Dr. Marie J. Kurz – Curriculum Vitae

Environmental Sciences Division
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EDUCATION

Ph.D., 2013 — *Geology*, University of Florida, Gainesville, FL
Environmental Engineering Sciences graduate minor, Hydrologic Sciences certificate

B.S., 2007 — *Geology*, The College of William & Mary, Williamsburg, VA,
Environmental concentration, Anthropology minor

ACADEMIC & PROFESSIONAL HISTORY

2021 – present *R&D Staff*, Environmental Sciences Division, Oak Ridge National Laboratory

2016 – present *Assistant Research Professor*, Department of Biodiversity, Earth & Environmental Science, Drexel University

2016 – 2021 *Senior Scientist* & *Biogeochemistry Section Leader*, Patrick Center for Environmental Research, The Academy of Natural Sciences of Drexel University

2013 – 2016 *Staff Scientist* (*Wissenschaftliche Mitarbeiter*), Dept. Hydrogeology, Helmholtz Center for Environmental Research – UFZ

2007 – 2013 *Alumni Fellow* & *Graduate Research Assistant*, Dept. of Geological Sciences, University of Florida

2007 – 2011 *NSF IGERT (Integrated Graduate Education & Research Traineeship) Fellow*, "Adaptive Management: Wise use of Water, Wetlands & Watersheds", University of Florida

2006 (3mo) *NSF REU (Research Experience for Undergraduates) Trainee*, University of Arkansas

PUBLICATIONS

Ledford S.H.[†], **Kurz M.J.**[†] & Toran L. (2021) Contrasting Raz-Rru stream metabolism and nutrient uptake downstream of urban wastewater effluent sites. *Freshwater Science* 40(1): 103–119.

Weitere M., Altenburger R., Anlanger C., Baborowski M., Bärlund I., Beckers L., Borchardt D., Brack W., Brase L., Busch W., Chatzinotas A., Deutschmann B., Eligehausen J., Frank K., Graeber D., Griebler C., Hagemann J., Herzsprung P., Hollert H., Inostroza P.A., Jäger C., Jahnke A., Kallies R., Kamjunke N., Karrasch B., Kaschuba S., Kaus A., Klauer B., Knöller K., Koschorreck M., Krauss M., Kunz J.V, **Kurz M.J.**, Liess M., Marges M, Müller C., Muschket M., Musolff A., Norf H., Pöhlein F., Reiber L., Risse-Buhl U., Schramm K., Schmitt-Jansen M., Schmitz M., Strachauer U., von Tümpling W., Weber N., Wild R., Wolf C., & Brauns M. (Accepted) Disentangling multiple chemical and non-chemical stressors in lotic ecosystems using a longitudinal approach. *Sci. of the Tot. Envi.* 769: 144324.

Comer-Warner S.*, Knapp J.L.A, Blaen, P.J., Klaar M.J., Shelley F., Zarnetske J.P., Lee-Cullin J., Folegot S.*, **Kurz M.J.**, Lewandowski J., Harvey, J., Ward A.S., Mendoza-Lera C., Ullah S., Datry T., Kettridge N., Gooddy D., Drummond J.D., Marti E., Milner A.M., Hannah D.M., Krause S. (2020) The method controls the story - sampling method impacts on the detection of pore-water nitrogen concentrations in streambeds. *Sci. of the Tot. Envi.* 709: 136075.

Ward A.S., Wondzell S.M., Schmadel N.M., Herzog S., Zarnetske J.P., Baranov V.*, Blaen P.J., Brekenfeld N.*, Chu R., Derelle R., Drummond J.D., Fleckenstein J., Garayburu-Caruso V., Graham E., Hannah D.,

Harman C., Hixson J., Knapp J.L.A., Krause S., **Kurz M.J.**, Lewendowski J., Li A.*, Marti E., Miller M., Milner A.M., Neil K.*, Orsini L., Packman A.I., Plont S.*, Renteria L., Roche K.*, Royer T., Segura C., Stegen J., Toyoda J., Wells J., & Wisnoski N.I. (2019) Spatial and temporal variation in river corridor exchange across a 5th order mountain stream network, *Hydrol. Earth Syst. Sci.* 23(12): 5199–5225.

Ward A.S., **Kurz M.J.**, Schmadel N., Knapp J.L.A., Blaen P.J., Harman C.J., Drummond J.D., Hannah D.M., Krause S., Li A.*, Marti E., Milner A., Miller M., Neil K.*, Plont S.*, Packman A.I., Wisnoski N.I., Wondzell S.M., Zarnetske J.P. (2019) Solute transport and transformation in an intermittent, headwater mountain stream with unsteady discharge. *Water* 11(11): 2208.

Ward A.S., Zarnetske J.P., Baranov V., Blaen P.J., Brekenfeld N., Chu R., Derelle R., Drummond J.D., Fleckenstein J., Garayburu-Caruso V., Graham E., Hannah D., Harman C., Herzog S., Hixson J., Knapp J.L.A., Krause S., **Kurz M.J.**, Lewendowski J., Li A., Marti E., Miller M., Milner A.M., Neil K., Orsini L., Packman A.I., Plont S., Renteria L., Roche K., Royer T., Schmadel N.M., Segura C., Stegen J., Toyoda J., Wells J., Wisnoski N.I., & Wondzell S.M. (2019) Co-located contemporaneous mapping of morphological, hydrological, chemical, and biological conditions in a 5th order mountain stream network, Oregon, USA, *Earth Syst. Sci. Data* 11: 1567–1581.

Kelleher C., Ward A., Knapp J.L.A., Blaen P.J., **Kurz M.J.**, Drummond J.D., Zarnetske J. P., Hannah D.M., Mendoza-Lera C., Schmadel N.M., Datry T., Lewandowski J., Milner A.M., & Krause S. (2019) Exploring tracer information and model framework trade-offs to improve estimation of stream transient storage processes. *Water Resources Research*, 55: 3481-3501.

Blaen P.J., **Kurz M.J.**, Drummond J.D., Knapp J.L.A., Mendoza-Lera C., Schmadel N.M., Klaar M.J., Jäger A.*, Folegot S.*, Lee-Cullin J., Ward A.S., Zarnetske J.P., Datry T., Milner A.M., Lewandowski J., Hannah D.M., Krause S. (2018) Woody debris is related to reach-scale hotspots of lowland stream ecosystem respiration under baseflow conditions. *Ecohydrology* 11(5): e1952.

Folegot S.*, Hannah D.M., Dugdale S.J., **Kurz M.J.**, Drummond J.D., Klaar M.J., Lee-Cullin J.*, Keller T., Marti E., Zarnetske J.P., Ward A.S., & Krause S. (2018) Low flow controls on stream thermal dynamics. *Limnologica* 68: 157-167.

Baranov, V.*, Milošević, D., **Kurz, M.J.**, Zarnetske, J.P., Sabater, F., Marti, E., Robertson, A., Brandt, T.*, Sorolla, A., Lewandowski, J., and Krause, S. (2017) Helophyte impacts on the response of hyporheic invertebrate communities to inundation events in intermittent streams. *Ecohydrol*. 10(6): e1857.

Kurz M.J.[†], Drummond J.D.[†], Marti E., Zarnetske J.P., Lee-Cullin J.*, Klaar M.J., Folegot S.*, Keller T., Ward A.S., Fleckenstein J.H., Datry T., Hannah D.M., & Krause S. (2017) Impacts of water level on metabolism and transient storage in vegetated lowland rivers - insights from a mesocosm study. *J. Geophys. Res. Biogeosci* 122 (3): 628-644.

Khadka M.B., Martin J.B. & **Kurz M.J.** (2017) Synoptic estimates of diffuse groundwater seepage to a spring-fed karst river at high spatial resolution using an automated radon measurement technique. *J. Hydrology* 544: 86-96.

Vieweg M.*, **Kurz M.J.**, Trauth N., Fleckenstein J.H., Musolff A. & Schmidt C. (2016) Estimating time-variable aerobic respiration in the streambed by combining electrical conductivity and dissolved oxygen time-series, *J. Geophys. Res. Biogeosci* 121(8): 2199-2215.

Martin J.B., **Kurz M.J.** & Khadka M.B. (2016) Climate control of decadal-scale increases in apparent ages of eogenetic karst spring water. *J. Hydrology* 540: 988-1001.

Schmadel N.M., Ward A.S., **Kurz M.J.**, Fleckenstein J.H., Zarnetske J.P., Hannah D.M., Blume T., Vieweg M.*, Blaen P.J., Schmidt C., Knapp J.L.A.*, Klaar M.J., Romeijn P.*, Datry T., Keller T., Folegot S.*, Marruedo A.I.* & Krause S. (2016) Stream solute tracer timescales changing with discharge and reach length confound process interpretation. *Water Resour. Res.* 52: 3227–3245.

Kurz M.J., Martin J.B., and Cohen M.J. (2015) Diffusion and seepage-driven element fluxes from the hyporheic zone of a karst river. *Freshwater Science* 34(1), 206-221.

Kurz M.J., deMontety V., Martin J.B., Cohen M.J., and Foster C. (2013) Controls on diel metal cycles in a biologically productive carbonate-dominated river. *Chemical Geology* 358: 61-74.

Cohen M.J., **Kurz M.J.**, Heffernan J.B., Martin J.B., Douglass R.L., Foster C.R., and Thomas R.G. (2013) Diel phosphorus variation and the stoichiometry of ecosystem metabolism in a large spring-fed river. *Ecological Monographs* 83(2), 155-176.

de Montety V., Martin J.B., Cohen M.J., Foster C. and **Kurz M.J.** (2011) Influence of diel biogeochemical cycles on carbonate equilibrium in a karst river. *Chemical Geology* 283(1-2), 31-43.

de Montety V., Martin J.B., **Kurz M.J.**, Cohen M.J. and Foster, C. (2010) Influence of biogeochemically induced carbonate cycles on metals content of a karst river, *in* Birkle P. & Torres-Alvarado I.S., eds., Water-Rock Interaction XIII: Taylor & Francis Group, London. ISBN 978-0-415-60426-0

*[†]Authors contributed equally, *Student authors*

FUNDING

Open Space Institute, *Land Protection Impact Assessment: Phase 2*. PI: **M.J. Kurz**; Co-PIs: S.A. Kroll, D. Keller. March 2020 – May 2022. Total Award: $437,743

William Penn Foundation, *Science Lead for the Delaware River Watershed Initiative Phase 2 Year 4*. Project Leads: R.J. Wall, S.A. Kroll; Key Personnel: L. Perez, **M.J. Kurz**, C. Collier, D. Keller. March 2021 – Feb 2022. Total Contract: $1,050,000

Oak Ridge National Laboratory Mercury Science Focus Area, *Support to Critical Interfaces Science Focus Area: Field scale Model Development*. PI: **M.J. Kurz**. July 2020 – June 2022. Total Award: $120,000

National Fish and Wildlife Foundation, *Delaware River Restoration Fund Project Impact Assessment: Year 1*. PI: S.A. Kroll, Co-PI: **M.J. Kurz**. July 2020 – Sept 2021. Total Award: $280,960

Open Space Institute, *Land Protection Impact Assessment: Phase 1*. PI: S.A. Kroll, Co-PIs: **M.J. Kurz**, D. Keller. Oct 2019 – March 2020. Total Award: $50,813

Pennsylvania Department of Environmental Protection (PADEP), *Review of human health effects of PFAS in support of MCL development*. PI: R. Hamilton, Co-PIs: R. McKeever, D. Vearrier, Key Personnel: E. Chernak, C.N. Haas, T. Hipper, **M.J. Kurz**, C.M. Sales. Dec 2019 – Dec 2020. Total Award: $213,508

Strategic Environmental Research and Development Program (SERDP), *Uptake and bioaccumulation/ biomagnification of subsurface-derived PFASs by lotic, warm water food webs*. Lead PI: **M.J. Kurz**, Co-PIs: E.R. McKenzie (Temple U), C. Sales (Drexel U), D. Spooner (Lock Haven U), C. Blakeslee (USGS). Sept. 2019 – Sept. 2022. Total Award: $1,436,515

William Penn Foundation, *Comprehensive Scientific Direction for Planning, Implementing, and Evaluating the Delaware River Watershed Initiative*. Project Lead: R.J. Wall, Key Personnel: S.A. Kroll, C. Collier, **M.J. Kurz**, S. Haag. Jan 2018 – Dec 2020. Total Contract: $3,200,000

Whitemarsh Foundation, *Characterization of Existing Aquatic and Terrestrial Conditions in the Erdenheim Farm Valley*. Project Lead: W. Ryan, Key Personnel: F.W. Acker, R.J. Horwitz, S. Kroll, **M.J. Kurz**. Aug. 2017 – Sept. 2019. Total Contract: $152,000

National Science Foundation (NSF), *RAPID: Collaborative Research: Evaluating Ecosystem Respiration in Urban Streams Using Reactive Tracer and Dissolved Oxygen Loggers*. Co-PI: S. Ledford (Temple U), **M.J. Kurz**. Aug 2017 – July 2018. Total Award: $24,776

Delaware River Basin Commission (DRBC), *Professional Services for Biological Monitoring Program Support*. Project Lead: **M.J. Kurz**. Key Personnel: D.F. Charles, S. Haag, R.J. Horwitz, S.A. Kroll, J. Doi (Limnotech). Aug. 2017 – July 2022. Total Contract: $300,000

INVITED SEMINARS

2021: Oak Ridge National Laboratory, Environmental Sciences Division
SERDP and ESTCP Webinar Series: Advances in Understanding PFAS Ecological Risks
Drexel University, Biodiversity, Earth & Environmental Sciences Dept.
2019: Villanova University, Dept. of Geography and the Environment
Drexel University, Engaging the Environment: An Interdisciplinary Symposium
Drexel University, Water and Well-Being: Global Approaches to Water Management Symposium
2017: Oak Ridge National Laboratory, Earth Sciences Group
Drexel University, Biodiversity, Earth & Environmental Sciences Dept.
Temple University, Dept. Earth & Environmental Science
2016: Univ. of Tubingen, Center of Applied Geosciences, GeoEnviron Seminar Series
The Academy of Natural Sciences of Drexel University
2013: Helmholtz-UFZ, Dept. of River Ecology (FLOEK)
2012: U. Florida, Dept. Geological Sciences
2011: U. Florida, H.T. Odum Center for Wetlands 'Water Wetlands & Watersheds' Seminar Series
2008: U. Florida, Dept. Geological Sciences, Brown Bag Seminar

SELECT CONFERENCE ABSTRACTS (since 2017)

Kurz M.J. (2021) Controls on Coupled In-Stream Solute Transport, Transformation, and Ecosystem Processes at the Groundwater-Surface Water Interface (Invited). *American Geophysical Union Fall Meeting*, Virtual + New Orleans, LA.

Kurz M.J., Turetcaia A., Kaufman M., Schneidewind U., & Ward A.S. (2021) The Future of Groundwater-Surface Water Interface Research [Poster]. *American Geophysical Union Fall Meeting*, Virtual + New Orleans, LA.

Kurz M.J., McKenzie E., Sales C., Spooner D., Lewis A., & Yun X. (2020) Uptake and bioaccumulation/ biomagnification of subsurface-derived PFASs by lotic, warm water food webs [Poster]. *SERDP-ESTCP 2020 Symposium*, Virtual.

Kurz M.J. & Kroll S.A. (2019) Evaluating Large-Scale Stressor and Restoration Impacts on Water Quality and Ecosystem Integrity in the Delaware River Watershed [Poster]. *American Geophysical Union Fall Meeting*, San Francisco, CA.

Kurz M.J., Perez L., Kroll S.A., Christopher K & Haag S. (2019) Getting the Data Out There: Lessons Learned From Integrating Science Into Watershed Conservation [Poster]. *American Geophysical Union Fall Meeting*, San Francisco, CA.

Kurz M.J., McKenzie E., Sales C., Spooner D., & Blakeslee C. (2019) Uptake and bioaccumulation/ biomagnification of subsurface-derived PFASs by lotic, warm water food webs [Poster]. *SERDP-ESTCP 2019 Symposium.*

Kurz M.J., McKenzie E., Sales C., Spooner D., & Blakeslee C. (2019) Uptake and Bioaccumulation/Biomagnification of Subsurface-Derived PFAS by Stream Food Webs [Poster]. *SETAC North America Focused Topic Meeting: Environmental Risk Assessment of* PFAS, Durham, NC.

Kurz M.J., Haag S., Kroll S.A., Collier C., & Wall R. (2018) Science-Driven Protection of Source Water Quality and Ecosystem Integrity in the Delaware River Basin [Poster]. *American Geophysical Union Fall Meeting*, Washington DC.

Kurz M.J., Ledford S.H., Ward A.S., & Toran L. (2018) Point Source Nutrient Effects on Metabolic Activity and Reactive Solute Transport in an Urban Stream [Poster]. *American Geophysical Union Fall Meeting*, Washington DC.

Kurz M.J., Haag S., Kroll S.A., Collier C., & Wall R. (2018) Science-Driven Protection of Source Water Quality and Ecosystem Integrity in the Delaware River Basin. *13th Annual Susquehanna River Symposium*, Lewisburg, PA.

Kurz M.J. & Schmidt C. (2017) Coupled Spatio-Temporal Patterns of Solute Transport, Metabolism and Nutrient Uptake in Streams. *American Geophysical Union Fall Meeting*, New Orleans, LA.

Kurz M.J., Kroll S.A. & Velinsky D. (2017) Restoring and protecting water quality and ecosystem integrity in the Delaware River Watershed. *6th International Multidisciplinary Conference on Hydrology and Ecology (HydroEco)*, Birmingham, UK.

AWARDS & HONORS

Invited Presenter, AGU Fall Meeting, 2021
Invited Presenter, EGU General Assembly, 2016
Cover feature article, Ecological Monographs Vol. 83, Issue 2, 2013
Horn Award (Outstanding Graduate Student), Dept. Geological Sciences, U. Florida, 2012
NSF-IGERT Graduate Fellowship, University of Florida, 2007
Alumni Graduate Fellowship, University of Florida, 2007
NSF-REU Fellowship, University of Arkansas, 2006
Howard Hughes Medical Institute Freshman Research Grant, William & Mary, 2003

TEACHING

Drexel University

Introduction to Field Methods (GEO 103) – 2 credit [virtual] field course (Sp21).
Geochemistry (GEO 309) – 3-credit course + recitation (W18, W20).
Groundwater Geology (GEO 412) – 4-credit course + lab (Sp18, W19).

University of Florida

Florida Geology Lab (GLY 1150L, 2 sections) – Instructor for 1-credit x 2 sections (2012).
Groundwater Geology (GLY 4930/5827) – Teaching Assistant for 3-credit course (2010).
Hydrogeology and Human Affairs (GLY 3882) – Teaching Assistant for 3-credit course (2010).
Water, Environment and Society (EES 4932) – Co-Instructor for 3-credit course (2008).

PROFESSIONAL ACTIVITIES

Professional Service

Reviewer: *Aquatic Sciences*, *Biogeochemistry*, *JGR-Biogeosciences*, *Journal of Hydrology*, *Limnologica*, *Water Resources Research* (since 2016)

Proposal Reviewer: Dept. of Energy Subsurface Biogeochemical Research Program (2019, 2020)

AGU Annual Meeting Primary Convener (2018, 77 abstracts), Convener (2016, 73 abstracts; 2021, 60 abstracts), Chair (2016-2019, 2021) & OSPA Liaison (2018) for the "Groundwater – Surface Water Interactions" series of sessions.

AGU Annual Meeting Convener for "Coupled Dynamics of Physical, Biological, Geomorphic, Hydrologic, and Chemical Processes in the Hyporheic Zone over a Range of Spatial and Temporal Scales" sessions (2018; 32 abstracts)

Member of: American Geophysical Union (AGU), Earth Science Women's Network (ESWN), Society of Env. Toxicology and Chemistry (SETAC)

Other Service

Member, Watershed Committee to the Board of Trustees, Willistown Conservation Trust (since 2019)

Panelist & Presenter at numerous museum outreach, board & donor events, Academy of Natural Sciences (2016-2021).

Member, GEO Curriculum Committee, BEES Dept., Drexel University (2016-2021)

Faculty Committee Graduate Student Representative, Hydrologic Sciences Academic Cluster, U. Florida (2011-2012)

Department Representative, Graduate Student Council, U. Florida (2007-2010)

Professional & Stakeholder Workshops

Watershed Congress, Delaware Riverkeeper Network, Presenter (2019)
Early Career Geoscience Faculty Workshop, On the Cutting Edge (2018)
Delaware Estuary Science & Environmental Summit, Partnership for the Delaware Estuary, Presenter (2017)
Delaware River Watershed Forum, Coalition for the Delaware River Watershed (2016, 2018)
Berkeley Catchment Science Symposium, Berkeley Water Center (2014 – 2015, 2019)
International Workshop on Temporal High Resolution Water Quality Monitoring and Analysis, Helmholtz-UFZ (2014)
NSF Research Day, I-Cubed Program, U. Florida (2011 – 2012)
Preparing for an Academic Career in the Geosciences Workshop, On the Cutting Edge (2012)
Florida Springs Science Symposium, North Florida Springs Alliance (2012)
Ichetucknee Preservation Research Workshop, Three Rivers Trust Inc. (2010)

OUTREACH

Presented research & Section activities at various Academy public & member events incl. *Member's Night*, *Back from the Field*, & *Toast to the Collections* (2016-2021).

Instructor at the *Drexel Environmental Science Leadership Academy* (*GeoDELSA*) introducing 15+ rising high school juniors and seniors to earth science at Bighorn Basin and Yellowstone (2018-2019).

Panelist for the Academy's *Academy Conversation* series of informal discussions on the latest science news that affects our everyday lives, incl. topics on PFAS, Clean Water Act & COVID-19 (2019-2021).

'Can You Dig It?' outreach event, Florida Museum of Natural History & UF Dept. Geological Sciences: Designed & presented an interactive exhibit on 'Florida's Groundwater'; participation >1500 (2008-2013).

Santa Fe College, Gainesville, FL: Guest lectured for 3 sections of the Physical Geology Lab on Florida's springs (2011-2012).

UF Geosciences Day campus outreach event, UF Dept. Geological Sciences: Proposed, designed & organized 1st and 2nd events. Participation >400 (2011, 2x).

Westwood Middle School, Gainesville, FL: Taught interactive lecture about Florida's groundwater to eight 6th Grade science classes (2010).

3rd Annual Florida Springs Celebration, Oleno State Park, FL: Exhibited a Florida's Groundwater display (2010).