

TIMOTHY R. ROSEN

ShoreRivers
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PROFESSIONAL PREPARATION

2009 B.S., Mount St. Mary's University, Biology

2013 M.S., Louisiana State University, Renewable Natural Resources, Watershed Hydrology

APPOINTMENTS

2018-Present Director of Agriculture and Restoration, ShoreRivers

2013-2018 Watershed Scientist, Midshore Riverkeeper Conservancy

2012-2013 Intern, Chesapeake Conservation Corps.

2009-2013 Research Assistant, School of Renewable Natural Resources, Louisiana State University

PRODUCTS

Peer-Reviewed Publications

Christianson, L., Cooke, R., Hay, C., Helmers, M., Feyereisen, G., Ranaivoson, A., McMaine, J., McDaniel, R., **Rosen, T.**, Puer, W., Schipper, L., Dougherty, H., Robinson, R., Layden, I., Irvine-Brown, S., Manca, F., Dhaese, K., Nelissen, V., & von Ahnen, M. (Accepted/In press). Effectiveness of denitrifying bioreactors on water pollutant reduction from agricultural areas. American Society of Agricultural and Biological Engineers. Transactions. <https://doi.org/10.13031/trans.14011>

L. E. Christianson, A. S. Collick, R. B. Bryant, **T. Rosen**, E. M. Bock, A. L. Allen, P. J. A. Kleinman, E. B. May, A. R. Buda, J. Robinson, G. J. Folmar, and Z. M. Easton. 2017. Enhance Denitrification Bioreactors Hold Promise for Mid-Atlantic Ditch Drainage. Agricultural and Environmental Letters p 1-5, doi: 10.2134/ael2017.09.0032

Bunnell-Young, D., **T. Rosen**, T. Fisher, T. Moorshead, and D. Koslow. 2017. Dynamics of nitrate and methane in shallow groundwater following land use conversion from agricultural grain production to conservation easement. Agriculture, Ecosystems, and Environment 248: p 200-214, doi: 10.1016/j.agee.2017.07.026

Rosen, T. and L. Christianson. 2017. Performance of Denitrifying Bioreactors at Reducing Agricultural Nitrogen Pollution in a Humid Subtropical Coastal Plain Climate. Water 9, 112: pp 1-16, doi: doi:10.3390/w9020112

Rosen, T. and Y.J. Xu. 2015. Estimation of sedimentation rates in the distributary basin of the Mississippi River, the Atchafalaya River Basin, USA. Hydrology Research 46: p 244-257, doi:10.2166/nh.2013.181.

Rosen, T. and Y.J. Xu. 2014. A hydrograph-based sediment availability assessment: Implications for Mississippi River sediment diversion. Water 6: p 564-583, doi:10.3390/w6030564, <http://www.mdpi.com/2073-4441/6/3/564>

Rosen, T., Y.J. Xu, Z. Ma, and X. Xu. 2013. What can we learn from recent development of the Atchafalaya River Delta, USA and the Yellow River Delta, China? In Y. Gorden and G. Perillo (ed.):

Deltas: Landforms, Ecosystems and Human Activities, p 209-217, IAHS Publication 358, Wallingford, UK.

Rosen, T., and Y.J. Xu. 2013. Recent decadal growth of the Atchafalaya River Delta complex: effects of variable riverine sediment input and vegetation succession. *Geomorphology* 194: p 108-120, 10.1016/j.geomorph.2013.04.020.

Rosen, T. and Y. J. Xu. 2011. Riverine sediment inflow to Louisiana Chenier Plain in the Northern Gulf of Mexico. *Estuarine, Coastal and Shelf Science* 94: p 279-288, doi:10.1016/j.ecss.2011.09.013.

Technical Documents

Wye Mills Watershed Water Quality and Stormwater Action Plan. 2020. ShoreRivers, pp. 1-66

Old Love Point Park Master Plan. 2019. ShoreRivers, Queen Anne's County Government, and Chesapeake Bay Foundation, pp 1-40

Williston Lake Watershed Assessment and Action Plan. 2018. ShoreRivers, pp 1-126

Cambridge Creek Watershed Assessment and Action Plan. 2018. ShoreRivers, pp 1-240

Tanyard Branch Watershed Management Plan, Performed for the Town of Easton. 2013. Midshore Riverkeeper Conservancy and Center for Environment and Society at Washington College, pp 1-132

SELECT RECENT GRANTS AWARDED

2020 – Chesapeake Bay Trust – Dairy Conservation Action Plans for Long-Term Resilience – \$52,238

2019 – NFWF – Implementing the Maryland Conservation Drainage Program – \$197,914

2019 – US Dept. of Agriculture-NRCS – Technical Service-Conservation Drainage – \$61,430

2018 – US Dept. of Agriculture-NRCS-CIG – Drainage Research – \$74,853

2018 – MDNR- Atlantic and Coastal Bays Trust Fund – Agricultural Restoration Projects – \$2.2 million

2017 – NFWF – Lake Williston Watershed Assessment – \$48,971

2017 – US Dept. of Agriculture-NRCS – Ditch Denitrifying Bioreactor Research – \$60,000

2017 – US Dept. of Agriculture-NRCS – Conservation Drainage Demonstration – \$100,000

2017 – NFWF – Maryland Conservation Drainage – \$451,959

SYNERGISTIC ACTIVITIES

Innovation and Implementation:

Helped implement the first denitrifying (woodchip) bioreactors in the state of Maryland. Have installed (concept through construction) 7 woodchip bioreactors in the state of Maryland and 1 in Delaware. Completed 2-year study on denitrifying bioreactors to help gauge nitrate reducing efficiency for inclusion as an approved and accredited agricultural best management practice within the Chesapeake Bay Model. Introduced conservation drainage practices to Maryland and Delaware, including the first installations of saturated buffers, blind inlets, and drainage tile for the purpose of drainage water management. Worked directly with state and federal agencies in adopting and adapting nitrogen and phosphorus reducing practices for agricultural point and non-point source pollution issues.

Science Integration:

Present or have helped produce the annual “State of the Rivers” report card release to engage the general public on water quality issues. Help create water quality report card based on data collected annually. Engage citizens on agricultural issues and discuss innovative solutions to non-point source pollution. Provide state and federal agencies with data collected on agricultural best management practices to advise programmatic adoption for cost-share programs.

Outreach and Education:

Work with farmers to educate on the newest agricultural best management practices and soil health initiatives. Present to local, state (MD, PA, DE) and federal agencies and work groups on innovative best management practices. Complete watershed assessments to identify potential pollution reduction projects and activities and engage the general public in clean water discussions. Educate college interns on basic agricultural engineering and water quality methods.

COLLABORATORS AND OTHER AFFILIATIONS

Committees: Soil Health Advisory Committee, Maryland; Delmarva Land and Litter Collaborative

Co-authors and Current and Past Project Collaborators: A Place (UMCES-IMET), T Fisher (UMCES), J Denver (USGS), L Christianson (UIUC), D Bunnell-Young (UMCES), J Xu (LSU), D Koslow (Ridge to Reefs), J Keppler (MDA), J King (USDA-NRCS), A Baldwin (USDA-NRCS), H Beaven (USDA-NRCS), J Shepard (Caroline SCD), A Collick (UMES), R Bryant (USDA-ARS), A Riggi (Queen Anne’s SCD), S Smith (Talbot SCD), J Jones (USDA-NRCS), A Mulkey (MDA), D Baird (Sussex SCD), K Houtman (Dorchester SCD), R Ohrel (American Dairy Association)

M.S. Advisor: Jun Xu, School of Renewable Natural Resources, Louisiana State University