

EDUCATION

Master of Science in Biological Sciences, Montana State University, Bozeman, MT **GPA 4.0**

Thesis Title: *An analysis of whirling disease in Western Montana*

Bachelor of Arts in Biology, University of Colorado, Boulder, CO

Bachelor of Arts in Environmental Studies, University of Colorado, Boulder, CO

CURRENT PRIMARY APPOINTMENTS

2013 – present

Assistant Director, Montana Water Center – Montana State University, Bozeman, MT

- Identify current and future water issues in Montana and facilitate collaboration among researchers statewide to advance knowledge and resolve problems through research
- Design and execute specialized wetland trainings for state, federal, and consulting professionals; trainings are recognized by the Society of Wetland Scientists Professional Certification Program
- Co-author grants to fund needed water-related research
- Review proposals submitted by faculty and graduate students and oversee grant awardees

2012 – present

Education Outreach Coordinator, Montana Watercourse – Montana State University, Bozeman, MT

- Acting interim director since November, 2016
- Design educator programs, materials, etc. aligned to current state and national education standards
- Create and present in-person and online water education programs and trainings for educators, landowners, realtors, consultants, state and federal agency professionals
- Oversee and manage a statewide water quality monitoring program, including the training of individuals to properly collect data and assist with data upload into various databases (e.g., EPA's STORET and WQX database)
- Successfully co-author grant proposals to state and federal agencies (e.g., Montana DEQ and EPA) and foundations
- Manage multiple grant projects and author quarterly and annual reports to funding agencies
- Supervise AmeriCorps member and field volunteers

CURRENT ANCILLARY APPOINTMENTS

2015 – present

Adjunct Instructor (EDCI 588-Watershed Science and Developing Effective Local Watershed Projects), Education Department - Montana State University, Bozeman, MT

- Design and teach a six-week, online graduate course that provides a deep understanding of the relationship among watershed hydrology, water quality, and water quantity to K-8 educators along with the resources they need to design and execute a watershed project with their students.

- 2012 – present **State Program Coordinator**, Project WET, Bozeman, MT
- Conduct workshops to train educators to use the Project WET curriculum in their educational setting
 - Conduct workshops to train facilitators to conduct their own educator workshops
 - Align materials to state and national education standards
- 2011 – present **Graduate Committee Member**, Intercollege Programs for Science Education – Montana State University, Bozeman, MT
- Provide project guidance, review written theses, and co-conduct the oral final defense of candidates in the Master of Science in Science Education (MSSE) program; I have served on 13 student committees to date
- 2010 – present **Faculty Member (LRES 591-Lake Ecology)**, Intercollege Programs for Science Education - Montana State University, Bozeman, MT
- Design and teach a graduate level course that explores the physical, chemical, and biological processes that regulate lake systems with a focus on secondary production and other aquatic invertebrate life
- 2010 – present **Faculty Member (BIO 101, BIO 240, BIO 315)**, University of Phoenix - online
- Teach undergraduate level general biology and ecology courses online

RELEVANT PREVIOUS APPOINTMENTS

- 2009 - 2012 **Research Associate**, Yellowstone Lake biodiversity project, Institute on Ecosystems-Montana State University, Bozeman, MT
- Collected plankton from remote lakes (some required several miles of hiking to reach) under wet and cold conditions in Yellowstone National Park using Wisconsin Tow nets, kick nets, and filtered pump water for individual and environmental analysis
 - Collected and flash-froze algae samples from remote geothermal streams (required snowmobiling 20-30 miles and snowshoeing 2-4 miles) under extreme cold conditions of winter in Yellowstone National Park
 - Identified organisms in the laboratory to the species level using standard Linnaean taxonomy and modern molecular techniques (Sanger sequencing, 454 titanium sequencing) to assess intra and interspecific variation within and among lakes
 - Extracted DNA from individual organisms using various techniques (bead-beating, Proteinase K digestion)
 - Conducted polymerase chain reactions and gel electrophoresis
 - Participated in Yellowstone National Park's first BioBlitz
 - Compiled a comprehensive plankton taxa list for Yellowstone National Park
 - Co-authored manuscripts accepted by Geobiology, Earth Naturalist, and also authored reports to funding agencies
- 2008 - 2011 **Environmental Consultant**, Stream and pond restoration and enhancement, Joseph Urbani & Associates, Bozeman, MT
- Provided technical expertise on solutions and strategies to remedy biotic and abiotic issues in streams and ponds
 - Explained technical aquatic issues to clients in easy to understand terms and concepts
 - Wrote and edited letters to government and state agencies, as well as clients, addressing fisheries management strategies

- Performed cross-section and longitudinal surveys of stream channels using Total Station
- Create stream and pond diagrams using Canvas

Summer 2008

Fisheries Technician, Mountain stream restoration and amphibian surveys, US Forest Service, Ennis, MT

- Lived remotely at field sites for extended periods; areas were known to be occupied by large predators
- Restored stream channels using rocks, willow cuttings, sedge plugs, and other native materials
- Conducted electrofish surveys of native fish populations; recorded length and collected and preserved fish tissue (fin clips) for genetic analysis
- Conducted invasive brook trout removals in streams using electrofish methods
- Conducted leopard frog and western toad surveys along rivers and ephemeral wetlands
- Performed cross-section and longitudinal surveys of stream channels
- Utilized HOBO Pendant data loggers to record data and create temperature profiles of streams

2004 - 2008

Research Associate (promotion from Research Assistant in 2006), Whirling disease, Ecology Department-Montana State University, Bozeman, MT

- Collected samples in remote field locations under extreme cold and hot field conditions and in areas known to be occupied by large predators
- Assisted in a large-scale spatial and temporal assessment of whirling disease in salmonid populations in Montana
- Designed field experiments to determine relationships among invertebrates, physicochemical parameters, and land cover with whirling disease
- Collected aquatic invertebrates in the field and identified in the laboratory to family, genus, and species level
- Quantified the biological integrity of streams using aquatic invertebrate bioassessment indices
- Recorded physical and chemical stream parameters in the field using a YSI meter and Swiffer flow meter
- Managed, manipulated, and statistically analyzed large datasets using analysis of variance, Spearman's rank correlation, t-tests, ANOVA, PCA, and regression trees in Microsoft Excel, SAS, and R
- Utilized ArcView 3.2, ArcView 9.2, and HEC-RAS software to model streams, riparian areas, and watersheds as well as compile and analyze land cover/use within these areas
- Drafted portions of annual reports, grant proposal which resulted in project funding, and manuscripts for publication
- Presented work at national and international meetings

Fall 2007

Adjunct Instructor (BIOL 439 Stream Ecology), Ecology Department-Montana State University, Bozeman, MT

- Designed and taught a senior-level stream ecology lecture and laboratory course for 25 students

PUBLICATIONS

- Lodh N, DM Rizzo, BL Kerans, **S McGinnis**, N Fytilis, and L Stevens. 2015. If you've seen one worm, have you seen them all? Spatial, community, and genetic variability of tubificid communities in Montana. *Freshwater Science* 34 (3): 909-917.
- McGinnis S** and BL Kerans. 2013. Land use and host community characteristics as predictors of whirling disease risk. *Landscape Ecology* 28:29-44.
- Kelly S, L Morgan, and **S McGinnis**. 2011. Fire and brimstone continues to shape Yellowstone Lake: connecting geology and past climates with today's biodiversity. *The Earth Scientist* 27(3):23-28.
- Lovalvo D, SR Clingenpeel, **S McGinnis**, RE Macur, JD Varley, WP Inskeep, J Glime, K Neelson, and TR McDermott. 2010. A geothermal-linked biological oasis in Yellowstone Lake, Yellowstone National Park, Wyoming. *Geobiology* 8:327-336.

PUBLISHED PRESENTATIONS

Oral Abstracts

- Lodh N (presenter), DM Rizzo, BL Kerans, **S McGinnis**, N Fytilis, L Stevens. 2014. Assessment of spatial, community and genetic structure of stream dwelling tubificid worms in Montana, USA. [abstract] In: *The 89th Annual Meeting of the American Society of Parasitologists*, July 24-27, New Orleans, Louisiana.
- McGinnis S** (presenter), BL Kerans, N Lodh, TE McMahon, L Stevens. 2013. Biotic and Abiotic Correlates to Whirling Disease Risk. [abstract] In: *Montana Section – American Water Resources Association*, October 3-4, Bozeman, Montana.
- Kerans BL (presenter), **S McGinnis**, TE McMahon, N Lodh, L Stevens. 2009. Oligochaete communities, environmental factors and spatial patterns in whirling disease risk. [abstract] In: *Proceedings of the 11th International Symposium on Aquatic Oligochaeta*, October 5-12, Antalya, Turkey.
- Kerans BL (presenter), **S McGinnis**, TE McMahon, N Lodh, L Stevens. 2009. Factors related to spatial patterns in Whirling disease risk. [abstract] In: *Proceedings of the North American Benthological Society 57th Annual Meeting*, May 17- 22, Grand Rapids, Michigan.
- Kerans BL (presenter), TE McMahon, **S McGinnis**. 2008. Progress Report: An Ecological Assessment of Large-Scale Spatial and Temporal Patterns of Whirling Disease Risk and Salmonid Population Response. [abstract] In: *Proceedings of the 14th Annual Whirling Disease Symposium*, February 4-5, Denver, Colorado.
- McGinnis S** (presenter) and BL Kerans. 2006. The Role of Land Use and Oligochaetes in Determining Whirling Disease Risk in Montana, USA. [abstract] In: *Proceedings of the 10th International Symposium on Aquatic Oligochaeta*, October 16-21, Wuhan, China.
- McGinnis S** (presenter) and BL Kerans. 2006. A preliminary assessment of land use and aquatic invertebrates as indicators of whirling disease risk in Montana. [abstract] In: *Proceedings of the 12th Annual Whirling Disease Symposium*, February 9-10, Denver, Colorado.

Poster Abstracts

- McGinnis S** and BL Kerans. 2005. Whirling disease risk and biological stream integrity in Montana watersheds. [abstract] In: *Proceedings of the 11th Annual Whirling Disease Symposium*, February 3-4, Denver, CO.