presentations: 22

Employment after leaving postdoctoral position: Research Scientist, Virginia Tech

Post Doc: Dr. Amy Collick (Co-Advised with USDA-ARS Pasture Systems and Watershed Management Research Unit)

Degree and Institution: PhD. Cornell University

Employed: 2013-2016

Publications: 14

Meeting Presentations: 9

Employment after leaving postdoctoral position: Assistant Professor, Morehead State University

Post Doc: Dr. Emily Bock (Lassiter)

Degree and Institution: PhD. Virginia Tech

Employed: 2018-2020

Publications: 6

Meeting Presentations: 12

Employment after leaving postdoctoral position: USDA NRCS

Post Doc: Dr. Moges Wagena

Degree and Institution: PhD. Virginia Tech

Employed: 2018-2020

Publications: 6

Meeting Presentations: 7

Employment after leaving postdoctoral position: Consultant

### **Teaching Experience**

**2017-present** BSE 4304/5304G Watershed Modeling/Advanced Watershed Modeling, Virginia Tech

**2011-present** BSE 4125-4126 Comprehensive Senior Design Project, Faculty Advisor, Virginia Tech

**2010** BEE 6740 Ecohydrology, Instructor, Cornell University

**2007-09** BEE 4730 Introduction to Watershed Modeling, Instructor, Cornell University

**2007-10** Introduction to Watershed Modeling, Instructor, Cornell University-Bahir Dar University (Ethiopia) Masters Program

**2007-08** Masters level GIS Course, Instructor, Bahir Dar University (Ethiopia)

Easton, C.V

**2007-08** BEE 4960 Geographic Information Systems for Hydrology, Instructor, Cornell University

**2006-10** New York State Department of Environmental Conservation Pesticide Licensing Instructor

### **Professional Societies and Affiliations**

**2005-present** American Geophysical Union

**2012-2013** American Meteorological Society

**2010-2012, 2015-2017** American Society of Agricultural and Biological Engineers

**2009-2011, 2015** European Geophysical Union

**2005-2010** Soil and Water Conservation Society

**2004-2009, 2013-2016** ASA-CSSA-SSSA

### **University Service**

**2016-present** Data Analytics and Decision Science Destination Area Stakeholder Team

**2017-present** CALS International Committee

**2016-2019** BSE Dept Head Advisory Committee

**2016-2022** BSE Honorifics Committee

**2012-present** BSE International Committee 2011-2018 (chair)

**2011-present** BSE Graduate Program Committee member

### **Professional Service**

**2013-present** Associate Editor Journal of Environmental Quality

Reviewer Journal of Environmental Quality

Reviewer Journal of Hydrology

Reviewer Hydrology and Earth System Sciences

Reviewer Journal of the America Water Resources Association

Reviewer Journal of Soil and Water Conservation

Reviewer Plant and Soil

Reviewer ASCE Journal of Environmental Engineering

Reviewer Journal of Environmental Management

Reviewer American Chemical Society

Reviewer Science of the Total Environment

Proposal reviewer for USDA-NSF Water Sustainability and Climate

Proposal reviewer for University of Wisconsin Water Resources Institute

Technical Committee Reviewer for North Carolina Water Resources Research Institute

SWCS Judge for Environthon: annual competition for high school students, students compete in the knowledge areas of Water, Soil, Forest, and Wildlife

Meaningful Watershed Learning Experience-Mentor: Program run by SWCDs to facilitate hands-on environmentally based education for rural/underserved students.

### **Boards/Advisory/Review/Oversight Committees**

- 2022**      **STAC Workshop Organizer.** Utility Scale Solar Water Quality Impacts.
- 2019-2020**      **STAC Workshop Organizer.** Increasing Effectiveness and Reducing the Cost of Non-Point Source Best Management Practice Implementation: Is Targeting the Answer?
- 2019-present**      **US EPA CBP STAC.** Scientific Gap Analysis-Steering Committee Member
- 2019-present**      **US EPA CBP STAC.** Scientific Gap Analysis-Watershed Group Lead
- 2019-2021**      **Town of Blacksburg.** Climate Action Plan Committee-Member
- 2018-2020**      **National Academy of Science, Engineering, and Medicine:** NYC Watershed Management Plan review. Member
- 2017-2018**      **STAC Workshop Organizer:** Incorporating BMP uncertainty into the Phase 7 WSM
- 2016-present**      **USDA Climate Hub Virginia Representative:** Elected member
- 2016-2017**      **STAC Chesapeake Bay Phase 6.0 Watershed Model Review Panel Chair**
- 2015**      **US EPA CBP STAC (Scientific and Technical Advisory Committee)** Elected Member
- 2014**      **STAC Expert Panel Member:** Enhancing Approaches to Explain Management Effects on Water Quality Trends
- 2014-2016**      **Chair SERA-43** Southern Region Water Program
- 2011-2015**      **USDA NRCS-SERA 17:** Advisory committee to assess and provide recommendations on the update NRCS 590 Standard, specifically refinements to the P Index
- 2011-2013**      **Virginia Department of Conservation and Recreation Watersheds Network Advisory Panel:** assist DCR with developing and implementing watershed conservation plans and advise on environmental outcomes

### **Popular Press**

- 1) Bay Journal Podcast. 2021. [So you think you can save the Chesapeake?](#)
- 2) Stephenson, K., **Z.M. Easton**, J. Shortle, L. Shabman. 2021. [Ag payments to control nutrients should be based on results](#). Bay Journal. Aug. 2021



- 3) Bay Journal Article. 2020. Nutrient trends different than what you think - or not: Modeling, monitoring often at odds over efficacy of practices. Featured in the print version of the Bay Journal. Oct. 2020
- 4) Chesapeake Research Consortium New Release. 2019. Dealing with uncertainties in Bay models: <http://chesapeake.org/2019/05/06/uncertainties-in-bay-models/>
- 5) New article features Moges Wagena and Dan Fuka during IS-GEO Workshop, Aug 2018: <http://www.hawaiitribune-herald.com/2018/08/20/hawaii-news/scientists-researchers-collaborate-during-uh-hilo-workshop/>
- 6) Journal of Environmental Quality new magazine Feature: The Evolving Science of Phosphorus Site Assessment. 2017. <https://dl.sciencesocieties.org/publications/csa/articles/62/7/4>
- 7) NPR Interview: Researcher Develops Models to Help Urban Areas Plan for Increased Pollution of Chesapeake Bay. 2017. <http://ideastations.org/radio/news/researcher-develops-models-help-urban-areas-plan-increased-pollution-chesapeake-bay>
- 8) Virginia Tech researchers: As rain and temperatures increase, so will costs to mitigate pollution. April 2017. <https://vtnews.vt.edu/articles/2017/04/cals-bay.html>
- 9) Virginia Tech researchers: Climate change may benefit Ethiopia, increase the country's access to water. Oct. 2016. <https://vtnews.vt.edu/articles/2016/10/cals-ethiopiawater.html>
- 10) For Virginia Tech scientists, saving the Chesapeake Bay is all in a day's work. May 2015. <http://www.vtnews.vt.edu/articles/2015/05/050115-cals-chesapeake.html>
- 11) NSF and NIFA award \$25 million in grants for study of water sustainability and climate. Aug 2014 [http://www.nsf.gov/news/news\\_summ.jsp?cntn\\_id=132501&org=NSF&from=news](http://www.nsf.gov/news/news_summ.jsp?cntn_id=132501&org=NSF&from=news)
- 12) Virginia Tech, collaborating universities to study effects of climate change on the Chesapeake Bay. July 23, 2014. <http://www.vtnews.vt.edu/articles/2014/07/072214-cals-nsfwater.html>
- 13) College of Agriculture and Life Sciences awarded conservation innovation grants. Dec. 2013. <http://www.vtnews.vt.edu/articles/2013/11/111113-cals-usdafunds.html>
- 14) Denitrifying Bioreactors: An Emerging Technology to Improve Water Quality. Virginia Tech Innovations. Oct 20 2012. <http://news.cals.vt.edu/innovations/2012/10/curbing-pollution-saving-agriculture/>
- 15) Researchers Studying Impact of Bioreactor on Groundwater Nitrate Remediation. Delmarva Farmer. Oct. 4 2011. Vol 31 No 31. <http://americanfarm.com/publications/the-delmarva-farmer/829-researchers-studying-data-of-bioreactor-with-runoff>.
- 16) Cornell Researchers Examine Sources of Pollution. Ithaca Times. Wed Sept 2 2009. [http://www.ithaca.com/news/local\\_news/article\\_10d186f6-cf8f-506d-9ad0-00c5789add97.html](http://www.ithaca.com/news/local_news/article_10d186f6-cf8f-506d-9ad0-00c5789add97.html)

Easton, C.V