

Stephen K. Hamilton

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Education:

Michigan Technological University	Houghton, MI	Biological Sciences	B.S. 1981
University of Colorado	Boulder, CO	Biological Sciences	M.A. 1985
University of California	Santa Barbara, CA	Biological Sciences	Ph.D. 1994

Professional Positions:

1995–now	Assistant, Associate, and Full Professor, Dept. of Integrative Biology and W.K. Kellogg Biological Station, Michigan State University (50% time since 2018).
2009–now	Adjunct Faculty at Australian Rivers Institute, Griffith University
2002, 2008	Visiting Fellow at Australian Rivers Institute, Griffith University
2016-17	Visiting Scientist at Oregon State University and US Forest Service, Corvallis
2018–now	Senior Scientist, Cary Institute of Ecosystem Studies (50% time)

Selected Professional Honors:

Petoskey Prize from Michigan Environmental Council (2014).
Michigan State University Service and Civic Engagement Award (2014).
Environmental Stewardship Award from Society for Freshwater Science (2015).
Fellow of the Society for Freshwater Science (2017).

Research Interests and Activities:

Stephen Hamilton's principal research interests involve ecosystem ecology and biogeochemistry, with particular emphasis on water. He has studied wetlands, streams, lakes, reservoirs, and watersheds, as well as agricultural cropping systems and their effects on water and climate. His research draws on multiple disciplines to understand and mitigate environmental problems as well as to inform environmental protection and conservation. Hamilton's research publications include studies of nutrient cycling, greenhouse gas emissions, invasive species, food webs, remote sensing, conservation planning, and hydrology.

Hamilton has conducted a variety of studies in tropical floodplain and river ecosystems of South America and Australia, and presently works with several research groups in Brazil on hydropower effects on river systems.

Hamilton also works part-time as a Professor at Michigan State University's Kellogg Biological Station, where he has recently been the Lead Principal Investigator and remains a co-PI for the National Science Foundation's Long-term Ecological Research site and is a Team Leader in the Department of Energy's Great Lakes Bioenergy Research Center.

Selected Publications:

- Reis, V.C.S., V. Hermoso, S.K. Hamilton, S.E. Bunn, E. Fluet-Chouinard, B. Venables, and S. Linke. 2019. Characterizing seasonal dynamics of Amazonian wetlands for conservation and decision making. *Aquatic Conservation: Marine and Freshwater Ecosystems* 2019, 1-10. doi: 10.1002/aqc.3051
- Richmond, E.K., E.J. Rosi, D.M. Walters, S.K. Hamilton, J. Fick, T. Brodin, A. Sundelin and M.R. Grace. 2018. A diverse suite of pharmaceuticals contaminates stream and riparian food webs. *Nature Communications* 9:4491. 10.1038/s41467-018-06822-w
- Dutton, C.L., A.L. Subalusky, S.K. Hamilton, E. J. Rosi, and D.M. Post. 2018. Organic matter loading by hippopotami causes subsidy overload resulting in downstream hypoxia and fish kills. *Nature Communications* 9: 1951. Doi 10.1038/s41467-018-04391-6
- McGill, B.M., S.K. Hamilton, N. Millar, and G.P. Robertson. 2018. The greenhouse gas cost of agricultural intensification with groundwater irrigation of a Midwest U.S. row cropping system *Global Change Biology* 2018:1-13. DOI: 10.1111/gcb.14472
- Robertson, G.P., S.K. Hamilton, B.L. Barham, B.E. Dale, R.C. Izaurrealde, R.D. Jackson, D.A. Landis DA, S.M. Swinton, K.D. Thelen, J.M. Tiedje. 2017. Cellulosic biofuel contributions to a sustainable energy future: Choices and outcomes. *Science* 356: eaal2324. 10.1126/science.aal2324
- Kinsman-Costello, L.E., S.K. Hamilton, J.M. O'Brien, J.T. Lennon. 2016. Phosphorus release from drying and reflooding of diverse shallow sediments. *Biogeochemistry* 130:159-176. 10.1007/s10533-016-0250-4
- Hamilton, S.K., M.Z. Hussain, A.K. Bhardwaj, B. Basso, and G.P. Robertson. 2015. Comparative water use by maize, perennial crops, restored prairie, and poplar trees in the U.S. Midwest. *Environmental Research Letters* 10 (2015) 064015. doi: 10.1088/1748-9326/10/6/064015
- Kinsman-Costello, L.E., J.O. O'Brien, and S.K. Hamilton. 2015. Natural stressors in uncontaminated sediments of shallow freshwaters: The prevalence of sulfide, ammonia and reduced iron. *Environmental Toxicology & Chemistry* 34(3): 467-479. doi: 10.1002/etc.2801
- Pettit, N.E., T.D. Jardine, S.K. Hamilton, V. Sinnamon, D. Valdez, P.M. Davies, M.M. Douglas, and S.E. Bunn. 2012. Seasonal changes in water quality and macrophytes and the impact of cattle on tropical floodplain waterholes. *Marine and Freshwater Research* 63: 788-800.
- Jardine, T.D., B.J. Pusey, S.K. Hamilton, N.E. Pettit, P.M. Davies, M.M. Douglas, V. Sinnamon, I.A. Halliday, and S.E. Bunn. 2012. Fish mediate high food web connectivity in the lower reaches of a wet-dry tropical floodplain river. *Oecologia* 168: 829-838.
- Hamilton, S.K. 2012. Biogeochemical time lags may delay responses of streams to ecological restoration. *Freshwater Biology* 57 (Suppl. s1):43-57. 10.1111/j.1365-2427.2011.02685.x
- Beaulieu, J.J., J.L. Tank, S.K. Hamilton, et al. 2011. Nitrous oxide emission from denitrification in stream and river networks. *Proceedings of the National Academy of Sciences of the U.S.A.* 108: 214-219. doi: 10.1073/pnas.1011464108
- Mulholland, P.J., A.M. Helton, G.C. Poole, R.O. Hall, Jr., S.K. Hamilton, B.J. Peterson, J.L. Tank, L.R. Ashkenas, L.W. Cooper, C.N. Dahm, W.K. Dodds, S. Findlay, S.V. Gregory, N.B. Grimm, S.L. Johnson, W.H. McDowell, J.L. Meyer, H.M. Valett, J.R. Webster, C. Arango, J.J. Beaulieu, M.J. Bernot, A.J. Burgin, C. Crenshaw, L. Johnson, B.R. Niederlehner, J.M. O'Brien, J.D. Potter, R.W. Sheibley, D.J. Sobota, and S.M. Thomas. 2008. Stream denitrification across biomes and effects of anthropogenic nitrate loading. *Nature* 452: 202-206. doi:10.1038/nature06686