

**Erin R. Hotchkiss**

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Ph.D. Student

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Program in Ecology

Department of Zoology and Physiology

University of Wyoming

Laramie, WY 82071-3166

**Education**

Ph.D., Ecology, University of Wyoming (2007-Present). Advisor: Dr. Robert O. Hall, Jr.

Dissertation Topic: Linking patterns and drivers of carbon cycling in streams and rivers

M.S., Zoology & Physiology, University of Wyoming (2007). Advisor: Dr. Robert O. Hall, Jr.

Thesis Topic: Impacts of exotic snails on stream carbon cycling

B.S., Environmental Studies, Emory University (2003) via Oxford College of Emory University

**Research Interests**

- Production and processing of organic matter in aquatic systems
- Role of organisms in biogeochemical cycles
- Terrestrial-aquatic linkages
- Consequences and control of invasive species

**Positions Held**

2010-2012. Graduate Research Assistant, Nitrogen Cycling in Large Rivers. Snake River Basin, WY.

Supervisors: Dr. Robert Hall, Dr. Jennifer Tank, Dr. Emma Rosi-Marshall & Dr. Michelle Baker.

2007-Present. Graduate Assistant, NSF EPSCoR Wyoming Science Teacher Education Program (WySTEP).

University of Wyoming, WY. Supervisor: Dr. Anne Sylvester.

2006-2008. Graduate Teaching Assistant, Animal Biology (LIFE 2022). University of Wyoming, WY.

Supervisors: Dr. Mark Lyford, Beth Rintz, & Diane Gorski.

2005-2009. Graduate Teaching Assistant, General Biology (LIFE 1010). University of Wyoming, WY.

Supervisors: Dr. Mark Lyford & Diane Gorski.

2005. Graduate Research Assistant, Lotic Intersite Nutrient eXperiment II (LINX II). Grand Teton National Park & Jackson Hole, WY. Supervisors: Dr. Robert Hall, Jr. & Dr. Jennifer Tank.

2005. Environmental Educator. High Trails Outdoor Science School, San Bernardino National Forest, CA. Supervisor: Joe Dyess.

2004. Research Technician, Sea Turtle Conservation. National Park Service, Buck Island Reef National Monument, St. Croix, USVI. Supervisors: Kimberly Woody, Philippe Mayor & Zandy Hillis-Starr.

2004. Research Technician, Wetland Restoration. Two Rivers Wildlife Refuge, Southern Illinois University-Carbondale, IL. Supervisors: Darin Grulkowski & Dr. Mike Eichholz.

2003-2004. Undergraduate Independent Research, Disease Ecology & Bird Behavior. Emory University, GA. Supervisors: Dr. Sonia Altizer & Andy Davis.

2003. Undergraduate Teaching Assistant, Conservation Biology & Biodiversity (BIO 345). Emory University, GA. Supervisor: Dr. Sonia Altizer.

2003. NSF Research Experience for Undergraduates (REU) Fellow, Nutrient Limitation in Tropical Streams. OTS La Selva Biological Station, Costa Rica. Supervisors: Dr. Catherine Pringle & Marcelo Ardon.

2002-2003. Research Technician. College Energy Use & Conservation. Emory University, GA. Supervisors: Dr. Peggy Barlett & Dr. John Wegner.

2002. Research Technician, Land Use & Stream Nitrogen Cycling. University of Notre Dame, IN. Supervisors: Dr. Jennifer Tank, Dr. Melody Bernot & Lareina Wall.

2002. Undergraduate Teaching Assistant, Environmental Science (BIO 111). Oxford College of Emory University, GA. Supervisor: Theodosia Wade.

2001. Undergraduate Research Fellow, Plant Biofuel Genetics. Oak Ridge National Laboratory, TN. Supervisors: Lee Gunter & Dr. Gerald Tuskan.

## Publications in Process

Hotchkiss, E.R., A.J. Ulseth, *et al.* Drivers of dissolved organic matter uptake in freshwater ecosystems. *In Preparation*.

Hotchkiss, E.R. Modeling dissolved organic carbon availability and processing in streams. *In Preparation*.

Hotchkiss, E.R. and R.O. Hall. Use of  $\delta^{18}\text{O}-\text{O}_2$  to understand diel patterns of ecosystem respiration in three Wyoming streams. *In Preparation*

Hubbard, K.A., L.K. Lautz, M.J. Mitchell, B. Mayer and E.R. Hotchkiss. Evaluating nitrate uptake and spiraling in a Rocky Mountain stream using a  $^{15}\text{N}$  tracer and ambient nitrate chemistry. *In Preparation*.

## Peer-Reviewed Publications

Hotchkiss, E.R. and R.O. Hall. Linking calcification by exotic snails to stream  $\text{CO}_2$  cycling. *In Press, Oecologia*.

Solomon, C.T., E.R. Hotchkiss, J.M. Moslemi, A.J. Ulseth, E.H. Stanley, R.O. Hall and A.S. Flecker (2009). Sediment size and nutrients regulate denitrification in a tropical stream. *Journal of the North American Benthological Society* 28: 480-490.

Hotchkiss, E.R., A.K. Davis, J.J. Cherry and S. Altizer (2005). Mycoplasmal conjunctivitis and the behavior of wild house finches (*Carpodacus mexicanus*) at bird feeders. *Bird Behavior* 17: 1-8.

## Conference Presentations

Hotchkiss, E.R. and R.O. Hall (2009). How accurate is the use of  $\text{O}_2$  as a proxy for  $\text{CO}_2$  fixation and respiration in streams? *North American Benthological Society*. Grand Rapids, MI.

Hotchkiss, E.R. and R.O. Hall (2009). Are carbon and oxygen cycles directly linked? A comparison of dissolved  $\text{O}_2$  cycling with  $\delta^{13}\text{C}$  fixation rates in stream biofilms. *American Society of Limnology and Oceanography*. Nice, France. Poster.

Hotchkiss, E.R. and R.O. Hall (2008). Use of  $\delta^{18}\text{O}-\text{O}_2$  to model diel community respiration rates in streams. *North American Benthological Society*. Salt Lake City, UT.

Hotchkiss, E.R., C.T. Solomon, R.O. Hall and A.S. Flecker (2007). Nutrient availability and substrate type limit benthic denitrification in a tropical Andean stream. *Ecological Society of America & Society for Ecological Restoration*. San Jose, CA. Poster.

Hotchkiss, E.R. and R.O. Hall (2007). Linking exotic snails and carbon cycling in Kelly Warm Springs, Grand Teton National Park. *North American Benthological Society*. Columbia, SC.

Flecker, A.S., J.E. Allgeier, R.O. Hall, P.B. McIntyre, B.W. Taylor, C.T. Solomon, E.R. Hotchkiss and A.J. Ulseth (2006). Subsistence fishing by humans as a major nitrogen flux in tropical Andean stream ecosystems. *North American Benthological Society*. Anchorage, AK.

Hotchkiss, E.R., A.K. Davis, S. Altizer and J.J. Cherry (2004). Mycoplasmal conjunctivitis and the feeding behavior of house finches. *Southeastern Ecology & Evolution Conference*. Atlanta, GA. Poster.

Hotchkiss, E.R., M.J. Kemp, J.L. Tank, S.E. Eichler, L.G. Wall and C.P. Arango (2003). Land use effects on nitrification in MI headwater streams. *North American Benthological Society*. Athens, GA. Poster.

Arango, C.P., J.L. Tank, M.J. Kemp, L.G. Wall, S.E. Eichler and E.R. Hotchkiss (2003). Benthic denitrification rates on heterogeneous substrata in streams draining forested and agricultural landscapes. *North American Benthological Society*. Athens, GA. Poster.

## Invited Seminars

Hotchkiss, E.R., R.O. Hall and E. Anozko (2008). Successful establishment of an exotic snail, *Melanoides tuberculata*, in Grand Teton National Park. *Aquatic Invasive Species Workshop*. UW-NPS Research Station, Grand Teton National Park, WY.

Hotchkiss, E.R. and R.O. Hall (2008). Diel calculations of stream community respiration using  $\delta^{18}\text{O}-\text{O}_2$ . *Interuniversity Center for Aquatic Ecosystem Research*. Lunz am See, Austria.

## Other Presentations

- Hotchkiss, E.R. and R.O. Hall (2009). Use of  $\delta^{18}\text{O}\text{-O}_2$  and  $\delta^{13}\text{C}$  to quantify the importance of temperature and carbon availability as drivers of stream ecosystem respiration. *South Dakota/ Wyoming NSF EPSCoR Conference*. Rapid City, SD. Poster.
- Hotchkiss, E.R. and R.O. Hall (2009). Does temperature alone explain higher daytime respiration rates in stream ecosystems? *Graduate Student Research Symposium*. University of Wyoming, Laramie, WY.
- Hotchkiss, E.R., A. Sylvester, J. Stepan and B. Kissack (2009). Bringing science into the classroom: Inquiry-based learning through summer research experiences for science education majors. *Wyoming Math & Science Teachers Conference*. Casper, WY.
- Hotchkiss, E.R. and R.O. Hall (2008). Examining the assumptions at the base of stream food webs. *Department of Zoology and Physiology*. University of Wyoming, Laramie, WY.
- Lehnertz, T. and E.R. Hotchkiss (2008). Integrating Scientific Research into the High School Chemistry Classroom. *Undergraduate Research Symposium*. University of Wyoming, Laramie, WY.
- Hotchkiss, E.R. and R.O. Hall (2008). Diel calculations of stream community respiration using oxygen-18. *Graduate Student Research Symposium*. University of Wyoming, Laramie, WY.
- Hotchkiss, E.R. (2007). Linking carbon and oxygen cycling in streams:  $\delta^{18}\text{O}\text{-O}_2$  as a tracer of community respiration. *Department of Zoology and Physiology*. University of Wyoming, Laramie, WY.
- Anoszko, E. and E.R. Hotchkiss (2007). *Melanoides tuberculata* and native invertebrate diversity in Kelly Warm Springs, WY. *Fall Research Symposium*. Gustavus Adolphus College, Saint Peter, MN.
- Hotchkiss, E.R., C.M. Pringle and M. Ardon (2003). Do larval chironomid growth rates show nitrogen and phosphorus co-limitation in a tropical Costa Rican stream? Presented at *La Selva Biological Station*. Puerto Viejo de Sarapiquí, Costa Rica.
- Hotchkiss, E.R. and L. Gunter. (2001). A study of genetic diversity due to spatial and temporal differences among southern 'Alamo' switchgrass (*Panicum virgatum* L.) sites. Presented at *Oak Ridge National Laboratory*, Oak Ridge, TN. Poster.

## Other Publications

- Hotchkiss, E.R. (2007). Lab Manual for Animal Biology. Eds. A.C. Krist, B. Rintz, D.P. Gorski and N.B. Wolf. Fountainhead Press, Inc.
- Hotchkiss, E.R. (2007). Linking exotic snails to carbon cycling in Kelly Warm Springs, Grand Teton National Park. M.S. Thesis, Department of Zoology & Physiology, University of Wyoming.
- Hotchkiss, E.R., C.M. Pringle and M. Ardon (2003). Effects of nitrogen and phosphorus on larval chironomid growth rates in the laboratory, Costa Rica. *Research Experience for Undergraduates, Organization for Tropical Studies*: 27-37.
- Hotchkiss, E.R. and L. Gunter (2002). Genetic diversity due to spatial and temporal differences among southern 'Alamo' switchgrass (*Panicum virgatum* L.) sites. *Journal of Undergraduate Research* **2**: 118.

## Awards and Fellowships

- 2009-2010. Graduate Fellowship, NSF EPSCoR Wyoming Science Teacher Education Program (WySTEP), University of Wyoming (\$4,000)
2009. Program in Ecology Summer Research Fellowship, University of Wyoming (\$3,500)
2009. L. Floyd Clarke Graduate Scholar Award, University of Wyoming (\$2,125)
2009. Jackson Hole One Fly Foundation Dennis Anderson Memorial Scholarship (\$1,000)
2009. ASLO Student Travel Award, American Society of Limnology and Oceanography (\$250)
- 2008-2009. Graduate Fellowship, NSF EPSCoR WySTEP, University of Wyoming (\$3,000)
2008. Student Award for Best Oral Presentation in Basic Research, North American Benthological Society
2008. NABS Endowment Fund President's Award, North American Benthological Society (\$1,000)
2008. George T. Baxter Fellowship, University of Wyoming (\$200)
2008. Louis C. "Red" Rocket Memorial Scholarship, University of Wyoming (\$400)
2008. Best Oral Presentation, Graduate Student Research Symposium, University of Wyoming
- 2007-2008. First-Year Doctoral Fellowship, NSF EPSCoR Ecology, University of Wyoming (\$18,370)
- 2007-2008. Graduate Fellowship, NSF EPSCoR WySTEP, University of Wyoming (\$3,000)

2007. Graduate Teaching Assistant Distinguished Service Award, University of Wyoming  
2007. Vern Bressler Fisheries Scholarship, University of Wyoming (\$1,000)  
2006-2009. University-Wide Plummer Scholarships, University of Wyoming (\$2,200)  
2006. Colorado Lake and Reservoir Management Association Scholarship (\$500)  
2006. Dennis Jespersen Memorial Scholarship, Wyoming Wildlife Fund (\$500)  
2003. NSF Research Experience for Undergraduates (REU) Fellowship, Organization for Tropical Studies, University of Georgia (\$3,000)

## **Grants**

2009. Sigma Xi Grant-in-Aid of Research, Sigma Xi Scientific Research Society. "Quantifying the patterns and drivers of aquatic ecosystem respiration: Looking beyond common assumptions to understand stream carbon cycling." (\$800)  
2008-2009. Ecological Applications of Stable Isotopes Grant, NSF EPSCoR, Wyoming. "Tracing the fate of autochthonous carbon: Use of NaH<sup>13</sup>CO<sub>3</sub> to link carbon and oxygen cycling in streams." (\$4,730)  
2007-2008. Haub Creative Research Grant, University of Wyoming. "Coupling oxygen and carbon cycling in aquatic systems" (\$1,000)  
2006-2007. University of Wyoming-National Park Service Research Grant. "Linking exotic snails to organic and inorganic carbon cycling in Kelly Warm Springs, Grand Teton National Park." (\$4,000)

## **Service**

### ***Professional Societies***

- 2009-2010. Member, Career Development Workshop Subcommittee, American Society of Limnology and Oceanography Graduate Student Committee for joint ASLO/NABS meeting in 2010.  
2008-2009. Member, Strategic Planning Committee for the Journal of the North American Benthological Society (*J-NABS*).  
2006-Present. Member, Graduate Resources Committee, North American Benthological Society (NABS).  
2008-2009: Co-Chair, Student-Mentor Community Development Committee.  
2007-2008: Co-Chair, Graduate Student Workshop: "Introduction to the Great Salt Lake Ecosystem."

### ***University of Wyoming***

- 2009-Present. Liaison for Graduate Student Concerns, Department of Zoology and Physiology.  
2007-Present. Member, Program in Ecology Graduate Student Organization.  
2010: Host, Dr. Peter Groffman, Cary Institute of Ecosystem Studies. Ecology Seminar Series.  
2008-2009: President, Program in Ecology Graduate Student Organization.  
2008: Co-Host, Dr. Emily Bernhardt, Duke University. Ecology Seminar Series.  
2007-2008: Graduate Student Representative to the Faculty.

### ***Community Outreach and Education***

- 2007-Present. Co-Presenter, Women in Science Workshop: "What's in the Water?" Wyoming NASA Space Grant Consortium and University of Wyoming, Laramie, WY.  
2006-Present. Volunteer, Wyoming State Science Fair. Laramie, WY.  
2006-Present: Member, Scientific Review Committee.  
2006-Present: Judge, Middle School and High School Research Projects.  
2006-2009. Executive Committee, Medicine Bow Chapter of the Wyoming Sierra Club. Laramie, WY.

### ***Emory University***

2003. Co-Coordinator, Volunteer Emory Action Team. Member: 2002-2003.  
2002-2003. Co-President, Emory Chapter of the Student Environmental Action Coalition.  
2003. Environmental Task Force, Emory Student Government Association.  
2001-2002. Coordinator, Volunteer Oxford Environmental Projects. Member: 2000-2002.  
2001-2002. Member, Sustainability at Oxford.

## Workshops and Certifications

### *Research Skills and Applications*

- Quantifying carbon and nutrient transformations in aquatic ecosystems at regional to continental scales in response to environment change (2009). LTER All Scientists Meeting. Estes Park, CO.
- D.O.T. Hazardous Materials Shipping Certification (2008). Regulated Materials Management Center, University of Wyoming. Laramie, WY.
- Aquatic Invasive Species Workshop (2008). Southern Greater Yellowstone Area Aquatic Invasives Group. Grand Teton National Park, WY.
- 2<sup>nd</sup> Symposium on Urbanization and Stream Ecology (2008). US EPA Office of Research and Development National Center for Environmental Assessment, Baltimore and Phoenix LTER programs, USGS, and University of Georgia River Basin Center. Salt Lake City, UT.
- Introduction to Ecological Informatics (2007). Wyoming Geographic Information Science Center and Program in Ecology, University of Wyoming. Laramie, WY.
- Predicting Mining Impacts and Simple Assessment Tools for Abandoned Mine Sites (2007). Rocky Mountain Chapter of the Society of Environmental Toxicology and Chemistry. Golden, CO.
- Fundamentals of Ecosystem Ecology Short Course (2007). Institute of Ecosystem Studies. Millbrook, NY.
- Open Water Diver Certification (2004). Dive Experience (PADI 5 STAR). Christiansted, St. Croix, USVI.
- Biological Stream Monitoring Certification Workshop (2001). Georgia Adopt-A-Stream, Department of Natural Resources, Environmental Protection Division. Covington, GA.

### *Teaching and Leadership*

- Expanding the Boundaries of Student Learning (2006). University of Wyoming. Laramie, WY.
- Certificate in College Teaching Development (2006). University of Wyoming. Laramie, WY.
- Student Leadership Training (2003). Oxfam America. New Orleans, LA.

## Undergraduate and Post-Undergraduate Students Supervised

- Trista Niekum, NSF EPSCoR Undergraduate Research Fellow (2009-Present). University of Wyoming, WY. Independent project: “The effects of an invasive snail (*Melanoides tuberculata*) on native invertebrate abundance and diversity and implications for native fishes and resource management”
- Sahale Casebolt, Summer Research Technician (2009). University of Iowa, IA. Independent project: “Comparing respiration and organic matter processing rates of an invasive snail population (*Melanoides tuberculata*) to whole-stream ecosystem metabolism in Kelly Warm Springs, WY.”
- Brenna Hansen, NSF EPSCoR Undergraduate Research Fellow (2008-2009). University of Wyoming, WY. Independent project: “Nutrient assimilation and excretion in freshwater snails: Does assimilation efficiency contribute to invasion success?” Presented at *University of Wyoming’s 2009 Undergraduate Research Symposium*. Co-supervisors: Dr. Teresa Tibbets and Dr. Amy Krist.
- Tamara Lehnertz, NSF EPSCoR Wyoming Science Teacher Education Program Fellow (2007-2008). University of Wyoming, WY. Assisted with field and laboratory work in preparation for the creation of an Inquiry-based Science Learning Unit for high school chemistry students. Presented research experience and teaching unit at *University of Wyoming’s 2008 Undergraduate Research Symposium*.
- Elias Anoszko, Summer Research Technician (2007). Gustavus Adolphus College, MN. Independent Project: “Native invertebrate diversity and abundance pre- and post- invasion by *Melanoides tuberculata* in Kelly Warm Springs, WY.” Presented at *Gustavus Adolphus College’s Fall 2007 Research Symposium*.
- Joshua Theurer, Laboratory Technician (2007). University of Wyoming, WY. Sorted, measured and identified aquatic invertebrates in the laboratory.

## Societal Memberships

- American Geophysical Union (AGU): 2009-Present.
- American Society of Limnology and Oceanography (ASLO): 2005-Present.
- Ecological Society of America (ESA): 2006-Present.
- North American Benthological Society (NABS): 2004-Present.