

Cailin Huyck Orr

National Center for Earth-Surface Dynamics and the Department of Ecology, Evolution and Behavior

University of Minnesota

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Education:

2005 Ph.D. Limnology and Marine Science, University of Wisconsin–Madison
2002 M.S. Limnology and Marine Science, University of Wisconsin–Madison
1996 B.A. Biology Carleton College, Northfield, MN

Current Positions:

2006-present **Post-doctoral Associate**, National Center for Earth-Surface Dynamics

Research Experience:

2005-2006 **Post-doctoral Fellow**, River Ecosystems Group, Geography Department,
University of North Carolina-Chapel Hill. Joint with NCED in 2006
2003-2005 **Research Assistant**, Center for Limnology, University of Wisconsin
2000-2003 **NSF Integrated Graduate Research Traineeship (IGERT)**,
University of Wisconsin Program linking Social and Aquatic Sciences
1998 **Preserve Management Assistant**, The Nature Conservancy, Minnesota
1997 **Research Assistant**, Missouri River Post-flood Evaluation Project
Missouri Department of Conservation

Teaching Experience:

2008 **Adjunct Lecturer**, St. Olaf College, Northfield, MN. Department of
Environmental Studies
2005 **Adjunct Lecturer**, Zoology Department, University of Wisconsin
Full teaching responsibility for summer Limnology lecture and lab courses
2003, 2005 **Teaching Assistant**, Zoology Department, University of Wisconsin
Limnology lab and lecture courses
1998-2000 **Scientific Instructional Technician**, The Evergreen State College, Olympia
WA. Lab and field classes for biology, chemistry, and ecology programs
1996 **Interpretive Guide**, Mendenhall Glacier, USDA Forest Service, Juneau AK
Public outreach and instructional programs
1994, 1995 **Teaching Assistant**, Biology and Environmental Studies Departments,
Carleton College, Northfield, MN. Aquatic Biology and Wetlands courses

Research Interests:

Interdisciplinary research. Integrating biogeochemistry, aquatic ecology and geomorphology in river-floodplain systems. Interactions between ecosystem management and function. Using restoration projects to study two-way interactions between ecological and physical processes.

Publications:

- Orr, C.H.,** S.J. Kroiss, K.L. Rogers and E.H. Stanley. 2008. Response of benthic sediments and metabolism to dam removal in a small Wisconsin stream. *River Research and Applications* 24(6): 804.
- Riggsbee, J.A, **C.H. Orr**, J.C. Julian, D.A. Leech, M.W. Doyle, and R.G. Wetzel. 2008. Suspended sediment, carbon and nitrogen fluxes and transformations during the dewatering of a low-head impoundment. *Journal of Geophysical Research – Biogeosciences* doi:10.1029/2007JG000654
- Wilcock, P.R, **C.H. Orr**, J. Marr. 2008. Particles, solutes, and life in flowing water: a large-scale multidisciplinary experiment at St Anthony Falls Laboratory. *EOS* 89(1): 6.
- Orr, C.H.,** E.H. Stanley, K.A. Wilson, and J.C. Finlay. 2007. Changes in denitrification following reintroduction of flooding to a leveed Midwestern floodplain. *Ecological Applications* 17: 2365–2376.
- Stanley, E.H., M.J. Catalano, N. Mercado-Silva and **C.H. Orr**. 2007. Implications of small dam removal for distribution of non-native trout in Central Wisconsin. *River Research and Applications* 23:792-798.
- Orr, C.H.,** K.L. Rogers, and E.H. Stanley. 2006. Phosphorus uptake and channel geometry following small dam removal. *Journal of the North American Benthological Society* 25:556-568.
- Orr, C.H.** and E.H. Stanley. 2006. Vegetation development and restoration potential of drained reservoirs following dam removal in Wisconsin. *River Research and Application* 22:281-295.
- Orr, C.H.,** S. Koenig. 2006. Contribution of seed-bank and planting to vegetation recolonization following dam removal. *Ecological Restoration* 24:79-86.
- Doyle, M.W., E.H. Stanley, **C.H. Orr**, A.R. Selle, and J.M. Harbor. 2005. Fluvial geomorphic controls on stream ecosystem processes: Lessons from the heartland of small dam removals. *Geomorphology* 71: 227-244.
- Orr, C.H.** 2005. Review of ecological response in recent river restorations. *Ecological Engineering Technical Notes* 2:12-19.
- Orr, C.H.** and B.M. Roth, J.D. Gonzales, K.J. Forshay, M.M. Papenfus, and R.D.G. Wassell. 2004. An Examination of Physical and Regulatory Variables Leading to Small Dam Removal in Wisconsin. *Environmental Management* 33(1):99-109.
- Overdeest, C., **C.H. Orr** and C. Stepenuk. 2004. Volunteer stream monitoring and local participation in natural resource issues. *Human Ecology Review* 11(2):177-185.

Orr, C. 2001. Review: Dams and Development: A New Framework for Decision-Making: The report of the world commission on dams. *Environmental Practice* 3(3):191-912.

In Preparation:

Orr, C.H., K.I. Predick, Rogers, K.L., and E.H. Stanley. Spatial variability of denitrification and associated soil properties on a restored and a natural floodplain. Intended for *Ecology*

Orr, C.H. J.J. Clark, P.R. Wilcock, M.W. Doyle. Impact of channel geometry and algae growth on hyporheic exchange and nutrient uptake : Insights from a field-scale flume. Intended for *Limnology and Oceanography*

Stanley, E.H., G.C. Cumming, M.W. Doyle, **C.H. Orr** and J. Maxted. The distribution and abundance of dams and dam removals in Wisconsin, U.S.A. Intended for *Environmental Management*.

Invited presentations

University of Wisconsin-Madison, Soil Science department	2007
Virginia Commonwealth University, Biology department	2007
University of Nevada – Reno, Hydrology colloquium	2006
Lawrence University, Science Hall colloquium	2006
University of Wisconsin-Madison, Botany department	2003
Carleton College, Environmental Studies program	2002

Guest lectures

University of Minnesota, Ecology and society course	2007
St. Olaf College, Ecological principles course	2007
University of Minnesota, Stream Restoration certificate program	2006 and 2007
University of Wisconsin-Madison, Limnology course	2004
Carleton College, Aquatic biology and geomorphology courses	2002

Select contributed presentations:

Orr, C.H., and J.C. Finlay. 2008. Variability in hyporheic exchange and biogeochemical activity: Implications for benthic nutrient retention. (Poster). North American Benthological Society, Salt Lake City, UT.

Orr, C.H., Clark, J.J., P. R. Wilcock, and J.C. Finlay. 2007. Impact of channel geometry and periphyton growth on nutrient uptake and location of biogeochemical hotspots: Insights from a field-scale flume. *Ecological Society of America*, San Jose, CA.

Orr, C.H., Clark, J.J., P. R. Wilcock, M.W. Doyle and J.C. Finlay. 2006. Impact of

- variable bed morphology on transient storage, hyporheic exchange and nutrient uptake in a field-scale flume. (Poster). American Geophysical Union, San Francisco, CA.
- Orr, C.H.,** J.A. Riggsbee, D.M. Leech, and. M. W. Doyle. 2006. Role of light in carbon release and iron sorption during simulated river sediment transport events. Ecological Society of America, Memphis, TN.
- Orr, C.H.** and E.H. Stanley. 2005. Hydrologic Alteration and Response of Ecosystem Functions to River Restoration. In session: Scales of River Restoration and Ecosystem Response. American Geophysical Union, San Francisco, CA.
- Orr, C.H.,** K.L. Rogers, and E.H. Stanley. 2005. Restorations as experiments linking geomorphology and nutrient retention in streams (Poster). 36th Binghamton Geomorphology Symposium, Buffalo, NY.
- Orr, C.H.** and E.H. Stanley. 2005. Flow regime, ecosystem function and the 'field of dreams' in river restoration. In session: Linking the practice of stream restoration with the science of stream ecology Ecological Society of America/INTECOL. Montréal, Quebec.
- Orr, C.H.,** E.H. Stanley, K.A. Wilson, and J.C. Finlay. 2005. Reintroduction of flooding and change in denitrification rates on a leveed Midwestern floodplain. NABS/AGU Joint Assembly meeting. New Orleans, Louisiana.
- Orr, C.H.,** E.H. Stanley, K.A. Wilson, and J.C. Finlay. 2004. Changes in denitrification following reintroduction of flooding to a leveed Midwestern floodplain. Ecological Society of America. Portland, Oregon.
- Orr, C.H.,** K.L. Rogers, N.R. Lottig, and E.H. Stanley. 2004. Phosphorus uptake, channel geometry, and sediment size before and after small dam removal in Boulder Creek, Wisconsin. North American Benthological Society, Vancouver, British Columbia.
- Orr, C.H.,** Stanley, E.H., G.C. Cumming, M.W. Doyle, and H.A. Livingston. 2003. Geographic and temporal analysis of dam construction and removal in the State of Wisconsin. North American Benthological Society, Athens, Georgia.
- Orr, C.H.,** E.H. Stanley. 2002. Vegetation succession on former impoundments during the first 46 years following dam removal. American Society of Limnology and Oceanography, Victoria, British Columbia.
- Other professional activities:**
- Awards:**
- J. Finlay, J. Nassauer, P. Wilcock, B. Hobbs, A. Lightbody, C. Orr. Collaborative Research: Cultural Sustainability of Stream Corridor Restoration for Nutrient

Removal. NSF Coupled Human and Natural Systems. *Pending.*

- A. Lightbody, C.H. Orr, J. Marr, P. Belmont, C. Paola. 2008. Determination of appropriate metric(s) for sediment-related total maximum daily loads. \$30,000/2 years. University of Minnesota Water Resources Center.

NSF-IGERT Fellowship 2000-2003

Jefferson Davis Award 2002, 2004, 2005

Anna Grant Birge Memorial Scholarship 2004

River Alliance of Wisconsin Research Grant 2001

Manuscript reviewer:

Ecological Applications, Restoration Ecology,
Journal of the North American Benthological Society,
Environmental Management, Ecology and Society, Hydrobiologia,
Water Resources Research

Outreach and Service:

NABS Special Session co-organizer: “Integrating
Biological/Biogeochemical Measurements with Complexity
in Hydraulics and Geomorphology in Streams” 2008
Meeting of Young Researchers in Earth Science (MYRES)
Planning committee for meeting:
“Dynamic Interactions of Life and its Landscape” 2008
Association for Women Geoscientists, Career panelist 2006
Multicultural Summer Research Program, Mentor 2006
Teaching Inquiry-based MN Earth Science, Guest lecture 2006
Ways of Knowing Biology Graduate Shadowing, Mentor 2003-05
Grandparent University, UW-Madison, Instructor 2004
College for Kids, UW-Madison, Instructor 2003

Society Membership:

Ecological Society of America
American Geophysical Union
North American Benthological Society
The Nature Conservancy