Erin C. Seybold

Assistant Scientist
Kansas Geological Survey
University of Kansas
erinseybold@ku.edu | http://erinseybold.com/

Education

Ph.D.	Duke University	Ecology	2017
B.A.	St. Olaf College	Biology and Environmental Science	2011

Professional Appointments

Assistant Scientist 2019
Kansas Geological Survey, University of Kansas

Postdoctoral Associate 2017 – 2019
Vermont EPSCoR, University of Vermont

Research Interests

Aquatic biogeochemistry, watershed hydrology, groundwater-surface water interactions, effects of anthropogenic change on water quality

Awards, Fellowships, and Certificates

Duke Certificate in College Teaching	2017
NSF-USGS Graduate Research Internship Program Fellow	2016
Outstanding Student Presentation Award – AGU Fall Meeting (top 3-5% of student presenters)	2015
NSF Graduate Research Fellow	2013 – 2017
Fulbright Scholar	2011
Phi Beta Kappa Member	2011
Goldwater Scholar	2010

Research Support

NSF EPSCoR: *Aquatic Intermittency effects on Microbiomes in Streams (AIMS)*. Co-PI. Total award amount $6M to KU.

NSF Critical Zone Observatories Program: *Collaborative Research - Using Big Data approaches to assess ecohydrological resilience across scales*. PI. KU Award $94,675, part of larger $5M network grant.

DOE Environmental System Science Program: *Linking nutrient reactivity and transport in subsurface flowpaths along a terrestrial-estuarine continuum*. Co-PI. $34,946 to KU, subaward of larger $600k grant.

Kansas Water Resources Institute: *Spatial variability and subsurface controls of groundwater recharge and nutrient mobilization in dry streams.* PI. Co-PIs Sam Zipper (KGS) and Chi Zhang (KU). Total amount $120,004.

Kansas Water Resource Institute: *Simulating the effects of reservoir management strategies on in-stream sediment load, streambank stability, and water quality.* Co-PI with Tony Layzell (KGS) and Andrea Brookfield (University of Waterloo). Total amount $90,679.

California Sea Grant, Marine Pollution Program: *Linking terrestrial pollution to estuarine water quality: Quantification of the role of groundwater in the transport, transformation and removal of agricultural pollutants in Elkhorn Slough, CA*. Co-PI with Margaret Zimmer (UCSC) and Anna Braswell (UC Boulder). Total amount $243,000.

NSF Graduate Research Internship Program Fellowship: *Assessing the influence of redox microzones on whole-stream denitrification rates*. U.S. Geological Survey Office of Groundwater Geophysics Branch. Total amount $5,000.

NSF Graduate Research Fellowship: *Ecohydrologic controls on carbon cycling: coupling carbon & water at the watershed scale*. Total amount $178,000.

Publications

Seybold EC, Dwivedi R, Musselman K, Kincaid DW, Schroth AW, Adair CA, Claussen A, Perdrial JN. (In review) Changing winter dynamics pose threat to water quality. In review at *Environmental Research Letters*.

Seybold EC, M. Fork, A. Braswell, J. Blaszczak, M. Fuller, K. Kaiser, J. Mallard, M. Zimmer. (Accepted) A Classification Framework for Assessing Ecological, Biogeochemical, and Hydrological Synchrony and Asynchrony. *Ecosystems*.

Siegert CM, Suriano ZJ, Leathers DJ, Gold AJ, Addy K, Schroth AW, **Seybold EC**, Inamdar S, Levia DF. (Accepted) Effects of Atmospheric Circulation on Stream Chemistry in Forested Watersheds across the Northeastern United States: Part 1. Synoptic-scale Forcing. Accepted at *JGR-Atmospheres*.

Suriano ZJ, Siegert CM, Leathers DJ, Gold AJ, Addy K, Schroth AW, **Seybold EC**, Inamdar S, Levia DF. (Accepted) Effects of Atmospheric Circulation on Stream Chemistry in Forested Watersheds across the Northeastern United States: Part 2. Interannual Weather Type Variability. *JGR-Atmospheres*.

Kincaid DW, **Seybold EC**, Adair EC, Bowden WB, Perdrial JN, Vaughan MCH, Schroth AW. (2020) Land use and season influence event-scale riverine export dynamics of nitrate and soluble reactive phosphorus from headwater catchments. *Water Resources Research*. doi: https://doi.org/10.1029/2020WR027361

Landsman-Gerjoi M, Perdrial JN, Lancellotti B, **Seybold EC**, Schroth AW, Adair CA, Wymore A. (2020) Measuring the influence of environmental conditions on dissolved organic matter biodegradability and optical properties: a combined field and laboratory study. *Biogeochemistry*. doi: 10.1007/s10533-020-00664-9

Seybold EC, Gold A, Inamdar S, Bowden WB, Vaughan M, Pradhanang S, Addy K, Shanley J, Vermilyea A, Levia D, Adair C, Wemple B, Schroth A. (2019) Influence of land use and hydrologic variability on seasonal dissolved organic carbon and nitrate export: insights from a multi-year regional analysis for the northeastern USA. *Biogeochemistry*. doi: 10.1007/s10533-019-00609-x

Seybold EC, McGlynn BL (In press) Middle Rockies (Omernik Ecoregion 6.2.10) Represented by Tenderfoot Creek Experimental Forest, Montana. In: A synthesis of science from experimental forests and ranges. Gen. Tech. Rep. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station.

Seybold EC, McGlynn BL. (2018) Hydrologic and biogeochemical drivers of dissolved organic carbon and nitrate uptake in headwater stream networks. *Biogeochemistry*. doi: 10.1007/s10533-018-0426-1

Bernhardt ES, Blaszczak J, Ficken C, Fork M, Kaiser K, **Seybold EC**. (2017) Control Points in Ecosystems: Moving beyond the hot spot hot moment concept. *Ecosystems*. doi: 10.1007/s10021-016-0103-y

Schade JD, **Seybold EC,** Drake T, Spawn S, Sobczak W, Frey KE, Holmes RM, Zimov N. (2016) Variation in summer nitrogen and phosphorous uptake among Siberian headwater streams. *Polar Research* 35. doi: 10.3402/polar.v35.24571

In preparation
Seybold EC, Kincaid DW, Schroth AS, Adair EC, Lancellotti B, Perdrial JN. (In prep) Effects of changing spring melt on nutrient export from forested and agricultural watersheds. Anticipated submission to *Water Resources Research*.

Seybold EC, McGlynn BL. (In prep) Quantifying coupled C and N dynamics across contrasting headwater stream networks. Anticipated submission to *JGR-Biogeosciences*.

Seybold, E.C., McGlynn, BL. (In prep) Influence of geomorphic form and in-stream transformations on watershed carbon dynamics. Anticipated submission to *Water Resources Research*.

Invited seminars

Seybold EC. September 2020. (invited seminar) Exploring the effects of environmental change on the hydrogeochemistry of groundwater and surface water using high frequency sensor networks. Department of Geology Seminar Series, Wichita State University, *Wichita, KS*.

Seybold EC. March 2020. (invited seminar) Biogeochemical effects of changing winter climate on aquatic nutrient dynamics from watershed to continental scales. Division of Biology Seminar Series, Kansas State University, *Manhattan, KS*.

Seybold EC. February 2020. (invited seminar) Effects of rain on snow events and changing winter climate on aquatic nutrient dynamics. Department of Geology Seminar Series, University of Kansas, *Lawrence, KS*.

Seybold EC. November 2019. (invited seminar) Taking the pulse of water quality: Understanding the effects of environmental change on the hydrogeochemistry of groundwater and surface water. Kansas Biological Survey Seminar Series, University of Kansas, *Lawrence, KS*.

Select conference presentations and published abstracts (in last 5 years)

Seybold EC et al. 2020. (oral presentation) Effects of rain on snow events on runoff generation and nutrient export from forested and agricultural catchments in northern Vermont. Society of Freshwater Sciences Annual Meeting, *virtual conference.*

Seybold EC et al. 2019. (poster presentation) Using high-frequency sensor networks to quantify terrestrial nitrogen sources to a coastal estuary. Coastal and Estuarine Research Federation Biannual Meeting, *Mobile, AL*.

Seybold EC and BL McGlynn. 2019. (oral presentation) Influence of catchment morphology on bio-physical drivers of carbon fluxes in headwater streams. Society of Freshwater Science Annual Meeting, *Salt Lake City, UT.*

Seybold EC et al. 2018. (oral presentation) Effects of changing winter snowmelt on watershed nutrient export from forested and agricultural catchments in northern Vermont. AGU Fall Meeting, *Washington, D.C.*

Seybold EC et al. 2018. (oral presentation) Effects of land use on the timing and magnitude of carbon and nitrogen fluxes: an analysis of high-frequency sensor measurements from forested, agricultural, and urban watersheds in the Lake Champlain Basin. Lake Champlain Basin Conf., *Burlington, VT.*

Seybold EC et al. 2017. (poster) Effects of land use on the timing and magnitude of dissolved organic carbon and nitrate fluxes: a regional analysis of high-frequency sensor measurements from forested, agricultural, and urban watersheds. AGU Fall Meeting, *New Orleans, LA.*

Seybold EC and BL McGlynn. 2017. (oral presentation) Physical and biological influences on coupled C and N cycling in headwater streams. AGU Fall Meeting, *New Orleans, LA*.

Seybold EC and BL McGlynn. 2016. (oral presentation) Exploring the relative influence of hydrologic and biogeochemical drivers on carbon and nitrogen uptake across two contrasting headwater streams. AGU Fall Meeting, *San Francisco, CA.*

Seybold EC and BL McGlynn. 2016. (oral presentation) Coupled carbon and nitrogen cycling and catchment-scale biogeochemical fluxes across forested mountainous catchments. ASLO Summer Meeting, *Santa Fe, NM.*

Seybold EC and BL McGlynn. 2015. (oral presentation) Influence of groundwater-surface water exchange on whole stream metabolism estimates. AGU Fall Meeting, *San Francisco, CA*.

Seybold EC and BL McGlynn. 2014. (oral presentation) Carbon metabolism, uptake kinetics, and export: How watershed form influences carbon mobilization and in-stream transformations in headwater catchments. AGU Fall Meeting, *San Francisco, CA*. *winner of Outstanding Student Presentation Award*

Mentoring Experience

Andria Greene (M.S. student, University of California Santa Cruz; committee member)
Jessica Wilhelm (Ph.D. student, University of Kansas; committee member)
Manya Ruckhaus (M.S. student, University of Vermont; committee member)
Bryan Rodriguez-Colon (Ph.D. student, University of Kansas; committee member)
Shaurya Swami (Ph.D. student, University of Vermont; committee member and co-adviser)
Connor Brown (Ph.D. student, University of Kansas; primary adviser)

Undergraduate research students: Thomas Adler (B.S., University of Vermont); Patrick Clay (B.S., University of North Carolina – Chapel Hill); Kelsey Coates (B.S., Duquesne University); Mariah Cronin (B.S., University of Vermont); Ricardo Feliciano-Rivera (B.S., University of Puerto Rico – Mayagüez); Amanda Jackson-Mojica (B.S., University of Puerto Rico – Mayagüez); Kunal Palawat (B.S., University of Vermont); Emily Persiak (B.S., University of Vermont); Julia Petty (B.S., University of Vermont); Ellie Sovcik (B.S., University of Vermont; Honors thesis advisee); Michelle Wolford (B.S., Colorado College); Colleen Yancy (B.S., University of Vermont)

Teaching Experience

Teaching Assistant, Dynamic Earth (Introductory Earth Science) – Duke University	2016
Teaching Assistant, Earth Surface Processes – Duke University	2015
Teaching Assistant, Landscape Hydrology – Duke University	2013
Teaching Assistant, Water Resources Management – Duke University	2012

Leadership, outreach, and service

Topic Editor, Women in Science issue for Frontiers in Water	ongoing
Co-director of KGS Applied Geohydrology Internship	ongoing
Member of CZO Network Education and Outreach Team	ongoing
Reviewer for 10+ peer-reviewed journals	ongoing
Ad-hoc Reviewer for NSF proposals (DEB Ecosystem Sciences Cluster)	ongoing
VT EPSCoR Policy and Technical Advisory Committee member	2017-2019
VT EPSCoR summer internship faculty mentor and group coordinator	2017-2019
AGU Fall Meeting session convener (H23I: Terrestrial-aquatic linkages)	2017
Duke “Let’s Talk About Water” film symposium coordinator	2015
Duke Ecology Symposium steering committee member	2014-2015
"Adopt-a-UPE student” near-peer mentoring program coordinator	2014-2015
Women and Math Mentoring Program, Durham, NC	2013-2015