Jacob Hosen
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Education

2015	Ph.D. Behavior, Ecology, Evolution, and Systematics, University of Maryland
2005	B.S. Chemistry and Biology, College of William & Mary

Professional Experience

2018 -	Postdoctoral Associate, School of Forest Resources & Conservation, University of Florida
2015 - 2018	Postdoctoral Associate, School of Forestry & Environmental Studies, Yale University
2006 - 2008	Research Specialist, School of Medicine, University of Virginia
2005	Program Coordinator, Prince William Conservation Alliance

Publications & Presentations

Articles, Chapters & Reports

Patrick, C.J., L. Yeager, A.R. Armitage, F. Carvallo, V. Congdon, K. Dunton, M. Fisher, A.K. Hardison, J.D. Hogan, **J.D. Hosen**, X. Hu, B.K. Reese, S.A. Kinard, J.S. Kominoski, X. Lin, Z. Liu, P.A. Montagna, S.C. Pennings, L. Walker, C.A. Weaver, M.S. Wetz. *Submitted*. A systems level analysis of ecosystem responses to hurricane impacts on a coastal region.

Yoon, B., **J.D. Hosen**, E. Kyzivat, J.H. Fair, L.C. Weber, K.S. Aho, R. Lowenthal, S. Matt, W.V. Sobczak, B.A. Poulin, J. Shanley, J. Morrison, J.E. Saiers, A. Stubbins, P.A. Raymond. *Submitted*. The Central role of light in regulating dissolved organic matter in temperate watersheds.

Hosen, J.D., K.S. Aho, J.H. Fair, E. Kyzivat, S. Matt, J. Morrison, A. Stubbins, L.C. Weber, B. Yoon, P.A. Raymond. *In Revision*. Riverine dissolved organic matter source switching and its implication to the ecology of rivers and coastal ocean processes.

Wagner, S., J.H. Fair, S. Matt, **J.D. Hosen**, P.A. Raymond, J. Saiers, J. Shanley, T. Dittmar, and A. Stubbins. *In Press*. Molecular hysteresis: Hydrologically-driven changes in riverine dissolved organic matter chemistry during a storm event. *Journal of Geophysical Research: Biogeosciences*.

Hosen, J.D., K.S. Aho, A.P. Appling. J.H. Fair, R.O. Hall, E. Kyzivat, S. Matt, J. Morrison, J.E. Saiers, J.B. Shanley, L.C. Weber, B. Yoon, P.A. Raymond. 2019. Low turbidity enhancement of primary production during drought in the Connecticut River watershed is scale-dependent. *Limnology & Oceanography*. doi:10.1002/lno.11127.

Hosen, J.D., A.W. Armstrong, M.A. Palmer. 2018. Dissolved organic matter variations in Coastal Plain wetland watersheds: the integrated role of hydrological connectivity, land use, and seasonality. *Hydrological Processes*. 32:1664-1681. doi:10.1002/hyp.11519.

Epting, S.M., **J.D. Hosen**, L. Alexander, M. Lang, A.W. Armstrong, M.A. Palmer. 2018. Landscape metrics as predictors of hydrological connectivity between Coastal Plain wetlands and streams. *Hydrological Processes*. 32:516-532.

Wollheim, W.M., S. Bernal, D. Burns, J.A. Czuba, C.T. Driscoll, A.T. Hansen, R.T. Hensley, **J.D. Hosen**, S.S. Kaushal, L. Koenig, Y. Lu, A. Marzardi, P. Raymond, D. Scott, R.J. Stewart, P.G. Vidon, E. Wohl. 2018. River network saturation hypothesis: factors influencing biogeochemical demand of entire river networks relative to supply. *Biogeochemistry*. 141:503-521.

Hosen, J.D., C.M. Febria, B.C. Crump, M.A. Palmer. 2017. Watershed urbanization linked to changes in stream bacterial community composition. *Frontiers in Microbiology*. 8:1452.

Febria, C.M.*, **J.D. Hosen***, B.C. Crump, M.A. Palmer, D.D. Williams. 2015. Microbial responses to changes in flow status in temporary headwater streams: a cross-system comparison. *Frontiers in Microbiology*. 6:522. [*denotes equal contribution]

Koch, B.J., C.M. Febria, R.M. Cooke, **J.D. Hosen**, M.E. Baker, A.R. Colson, S. Filoso, K. Hayhoe, J.V. Loperfido, A.M.K. Stoner, M.A. Palmer. 2015. Suburban watershed nitrogen retention: Estimating the effectiveness of stormwater management structures. *Elementa*. 3:000063.

McDonough, O.T., M.W. Lang, **J.D. Hosen**, and M.A. Palmer. 2015. Surface hydrologic connectivity between Delmarva bay wetlands and nearby streams along a gradient of agricultural alteration. *Wetlands*. 35:41-53.

Hosen, J.D., O.T. McDonough, C.M. Febria, and M.A. Palmer. 2014. Altered stream dissolved organic matter composition and bioavailability with urbanization. *Environmental Science & Technology*. 48:7817-7824.

Peters, J.L, S. Cohen, J. Staudenmayer, **J.D. Hosen**, T.A.E. Platts-Mills, R.J. Wright. 2012. Prenatal negative life events increase cord blood IgE: Interactions with dust mite allergen and maternal atopy. *Allergy*, 67:545-551.

McDonough, O.T., **J.D. Hosen**, and M.A. Palmer. 2011. Temporary streams: the hydrology, geography, and ecology of non-perennially flowing waters. In: *River Ecosystems: Dynamics, Management and Conservation* (H.S. Elliot and L.E. Martin, eds). Nova Science Publishers, Inc., Hauppauge, NY.

Palmer, M.A., L.A. Wainger, L.S. Craig, K.K. Politano, **J.D. Hosen**, A.P Davis, and J.M. Olszewski. 2010. *Promoting Successful Watershed Restoration Through Effective Monitoring and Assessment*. Chesapeake Biological Laboratory (CBL), Univ. of Maryland Center for Environmental Science, Solomons, MD 20688-0038. CBL report: CBL11-061.

Peters, J.L., S.F. Suglia, T.A.E. Platts-Mills, **J.D. Hosen**, D.R. Gold, and R.J. Wright. 2009. Relationships among prenatal aeroallergen exposure and maternal and cord blood IgE: Project ACCESS, *Journal of Allergy and Clinical Immunology*. 123:1041-1046.

Commins, S.P., S.M. Satinover, **J.D. Hosen**, J. Mozena, L. Borish, B.D. Lewis, J.A. Woodfolk, and T.A.E. Platts-Mills. 2009. Delayed anaphylaxis, angioedema, or urticaria after consumption of red meat in patients with IgE antibodies specific for galactose-alpha-1,3- galactose. *Journal of Allergy and Clinical Immunology*. 123:426-433.

Erwin, E.A., **J.D. Hosen**, S.M. Pollart, M.J. Reid, and T.A.E. Platts-Mills. 2008. High-titer IgE antibody specific for pollen allergens in northern Califronia is associated with both wheezing and total serum IgE. *Journal of Allergy and Clinical Immunology* 123:706-708.

Chung, C.H., B. Mirakhur, E. Chan, Q. Le, J. Berlin, M. Morse, B.A. Murphy, S.M. Satinover, **J.D. Hosen**, D. Mauro, R.J. Slebos, Q. Zhou, D. Gold, T. Hatley, D.J. Hicklin, and T.A.E. Platts-Mills. 2008. Cetuximab-induced anaphylaxis and IgE specific for galactose-alpha- 1,3-galactose. *New England Journal of Medicine*. 358:1109-1117.

Invited Seminars

Hosen, J.D. Illuminating the dark matter of ecosystems: Microbial communities and environmental change in freshwater systems. October 5, 2018, Florida Museum of Natural History, Gainesville, FL.

Hosen, J.D. River and stream microbial communities and carbon cycling response to environmental change. April 24, 2017, Smithsonian Environmental Research Center, Edgewater, MD.

Hosen, J.D. Changes to headwater stream organic matter and microbial communities in response to urbanization. September 17, 2015, University of New Hampshire Department of Natural Resources, Durham, NH.

Presentations & Posters (First Author Contributions)

Hosen, J.D., B.C. Crump, C. Leal, R. Lowenthal, W. Song, L.C. Weber, P.A. Raymond. Oral Presentation. High beta-diversity of urbanized stream microbial communities. Society for Freshwater Science 2018 Annual Meeting, Detroit, MI, May 2018.

Hosen, J.D., J. Fair, E. Kyzivat, Y. Li, S. Matt, L.C Weber, B. Yoon, P.A. Raymond. Oral Presentation. Microbial Functional Response to Drought in the Connecticut River. Coastal & Estuarine Research Federation, Providence, RI, November 2017.

Hosen, J.D., J. Fair, E. Kyzivat, S. Matt, L.C Weber, B. Yoon, P.A. Raymond. Oral Presentation. Organic carbon quality and quantity during storm events in the Connecticut River watershed. Society for Freshwater Science Annual Meeting, Raleigh, NC, June 2017.

Hosen, J.D, L. Harris, M.A. Palmer. Poster. Response of headwater stream microbial extracellular enzymes to urbanization depends on substrate type. Fourth Symposium on Urban Stream Ecology, Greensboro, NC, June 2017.

Hosen, J.D., J. Fair, E. Kyzivat, S. Matt, L. Weber, B. Yoon, P.A. Raymond. Oral Presentation. Drought and ecosystem function in the Connecticut River watershed. Yale Forestry Research Conference, New Haven, CT, April 2017.

Hosen, J.D., J. Fair, E. Kyzivat, S. Matt, L. Weber, B. Yoon, P.A. Raymond. Poster. Testing the Pulse-Shunt Hypothesis: In situ data reveal hydrological extremes and scaling controls on carbon uptake in a river network. AGU Chapman Conference on Extreme Climate Event Impacts, San Juan, PR, January 2017.

Hosen, J.D. and P.A. Raymond. Poster. Response of microbial metabolism to flow variability across a river network. International Society of Microbial Ecology 16, Montreal, CA, August 2016.

Hosen, J.D., C. Febria, L. Harris, C. Swan, S. Filoso, M. Williams, M. Palmer. Poster. Predicting stream dissolved organic matter quality and quantity using basic watershed characteristics, Gordon Research Conference: Catchment Science - Interactions of Hydrology, Biology & Geochemistry, Andover, NH, June 2015.

Hosen, J.D., C. Febria, B.Crump, C. Kellogg, M. Doherty, and M. A. Palmer. Oral Presentation. Microbial community composition and enzyme activity in Coastal Plain headwater streams relates to spatial water conductivity gradient. Joint Aquatic Sciences Meeting, Portland, OR, May 2014.

Hosen, J.D. Invited Panelist. Maintaining Maryland's Healthy Watersheds. Maryland Land Conservation Conference, Adamstown, MD, April 2014.

Hosen, J.D., C. Febria, and M. A. Palmer. Poster. Seasonal variability of microbial use of dissolved organic matter in Coastal Plain headwater streams. Abstract H43B-1454. American Geophysical Union Fall Meeting, San Francisco, CA, December 2013.

Hosen, J.D., O.T. McDonough, C.M. Febria, M.R. Williams, M.A. Palmer. Oral Presentation. Anthropogenic Land Cover Linked to Shifts in Stream Dissolved Organic Matter Composition. ASLO 2013 Aquatic Sciences Meeting, New Orleans, LA, February 2013.

Hosen, J.D., C. Febria, O.T. McDonough, and M. A. Palmer. Poster. Land use and inorganic nutrient load alter enzymatic processing of dissolved organic matter by stream microbial communities. Abstract B41D-0316. American Geophysical Union Fall Meeting, San Francisco, CA, December 2012.

Hosen, J.D., O.T. McDonough, and M.A. Palmer. Poster. Patterns of Dissolved Organic Matter Characteristics in Perennial and Non-Perennial Streams of a Maryland Coastal Plain Watershed. Abstract B33A-0413. American Geophysical Union Fall Meeting, San Francisco, CA, December 2011.

Hosen, J.D., M.S. Perzanowski; M.C. Carter; J. Odhiambo; L. Ng'ang'a; P. Ngari; S.M. Satinover; T.A.E. Platts-Mills. Oral Presentation. IgE antibodies to helminthes and the cross-reactive oligosaccharide galactose-alpha-1,3-galactose (alphaGal) among children in a village in Africa. American Academy of Allergy, Asthma, and Immunology Annual Meeting, Philadelphia, PA, March 2008.

Outreach Articles

Microbes in streams: Little things make a big difference. Watershed Observer, Spring 2014.

Many streams run through it: How ACLT's headwater streams represent the pulse of human activity and conservation in Calvert County. Watershed Observer, Summer 2013.

Outreach Talks & Seminars

Hosen, J.D. Microbial Ecology Field and Laboratory Methods. July 2017. Yale-New Haven Teachers Institute Watershed Science Seminar.

Hosen, J.D. Temporary Streams. November 2, 2014. Merrimac Farm Master Naturalist Course.

Hosen, J.D. Dissolved Organic Matter Quality and Bioavailability Changes Across an Urbanization Gradient in Headwater Streams. October 1, 2014. Center for Watershed Protection Lunch and Learn Seminar Series.

Hosen, J.D. Organic matter in streams and rivers. November 7, 2013. Prince William County Stream Stewards Lecture Series.

Hosen, J.D. Headwater Streams and the Chesapeake Bay. July 18, 2013. Chesapeake Bay Foundation Professional Learning Summer Course.

Hosen, J.D. Temporary streams in the Chesapeake Bay watershed. April 4, 2012. Prince William County Stream Stewards Lecture Series

Grants & Awards

2018	Travel Award – Respiration Regimes in River Networks: A cross-biome perspective, September 18-20, 2018 – $2,000
2017	American Geophysical Union Chapman Conference Travel Award – Extreme Climate Events Impacts on Aquatic Ecosystems, January 22-27, 2017 – $1,550
2012 - 2014	Doctoral Dissertation Improvement Grant, National Science Foundation – $13,535
2012	Graduate Student Summer Research Fellowship, University of Maryland – $5,000
2010	Drach-Mellody Navigator Award, Chesapeake Biological Laboratory – $2,500
2008 - 2009	Darwin Fellowship, University of Maryland – $13,520
2004	Summer Research Fellowship from the HHMI Education grant to the College of William & Mary – $4,000

Teaching

2009	The Ecological and Geomorphic Principles of Stream Restoration (TA)
2008 - 2009	Human Anatomy (TA)

Service

Peer Reviewer	*Environmental Science & Technology*, *Environmental Science: Processes & Impacts*, *Environmental Science and Pollution Research, Freshwater Science*, *Hydrobiologia, Journal of Advances in Modeling Earth Systems (JAMES), Journal of the American Water Resources Association, Journal of Geophysical Research - Biogeosciences*
2018	Special Session Organizer – "Reframing the Science of Urbanized Headwater Streams" – Society for Freshwater Science 2018 Annual Meeting
2017 - Present	Expert Reviewer for Greatist.com
2017	Student Presentation Judge – Coastal Estuarine Research Federation 24th Biennial Conference
2009 - 2014	Member – Chesapeake Biological Laboratory Graduate Education Committee
2013	Member – University of Maryland Center for Environmental Science Presidental Review Committee
2013	Session Organizer – "Linking Microbial Communities and Biogeochemistry to Ecosystem Processes and Environmental Change" – American Geophysical Union 2013 Annual Meeting

Project Participation

2018 - Present	National Science Foundation – "Defining Stream Biomes to Better Understand and Forecast Stream Ecosystem Change."
2015 - Present	National Science Foundation – "The Pulse-Shunt Concept: A conceptual framework for quantifying and forecasting watershed DOM fluxes and transformations at the MacroSystem scale."
2015 - Present	National Science Foundation – "River Organic Matter and Environmental 'Omics"
2013 - 2015	United States Department of Agriculture, Agricultural Research Service – "Wetland-Stream Hydrologic Connectivity and Ecosystem Services."
2012 - 2014	Environmental Protection Agency – "Quantification of Freshwater Ecosystem Service Production Functions under a Changing Climate."
2010 - 2013	National Oceanic & Atmospheric Administration – "Integrating Climate Change into the Restoration of the Chesapeake Bay and Watershed."
2009 - 2010	National Fish & Wildlife Foundation – "Promoting Successful Watershed Restoration using Cost-Effectiveness Monitoring and Assessment."

Collaborators

Ph.D. Advisor: Margaret Palmer

Postdoctoral Advisors: Peter Raymond (Yale University), Matthew Cohen (University of Florida)

Collaborators: George Allen (Texas A&M), Alison Appling (USGS), Emily Bernhardt (Duke University), Byron Crump (Oregon State University), Catherine Febria (University of Canterbury), Lora Harris (University of Maryland Center for Environmental Science), Robert Hall (Flathead Lake Biological Station), James Heffernan (Duke University), Benjamin Koch (Northern Arizona University), Christopher Patrick (Texas A&M Corpus Christi), Brett Poulin (USGS), James Saiers (Yale University), James Shanley (USGS), William Sobczak (College of the Holy Cross), Aron Stubbins (Northeastern University).

Professional Affiliations

American Geophysical Union, Society for Freshwater Science.

Professional References

Margaret Palmer (PhD Advisor)
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