Cary Institute of Ecosystem Studies

*Curriculum Vitae*

**Emma J. Rosi, Ph.D.**
**Senior Scientist**
**Cary Institute of Ecosystem Studies**

## Education

PhD. 2002. University of Georgia, Institute of Ecology, Athens, Georgia. Advisor Judy L. Meyer.

M.S. 1997. University of Georgia, Department of Entomology, Athens, Georgia. Advisor J. Bruce Wallace.

B.S. 1994. University of Michigan, Anthropology/Zoology.

## Research Focus

Stream ecosystem processes and biogeochemistry, aquatic food webs, urban ecology, agricultural effects on streams, aquatic macroinvertebrates, large river ecology, and contaminants.

## Academic Positions

Senior Scientist, July 2015-Present, Cary Institute of Ecosystem Studies, Millbrook NY.

Associate Scientist, July 2009-2015, Cary Institute of Ecosystem Studies, Millbrook NY.

Associate Professor, May 2009-June 2009, Departments of Biology and Natural Science, Loyola University of Chicago.

Assistant Professor, September 2004-2009, Departments of Biology and Natural Science, Loyola University of Chicago.

Post-Doctoral Research Associate, September 2002-2004, Department of Biological Sciences, University of Notre Dame. Advisors: Jennifer L. Tank and Gary A. Lamberti.

## Publications

McPhearson, T., E. M. Cook, M. Berbés-Blázquez, C. Cheng, N. B. Grimm, E. Andersson, O. Barbosa, D. G. Chandler, H. Chang, M. V. Chester, D. L. Childers, S. R. Elser, N. Frantzeskaki, Z. Grabowski, P. Groffman, R. L. Hale, D. M. Iwaniec, N. Kabisch, C. Kennedy, S. A. Markolf, A. M. Matsler, L. E. McPhillips, T. R. Miller, T. A. Muñoz-Erickson, E. Rosi, and T. G. Troxler. 2022. A social-ecological-technological systems framework for urban ecosystem services. One Earth 5:505–518.

Brandão-Dias, P. F. P., A. E. Deatsch, J. L. Tank, A. J. Shogren, E. J. Rosi, S. T. Ruggiero, C. E. Tanner, and S. P. Egan. 2022c. Novel Field-Based Protein Detection Method Using Light Transmission Spectroscopy and Antibody Functionalized Gold Nanoparticles. Nano Letters 22:2611–2617.

Sonti, N. F., P. M. Groffman, D. J. Nowak, J. G. Henning, M. L. Avolio, and E. J. Rosi. 2022. Urban net primary production: Concepts, field methods, and Baltimore, Maryland, USA case study. Ecological Applications.

Dutton, C. L., A. L. Subalusky, A. Sanchez, S. Estrela, N. Lu, S. K. Hamilton, L. Njoroge, E. J. Rosi,

and D. M. Post. 2021. The meta-gut: community coalescence of animal gut and environmental microbiomes. Scientific Reports 11:23117.

Frauendorf, T. C., A. L. Subalusky, C. L. Dutton, S. K. Hamilton, F. O. Masese, E. J. Rosi, G. A. Singer, and D. M. Post. 2021. Animal legacies lost and found in river ecosystems. Environmental Research Letters 16:115011.

Fork, M.L. J.B. Fick, A. J. Reisinger, and E.J. Rosi. 2021. Dosing the Coast: Leaking Sewage Infrastructure Delivers Large Annual Doses and Dynamic Mixtures of Pharmaceuticals to Urban Rivers. Environmental Science and Technology **55: 11637-11645.** https://doi.org/10.1021/acs.est.1c00379

Brandão-Dias, P. F. P E. J. Rosi, A. J. Shogren, J. L. Tank, D. Fischer, and S.P. Egan (2021) Fate of Environmental Proteins (eProteins) from Genetically Engineered Crops in Streams is Controlled by Water pH and Ecosystem Metabolism. Environmental Science and Technology 55 (8), 4688-4697.

Lin, L., A. J. Reisinger, E.J. Rosi, P M. Groffman, and L.E. Band. 2021. Evaluating instream restoration effectiveness in reducing nitrogen export from an urban catchment with a data-model approach. JAWRA.

Likens, G. E, D.C. Buso, E. S. Bernhardt and E.J. Rosi. 2021, A century of change: Reconstructing the biogeochemical history of Hubbard Brook. Hydrological Processes.

Bosio, S.F., P.A. Shirey, S.A. Entrekin, T.J. Hoellein, A.H. Moerke, E.J. Rosi, J. L. Tank and G. A. Lamberti. 2021.Dynamics of large wood added to Midwestern USA streams. River Research and Applications. https://doi.org/10.1002/rra.3798

Reisinger, A. J., L. S. Reisinger, E. K. Richmond, and E. J. Rosi. 2021. Exposure to a common antidepressant alters crayfish behavior and has potential subsequent ecosystem impacts. Ecosphere 12(6):e03527. 10.1002/ecs2.3527.

Reisinger, A. J., J.L. Tank, R.O Hall, E. J Rosi, M. A Baker, and L. Genzoli. 2021. Water column contributions to the metabolism and nutrient dynamics of mid-sized rivers. Biogeochemistry 153: 67-84.

Handler, K. S., A. L. Subalusky, C. J. Kendall, C. L. Dutton, E. J. Rosi, and D. M. Post. 2021. Temporal resource partitioning of wildebeest carcasses by scavengers after riverine mass mortality events. Ecosphere 12(1):e03326. 10.1002/ecs2.3326

Green, M. B., L. H. Pardo, S. W. Bailey, J. L. Campbell, W. H. McDowell, E. S. Bernhardt, and E. J. Rosi. 2021. Predicting high-frequency variation in stream solute concentrations with water quality sensors and machine learning. Hydrological Processes 35 (1), e14000.

Kelso, J. E., E. J. Rosi, and M. A. Baker. 2020. Towards more realistic estimates of DOM decay in streams: Incubation methods, light, and non-additive effects. Freshwater Science 39:559-575.

Ogata, E. M., M. A. Baker, E. J. Rosi, T. B. Smart, D. Long, and Z. T. Aanderud. 2020. Nutrients and pharmaceuticals structure bacterial core communities in urban and montane stream biofilms. Frontiers in Microbiology 11:526545.

Almeida, R. M., S. K. Hamilton, E. J. Rosi, N. Barros, C. R. C. Doria, A. S. Flecker, A. S. Fleischmann, A. J. Reisinger, and F. Roland. 2020. Hydropeaking operations of two run-of-river mega-dams alter downstream hydrology of the largest Amazon tributary. Frontiers in Environmental Science 8:120.

Fischhoff, I. R., T. Huang, S. K. Hamilton, B. A. Han, S. L. LaDeau, R. S. Ostfeld, E. J. Rosi, and C. T. Solomon. 2020. Parasite and pathogen effects on ecosystem processes: A quantitative review. Ecosphere 11.

Robson, S.V. E. J. Rosi, E.K. Richmond, M. R. Grace. 2020. Nominal concentrations of pharmaceuticals alter metabolism, denitrification and diatom communities in artificial streams. Freshwater Science 39:256-267.

Dutton, C. L., A. L. Subalusky, S. K. Hamilton, E. C. Bayer, L. Njoroge, E. J. Rosi, and D. M. Post. 2020. Alternative Biogeochemical States of River Pools Mediated by Hippo Use and Flow Variability. Ecosystems.

Walters, D.M.*, W.F. Cross, T.A. Kennedy, C.V. Baxter, R.O. Hall, Jr., and E.J. Rosi*. 2020. Food web controls on mercury fluxes and fate in the Colorado River, Grand Canyon. Science Advances. * indicates co-lead authors.

Entrekin, S.A., E.J. Rosi, J.L. Tank, T.J. Hoellein, G.A. Lamberti. 2020. Quantitative food webs indicate modest increases in the transfer of allochthonous and autochthonous C to macroinvertebrates following a large wood addition to a temperate stream. Frontiers in Ecology and Evolution 8: 114.

Subalusky, A.L., C.L. Dutton, E. J. Rosi, L. M. Puth, and D.M. Post. 2020. A River of Bones: Wildebeest Skeletons Leave a Legacy of Mass Mortality in the Mara River, Kenya. Frontiers in Ecology and Evolution 8: 31.

S. T. A. Pickett, M L. Cadenasso, M. E. Baker, L. E. Band, C.G. Boone, G. L. Buckley, P.M. Groffman, J. M. Grove, E.G. Irwin, S.S. Kaushal, S. L. Ladeau, A. J. Miller, C. H. Nilon, M. Romolini, E. J. Rosi, C. M. Swan, and K. Szlavecz. 2020. Theoretical perspectives of the Baltimore ecosystem study: conceptual evolution in a socio-ecological research project. Bioscience 70 (4), 297-314

Almeida, R. M., S. K. Hamilton, E. J. Rosi, J. D. Arantes, N. Barros, G. Boemer, A. Gripp, V. L. M. Huszar, P. C. Junger, M. Lima, F. Pacheco, D. Carvalho, A. J. Reisinger, L. H. S. Silva, and F. Roland. 2019. Limnological effects of a large Amazonian run-of-river dam on the main river and drowned tributary valleys. Scientific Reports 9:16846.

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Almeida, R, M, B.A Han, A. J Reisinger, C. Kagemann, and E. J Rosi. 2018. High mortality in aquatic predators of mosquito larvae caused by exposure to insect repellent. Biology letters 14: 20180526.

Marinos, R., J.L Campbell, C.T Driscoll, G.Likens, W. H McDowell, E.J. Rosi, L. E Rustad, E. S Bernhardt. 2018. Give and Take: A Watershed Acid Rain Mitigation Experiment Increases Baseflow Nitrogen Retention but Increases Stormflow Nitrogen Export. Environmental Science and Technology 52 (22), pp 13155–13165. **DOI:** 10.1021/acs.est.8b03553/

Subalusky, A. L., C.L. Dutton, L. Njoroge, E.J. Rosi, D. M. Post. 2018. Organic matter and nutrient inputs from large wildlife influence ecosystem function in the Mara River, Africa. Ecology X:1-17. https://doi.org/10.1002/ecy.2509

Shogren, A, J. Tank, S. Egan, O, August, E. Rosi, B. Hanrahan, M. Renshaw, C.Gantz, D.Bolster,. 2018. Water flow and biofilm cover influence environmental DNA (eDNA) detection in recirculating streams. Environmental Science and Technology 52: 8530-8537.

Dutton, C. L., A. L. Subalusky, S.K. Hamilton, E. J. Rosi and D. M. Post. 2018. Subsidy overload: Organic matter excretion by hippopotami causes downstream hypoxia and fish kills. Nature Communications 9: 1951.

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Richmond, Erinn K. , Michael R. Grace, John J. Kelly, Alexander J. Reisinger, Emma J. Rosi, and David M. Walters. 2017. Pharmaceuticals and personal care products (PPCPs) are ecological disrupting compounds (EcoDC). Elementa 5.

Ye, S, AJ Reisinger, JL Tank, MA Baker, RO Hall, EJ Rosi, M Sivapalan. 2017. Scaling Dissolved Nutrient Removal in River Networks: A Comparative Modeling Investigation. Water Resources Research 53: 9623-9641.

Almeida, RM FS Pacheco, N Barros, E Rosi, F Roland. 2017. Extreme floods increase CO2 outgassing from a large Amazonian river. Limnology and Oceanography 62 (3), 989-999

Tank, Jennifer L., Alexander J. Reisinger[2], and Emma J. Rosi. 2017. Nutrient Limitation and Uptake. Methods in Stream Ecology Vo1 2 (3rd Edition), G.A. Lamberti and R. Hauer, Editors.

Subalusky, Amanda Lee, Christopher Dutton, Emma Rosi, David Post. 2017. Annual mass drownings of the Serengeti wildebeest migration influence nutrient cycling and storage in the Mara River. Proceedings of the National Academy of Sciences. 114 (7647-7652) , doi: 10.1073/pnas.1614778114

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Reisinger, A. J., E. J. Rosi, H. A. Bechtold, T. R. Doody, S. S. Kaushal, and P. M. Groffman. 2017. Recovery and resilience of urban stream metabolism following Superstorm Sandy and other floods. Ecosphere 8(4):e01776. 10.1002/ecs2.1776

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Reisinger, A.J., P.M. Groffman, and E.J. Rosi-Marshall. 2016. Nitrogen-cycling process rates across urban ecosystems. 2016. FEMS Microbiology Ecology 92. doi:10.1093/femsec/fiw198

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