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## Ann Marie (Scholl) Reinhold, Ph.D.

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### RESEARCH INTERESTS

I am a data scientist who specializes in the development and application of computational methods—firmly grounded in theory—to understand the mechanisms underpinning pressing environmental, societal, and cybersecurity problems.

### TEACHING PHILOSOPHY

I cultivate an educational environment wherein the development of students' critical thinking skills becomes an emergent property of engaging assignments and collaborative classroom activities.

### CURRENT AND PAST POSITIONS

- 2019 – present **Assistant Research Professor.** Department of Land Resources and Environmental Sciences, Montana State University, Bozeman, MT.
- 2016 – present **Faculty Affiliate.** Gianforte School of Computing (formerly the Department of Computer Science), Montana State University, Bozeman, MT.
- 2016 – 2019 **Research Scientist.** Department of Land Resources and Environmental Sciences, Montana State University, Bozeman, MT.
- 2014 – 2016 **Postdoctoral Research Associate.** Department of Land Resources and Environmental Sciences, Montana State University, Bozeman, MT.
- 2015 – 2015 **Instructor.** Department of Land Resources and Environmental Sciences, Montana State University, Bozeman, MT.
- 2009 – 2014 **Graduate Research Assistant.** Department of Ecology, Montana State University, Bozeman, MT.
- 2007 – 2007 **Teaching Assistant.** Department of Biology, Duke University, Durham, NC.
- 2006 – 2008 **Graduate Research Assistant.** Developmental Biology Training Program and Department of Cell Biology, Duke University, Durham, NC.
- 2003 – 2004 **Undergraduate Research Assistant.** Department of Integrative Physiology, University of Colorado, Boulder, CO.
- 2003 – 2003 **Undergraduate Teaching Assistant.** Department of Environmental, Population, and Organismic Biology, University of Colorado, Boulder, CO.

### EDUCATION

#### Ph.D. Ecology and Environmental Sciences

Montana State University, December 2014

Advisors: Dr. Alexander V. Zale and Dr. Robert G. Bramblett

- M.S. Cell Biology**  
**Certificate in Developmental Biology**  
Duke University, December 2008  
Advisor: Dr. Margaret L. Kirby
- B.A. Environmental, Population, and Organismic Biology**  
**Summa cum laude**  
University of Colorado at Boulder, May 2004  
Advisor: Dr. David O. Norris

## GRANTS, CONTRACTS, & FELLOWSHIPS

- Ewing, S.A., S. Warnat, **A.M. Reinhold**, and R.A. Payn. 2020. SitS: Coupling high frequency soil solute signals and scalable simulations to quantify biogeochemical mechanisms governing water quality. National Science Foundation, \$944,676.
- Izurieta, C., Shanahan, E.A., **Reinhold, A.M.**, T.W. Peters, V. Strnadová-Neeley, M.P. Wittie, D.W. Opitz. 2020. Cyber QR Ops: Improving the quality and resiliency of critical computing infrastructure, United States Department of Homeland Security, \$3,100,000.
- Reinhold, A.M.**, and G.C. Poole. 2019. Determining the importance of flood dynamics on Russian Olive invasions. United States Department of Agriculture Agricultural Research Service, \$20,000.
- Reinhold, A.M.** 2018. Investigating potential hydrogeomorphic influences on Russian Olive invasions on the Yellowstone River floodplain. United States Department of Agriculture Agricultural Research Service, \$4,022.
- Poole, G.C., and **A.M. Reinhold**. 2018. Multi-Scale hyporheic exchange and regional water temperature project. Confederated Tribes of the Umatilla Indian Reservation, \$33,169.
- Reinhold, A.M.** 2017. Developing a database to determine the influence of microtopography on Russian Olive invasion. United States Department of Agriculture Agricultural Research Service, \$10,000.
- Shanahan, E.A., E. Raile, J. McEvoy, C. Izurieta, G.C. Poole, and **A.M. Reinhold**. 2016. The impacts of narratives-based risk communication on hazard preparedness. The National Science Foundation, \$549,983.
- Zale, A.V., R.G. Bramblett, M.B. Duncan, and **A.M. Reinhold**. 2012. Assessment of population and assemblage level effects of the Exxon oil spill on Yellowstone River fishes. The Natural Resource Damage Program, \$33,400.
- Duncan, M.B., A.V. Zale, R.G. Bramblett, and **A.M. Reinhold**. 2012. Yellowstone River oil spill assessment. Montana Chapter of the American Fisheries Society, \$2,000.
- Bramblett, R.G., A.V. Zale, and **A.M. Reinhold**. 2011. Anthropogenic habitat change effects on the fish assemblages of the Yellowstone River (supplementary funding). United States Army Corps of Engineers, \$112,288.
- Scholl, A.M.**, A.M. Vajda, and D.O. Norris. 2003. Investigation of tyrosine hydroxylase immunoreactive neurons in the brain of the developing Tiger Salamander, *Ambystoma tigrinum*. Howard Hughes Undergraduate Research Opportunities Program Fellowship, \$1,400.

## AWARDS & HONORS

- 2021** Elected to the Society for Freshwater Science's Board of Directors as the Early Career Representative
- 2020** Recipient, 2019 Editors' Citation for Excellence in Refereeing for *Geophysical Research Letters*
- 2010** Best Student Poster Award, Montana Section of the American Water Resources Association Annual Conference
- 2004** Summa cum laude
- 2004** Graduation with Distinction (GPA > 3.75)

- 2004 Phi Beta Kappa National Honor Society  
 2003 Golden Key National Honor Society  
 2002 Phi Sigma Theta National Honor Society  
 2001 National Society for Collegiate Scholars

## PRODUCTS & PUBLICATIONS

### — Theses & Dissertation —

- Reinhold, A.M.** 2014. Responses of fish assemblages to bank stabilization in a large river. Doctoral dissertation, Montana State University, Bozeman, Montana.
- Scholl, A.M.** 2008. The role of FGF8 signaling in cardiac neural crest development. Master's thesis, Duke University, Durham, North Carolina.
- Scholl, A.M.** 2004. The effects of gonadal steroids on tyrosine hydroxylase immunoreactive neurons in the brain of the developing tiger salamander, *Ambystoma tigrinum*. Undergraduate honors thesis, University of Colorado, Boulder, Colorado.

### — Peer Reviewed Papers —

- Raile, E.D., E.A. Shanahan, J. McEvoy, C. Izurieta, N.T. Bergmann, R. Ready, **A.M. Reinhold**, and G.C. Poole. 2021. Narrative Risk Communication as a Lingua Franca for Natural Environmental Hazard Preparation. *Environmental Communication*. DOI: <https://doi.org/10.1080/17524032.2021.1966818>. Pre-analysis plan ID# 20190729AA published at <https://egap.org/content/narrative-risk-communication-lingua-franca-hazard-preparation>
- West, N.M., and **A.M. Reinhold** (*co-first authors*), G.C. Poole, and E.K. Espeland. 2020. Flood dynamics dictate distributions of Russian olive *Elaeagnus angustifolia* L. on riverine floodplains. *Biological Invasions*. DOI: <https://doi.org/10.1007/s10530-020-02352-z>
- Fogg, S.K., S.J. O'Daniel, G.C. Poole, **A.M. Reinhold**, and A. Hyman. 2020. A simple, reliable method for long-term, in-stream data logger installation using rock climbing hardware. *Methods in Ecology and Evolution*. DOI: <https://doi.org/10.1111/2041-210X.13367>
- Bergmann, N., J. McEvoy, E.A. Shanahan, E. Raile, **A.M. Reinhold**, G.C. Poole, and C. Izurieta. 2020. Thinking through levees: how political agency extends beyond the human mind. *Annals of the American Association of Geographers*. DOI: <https://doi.org/10.1080/24694452.2019.1655387>
- Shanahan, E.A., **A.M. Reinhold**, E.D. Raile, G.C. Poole, R. Ready (*co-first authors*), J. McEvoy, N. Bergmann, C. Izurieta, and H. King. 2019. Characters matter: How narratives shape affective responses to risk communication. *PLoS ONE*. 14(12):e0225968. DOI: <https://doi.org/10.1371/journal.pone.0225968>
- Reinhold, A.M.**, G.C. Poole, C. Izurieta, A.M. Helton, and E.S. Bernhardt. 2019. Constraint-based simulation of multiple interactive elemental cycles in biogeochemical systems. *Ecological Informatics*. 50:102-121. DOI: <https://doi.org/10.1016/j.ecoinf.2018.12.008>
- Tornabene, B.J., M.E. Jaeger, R.G. Bramblett, M. Nelson, N. McClenning, T. Watson, A. Ankrum, K. Frazer, **A.M. Reinhold**, and A.V. Zale. 2019. Riverine turtles select habitats maintained by natural discharge regimes in an unimpounded large river. *River Research and Applications*. 35:1489-1498. DOI: <https://doi.org/10.1002/rra.3496>
- Reinhold, A.M.**, G.C. Poole, R.G. Bramblett, A.V. Zale, and D.W. Roberts. 2018. Landscape assessment of side-channel plugs and associated cumulative side-channel attrition across a large river floodplain. *Environmental Monitoring and Assessment*. 190:305. DOI: <https://doi.org/10.1007/s10661-018-6673-8>
- Reinhold, A.M.**, R.G. Bramblett, A.V. Zale, G.C. Poole, and D.W. Roberts. 2017. Spatially-dependent responses of a large river fish assemblage to bank stabilization and side channels. *Transactions of the American Fisheries Society*. 146:967-982. DOI: <https://doi.org/10.1080/00028487.2017.1290682>

- Reinhold, A.M.**, R.G. Bramblett, A.V. Zale, D.W. Roberts, and G.C. Poole. 2016. Comparative use of side and main channels by small-bodied fish in a large, unimpounded river. *Freshwater Biology* 61:1611-1626. DOI: <https://doi.org/10.1111/fwb.12796>
- Sato, A., **A.M. Scholl** (*co-first authors*), E.N. Kuhn, H.A. Stadt, J.R. Decker, K. Pegram, M.R. Hutson, and M.L. Kirby. 2011. FGF8 signaling is chemotactic for cardiac neural crest cells. *Developmental Biology* 354:18-30. DOI: <https://doi.org/10.1016/j.ydbio.2011.03.010>
- Scholl, A.M.**, and M.L. Kirby. 2009. Signals controlling neural crest contributions to the heart. *Wiley Interdisciplinary Reviews: Systems Biology and Medicine* 1:220-227. DOI: <https://doi.org/10.1002/wsbm.8>

—Manuscripts in Review—

- Reinhold, A.M.**, E.D. Raile, C. Izurieta, J. McEvoy, H. King, G.C. Poole, R.C. Ready, N.T. Bergmann, and E.A. Shanahan. *In review*. Persuasion with Precision: A Mixed Methods Procedure for Improving Validity in Risk Communication Treatment Conditions. *Journal of Mixed Methods Research*.
- Poole, G.C., S.K. Fogg, S.J. O'Daniel, B. Amerson, **A.M. Reinhold**, and S. Carlson. *In review*. The hydrologic geometry of expansive hyporheic zones. *Water Resources Research*. PLoS ONE.

— Current Manuscripts —

- Reinhold, A.M.**, N.M. West, and G.C. Poole. Invasion patterns of Russian olive associated with floodplain transitions in a large river. *River Research and Applications*. *In preparation*.
- Fogg, S.K., G.C. Poole, **A.M. Reinhold**, and S.J. O'Daniel. Thermal insulation versus capacitance: a comparison of shading and hyporheic exchange on daily and annual stream temperature cycles. *Water Resources Research*. *In preparation*.

—Software—

- Reinhold, A.M.**, R.A. Payn, and S.A. Ewing. 2020. SoilsToStreams v0.2: An R package for expansive reactive transport modelling within and across hydrogeomorphic process domains from soils to streams. <https://github.com/AMReinhold/SoilsToStreams>
- Poole, G.C., and **A.M. Reinhold**. 2018. gangsta v1.0: Generalized algorithm for nutrient, growth, stoichiometric, and thermodynamic analysis. <https://github.com/FluvialLandscapeLab/gangsta>

— Software Vignettes —

- Reinhold, A.M.** 2018. Using gangsta v1.0. <https://github.com/FluvialLandscapeLab/gangstaBuiltPackage>

— Agency Technical Reports —

- Reinhold, A.M.**, R.G. Bramblett, and A.V. Zale. 2014. Anthropogenic habitat change effects on fish assemblages of the middle and lower Yellowstone River. Completion Report to the United States Army Corps of Engineers and the Yellowstone Conservation District Council Technical Advisory Committee. Montana Fish, Wildlife and Parks University Research Completion Report Series Number 2014-01.

— Conference Papers —

- Raile, E.D., H. King, E.A. Shanahan, J. McEvoy, C. Izurieta, N. Bergmann, K. French, R. Ready, **A.M. Reinhold**, and G.C. Poole. 2018. Narrative-based risk communication: a *lingua franca* for natural hazard messages? Conference Paper of the Midwest Political Science Association 2018 Annual Meeting.

## TEACHING, OUTREACH, & SERVICE

### — Teaching —

- Instructor for upper-level course Stream Restoration Ecology, Montana State University, 2015.
- Visiting Instructor for Stream Restoration Ecology, Montana State University, 2014.
- Teaching Assistant for Cell and Developmental Biology, Duke University, 2007.
- Undergraduate Teaching Assistant for Human Physiology, University of Colorado, 2003.

### — Mentoring —

- Graduate committee member for the following students, seeking degrees in Ecology and Environmental Sciences at Montana State University:
  - Skye Keeshin, M.S. student, 2021-present
  - E. Sale Rhodes, Ph.D. student, 2021-present
  - Caitlin Mitchell, Ph.D. student, 2021-present
  - S. Katie Fogg, Ph.D. student, 2019-present
- Guided and supported the research of fifteen students from the undergraduate to Ph.D. level, 2014-present.
- Graduate student mentor for E.N. Kuhn, an undergraduate Howard Hughes Research Fellow, at Duke University, 2007-2008.

### — Outreach —

- Discussed my research, passion for science, and advice for young scientists on the Montana CREWS Blog (<http://bit.ly/ReinholdCREWS>). Excerpts of this interview were also featured in the Cool Careers section of the Autumn 2020 Montana Girls STEM Collaborative newsletter (<http://bit.ly/ReinholdCoolCareer>).
- Created and implemented a hands-on lesson to facilitate understanding of the water cycle. Lesson was presented to the Sunshine classroom at Middle Creek Montessori and remains available to students, 2020.
- Volunteered as a kindergarten reading aide in the Sunshine classroom at Middle Creek Montessori, 2018-2019.
- Engaged private landowners and a land trust in a partnership wherein the undergraduate and graduate students in my Stream Restoration Ecology course conducted an ecological assessment of a stream running through the stakeholders' land and subsequently provided scientifically-based restoration recommendations to the stakeholders at a public forum, 2015.
- Outreach Committee Chair for the Montana State University Chapter of the American Fisheries Society. I organized and implemented monthly educational events at the Children's Museum of Bozeman (CMB). Additionally, I provided the CMB with native fish for their aquarium, maintained their aquarium, and provided educational materials for the CMB, 2011-2012.
- Riverside Presenter for the Yellowstone River Conservation District Council Boat Tour. I educated a cadre of stakeholders, regulatory agencies, restoration practitioners, and scientists about Yellowstone River fish assemblage structure and function, 2011.
- Keynote Speaker at the Kids' Inquiry Conference at the Durham School of the Arts. I educated children about ways of using scientific inquiry to transform their perspectives, 2008.
- Invited Speaker at the rural Ridgway High School in southwest Colorado. I spoke with multiple classes about the value of science to society, how scientific discoveries influence policy, and the types of careers available to students who pursue college degrees in science, 2008.

— Service —

- Early career representative serving on the Society for Freshwater Science’s Board of Directors, 2021-present.
- Ad hoc reviewer for proposals submitted to the National Science Foundation’s Division of Environmental Biology, 2019-present.
- Developed, distributed, and wrote the vignette for a software framework and R package that utilizes first principles of stoichiometry and thermodynamics to generate models that simulate any suite of elemental cycles, compounds, metabolic processes, and microorganisms, 2018.
- Served as scientific advisor to Yellowstone River Technical Advisory Committee, thereby guiding Yellowstone River conservation policy by providing data analysis, expert opinion, and literature review on fisheries management for the middle and lower Yellowstone River, 2009-2014.
- Educated and counseled stakeholders by providing information to Yellowstone River Conservation District Council members about the effects of land use practices on Yellowstone River fish, 2009-2014.
- Improved regulatory agency permitting processes by educating regulatory agencies about the effects of bank armoring and side-channel plugging on Yellowstone River fish assemblages, 2009-2014.
- Organized and implemented an interdisciplinary journal club for Montana State University graduate students and faculty from two departments, and USGS scientists studying freshwater systems, 2013.
- Facilitated the conservation of Yellowstone River fish by providing baseline data for the study investigating the effects of the 2011 Exxon Silvertip pipeline oil spill on fish assemblages and assisted in securing funds for this study, 2011-2012.
- Co-organized the Ecology Department Seminar Series at Montana State University, Bozeman, 2009-2010.
- Promoted the dissemination of scientific information among biological disciplines within Duke University when serving as a committee member for the Duke University Annual Biological Sciences Graduate Student Symposium, 2006-2008.

— Popular Press —

- My research and outreach has been featured in various news outlets.
  - "MSU research team receives NSF grant to study nitrogen impact on water quality." *Montana State University News Service*, 2020. URL: [https://bit.ly/SitS\\_PressRelease](https://bit.ly/SitS_PressRelease)
  - "MSU partners with federal lab on \$3.1 million cybersecurity research project." *Montana State University News Service*, 2020. URL: [https://bit.ly/CyberQR\\_PressRelease](https://bit.ly/CyberQR_PressRelease)
  - "MSU team quantifies the importance of storytelling in crisis communication." *Montana State University News & Bozeman Magazine*, 2020. URLs: <http://bit.ly/NarrativeRisk> and <http://bit.ly/NarrativeRiskBozMag>
  - "Victims vs Heroes: An Interdisciplinary Approach to the Study of Narrative-Based Risk Communication." *Confluence (MSU College of Letters and Science)*, 2018. URL: <http://bit.ly/VictimsVsHeroes>
  - "4-year study gives insight to Yellowstone River fishery between Laurel, Sidney." *Billings Gazette*, 2016. URL: <http://bit.ly/2yts8BY>
  - "Inside the incredible Yellowstone." *Sidney Herald*, 2016. URL: <http://bit.ly/2hmeKbd>
  - "Yellowstone side channel impacts on fish species focus of ARS talk." *Sidney Herald*, 2016. URL: <http://bit.ly/2wDD9Ug>
  - "Corps committed to foster pallid sturgeon habitat in Yellowstone River." *Billings Gazette*, 2011. URL: <http://bit.ly/2waHpWI>

## PRESENTATIONS

### — Keynote Addresses & Invited Presentations —

- (7) **Reinhold, A.M.**, R.G. Bramblett, A.V. Zale, G.C. Poole, and D.W. Roberts. 2016. Evaluating the importance of side channels to fish in the last best place – the Yellowstone River, Montana. Research seminar. United States Department of Agriculture Agricultural Research Service – Northern Plains Agricultural Research Laboratory. Sidney, MT.
- (6) **Reinhold, A.M.**, G.C. Poole, A.M. Helton, R. Payn, C. Izurieta, and E.S. Bernhardt. 2016. A thermodynamic approach to simulating linked biogeochemical cycles using constraint-based, compound specific models. Research seminar. United States Department of Agriculture Agricultural Research Service - Livestock and Range **Agricultural** Research Laboratory. Miles City, MT.
- (5) **Reinhold, A.M.**, R.G. Bramblett, and A.V. Zale. 2014. Responses of fish assemblages to bank stabilization in the lower Yellowstone River. Research seminar. Yellowstone River Technical Advisory Committee. Billings, MT.
- (4) **Reinhold, A.M.**, R.G. Bramblett, A.V. Zale, and G.C. Poole. 2012. Responses of a large river fish assemblage to bank stabilization. Research seminar. Yellowstone River Technical Advisory Committee. Billings, MT.
- (3) **Reinhold, A.M.**, R.G. Bramblett, and A.V. Zale. 2011. Effects of bank stabilization on Yellowstone River fish assemblages. Research seminar. Yellowstone River Conservation District Council. Billings, MT.
- (2) **Reinhold, A.M.**, R.G. Bramblett, and A.V. Zale. 2010. The effects of anthropogenic habitat changes on fish assemblages of the middle and lower Yellowstone River. Research seminar. Yellowstone River Technical Advisory Committee. Bozeman, MT.
- (1) **Scholl, A.M.** 2008. Using scientific inquiry to transform obstacles into stepping stones. Keynote speaker. Kids' Inquiry Conference, Durham School of the Arts. Durham, NC.

### — Contributed Presentations (non-first-author presentations omitted prior to 2014) —

- (39) **Reinhold, A.M.**, S.A. Ewing, R.A. Payn, G.C. Poole, and H.M. Valett. 2021. Streams as hydro-biogeochemical bioreactors: Employing Damköhler numbers to identify key reactive transport constraints on water quality. Society for Freshwater Science Annual Meeting, Online. Presentation available: <https://youtu.be/HPXpVYD9PO0>
- (38) Mohr, E.J., G.C. Poole, H.C. Oakland, S.K. Fogg, **A.M. Reinhold**, B.E. Amerson, and S.P. Carlson. 2021. Modeling the influence of hyporheic heterogeneity on stream solute dynamics. Society for Freshwater Science Annual Meeting. Online.
- (37) Fogg, S.K., G.C. Poole, S.J. O'Daniel, **A.M. Reinhold**, and B.E. Amerson. 2021. Throwing shade on the hyporheic zone: Effects of floodplain shade on hyporheic temperatures. Society for Freshwater Science Annual Meeting. Online.
- (36) Raile, E.D., E.A. Shanahan, R.C. Ready, J. McEvoy, C. Izurieta, **A.M. Reinhold**, G.C. Poole, N. Bergmann, and H. King. 2020. Narrative risk communication as a *lingua franca* for environmental hazard preparation. Fall Research Conference of the Association for Public Policy Analysis and Management. Online.
- (35) West, N.M., J.F. Gaskin, E.K. Espeland, **A.M. Reinhold**, and G.C. Poole. 2019. Research updates to the Montana Biocontrol Coordination Working Group. Montana State University, Bozeman, MT.
- (34) Fogg, S.K., G.C. Poole, **A.M. Reinhold**, S. O'Daniel, and B. Amerson. 2019. Shading beyond the channel: effects of vegetative shade on hyporheic water temperatures in the broader floodplain. Montana Section of the American Water Resources Association Annual Conference. Red Lodge, MT.
- (33) Mohr, E.J., **A.M. Reinhold**, and G.C. Poole. 2019. Simulation and experimental investigation of linked elemental cycling in freshwater ecosystems. Montana Section of the American Water Resources Association Annual Conference. Red Lodge, MT.

- (32) West, N.M., J.F. Gaskin, E.K. Espeland, **A.M. Reinhold**, and G.C. Poole. 2019. Plants don't move, but their seeds and insects do. W4185: Biological Control in Pest Management Systems of Plants Annual Meeting. Fort Collins, CO.
- (31) West, N.M., **A.M. Reinhold**, G.C. Poole, and E.K. Espeland. 2019. Flood dynamics dictate distributions of invasive trees on a floodplain: a case study of Russian olive. 15<sup>th</sup> International Conference on Ecology and Management of Alien Plant Invasions. Prague, Czech Republic.
- (30) **Reinhold, A.M.**, N.M. West, E.K. Espeland, and G.C. Poole. 2019. Flood dynamics drive the spatial distribution of Russian olive invasions on a riverine floodplain. Society for Freshwater Science Annual Meeting. Salt Lake City, UT.
- (29) Mohr, E.J., **A.M. Reinhold**, R. Payn, R. Hall, J. Blaszczak, and G.C. Poole. 2019. An investigation of linked elemental cycles using dual isotope experiments and constraint-based optimization modeling. Society for Freshwater Science Annual Meeting. Salt Lake City, UT.
- (28) Fogg, S.K., G.C. Poole, **A.M. Reinhold**, S. O'Daniel, and B. Amerson. 2019. Is shading floodplain sediments important for stream channel temperatures? Society for Freshwater Science Annual Meeting. Salt Lake City, UT.
- (27) Poole, G.C., S. O'Daniel, S.K. Fogg, B. Amerson, **A.M. Reinhold**, and S. Carlson. 2019. How to think about hyporheic exchange in gravel bedded rivers (with attention to implications for biogeochemistry). Society for Freshwater Science Annual Meeting. Salt Lake City, UT.
- (26) Payn, R., E.J. Mohr, E. Isaksen-Swensen, T. Schlotfeldt, G.C. Poole, **A.M. Reinhold**, M. DeGrandpre, J. Blaszczak, R. Hall, C. Izurieta, and H.M. Vallett. 2019. Development of extensible software to infer ecosystem metabolic rates from multivariate metabolite signals in streams. Society for Freshwater Science Annual Meeting. Salt Lake City, UT.
- (25) McEvoy, J., E.A. Shanahan, E.D. Raile, N. Bergmann, C. Izurieta, R. Ready, G.C. Poole, **A.M. Reinhold**, and H. King. 2019. How Views of 'Dubious' Science Affect Public Perception of Floodplain Management along the Yellowstone River, Montana, USA. Annual Meeting of the American Association of Geographers. Washington, D.C.
- (24) **Reinhold, A.M.**, N.M. West, E.K. Espeland, and G.C. Poole. 2019. Hydrogeomorphology governs the spatial distribution of invasive trees on floodplains. Montana Aquatic Research Colloquium. The University of Montana Flathead Lake Biological Station, Polson, MT.
- (23) Mohr, E.J., **A.M. Reinhold**, R.A. Payn, R.O. Hall, J.R. Blaszczak, and G.C. Poole. 2019. An investigation of linked elemental cycles using dual isotope experiments and constraint-based optimization modeling. Montana Aquatic Research Colloquium. The University of Montana Flathead Lake Biological Station, Polson, MT.
- (22) Poole, G.C., S. O'Daniel, S.K. Fogg, B. Amerson, **A.M. Reinhold**, and S. Carlson. 2019. How to think about hyporheic exchange. Montana Aquatic Research Colloquium. The University of Montana Flathead Lake Biological Station, Polson, MT.
- (21) Poole, G.C., **A.M. Reinhold**, S.K. Fogg, S. O'Daniel, S. Carlson, and B. Amerson. 2018. Automating simulation model generation from conceptualizations of linked elemental cycles in biogeochemical systems: a constraint-based modeling approach. Department of Land Resources and Environmental Sciences, Montana State University. Bozeman, MT.
- (20) **Reinhold, A.M.**, G.C. Poole, R.G. Bramblett, A.V. Zale, and D.W. Roberts. 2017. Small flow obstructions implicated in accelerating whole-floodplain side-channel loss. Society for Freshwater Science Annual Meeting. Raleigh, NC.
- (19) Poole, G.C., S.K. Fogg, B. Amerson, **A.M. Reinhold**, and S. Carlson. 2017. Hydrologic geometry of the hyporheic zone. Society for Freshwater Science Annual Meeting. Raleigh, NC.
- (18) Fogg, S.K., G.C. Poole, S. O'Daniel, and **A.M. Reinhold**. 2017. A comparison of channel shade and hyporheic exchange on seasonal patterns of stream temperature. Society for Freshwater Science Annual Meeting. Raleigh, NC.
- (17) Fogg, S.K., G.C. Poole, S. O'Daniel, R. Payn, S. Carlson, **A.M. Reinhold**, and A. Hyman. 2016. When and how dynamic hyporheic temperature mosaics influence channel temperature regimes.



- Montana Section of the American Water Resources Association Annual Conference. Anaconda, MT.
- (16) **Reinhold, A.M.**, G.C. Poole, A.M. Helton, R. Payn, C. Izurieta, and E. Bernhardt. 2016. A constraint-based, compound specific approach to modeling linked biogeochemical cycles. Society for Freshwater Science Annual Meeting. Sacramento, CA.
  - (15) Fogg, S.K., G.C. Poole, S. O'Daniel, and **A.M. Reinhold**. 2016. A novel approach to simulating hyporheic influences on stream channel temperature. Montana State University Department of Land Resources and Environmental Sciences 2016 Seminar Series. Bozeman, MT.
  - (14) **Reinhold, A.M.**, G.C. Poole, A.M. Helton, R. Payn, C. Izurieta, E. Bernhardt, and A. Burgin. 2015. Simulating concurrent metabolic pathways in biogeochemical systems. Society for Freshwater Science Annual Meeting. Milwaukee, WI.
  - (13) Fogg, K., G.C. Poole, S. O'Daniel, **A.M. Reinhold**, R. Payn, S. Carlson, and A. Hyman. 2015. A novel approach to simulating hyporheic influences on stream channel temperature. Society for Freshwater Science Annual Meeting. Milwaukee, WI.
  - (12) Poole, G.C., B. Amerson, K. Fogg, S. O'Daniel, R. Payn, **A.M. Reinhold**, and C. Izurieta. 2015. Limits of transient storage assumptions for heat: using residence time distribution to estimate mean temperature of hyporheic discharge in montane alluvial streams. Society for Freshwater Science Annual Meeting. Milwaukee, WI.
  - (11) **Reinhold, A.M.**, R.G. Bramblett, A.V. Zale, G.C. Poole, and D.W. Roberts. 2014. Fish assemblage and habitat differences between side and main channels in the lower Yellowstone River. Joint Aquatic Sciences Meeting. Portland, OR.
  - (10) **Reinhold, A.M.**, M.B. Duncan, R.G. Bramblett, and A.V. Zale. 2012. Preliminary and potential effects of the 2011 oil spill on the Yellowstone River fish assemblage. Montana Chapter of the American Fisheries Society Annual Conference. Helena, MT.
  - (9) **Reinhold, A.M.**, R.G. Bramblett, and A.V. Zale. 2011. Importance of seasonally-inundated secondary channels for Yellowstone River fish. Montana Chapter of the American Fisheries Society Annual Conference. Great Falls, MT.
  - (8) **Reinhold, A.M.**, R.G. Bramblett, and A.V. Zale. 2010. Habitat use of Yellowstone River fish assemblages during runoff. Montana Section of the American Water Resources Association Annual Conference. Helena, MT.
  - (7) **Scholl, A.M.**, H.A. Stadt, M.R. Hutson, and M.L. Kirby. 2008. Regulation of FGF8 signaling via endocytosis by cardiac neural crest. Gordon Conference on Lysosomes and Endosomes. Andover, NH.
  - (6) **Scholl, A.M.**, H.A. Stadt, and M.L. Kirby. 2007. Regulation of FGF8 signaling via endocytosis by cardiac neural crest. Cell Biology Annual Departmental Retreat. Asheville, NC.
  - (5) **Scholl, A.M.**, H.A. Stadt, M.R. Hutson, and M.L. Kirby. 2006. Normal arterial pole development: a fine balance of FGF8 signaling. Cell Biology Annual Departmental Retreat. Wilmington, NC.
  - (4) **Scholl, A.M.**, A.M. Vajda, and D.O. Norris. 2005. Androgen increases tyrosine hydroxylase immunoreactivity in the preoptic neurons of the brain of the developing tiger salamander, *Ambystoma tigrinum*. Annual meeting of the Colorado-Wyoming Academy of Sciences. Grand Junction, CO.
  - (3) **Scholl, A.M.**, A.M. Vajda, and D.O. Norris. 2005. Androgen increases tyrosine hydroxylase immunoreactivity in the preoptic neurons of the brain of the developing tiger salamander, *Ambystoma tigrinum*. Society for Integrative and Comparative Biology Annual Meeting. San Diego, CA.
  - (2) **Scholl, A.M.**, A.M. Vajda, and D.O. Norris. 2004. Androgen increases tyrosine hydroxylase immunoreactivity in the preoptic neurons of the brain of the developing tiger salamander, *Ambystoma tigrinum*. Front Range Neuroscience Annual Meeting. Fort Collins, CO.
  - (1) **Scholl, A.M.**, A.M. Vajda, and D.O. Norris. 2004. The effects of gonadal steroids on tyrosine hydroxylase immunoreactive neurons in the brain of the developing tiger salamander, *Ambystoma*

*tigrinum*. Honors Symposium for Undergraduate Research at the University of Colorado. Boulder, CO.

## RESEARCH METHODS, SKILLS, & TECHNIQUES

- **Research methods:** mechanistic simulation model development and application; geospatial analysis; empirical research sampling and design; advanced univariate and multivariate statistical methods; hierarchical statistical models; spatial statistics; data modeling; large database design and management.
- **Computing proficiency:** R, GitHub, ArcGIS, IpSolve, UML, Python, MS Access, LaTeX.
- **Field methods:** fish sampling (otter trawls, trammel nets, electrofishing, seining, deploying mini-fyke nets, etc.); juvenile and adult fish identification of over 50 species; habitat assessment; large river navigation; boat-motor and jet-foot maintenance/repair; stand-up comic; camp cook.
- **Lab techniques:** histology; fluorescence and confocal microscopy; microsurgery; cell and tissue culture; whole-embryo electroporation; PCR; subcloning; protein expression and labeling; *in situ* hybridization.

## CERTIFICATIONS

- 2019 Diversity Development Certificate (Montana State University)
- 2010 Motorboat Operator Certification Course (United States Department of the Interior)
- 2009 Electrofishing Safety Course (Montana Fish, Wildlife, and Parks)
- 2008 Developmental Biology Training Program (Duke University)

## ADDITIONAL PROFESSIONAL TRAINING

- 2018 Balancing Parenting and Productivity (Montana State University)
- 2017 Grant Writing Boot Camp (Montana State University)
- 2017 Introduction to Writing Research Grants (Montana State University)
- 2016 Classroom Management: Tips for Maintaining a Positive Learning Environment (Montana State University)
- 2016 Active Learning: Rethinking Your Teaching to Promote Deeper Learning (Montana State University)
- 2007 Introduction to College Teaching (GS302; Duke University)
- 2006 Responsible Conduct in Research Retreat (GS310B; Duke University)

## PROFESSIONAL MEMBERSHIPS

Society for Freshwater Science  
Ecological Society of America  
American Fisheries Society

## PROFESSIONAL REFERENCES

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