

## **CURRICULUM VITAE**

**H. MAURICE VALETT**

**Feb 2023**

### **WORK ADDRESS**

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### **EDUCATION**

Ph.D. Zoology, 1991. Arizona State University, Tempe. Dissertation Title: The role of the hyporheic zone in the structure and function of a Sonoran Desert Stream

M.A. Zoology, 1985. University of Montana, Missoula. Title: Food quality and hydropsychid caddisfly density in a lake outlet stream in Glacier National Park, Montana.

B.S. Animal Biology, 1982. Western Washington University, Bellingham.

### **PROFESSIONAL HISTORY**

**Jan 2013 – present:** Professor of Systems Ecology, Division of Biological Sciences, University of Montana

**Jan 2010 – Dec 2012:** Professor of Systems Ecology, Flathead Lake Biological Station, University of Montana

**Aug 2009 – Dec 2009:** Professor of Ecology, Department of Biological Sciences, Virginia Polytechnic Institute and State University, Blacksburg, VA

**Aug 2003 – Jul 2009:** Associate Professor of Ecology, Department of Biological Sciences, Virginia Polytechnic Institute and State University, Blacksburg, VA

**Jan 1998 – July 2003:** Assistant Professor of Ecology, Department of Biology, Virginia Polytechnic Institute and State University, Blacksburg, VA

**May 1996 - Dec 1997:** Research Assistant Professor, Department of Biology, University of New Mexico, Albuquerque, New Mexico 87131

**Jul 1994 - May 1996:** Visiting Assistant Professor, Department of Biology, UNM

**Jun 1991 - Jul 1994:** Post-doctoral Research Fellow, Department of Biology, UNM

### **RESEARCH FUNDING**

**Valett, H.M.** MPG, Monitoring of Miller Creek, Bitterroot River, and the Clubhouse Pond: Importance for Management and Restoration, MPG Ranch – UM Foundation, \$30,000, April 01, 2019 – June 30, 2023.

**Valett, H.M.** NRDP: Task Order 7.42. The Lost Creek Dutchman Complex (LCDC): addressing groundwater linkage to natural and anthropogenic N sources, Montana Department of Justice, Natural Resource Damage Program, \$129,835, Aug 1, 2019 – Dec 31, 2022.

**Valett, H.M.** NRDP: Task Order 6.42. UCFR Fish Community: Abundance, Composition, and Production. Montana Department of Justice, Natural Resource Damage Program, \$120,155, Aug 1, 2019 – Dec 31, 2022.

**Valett, H.M.** NRDP: Task Order 5.7 – modification 4: The Lost Creek Dutchman Complex (LCDC): nutrient loading to the Upper Clark Fork River, MT, Natural Resource Damage Program, \$35,408, July 1, 2018 – June 30, 2020.

**Valett, H.M.** MPG, Metabolic fingerprints and N uptake in Miller Creek, MPG Ranch, MPG Ranch – UM Foundation, \$74, 773, April 01, 2018 – June 30, 2020.

Callaway, R.M., J.P. Downey, S. Ewing, **H.M. Valett**, and R.A. Walker. RII Track-1 Consortium for Research on Environmental Water Systems. National Science Foundation EPSCoR Program, \$20 Million, Oct 1, 2018 – Sep 30, 2023.

**Valett, H.M.**, M. DeGrandpre, M., Peipoch, R.A. Payn, and J. D'Andrillii. 2017. LTREB: River ecosystem responses to floodplain restoration. NSF DEB LTREB \$562,496, June 2017-May 2023.

**Valett, H.M.** Floodplains and lotic ecosystems on the MPG Ranch 2017, MPG Ranch Research Grant, \$180,600, April 1, 2017 – March 31, 2018

**Valett, H.M.** Flint Creek – Rock Creek, Upper Clark Fork River, Stream Environmental Assessment, Natural Resource Damage Program, MT Department of Justice, \$49,898, July 1 – December 31, 2017.

**Valett, H.M.** Remote sensing of floodplain primary production and hyporheic invertebrate communities of MPG Ranch, Bitterroot River, MT. MPG Ranch Research Grant, \$82,560, May 2016 – June 2018

**Valett, H.M.**, W. Lowe, and C. Nelson. Task Order Number 0004 for the Cooperative Agreement Number W9128F-14-2-0002. To provide technical support for MGT, invasive species, for natural resource programs at Travis Air Force Base, CA. CLIN 1:A1340 Travis Invasive Species MGT SPT. \$101,452.00. June 18, 2015 – June 17, 2016.

**Valett, H.M.** Flint Creek – Rock Creek, Upper Clark Fork River, Stream Environmental Assessment. Montana Natural Resource Damage Program. \$299,988, June 2015-June 2017.

**Valett, H.M.** and J.A. Stanford. Revitalizing the Freshwater Research Laboratory at Flathead Lake Biological Station, Murdock Charitable Trust, \$434,772, Sep 2012-Aug 2014.

Simon, K.E., **H.M. Valett**, I. Fernandez, S., Norton, and M.B. Adams. Collaborative Research: Interactive effects of chronic N deposition, acidification, and phosphorus limitation on coupled elemental cycling in streams. NSF DEB Ecosystem Studies \$798,430 (\$275,573 to H.M. Valett), May 2009-Apr 2013.

Gragson, T.L., J.M. Vose, L. Band, E.F. Benfield, E. Bernhardt, P. Bolstad, M. Bradford, J. Clark, C. Dehring., C. Depken, K. Elliott, C. Ford, J. Fraterrigo, J. Hepinstall, N. Heynen, R. Jackson, J. Knoepp, D. Leigh, J. Maerz, J. Mohan, R. Moore, S. Pearson, C. Pringle, M. Turner, **H.M. Valett**, and J.R. Webster. Southern Appalachia on the Edge - Exurbanization & Climate Interaction in the Southeast. Coweeta Long Term Ecological Research. \$7,000,000 (VT subcontract, \$582,090), Oct 2008 – Sep 2014 (PIs in alphabetic order after the first two).

**Valett, H.M.**, J.R. Webster, P.J. Mulholland. Collaborative Research: NPARS2-A Stoichiometric Approach to Coupled N and P Cycling in Headwater Streams – Developing a N and P dual isotope assay. \$130K (\$77,664 to VT), Proof of concept award: NSF DEB Ecosystem Studies Aug 2007 – July 2009

Benfield, E.B. and **H.M. Valett**. The Ecological Role of Freshwater Mussel Beds in Providing Critical Habitat for Endangered Species and Maintaining Ecosystem Function. United States Geological Survey, \$132,074, May 06 – Sep 09

**Valett, H.M.**, S.A. Thomas, E.F. Benfield. Stream-Riparian Interactions: Disturbance, Linkages, and Resistance. NSF DEB Ecosystem Studies, \$98K, Sep 04 – Aug 06

Schreiber, M.E. and **H.M. Valett**. Research Experience for Undergraduates (REU) - Transport, Transformation, and Retention of Arsenic in a Headwater Stream: Hydrologic, Biological and Geochemical Controls. NSF Hydrologic Sciences, \$10K, Aug 04 – Jul 07.

**Valett, H.M.** Collaborative Research: The Ecological Circuitry Collaboratory (ECC), NSF DEB Ecosystem Studies, \$32K, May 04 – Apr 06.

Benfield, E.F. and **H.M. Valett**. Lateral and Longitudinal Control of Organic Matter Dynamics: Responses to Watershed Manipulations. USFS Coop. Agreement, \$20K, Jul 04 – Jun 07.

Webster, J.R. and **H.M. Valett**. Research Experience for Undergraduates (REU) - Nitrate Uptake and Retention in Streams: Mechanisms and Effects of Human Disturbances - Coweeta Site, NSF DEB \$5K, Jun 04 – May 07

**Valett, H.M.** Stream Function and Riparian Buffer Width. USFS Cooperative Agreement, \$5000, Jul 03 – Sep 05.

Schreiber, M. and **H.M. Valett**. Transport, Transformation, and Retention of Arsenic in a Headwater Stream: Hydrologic, Biological and Geochemical Controls. NSF Hydrologic Sciences, \$220K, Jul 02 – Jun 07.

Webster, J.R. and **H.M. Valett**. Nitrate Uptake and Retention in Streams: Mechanisms and Effects of Human Disturbances - Coweeta Site. NSF award to multi-PI group, all are subcontracted by Univ. of Tennessee, subcontract to Webster-Valett \$583,606 with ca. \$368K to cover isotope costs for all sites, \$215,606 to Tech, Jan 02 – Dec 07.

**Valett, H.M.**, J.R. Webster, P.J. Mulholland, C.N. Dahm, P.V. Unnikrishna and C.G. Peterson. Nitrate Retention in Headwater Streams: Influences of Riparian Vegetation, Metabolism and Subsurface Processes, H.M. Valett, PD, NSF DEB, \$1.2 million (\$800 K to Virginia Tech includes a \$377,784 subcontract to ORNL). June 99 – May 02

**Valett, H.M.** The Ecological Circuitry Collaboratory: Integrating Quantitative Training with Ecosystem Ecology - a multi-investigator collaboration to educate and integrate mathematically trained students with ecosystem ecology programs. \$100K. NSF Funding supplement to DEB 9815868. H.M. Valett, PD. see ><http://www.ecostudies.org/cc=>, Nov 00 – Oct 03.

**Valett, H.M.** and J.R. Webster. Research Experience for Undergraduates (REU)-Supplement to Collaborative Research: NO<sub>3</sub>-N retention in headwater streams. NSF DEB, Ecosystem Studies Program, \$5K, Jun 02 – May 03.

**Valett, H.M.** and J.R. Webster. Research Experience for Undergraduates (REU)-Supplement to Collaborative Research: NO<sub>3</sub>-N retention in headwater streams. NSF DEB, Ecosystem Studies Program, \$5K, Jun 01 – May 02.

**Valett, H.M.** and J.R. Webster. Research Experience for Undergraduates (REU)-Supplement to Collaborative Research: NO<sub>3</sub>-N retention in headwater streams. NSF DEB, Ecosystem Studies Program, \$10K, Jun 00 – May 01.

Jones, R.H., J.A. Burger, W.L. Daniels, E.F. Benfield, E.T. Nilsen, **H.M. Valett**, J.W. Webster, W.M. Alley, J.C. Baker, D.F. Berry, G.K. Evanylo, Reneau, R.B. and Zelany, L.W. Strategy to Link Ecology Research Programs at Virginia Tech, H.M. Valett, co-PI, VPISU ASPIRES Program, \$63,401, Jan 2000.

**Valett, H.M.**, J.R. Webster, E.F. Benfield, R.H. Jones and E.T. Nilsen. Aquatic-terrestrial interactions: Multi-Disciplinary Applications of Chromatography to Research and Training. HM Valett, PD, VPISU ASPIRES Program, \$46,300, Jan 1999.

Dahm, CN, T.M. Mulhern, P.V. Unnikrishna, **H.M. Valett** M.C. Molles Jr. and C.S. Crawford. Riparian Ecosystem Restoration: Effects of Flooding and Vegetation Type on Annual Evapotranspiration in a Semi-Arid landscape, H.M. Valett, co-PI, NASA, \$700K, Jul 98 – Jun 01.

Crossey, L.J., and **H.M. Valett**. EGB: Biogeochemical Cycling of Redox-Sensitive Metals During Surface -Subsurface Water Exchange is a Shallow Alluvial Aquifer, H.M. Valett, co-PI, NSF EGB Award, \$290K, Jul 96 – Jun 99.

**Valett, H.M.** Nitrogen Uptake, Retention and Cycling in Stream Ecosystems: An Intersite N-15 Tracer Experiment. H.M. Valett, PD, NSF DEB, subcontract to HM Valett, \$53,593, Jul 96 – Jun 99.

**Valett, H.M.** M.E. Campana, and C.N. Dahm. Stream/Groundwater Ecotones: Hydrology, Biogeochemistry and Ecology, H.M. Valett, PD, NSF Ecosystem Studies, \$610K, Jan 95 – Dec 98.

**Valett, H.M.**, M.C. Molles, Jr., C.S. Crawford, M.E. Campana. SGER: Experimental Flooding of the Bosque del Apache National Wildlife Refuge, Rio Grande, NM. H.M. Valett, PD. NSF DEB Ecosystem Studies, \$25K, Jul 94 – Jun 96

**Valett, H.M.** Nutrient Retention in the Rio Grande Continuum. H.M. Valett, PD. USFS Cooperative Agreement, \$40K, Sep 94 – Aug 95

## **PUBLICATIONS: Journals**

- Valett, H.M.**, R. Feijó de Lima, M. Peipoch and R. C. Engstrom. In press. Bloom succession and nitrogen dynamics during snowmelt in a mid-order montane river. *Biogeochemistry*
- Trentman, M, R.O. Hall, and **H.M. Valett**. In press. Exploring the mismatch between the theory and application of photosynthetic quotients in aquatic ecosystems. *Limnology Letters*
- Peipoch, M., P. Davis, and **H.M. Valett**. 2022. Biophysical Heterogeneity, Hydrologic Connectivity, and Productivity of a Montane Floodplain Forest. *Ecosystems* 1-17  
10.1007/s10021-022-00769-2
- Valett, H.M.**, M. Peipoch and G.C. Poole. 2022. Nutrient processing domains: spatial and temporal patterns of material retention in running waters. *Freshwater Science* 41:195-214.  
10.1016/B978-0-12-819166-8.00146-8.
- DeGrandpre, E.L., DeGrandpre, M.D., Colman, B.P. and **H. M. Valett**. 2021. Observations of river solute concentrations during ice formation, *Environmental Science and Technology Water* 1:1695–1701, doi.org/10.1021/acsestwater.1c00064.
- Peipoch, M., S. R. Miller, T. R. Antao and **H. M. Valett**. 2019. Niche partitioning of microbial communities in riverine floodplains. *Scientific Reports* 9(1):16384 doi:10.1038/s41598-019-52865-4.
- Peipoch, M. and **H.M. Valett**. 2019. Trophic interactions among algal blooms, macroinvertebrates, and brown trout: implications for trout recovery in a restored river. *River Research and Applications*:1-12 doi:https://doi.org/10.1002/rra.3523.
- Dyste, J. and **H.M. Valett**. 2019. Assessing stream channel restoration: the phased recovery framework. *Restoration Ecology* 27:850-861; doi:10.1111/rec.12926.
- Valett, H.M.** and D.T. Ely, 2018. Acidification, stress, and detrital processing: implications for ecosystem function in headwater streams. *Hydrobiologia* 826(1):233-246.
- Peipoch, M., R. Jones, and **H.M. Valett**. 2015. Spatial patterns in biofilm diversity across hierarchical levels of river-floodplain landscapes . *PLoSOne* 10(12): p.e0144303
- Peipoch, M., M. Brauns, F.R. Hauer, M.Weitere, and H.M. Valett. 2015. Ecological simplification: human influences on riverscape complexity. *Bioscience* 65: 1057-1065. doi:10.1093/bioscie/biv120
- Caldwell, S.K., M. Peipoch, and **H.M. Valett**. 2015.Spring brooks of western Montana riverscapes: nitrate processing across a floodplain continuum. *Freshwater Science* 34:233-244. DOI:10.1086/679300
- Johnson, L.T., J.L. Tank, R.O. Hall, Jr, P.J. Mulholland, S.K. Hamilton, **H.M. Valett**, J.R. Webster, M. J. Bernot W.H. McDowell, B.J. Peterson, and S.M. Thomas. 2013. Quantifying the production of dissolved organic nitrogen in headwater streams using <sup>15</sup>N tracer additions. *Limnology and Oceanography*. 58:1271-1285.
- Valett, H.M.**, F.R. Hauer, and J.A. Stanford. 2013. Landscape influences on ecosystem function: local and routing control of oxygen dynamics in a floodplain aquifer. *Ecosystems* 17:195-211. DOI:10.1007/s10021–013–9717–5.
- Mineau, M. M., C.M. Rigsby, D.T. Ely, I. J. Fernandez, S. A. Norton, T. Ohno, **H. M. Valett**, and K.S. Simon. 2013. Stoichiometric constraints on the bioavailability of leaf leachate dissolved organic matter under chronic catchment nitrogen enrichment. *Freshwater Biology*. 58:248–260.
- Sokol, E.R., Benfield, E.F., Belden, L.K., and H.M. **Valett**. 2011. The assembly of ecological communities inferred from taxonomic and functional composition. *American Naturalist* 177:630-644.
- Beaulieu, J.L., J.L. Tank., S.K. Hamilton, W.M. Wollheim, R.O. Hall, Jr., P.J. Mulholland, B.J. Peterson, L.R. Ashkenas, L.W. Cooper, C.N. Dahm, W.K. Dodds, N.B. Grimm, S.L. Johnson, W.H. McDowell, G.C. Poole, **H. M. Valett**, C.P. Arango, M.J. Bernot, A.J. Burgin, C.L. Crenshaw, A.M. Helton, L. Johnson, J.M O'Brien, J.D. Potter, R.W. Sheibley, D.J. Sobota, and S.M Thomas. 2011. Nitrous oxide emission from denitrification in stream and river networks. *Proceedings of the National Academy of Sciences USA* 108:214-219.

- McManamay, R.A., J.R. Webster, **H.M. Valett**, and C.A. Dolloff. 2011. Does diet influence consumer nutrient cycling? Macroinvertebrate and fish excretion in streams. *Journal of the North American Benthological Society* 30:84-102.
- Ely, D.T., D. Von Schiller, and **H.M. Valett**. 2010. Stream acidification increases nitrogen uptake by leaf biofilms: implications at the ecosystem scale. *Freshwater Biology* 55:1337-1348.
- Bernot, M.J., D.J. Sobota, R.O. Hall, P.J. Mulholland, W.K. Dodds, J.R. Webster, J.L. Tank, L.R. Ashkenas, L.W. Cooper, C.N. Dahm, S.V. Gregory, N.B. Grimm, S.K. Hamilton, S.L. Johnson, W.H. McDowell, J.L. Meyer, B. Peterson, G.C. Poole, **H.M. Valett**, C. Arango, J.J. Beaulieu, A.J. Burgin, C. Crenshaw, A.M. Helton, L. Johnson, J. Merriam, B.R. Niederlehner, J.M. O'Brien, J.D. Potter, R.W. Sheibley, S.M. Thomas, and K. Wilson. 2010. Inter-regional comparison of land-use effects on stream metabolism. *Freshwater Biology* 55:1874-1890.
- Helton, A.M., G.C. Poole, J.L. Meyer, W.M. Wollheim, B.J. Peterson, P.J. Mulholland, E.S. Bernhardt, J.A. Stanford, C. Arango, L.R. Ashkenas, L.W. Cooper, W.K. Dodds, S.V. Gregory, R.O. Hall, S.K. Hamilton, S.L. Johnson, W.H. McDowell, J.D. Potter, J.L. Tank, S.M. Thomas, **H.M. Valett**, J.R. Webster, and L. Zeglin. 2010. Thinking outside the channel: modeling nitrogen cycling in networked river ecosystems. *Frontiers in Ecology and the Environment* 9:229-238.
- Simon, K.S., M.A. Chadwick, A.D. Huryn, and **H.M. Valett**. 2010. Stream ecosystem response to chronic deposition of N and acid at Bear Brook Watershed, Maine. *Environmental Monitoring and Assessment* 171:83-92.
- Vervier, P., S. Bonvallet-Garay, S. Sauvage, **H.M. Valett**, and J.-M. Sanchez-Perez. 2009. Influence of the hyporheic zone on the phosphorus dynamics of a large gravel-bed river, Garonne River, France. *Hydrol. Process.* 23: 1801–1812.  
doi:<https://doi.org/10.1002/hyp.7319>
- Webster, J.R., J.D. Newbold, S.A. Thomas, **H.M. Valett**, and P.J. Mulholland. 2009. Nutrient uptake and mineralization during leaf decay in streams. *International Review of Hydrobiology* 94:372-390.
- Brookshire, E.N., **H.M. Valett**, and S. Gerber. 2009. Maintenance of terrestrial nutrient loss signatures during in-stream transport. *Ecology* 90:293-299.
- Hall, R.O., J.L. Tank, D.J. Sabota, P.J. Mulholland, J.M. O'Brien, W.K. Dodds, J.R. Webster, **H.M. Valett**, G.C. Poole, B.J. Peterson, J.L. Meyer, W.H. McDowell, S.J. Johnson, S.K. Hamilton, N.B. Grimm, S.V. Gregory, C.N. Dahm, L.W. Cooper, L.R. Ashkenas, S.M. Thomas, R.W. Sheibley, J.D. Potter, B.R. Neiderlehner, L.T. Johnson, A.M. Helton, C.M. Crenshaw, A.J. Burgin, M.J. Bernot, J.J. Beaulieu, and C.P. Arango. 2009. Nitrate removal in stream ecosystems measured by <sup>15</sup>N addition experiments: Total uptake. *Limnology and Oceanography* 54:653-665.
- Mulholland, P.J., R.O. Hall, R.O., D.J. Sabota, W.K. Dodds, S.E. Findlay, N.B. Grimm, S.K. Hamilton, W.H. McDowell, J.M. O'Brien, J.L. Tank, L.R. Ashkenas, L.W. Cooper, C.N. Dahm, S.V. Gregory, J. Johnson, J.L. Meyer, B.J. Peterson, G.C. Poole, **H.M. Valett**, J.R. Webster, C.P. Arango, J.J. Beaulieu, M.J. Bernot, A.J. Burgin, C.M. Crenshaw, A.M. Helton, L.T. Johnson, B.R. Neiderlehner, J.D. Potter, R.W. Sheibley, and S.M. Thomas. 2009. Nitrate removal in stream ecosystems measured by <sup>15</sup>N addition experiments: Denitrification. *Limnology and Oceanography* 54:666-680.
- Nogaro, G., Mermilliod-Blondin, F., H.H. **Valett**, F. Francois-Carcaillet, J.-P. Gaudet, M. Lafont, and J. Gibert. 2009. Ecosystem engineering at the sediment-water interface: bioturbation and consumer-substrate interaction. *Oecologia* 161:125-138.
- Valett, H.M.**, S.A. Thomas, P.J. Mulholland, J.R. Webster, C.N. Dahm, C.S. Fellows, C.L. Crenshaw, and C.G. Peterson. 2008. Endogenous and exogenous control of ecosystem function: N cycling in headwater streams. *Ecology* 89: 3515-3527.

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- Brown, B.V., **H.M. Valett**, and M.E. Schreiber. 2007. Arsenic transport in groundwater, surface water, and the hyporheic zone of a mine-influenced stream-aquifer system. *Water Resources Research* 43: W11404.
- Brookshire, E.N.J., **H.M. Valett**, S.A. Thomas, and J.R. Webster. 2007. Atmospheric N deposition increases organic N loss from temperate forest watersheds. *Ecosystems* 10:252-262.
- Earl, S.R., **H.M. Valett**, and J.R. Webster. 2007. Comparison of nitrogen spiraling in stream ecosystems quantified using stable isotope tracers and nutrient addition experiments. *Limnology and Oceanography* 52:1718-1723.
- Lottig, N.R., **H.M. Valett**, and M.E. Schreiber. 2007. Flooding and arsenic contamination: Influences on ecosystem structure and function in an Appalachian headwater stream. *Limnology and Oceanography* 52:1991-2001.
- Burcher, C.L., **H.M. Valett**, and E.F. Benfield. 2007. The land-cover cascade: relationships coupling land and water. *Ecology* 88:228-242.
- Earl, S.R., **H.M. Valett**, and J.R. Webster. 2006. Nitrogen saturation in streams. *Ecology* 87:3140-3151.
- Fellows, C.S., **H.M. Valett**, C. N. Dahm, P.J. Mulholland, and S.A. Thomas. 2006. Nutrient uptake and energy flow: Coupling ecosystem function in headwater streams. *Ecosystems* 9:788-804.
- Mulholland, P.J., **H.M. Valett**, S.A. Thomas, J.R. Webster. 2006. Effects of light on nitrate uptake in a small forested stream: effects of diurnal and daily variations. *Journal of the North American Benthological Society* 25:583-595.
- Starry, O.S., **H.M. Valett**, and M.E. Shreiber. 2005. Nitrification rates in a headwater stream: influences of seasonal variation in carbon and nitrogen. *Journal of the North American Benthological Society* 24:753-768.
- Brookshire, E.N.J., **H.M. Valett**, S.A. Thomas, and J.R. Webster. 2005. Coupled cycling of dissolved organic nitrogen and carbon in a forest stream. *Ecology* 86: 2486-2497.
- Valenti, T.W., J.L. Chaffin, D.S. Cherry, M.E. Schreiber, **H.M. Valett**, and M. Charles. 2005. Bioassessment of an Appalachian headwater stream influenced by an abandoned arsenic mine. *Archives of Environmental Contamination and Toxicology* 49:488-496.
- Chaffin, J.L, **H.M. Valett**, J.R. Webster, and M.E. Schreiber. 2005. The influence of elevated arsenic on leaf breakdown in an Appalachian headwater stream. *Journal of the North American Benthological Society* 24:553-568
- Payn, R.A., J.R. Webster, P.J. Mulholland, **H.M. Valett**, and W.K. Dodds. 2005. Estimation of stream nutrient uptake from nutrient addition experiments. *Limnology and Oceanography:Methods* 3:174182.
- Valett, H.M.**, M.A. Baker, J.A. Morrice, C.S. Crawford, M.C. Molles, Jr., C.N. Dahm, D.L. Moyer, J.R. Thibault, and L.M. Ellis. 2005. The Flood Pulse in a Semi-Arid Floodplain: Ecosystem Responses to the Inter-Flood Interval. *Ecology* 86:220-234.
- Mulholland, P.J., **H.M. Valett**, J.R. Webster, L.W. Cooper, S.K. Hamilton, and B.J. Peterson. 2004. Stream denitrification and total nitrate uptake rates measured using a field <sup>15</sup>N tracer addition approach. *Limnology and Oceanography* 49:809-820.
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- Thomas, S.A., **H.M. Valett**, P.J. Mulholland, C.S. Fellows, J.R. Webster, C.N. Dahm and C.G. Peterson. 2003. A regression approach to estimating reactive solute uptake in advective and transient storage sub-compartments of stream ecosystems. *Advances in Water Resources* 26:954-976.
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- Wroblicky, G.J., M.E. Campana, **H.M. Valett**, J.A. Morrice, K.S. Henry, C.N. Dahm, J.V. Hurley, and J.M. Noe. 1992. Remote monitoring of stream hyporheic zones with inexpensive pressure transducer - data acquisition systems. Pages 267-277, *In*: J.A. Stanford and J.J. Simons, editors. Proceedings of the First International Conference on Groundwater Ecology. AWRA, Bethesda, Md.

## **POSTERS, ORAL PRESENTATIONS, AND INVITED TALKS**

- Valett, H.M.**, M. Peipoch, G. Poole, F. Young and M. DeGrandpre. 2022. Functional assessment of river reaches: nutrient processing domains and elemental interactions. Oral presentation, Joint Aquatic Sciences Meeting, Grand Rapids, MI, May 15-21, 2022.
- Valett, H.M.**, T. Gold Quiros, and H.M. Valett. 2022. The Influence of Metal Contamination on the Fishery of the Upper Clark Fork River, Montana. Oral presentation. Joint Aquatic Sciences Meeting, Grand Rapids, MI, May 15-21, 2022.
- Valett, H.M.** and D. Martin. 2021. Upper Clark Fork Working Group- an introduction. USGS Clark Fork Basin Annual Meeting, virtual meeting, Oct 20-21, 2021
- Valett, H.M.**, Peipoch, M.P. and G.C. Poole. 2021. Nutrient processing domains: net material balance, exchange potential, and availability effect. Society for Freshwater Science 2021 Virtual Meeting, May 23-27, 2021.
- Valett, H.M.**, B. Colman, W. Cross, M. DeGrandpre, J. Downey, and E. Metcalf. 2019. The Montana University System and convergent research in the UCFR. USGS Clark Fork Basin Meetings, October 17, 2019. Helena, Mt.
- Valett, H.M.**, B. Colman, W. Cross, J. D'Andrilli, M. DeGrandpre, J. Downey, R.O. Hall, E. Metcalf, R.A. Payn, and M. Peipoch. Montana Consortium for Research on Environmental Water Systems (CREWS): Application to water quality issues in the Upper Clark Fork River. Oral presentation. 2019 Annual Meeting Society for Freshwater Science, May 19-23, 2019. Salt Lake City Utah

- Valett, H.M.** 2019. Location matters: linkage, biogeochemistry, and N-limitation in river ecosystems. Invited seminar. Organismal Biology, Ecology, and Evolution (OBEE) Seminar Series, March 6, 2019. University of Montana.
- Valett, H.M.,** Callaway, R., Walker, R., Ewing, S. Downey, J. 2019. Montana EPSCoR Consortium for Research on Environmental Water Systems (CREWS): the Upper Clark Fork River system. Oral presentation. Environmental Water Systems (CREWS), All-hands meeting February 25-26, 2019; Poster Presentation; Helena, MT
- Valett, H.M.** 2019. Enrichment and restoration in the Upper Clark Fork River: Biogeochemical and food web responses. Invited seminar. Montana Tech Restoration Ecology Seminar Series, January 23, 2019. Montana Tech. Butte, Montana.
- Valett, H.M.** 2018. Consortium for Research on Environmental Water Systems (CREWS): a Montana collaborative effort for integrated research and application. Oral presentation. 35<sup>th</sup> Annual Montana American Water Resource Association Conference. October 17-19, 2018. West Yellowstone, MT.
- Valett, H.M.,** A.J. Burgin, S.K. Hamilton, K.J. McGuire, M. Peipoch, R.A. Sponseller, and E.H. Stanley. 2018. Nutrient processing domains as functional space for lotic ecosystems: the case of the Upper Clark Fork River, Montana. Society for Freshwater Science, Annual Meeting, Detroit, MI, May 20-24, 2018. Oral presentation.
- Valett, H.M.,** P. Hurley\*, and K. Bray\*. 2018. Water quality assessment of select water bodies on the MPG Ranch: nutrients and their links to biological activity. MPG Ranch Research Symposium, Missoula, MT, March 20-21, 2018. Oral presentation.
- Valett, H.M.** Applied and basics sciences in a mid-order river: the Clark Fork River and its mining legacy Faculty Lecturing on Water (FLoW), University of Montana, Sep 27, 2016.
- Valett, H.M.** Metals & Nutrient Issues in the Upper Clark Fork River: ecosystem function and a mining legacy, 83<sup>rd</sup> Annual Fall Water School for Water and Wastewater Operators and Managers, , Sep 29 2016, Montana Environmental Training Center, Montana State University, Bozeman, MT.
- Valett, H.M.** Applied and basics sciences in a mid-order river: the Clark Fork River and its mining legacy Montana Institute on Ecosystems, Rough Cut Seminar Series, October 5, 2016, Montana State University Bozeman, Montana. – oral presentation
- Valett, H.M.** Nutrient dynamics in the Upper Clark Fork River. 2015 Clark Fork Symposium, April 23-24, 2015. Missoula, MT – oral presentation
- Valett, H.M.,** M. , Marc Peipoch, M. DeGrandpre, V. Watson, R. Payn, and M. Suplee and. Long-term water quality data and biogeochemical filtering along the Upper Clark Fork River, MT, USA. Joint Aquatic Sciences Meeting, May 18-13, 2014, Portland, OR - oral presentation
- Valett, H.M.,** M. , Marc Peipoch, M. DeGrandpre, V. Watson, M. Suplee and R. Payn. Long-term water quality data and nitrate filtering along the Upper Clark Fork River, MT, USA. Nitrate in Montana Hydrosystems, Montana Department of Environmental Quality, April 23-24, 2014, Helena, MT – oral presentation
- Valett, H.M.,** M. Peipoch, S.K. Caldwell, and F.R. Hauer. Spring brooks of western Montana riverscapes: nitrate processing across a floodplain continuum. . Nitrate in Montana Hydrosystems, Montana Department of Environmental Quality, April 23-24, 2014, Helena, MT – poster presentation
- Valett, H.M.,** M. , Marc Peipoch, M. DeGrandpre, V. Watson, M. Suplee and R. Payn. Long-term water quality data and nitrate filtering along the Upper Clark Fork River, MT, USA. Northwest Science Association, 85<sup>th</sup> Annual Meeting of the Northwest Scientific Association, March 26-28, 2014, Missoula, MT – oral presentation
- Valett, H. M.,** S.K. Caldwell\*, A.M. Helton, G.C. Poole, D. C. Whited and J.A. Stanford. Natural and cultural disturbance and the dynamics of floodplain riverscapes: II – function. 60<sup>th</sup> Annual Meetings of the Society for Freshwater Science, May 20-24, 2013, Louisville, KY – oral presentation
- Valett, H.M.** Disturbance and linkage in running water ecosystems: spatial influences on ecosystem function, USGS Office, Helena, MT. February 10, 2012

- Valett, H. M.;** Lorang, M. S.; Anderson, M. S.; Bansak, T. S.; Stanford, J. A.; Location, linkage, and disturbance on a floodplain landscape: spatial influence on ecosystem function (Abstract ID: 9398) 59<sup>th</sup> National meeting of the North American Benthological Society, 22-26 May, 2011, Providence, RI.
- Valett, H. M.,** R.A. Sponseller, K.J. McGuire, E.H. Stanley, and S.K. Hamilton. Streams, water residence times, and nutrient processing domains. Joint National Meetings of the North American Benthological Society and the American Society of Limnology and Oceanography, June 6-11, 2010, Santa Fe, New Mexico.
- Valett, H.M.** Ecology among places: Biogeochemistry of running water ecosystems. Division of Biological Sciences, Organismal Biology and Ecology. University of Montana, November 16, 2009.
- Valett, H.M.** What to do when you don't have a department of movement: Linking ecosystems in biogeochemical studies. Department of Land Resources and Environmental Sciences, Montana State University, Bozeman, MT. Invited Speaker, April 28, 2009.
- Valett, H.M.,** E.N. Brookshire, and E.S. Bernhardt. A gray box approach to nutrient budgets: watershed subsystems and the biogeochemical continuum. Joint meeting of the Geological Society of America (GSA), Soil Science Society of America (SSSA), American Society of Agronomy (ASA), Crop Science Society of America (CSSA), and the Gulf Coast Association of Geological Societies with the Gulf Coast Section of SEPM (GCAGS), hosted by the Houston Geological Society (HGS). Invited Speaker, October 6, 2008
- Valett, H.M.,** J.M. O'Brien, S.K. Hamilton, E.H. Stanley, A.J. Burgin, and R.A. Sponseller. Streams, wetland and lakes as nutrient processing domains. 56<sup>th</sup> Annual Meeting of the North American Benthological Society, Salt Lake City, UT, May 15-30, 2008.
- Valett, H.M.,** E. Bernhardt, G. Poole, R. Norris, V. Resh, and P. Silver. JNABS: journal assessment and state of the society. 57<sup>th</sup> Annual Meeting of the North American Benthological Society, Columbia, SC, June 3-8, 2007.
- Valett, H.M.** Watershed Ecosystems: Subsystem Response to Chronic N Loading. Invited Seminar, University of Wisconsin, March 2006.
- Valett, H.M.,** E.F. Benfield, Clinton, B.D. and J.D. Knoepp. Lateral and longitudinal influences of riparian zones on forest cutting: streams and forests in a patchwork. 54<sup>th</sup> Annual Meeting of the North American Benthological Society, Anchorage, AK, June 4-9, 2006.
- Valett, H.M.** Nutrient Influences on Watershed Subsystems: N cycling across a gradient of chronic N loading. Invited Seminar, University of North Carolina, Chapel Hill, November 2005.
- Valett, H.M.,** E.S. Bernhardt and E.N.J. Brookshire. Streams in watershed ecosystems: biogeochemical continuum concept. Ecological Society of America, Montreal, Canada, Aug 1-7, 2005
- Valett, H.M.** Nutrient retention in watershed ecosystems: a spiraling approach. Invited seminar: Department of Ecology, Montana State University, October 2005
- Valett, H.M.,** C.L. Burcher, and E.F. Benfield. The land cover cascade: linking terrestrial and aquatic subsystems. 2005 Annual Meeting of the Geological Society of America, Salt Lake City, UT, October 2005.
- Valett, H.M.** Nutrient Retention in Stream Ecosystems: Lessons from stream tracer experiments. Invited seminar, Cornell University, Sep 2004.
- Valett, H.M.,** E.N. J. Brookshire, and S.A. Thomas. Ecosystem Nutrient Retention: Lessons Learned from Stream Tracer Studies. 89<sup>th</sup> Annual Meeting of the Ecological Society of America, Portland, OR, Aug 1-6, 2004.
- Valett, H.M.** Nutrient spiraling in stream ecosystems. Invited Seminar, Flathead Lake Biological Station, University of Montana, July 2004
- Valett, H.M.,** S.A. Thomas, P.J. Mulholland, J.R. Webster, C.N. Dahm, and C.G. Peterson. Assessing transient storage influences on nutrient spiraling: an updated approach. Poster presentation at the 52<sup>nd</sup> Annual Meeting of the North American Benthological Society, Van, BC, Jun 6-10, 2004. Bull. of the North American Benthological Society 21(1):424

- Valett, H.M.**, S.A. Thomas, P.J. Mulholland, J.R. Webster, C.N. Dahm, and C.G. Peterson. Assessing transient storage influences on nutrient spiraling: an updated approach. Poster presentation at the Geol. Soc. of America Annual Meeting, Nov 2–5, 2003, Seattle, WA.
- Valett, H.M.**, S.A. Thomas, P.J. Mulholland, J.R. Webster, C.N. Dahm, and C.G. Peterson. Nitrate spiraling in headwater streams: the importance of temporal variation. Oral presentation at the 51<sup>st</sup> Annual Meeting of the North American Benthological Society, Athens, GA, May 27 - May 31, 2003. *Bulletin of the North American Benthological Society* 20(1):245.
- Valett, H.M.** 2001. Nutrient spiraling: fundamentals and applications, Invited Seminar, Anchor Environmental Consultants, Seattle, WA.
- Valett, H.M.**, S.A. Thomas, P.J. Mulholland, J.R. Webster and C.N. Dahm. 2001. Nitrogen retention in headwater streams: The influence of groundwater- surface water exchange. Second International Nitrogen Conference, October 14-18, Bolger Center, Potomac, MD.
- Valett, H.M.**, S.A. Thomas, J.R. Webster, P.J. Mulholland, C.N. Dahm, and C.G. Peterson. 2001. Nitrate Processing and Retention in Streams: Distinguishing Benthic and Interstitial Contributions to Energy Flow and Nutrient Retention. 49<sup>th</sup> Annual Meeting of the North American Benthological Society, La Crosse, WI, Keystone, CO, Jun 3-8. *Bulletin of the North American Benthological Society* 18(1):255.
- Valett, H.M.**, E.F. Benfield and R.A. Sponseller. 2000. Catchment land use and the physical-chemical structure of low-order streams in a southern Appalachian drainage. 48<sup>th</sup> Annual Meeting of the North American Benthological Society, Keystone, CO, May 28-Jun 1, 2000. *Bulletin of the North American Benthological Society* 17(1):168.
- Valett, H.M.**, C.L. Crenshaw and P.F. Wagner. 1999. Old growth vs. second growth forests: lasting impacts of land-use on surface - hyporheic interactions and nutrient retention in headwater streams. 47<sup>th</sup> Annual Meeting of the North American Benthological Society, Duluth, MN, May 25-28, 1999. *Bulletin of the North American Benthological Society* 16(1):129.
- Valett, H.M.**, C.L. Crenshaw and P.F. Wagner. 1999. Surface - hyporheic interactions and nutrient retention in headwater streams: old growth vs second-growth forests. *p. 183, In: American Society of Limnology and Oceanography Aquatic Sciences Meetings: Navigating into the next century*, Santa Fe, NM, February 1-5, 1999.
- Valett, H.M.**, P.V. Unnikrishna and C.N. Dahm. 1998. Seasonal variation in nitrogen retention by a montane headwater stream. 46<sup>th</sup> Annual Meeting of the North American Benthological Society, Charlottetown, Prince Edward Island, Canada, June 2-5, 1998. *Bulletin of the North American Benthological Society* 15(1):48.
- Valett, H.M.**, C.L. Crenshaw and P.F. Wagner. 1999. Surface-hyporheic interactions and nutrient retention in headwater streams: old growth vs second growth forests. American Society of Limnology and Oceanography, 1999 Aquatic Sciences Meeting, Santa Fe, New Mexico.
- Valett, H.M.**, C.N. Dahm, M.E. Campana, P.V. Unnikrishna, M.A. Baker and J.A. Morrice. 1996. Biogeochemical responses to snowmelt in a stream/groundwater ecotone. 44<sup>th</sup> annual meeting of the North American Benthological Society. Kalispell, Montana.
- Valett, H.M.**, J.A. Morrice, M.A. Baker, M.C. Molles, Jr., and C.S. Crawford. 1995. Ecological restoration of a riparian forest: limnology and biogeochemistry of manipulative flooding, Rio Grande, NM. 43<sup>rd</sup> annual meeting of the North American Benthological Society. Keystone, Colorado.
- Valett, H.M.** 1994. Hydrologic exchange between streams and alluvial aquifers: Implications for the functioning of surface/groundwater ecotones. Invited Paper: Special Session on Solute transport and transformation near the interface between groundwater and streams, Fall Meetings of the American Geophysical Union. San Francisco, California.
- Valett, H.M.**, C.S. Crawford, M.C. Molles, Jr. and F.S. Lieurance. 1994. Experimental flooding of a riparian forest: restoration of ecosystem functioning. Second International Conference on Groundwater Ecology. Atlanta, Georgia

- Valett, H.M.** 1993. Plenary Address: Surface-groundwater exchange: hydrology, biogeochemistry and retention in stream ecosystems. Groundwater/surface water ecotones: biological and hydrological interactions and management options. UNESCO MAB and IHP Congress, Lyon, France.
- Valett, H.M.**, J.A. Morrice, C.N. Dahm, M.E. Campana and G.J. Wroblicky. 1993. Groundwater/surface water exchange and NO<sub>3</sub>-N utilization in the hyporheic zone of three first-order streams. 41<sup>st</sup> annual meeting of the North American Benthological Society. Calgary, Alberta
- Valett, H.M.**, S.G. Fisher, N.B. Grimm, E.H. Stanley and A.J. Boulton. 1992. Hyporheic-surface water exchange: implications for the structure and functioning of desert stream ecosystems. (Invited paper). American Water Resources Association, First International Conference on Groundwater Ecology, Tampa, Florida.
- Valett, H.M.**, S.G. Fisher, C.N. Dahm and N.B. Grimm. 1991. Influence of the hyporheic zone on stream ecosystem dynamics. Fall Meeting of the American Geophysical Union, San Francisco, CA.
- Valett, H.M.** and C. Hakenkamp. 1991. Integrating hydrology and biology in studies of the hyporheic zone. Introductory remarks. Workshop coordinator, 39<sup>th</sup> Annual Meeting, Santa Fe, New Mexico.
- Valett, H.M.**, S.G. Fisher and N.B. Grimm. 1991. Subsystem exchange: The role of the hyporheic zone in the stability of a Sonoran Desert stream. 39<sup>th</sup> Annual Meeting, Santa Fe, New Mexico.
- Valett, H.M.**, S.G. Fisher, and E.H. Stanley. 1989. Characterization of the hyporheic zone of a Sonoran Desert stream. North American Benthological Society, 37<sup>th</sup> Annual Meeting, Guelph, Ontario.
- Valett, H.M.** and J.A. Stanford. 1985. Food quality and hydropsychid caddisfly density in a lake outlet stream in Glacier National Park, Montana, USA. North American Benthological Society, Program for the 33<sup>rd</sup> Annual Meeting, Corvallis, Oregon p. 58.

Also junior author on 182 additional published abstracts

## **STUDENT ADVISING/ACCOMPLISHMENTS**

### *Visting graduate students advised:*

Marc Peipolch-Guell, International Student Apprenticeship – summer 2010 & 2011  
Tom Drinan, University of Cork – summer 2011

### *Past graduate students advised:*

Kyro, C. 2021. Nitrogen dynamics and transport along flowpaths in a rural wetland-stream complex. MS in Systems Ecology, University of Montana, Missoula, MT.

Prater, Jacob. MS 2021. Controls on the nitrate dynamics in the Upper Clark Fork River of western Montana. MS in Systems Ecology, University of Montana, Missoula, MT.

Bray, Kimberly. MS 2020. Decoupled diel solutes: implications for aquatic-terrestrial interactions. MS in Systems Ecology, University of Montana, Missoula, MT.

Patrick E. Hurley. MS 2019. Spatiotemporal dynamics and carbon biogeochemistry in a wetland-stream sequence. MS in Systems Ecology, University of Montana, Missoula, MT.

Nicholas J. Banish, MS 2017. Factors influencing *Cladophora* biomass abundance in the Upper Clark Fork River, Montana. MS in Systems Ecology, University of Montana

Peter Davis, MS 2017, Coupling Biophysical Complexity and Forest Metabolism in a Floodplain Landscape, MS in Systems Ecology, University of Montana

Jacob Dyste, MS 2017. Phased Recovery Framework for Channel Reconfiguration Stream Restoration, University of Montana

Don Belile, M.S. 2016. Spatio-temporal analysis of ungulate grazing on willow (*Salix spp.*) communities within the northern range of Yellowstone. University of Montana

- Samantha K. Caldwell, M.S. 2012. Spatial drivers of ecosystem structure and function in a floodplain riverscape: springbrook nutrient dynamics. University of Montana
- Damon, Ely, Ph.D. 2009. Anthropogenic acidification and stream ecosystem function. The role of anthropogenic acidification in stream nitrogen cycling: understanding stress effects on ecosystem functioning. Virginia Polytechnic and State University, Blacksburg, VA.
- Philip G. Taylor, M.S. 2008. Consequences of nitrogen fertilization and soil acidification from acid rain on dissolved carbon and nitrogen stability in the unglaciated Appalachian Mountains
- Travis M. Gray, M.S. 2007. Linking heterotrophic metabolism and nutrient uptake in headwater streams. Virginia Tech
- E.N. Jack Brookshire, Ph.D. 2006. The organic nature and atmosphere-climate dependency of nitrogen loss from forest watershed ecosystems. Virginia Tech
- Brendan V. Brown, M.S. 2005. Arsenic transport in groundwater, surface water, and the hyporheic zone of a mine-influenced stream-aquifer system. Virginia Tech
- Noah R. Lottig, M.S. 2005. Influence of multiple disturbances on stream structure and function. Virginia Tech
- Olyssa S. Starry, M.S. 2004. Seasonal variation in rates of nitrification associated with patterns of carbon and nitrogen supply in a southern Appalachian headwater stream. Virginia Tech
- Robert A. Payn, M.S. 2004. The geomorphic influence of agricultural land use on stream hydraulics and biological function. Virginia Tech
- Stevan R. Earl, Ph.D. 2004. Nitrogen spiraling in stream ecosystems spanning a gradient of chronic nitrogen loading. Virginia Tech Supported by: Valett, H.M. and S.R. Earl. *Dissertation Research: Quantifying Nitrogen Spiraling in Anthropogenically Enriched Stream Ecosystems. NSF DEB Ecosystem Studies, \$9985 to S.R. Earl, Jun 02 - May 03.*
- Jake L. Chaffin, M.S. 2003. The influence of elevated arsenic concentrations on stream biota and leaf breakdown in a headwater stream. Virginia Tech
- Chelsea L. Crenshaw, M.S. 2000. The effects of augmentation of coarse particulate organic matter in hyporheic sediments. Virginia Tech

Current graduate students advised:

- Gold Quiros, Taylor; PhD Systems Ecology, starting August 2019
- Utzman, Claire; MS Systems Ecology, starting August 2021
- Pace, Bonnie; MS Systems Ecology, starting August 2021

Current undergraduate research advisees:

- Matt Nichols. 2022. The influence of nutrient limitation on heterotrophic and autotrophic activity along the enrichment gradient of the Upper Clark Fork River, Montana, USA; NSF REU appointment

Past undergraduate research Advisees:

University of Montana:

- Olson, Lark. Summer 2022. Linkages Between Photogrammetric Analysis and Remote Sensing to Track Algal Blooms and Algal Sample Archive Development. NSF REU appointment.
- Sampson, Hope. Summer 2022. The influence of varied water sources and end member sources on DOC and DOM composition on the Upper Clark Fork River. NSF REU appointment.
- Nick Carpenter. Summer. 2021. The Development of Landscape patterns in Nitrogen-Fixing Organisms via Nutrient Imbalances, Upper Clark Fork River; NSF REU appointment
- Chelsea Scheirer. Summer 2021. Epiphyte colonization and food quality of *Cladophora* patches during the progression of summer algal blooms in the Upper Clark Fork River, Montana; NSF REU appointment.
- Adam Hensley. 2021. Aquatic macroinvertebrate community composition within *Cladophora glomerata* patches in the Upper Clark Fork River, MT; NSF REU appointment



Thomas Horner, Summer 2020. UM EVST, Nitrogen Fixation in the Upper Clark Fork River. Undergraduate Thesis.

Nick Carpenter, Summer 2019. UM EVST, Seasonal progression of N-fixation in the Upper Clark Fork River; co-advised with Dr. Royce Engstrom.

Carly Andlauer, Summer 2018. Montana IoE Research Experience for Undergraduates, Longitudinal distribution of primary producers in the Upper Clark Fork River: influences of hydrogeomorphic factors.

Kimberly Bray, Summer 2017, Montana IoE Research Experience for Undergraduates, Lotic Periphyton Abundance and Composition: Influences on Allochthonous and Autochthonous Nitrogen Sources.

David Fulton-Beale, Summer 2014-Fall 2015, Nutrient uptake dynamics in the Upper Clark Fork River, MT – N and P interaction in an enriched river system.

Bonnie Holzworth, Summer 2014-Fall 2015, Soil carbon quality of restored floodplains – Reach A of the Upper Clark Fork River Superfund Site

Malachi Cryder, IoE Undergraduate Research Intern, Multiscale Assessment of Riverscape Complexity Project, Summer 2013

Bryan Finneran, visiting Undergraduate Research Appointee, Cornell University, Summer 2013

Kimber Corsen, UNC Greensboro, visiting undergraduate appointment, methane production and oxidation in the hyporheic zone of the Nyack Floodplain, Middle Fork Flathead River, Montana

Glenn Woerdnel, UNC Greensboro, visiting undergraduate appointment, invertebrates of the Nyack Floodplain, Middle Fork Flathead River, Montana

Dillion Inskeep, UM, *EPSCoR Undergraduate Fellowship*, Methane and carbon quality in the hyporheic zone of the Nyack Floodplain, Middle Fork Flathead River, Montana

Leah Row, UM; Nutrient limitation to periphyton growth in Flathead Lake, Montana.

McKenna Meyer, UW Stevensville. University of Montana Introductory Multicultural Summer Undergraduate Experience in Environmental Biology (IM-SURE), nutrient uptake and disturbance: littoral epilithic biofilms of Flathead Lake, Montana

Bianca Rodriguez Cardona, 2011. *NSF Research Experience for Undergraduates (REU)*. Carbon quality among aquatic ecosystems of the Flathead Indian Reservation, Montana.

Tanner Tompkins, 2011. *EPSCoR Undergraduate Fellowship*, Floodplain mapping of the Middle Fork, Flathead River, Montana

*Virginia Tech:*

Loren Reinhardt. 2004 & 2005. Arsenic influence on organic matter dynamics in a mine-influenced stream. NSF Research Experience for Undergraduates (REU) Appointee, Virginia Tech

Megan Charles. 2004. Bioassessment of an Appalachian stream influenced by an abandoned arsenic mine. Virginia Tech Travis Gray. 2003. Heterotrophic influences on N uptake in stream. Virginia Tech

Holly Houtz. 2002. Ammonium absorption and nitrification in stream sediments. Virginia Tech

Matt Powers. 2002. Assessing N uptake in streams. NSF Research Experience for Undergraduates (REU) Appointee. Virginia Tech

Lara Taylor. 2001. Comparison of two methods to measure microbial respiration. NSF Research Experience for Undergraduates (REU) Appointee. Virginia Tech

Chris McLaughlin. 2001. Transient storage and hydrologic variation in headwater streams. Virginia Tech

Mike Kirkman. 2000. The influence of burial and watershed disturbance on organic matter processing in forested headwater streams; NSF Research Experience for Undergraduates (REU) Appointee. Virginia Tech

Maura Bozeman. 2000. Nitrogen uptake kinetics – a study of stream periphyton response to chronic nitrogen loading; NSF Research Experience for Undergraduates (REU) Appointee. Virginia Tech

Andrea Schriver. 1999. Contribution of surface structures to transient storage in streams. Virginia Tech

Christine Fomchenko. 1999. Equilibrium phosphorus concentrations for stream sediments of second- and old-growth forests. Virginia Tech

## **TEACHING EXPERIENCE**

### **University of Montana (2010 – present):**

BIOE 172N 01: Introductory Ecology, undergraduate course for non-science majors, Fall 2017, Spr 2019, Spr 2020, Spr 2021

BIOE 371: General Ecology Laboratory; remote laboratory instruction, Fall 2020

BIOB 454: Stream Ecology .Two-week intensive course in ecology of streams and rivers, FLBS Summer Session 2010, 2011, 2012

BIOB 490 & 493: Undergrad research in aquatic ecology, Fall 2019

BIOB 492 IS: Readings in Aquatic Ecosystems, Fall 2020

BIOS 532: Fundamentals of Ecosystem Ecology, Graduate core curriculum for the Systems Ecology Intercollegiate Graduate Program, Fall 2013, 2014, 2016, 2018, 2021

BIOS 534: Integrated Systems Ecology, Graduate core curriculum for the Systems Ecology Intercollegiate Graduate Program, Spring 2013

BIOS 595 01: Stream Ecology, Graduate course in the Systems Ecology Intercollegiate Graduate Program, Fall 2015, Spring 2018, Fall 2019

BIOS 595 01: ST: Systems Ecology Graduate Seminar, Fall 2014 and Fall 2015

BIOS 595 02: Stable Isotopes in Ecology, Spring 2016, Graduate course in the Systems Ecology Intercollegiate Graduate Program, Spr 2016

BIOB 596 06: IS: Readings in ecosystem ecology, Fall 2013, 2014, 2016, 2018

BIOB 596 03: IS: Readings in Aquatic Ecosystems, Fall 2019

### **Virginia Tech (1998-2009):**

Biology 2804: Ecology. Fundamentals of introductory ecology

Biology 5074: Stream Ecology. Graduate level course focusing on the application of ecological concepts to the populations, communities, and ecosystems of running waters

Biology 5084: Groundwater Ecology. Graduate and undergraduate sections of an interdisciplinary course on hydrology, geochemistry, ecology, biogeochemistry, and ecosystem ecology of groundwater ecosystems

Biology 5094: Stable Isotopes in Ecology. Graduate level course on the methods and applications of stable isotopes to ecological studies.

### **University of New Mexico (1994-1998):**

Biology 514: Ecosystems Ecology. Graduate course on the fundamentals of ecosystem ecology and biogeochemical cycling

Biology 495: Limnology. Undergraduate course on the study of freshwater ecosystems

## **AWARDS**

2000 Editor's Citation for Excellence in Manuscript Review Award; American Society of Agronomy, Crop Science Society of America and Soil Science Society of America, Journal of Environmental Quality

## **SERVICE**

Member, USEPA Science Advisory Board for Ecological Processes and Effects, April 2014 - present

Member: Association for the Sciences of Limnology & Oceanography, Ecological Society of America, Society of Freshwater Sciences

Associate Editor, Limnology and Oceanography, January 2008 – October 2016

Panel Member, National Science Foundation, Carbon and Water in Earth Systems, Directorate for Geosciences, June 2006, Low Temperature Geochemistry and Biogeochemistry, June 2011

Panel Member, Geobiology and Low Temperature Geochemistry, National Science Foundation, May 2011

Member, Executive Committee, North American Benthological Society, 2002-2005

Member, International Committee, North American Benthological Society, 2002-2005

Associate Editor, Journal of the North American Benthological Society, March 1998 - May 2001  
Participant in 'Sustainability of western watersheds: nutrients and productivity', part of a report to the Western Water Policy Review Advisory Commission, Tempe, AZ, 1997.

Invited Investigator, International Workshop on Riparian Ecology, Swiss Federal Institute for Science and Technology, Limnological Research Center, Kastanienbaum, Switzerland, Winter 1996.