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BIOGRAPHICAL INFORMATION

Education

2000 Ph.D. Integrative Biology, University of California, Berkeley
1990 B.S. Natural Resources, with honors, University of New Hampshire

Positions Held

2009- Associate Professor, University of Minnesota
2003-2009 Assistant Professor, University of Minnesota
2001-2002 NRC Post-Doctoral Research Fellow, USGS-National Research Program
2000-2001 Post-Doctoral Research Fellow, University of Wisconsin
1991-1994 Research technician, University of New Hampshire

Honors and Fellowships

2001-2002 NRC Post Doctoral Fellowship
1999-2000 NSF Doctoral Dissertation Improvement Grant
1996-1999 NASA Global Change Fellowship
1996 EPA Fellowship (declined)
1995 Regents Fellowship
1995 ARCS Scholarship Award

TEACHING AND ADVISING

Graduate and undergraduate courses taught

Limnology (EEB 4601), Limnology (EEB 5601), Limnology Laboratory (EEB 5605), Nature of Life, Science, Protection and management of aquatic environments (EEB 3603)

Seminars taught

Watershed ecology, Stable isotope Ecology, IGERT Year One Seminar

Undergraduate Research Mentees

Kyle Shull, REU/LSSURP
Alexis Feltus, USIP
Holly Meier, UROP and Independent Research
Hannah Grun, REU and Independent Research
Bill Seimers, Independent Research

Graduate Faculties

Ecology, Evolution, and Behavior, Water Resources Science, Conservation Biology, Stream Restoration Certificate

Current Graduate Advisees

James Hood (EEB), Martin Tsui (WRS), Kyle Whittinghill (EEB), Joey Reid (EEB), Carrie Booth (MS, WRS), Nick Baldauf (MS, WRS), Amy Hansen (CE)

Former Graduate Advisees

Helga Madigral (MS, WRS), Rebecca Stark (MS EEB), Eric Merton (WRS)

Past Student Committees/Defense Examinations

Johanna Schussler (MS WRS), Edward Hall (EEB), Ben O'Conner (CE), Ted Stets (EEB), Mark Green (WRS), Helga Madigral (WRS), John Gaffney (MS), Eric Merten, (WRS), James Cook (MS), Rebecca Stark (MS), Jon Kenning (PhD)

Present Student Dissertation Committees (excluding current advisees)

Casey Godwin (EEB), Jim Brozowski (WRS), Leah Laurich (EEB), Meghan Funke (EEB)

Current Post-Doctoral Advisees

Dr. Brent Dalzell (co-advised with J. King, G. Sands, D. Mulla)

Past Post-Doctoral Advisees (current position)

Dr. Theodore Kennedy (USGS scientist, Grand Canyon Monitoring and Research Center)
Dr. John Schade (assistant professor, St. Olaf College)
Dr. Camille McNeely (assistant professor, Eastern Washington University)
Dr. Sanjeev Kumar (post doc, St. Francis Xavier University)
Dr. Cailin Orr (assistant professor, Washington State University-Pullman)

RESEARCH ACTIVITIES

Grants and Contracts

Ongoing Projects

- 2003 - 2008 CO-PI, NSF-STC, National Center for Earth Surface Dynamics. \$340,000 (Finlay total), with 15 other PI's.
- 2005- 2009 CO-PI, NSF-IGERT *Non-equilibrium dynamics across space and time: a common approach for engineers, earth scientists, and ecologists*. C. Neuhauser and 21 other senior personnel. \$2,819,194.
- 2006 -2008 UMN PI Finlay, NSF Ecosystems, *Coupling consumer-resource interactions and nutrient spiraling in a stream network* \$122,137 (Finlay total), with J. Schade (St. Olaf), Jill Welter (St. Catherine), Steve Thomas (University of Nebraska), and M.E. Power (UC Berkeley).
- 2007-2009 CO-PI, Water Resources Center: *The influence of drainage on biogeochemical cycling of carbon in agricultural ecosystems*. \$36,360 with Jennifer King, G. Sands, and D. Mulla (UMN).
- 2007-2010 PI Finlay, USDA Forest Service, *Influence of riparian management on carbon and nitrogen flux through stream food webs*, \$52,000.
- 2007-2009 PI FinlayUS EPA STAR Graduate Fellowship, *Nutrient cycling in detrital-dominated headwater streams: How detritivores and the stoichiometry of litter inputs shape nutrient uptake and particulate nutrient export*, \$37,000
- 2008-2009 PI FinlayNSF DDIG *Landscape Patterns in the Biodegradability of DOC and DON Within and Among Arctic Hillslopes* \$11,524. With PhD student Kyle Whittinghill.
- 2008-2009 PI FinlayMinnesota Pollution Control Agency, *Watershed controls on seston quality and mercury bioavailability in Minnesota streams and rivers*, \$26,000.

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2009-2010 PI Finlay, Water Resources Center, *Fate and bioavailability of litter mercury in Minnesota streams and rivers*. With E. Nater. \$30,446

2009-2010 PI FinlayNSF DDIG, Mercury Bioavailability and its Environmental Controls in a River Network. With PhD student Martin Tsui. \$13,531.

2009-2010 Co-PI, USDA Forest Service, *Watershed control over DOC source and reactivity* with J. Cotner and S. Sebestyn. \$62,000.

Past Projects

2007-2009 PI Finlay, University of Minnesota Grant-in-Aid of Research, Artistry, and Scholarship *Controls of mercury transfer to river food webs*, \$26,000

2004 – 2008 CO-PI, NSF OCE, *Collaborative Research: The Nitrifying of Lake Superior and Its Intersections with the P and Fe cycles* \$190,000 (Finlay total), with R. Sterner (UMN), M. McKay, S. Bullerjahn (Bowling Green), and R. Sherrell (Rutgers).

2003 – 2006, UMN PI Finlay, NSF Ecology, *Collaborative Research: Food-Chain Length in Streams: Testing the Role of Ecosystem Size, Resource Availability and Disturbance*, \$111,236 (Finlay total), with J.S. Sabo (ASU) and D. Post (Yale).

Publications, Scientific Literature

Book Chapters

Lyons, W.B. and **J.C. Finlay**. 2008. Biogeochemical processes in high latitude lakes and rivers. In: W. F. Vincent and J. Laybourn-Parry (eds) *Polar Lakes and Rivers – Limnology of Arctic and Antarctic Aquatic Ecosystems*. Oxford University Press, Oxford, U.K.

Finlay, J. C., and C. Kendall. 2007. Stable isotope tracing of organic matter sources and food web interactions in watersheds. Pages 283-333 in K. Lajtha and R. Michener, editors. *Stable Isotopes in Ecology and Environmental Science*. Blackwell.

Power, M.E., W.E. Rainey, M. Parker, J.L. Sabo, A. Smyth, S. Khandwala, **J.C. Finlay**, F.C. McNeely, K. Marsee, and C. Anderson. 2004. River to watershed subsidies in an old-growth conifer forest. In: G.A. Polis, M.E. Power and G.R. Huxel, (editors). *Food webs in Landscapes*. Chapman and Hall, N.Y.

Journal Articles

Kumar, S., **J.C. Finlay**, and R. S. Sterner. In review. Stable isotope composition of suspended particulate organic matter in Lake Superior and draining rivers. *Biogeochemistry*.

Finlay, J.C., R. Doucett, and F.C. McNeely. In review. Tracing energy flow in stream food webs using stable isotopes of hydrogen. *Freshwater Biology*.

Green, M. and **J.C. Finlay**. In review. Controls of stream nutrient stoichiometry in pristine watershed of the United States. *Biogeochemistry*.

Tsui, M.T.-K., **J.C. Finlay**, and E.A. Nater. In review. Spatial Variation of Mercury Bioavailability in a River Network. *Environmental Science & Technology*.

- Hondzo, M., M. Morris, V.D. Voller, **J. Finlay**, M.E. Power, and A. Wüest. In review. Aquatic Ecosystem Metabolism: Eulerian and Lagrangian Estimators. *Water Resources Research*.
- Orr, C. H., J. J. Clark, P. R. Wilcock, **J.C. Finlay**, and M. W. Doyle. 2009. Comparison of morphological and biological control of exchange with transient storage zones in a field scale flume. *Journal of Geophysical Research - Biogeosciences*.
- Sabo, J.L., **J.C. Finlay**, and D.M. Post. 2009. Food chains in freshwaters. R.S. Ostfeld and W.H. Schlesinger, editors. *The Year in Ecology and Conservation Biology 2009*. The New York Academy of Sciences 1162: 187-220.
- Power, M., R. Lowe, P. Furey, J. Welter, M. Limm, **J. Finlay**, C. Bode, S. Chang, M. Goodrich, and J. Sculley. 2009. Algal mats and insect emergence in rivers under Mediterranean climates: Towards photogrammetric surveillance. *Freshwater Biology* doi:10.1111/j.1365-2427.2008.02163.x.
- Tsui, M.T.-K., **J.C. Finlay**, and E.A. Nater. 2008. Effects of Stream Water Chemistry and Tree Species on Release and Methylation of Mercury during Litter Decomposition. *Envi. Sci. & Technol.* 42(23): 8692–8697.
- Kumar, S., R. S. Sterner, and **J.C. Finlay**. 2008. Nitrogen uptake dynamics in Lake Superior. *Journal of Geophysical Research*. Volume 113, G04003, doi:10.1029/2008JG000720.
- Green, M.B and **J.C. Finlay**. 2008. Detecting characteristic hydrological and biogeochemical signals through nonparametric scatter plot analysis of normalized data. *Water Resources Research*, 44, W08455, doi:10.1029/2007WR006509
- Finlay, J.C.**, R.W. Sterner, and S. Kumar. 2007. Isotopic evidence for in-lake production of accumulating nitrate in Lake Superior. *Ecological Applications*. 17(8): 2323-2332.
- 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(8): 2365-2376
- Kumar, S., R. S. Sterner, **J.C. Finlay**, and S. Brovold. 2007. Spatial and Temporal Variation of Ammonium in Lake Superior. *Journal of Great Lakes Research*. 33:581–591.
- Finlay, J.C.** and V.T. Vrendenburg. 2007. Introduced trout sever trophic connections between lakes and watersheds: consequences for a declining frog. *Ecology* 88: 2187-2198.
- Sterner, R. W., E. Anagnostou, S. Brovold, G. S. Bullerjahn, **J. C. Finlay**, S. Kumar, R. M. L. McKay, and R. M. Sherrell. 2007. Increasing Stoichiometric Imbalance in North America's largest lake: Nitrification in Lake Superior, *Geophys. Res. Lett.*, 34, L10406, doi:10.1029/2006GL028861.
- McNeely, F.C., **J.C. Finlay**, and M.E. Power. 2007. Grazer traits, competition, and carbon sources to a headwater stream food web. *Ecology* 88(2): 391-401.
- Post, D.M., M.W. Doyle, J.L. Sabo, and **J.C. Finlay**. 2007. The problem of boundaries in defining ecosystems: a potential landmine for unifying geomorphology and ecology. *Geomorphology* 89:111-126.
- Neff J.C., **J.C. Finlay**, S. Zimov, S. Davidov, and. T. Schuur. 2006. Seasonal Losses of Ancient Dissolved Organic Carbon in Siberian Rivers. *Geophysical Research Letters* 33, L23401.
- O'Connor, B.L. M. Hondzo, D. Dobraca, T.M. LaPara, **J.C. Finlay**, and P.L. Brezonik. 2006. Quantity-activity relationship of denitrifying bacteria and environmental scaling in streams of a forested watershed. *JGR- Biogeosciences* 111, G04014.
- Finlay, J.**, J. Neff, S. Zimov, A. Davydova, and S. Davydov. 2006. Snowmelt dominance of dissolved organic carbon in high-latitude watersheds: implications for characterization and flux of river DOC. *Geophysical Research Letters* 33, L10401.

- Welp, L.A., J. T. Randerson, **J. Finlay**, S. P. Davydov, G. M. Zimova, A. I. Davydova, and S.A. Zimov. 2005. A high-resolution time series of oxygen isotopes from the Kolyma River: Implications for the seasonal dynamics of discharge and basin-scale water use. *Geophysical Research Letters* 32, L14401.
- Kennedy, T.A., **J.C. Finlay**, and S.E. Hobbie. 2005. Exotic saltcedar (*Tamarix ramosissima*) alters food web structure in a desert stream by changing resource availability. *Ecological Applications* 15(6): 2072-2083.
- Jones, J.B., K.C. Petrone, **J.C. Finlay**, L.D. Hinzman, and W.R. Bolton. 2005. Nitrogen loss from watersheds of interior Alaska underlain with discontinuous permafrost. *Geophysical Research Letters* 32: L02401.
- Finlay, J.C.** 2004. Patterns and controls of lotic algal stable isotope ratios. *Limnology and Oceanography*. 49: 850-861.
- Finlay, J.C.** 2003. Controls of streamwater dissolved inorganic carbon dynamics in a forested watershed. *Biogeochemistry* 62: 231-252.
- Finlay, J.C.**, S. Khandwala, and M.E. Power. 2002. Spatial scales of carbon flow through a river food web. *Ecology* 83: 1845-1859.
- Bastow, J.L, J. Sabo, **J.C. Finlay** and M.E. Power. 2002. A basal aquatic-terrestrial trophic link in rivers: algal subsidies via shore-dwelling grasshoppers. *Oecologia* 131: 261-268.
- Finlay, J.C.** 2001. Stable carbon isotope ratios of river biota: implications for energy flow in lotic food webs. *Ecology* 84: 1052-1064.
- Wollheim, W.M., B.J. Peterson, L.A. Deegan, J.E. Hobbie, B. Hooker, W.B. Bowden, K.J. Edwardson, D.B. Arscott, A.E. Hershey and **J. Finlay**. 2001. Influence of stream size on ammonium and suspended particulate nitrogen processing. *Limnology and Oceanography* 46: 1-13.
- Arscott, D., W.B. Bowden, and **J.C. Finlay**. 2000. Effect of desiccation, temperature, and irradiance on the metabolism of two arctic stream bryophytes. *Journal of the North American Benthological Society* 19: 263-273.
- Finlay, J.C.**, M.E. Power, and G. Cabana. 1999. Effects of water velocity on algal carbon isotope ratios: implications for river food web studies. *Limnology and Oceanography* 44: 1198-1203.
- Bowden, W.B. and many others. 1999. Roles of bryophytes in stream ecosystems. *Journal of the North American Benthological Society* 18: 151-184.
- Arscott, D., W.B. Bowden, and **J.C. Finlay**. 1998. A comparison of epilithic algal and bryophyte metabolism in an arctic tundra stream, Alaska. *Journal of the North American Benthological Society* 17: 210-227.
- Harvey, C.J., B.J. Peterson, W.B. Bowden, L.A. Deegan, A.E. Hershey, M.C. Miller, and **J.C. Finlay**. 1998. Biological responses of Oksrukuyik Creek, a tundra stream, to fertilization. *Journal of the North American Benthological Society* 17: 190-209.
- Harvey, C.J., B.J. Peterson, W.B. Bowden, L.A. Deegan, **J.C. Finlay**, A.E. Hershey, and M.C. Miller. 1997. Organic matter dynamics in the Kuparuk River, a tundra river in Alaska, USA. *Journal of the North American Benthological Society* 16: 18-23.
- Power, M.E., W.E. Dietrich, and **J.C. Finlay**. 1996. Dams and downstream aquatic biodiversity: potential food web consequences of hydrologic and geomorphic change. *Environmental Management* 20: 887-895.
- Bowden, W.B., **J.C. Finlay**, and P.E. Maloney. 1994. Long-term effects of PO₄ fertilization on the distribution of bryophytes in an arctic tundra stream. *Freshwater Biology* 32: 445-454.
- Finlay, J.C.** and W.B. Bowden. 1994. Controls on production of bryophytes in an arctic tundra

stream. *Freshwater Biology* 32: 455-465.

Bowden, W.B., B.J. Peterson, **J.C. Finlay**, and J. Tucker. 1992. Epilithic chlorophyll a, photosynthesis, and respiration in control and fertilized reaches of a tundra stream. *Hydrobiologia* 240: 121-132.

Scientific Meetings, Contributed Talks and Posters

- Finlay, J.C., Mark Green, James Hood, Camille McNeely, Mary Power, John Schade, and Jill Welter. 2008. In-stream control on the stoichiometry of dissolved nutrients in a forested watershed stream network. Annual meeting of the North American Benthological Society, Salt Lake City, UT.
- Finlay, J., Mark Green, Maria Goodrich, James Hood, Camille McNeely, Mary Power, John Schade, and Jill Welter. 2007. Linking watershed and reach-scale controls of dissolved and particulate nutrients in a stream network 92nd annual meeting of the Ecological Society of America.
- Finlay, J.C. and V. Vrendenburg. 2004. Effects on introduced predators on energy flow in aquatic and riparian food webs. 89th annual meeting of the Ecological Society of America, Portland, OR.
- Finlay, J.C., S. Khandwala, and M.E. Power. 2001. The Spatial Scale of Energy Flow to Steelhead Trout in the South Fork Eel River Watershed. Oral presentation at the Aquatic Sciences Meeting of the American Society for Limnology and Oceanography, Albuquerque, NM.
- Finlay, J.C., S. Khandwala, and M.E. Power. 2000. The Spatial Scale of Energy Flow to Steelhead Trout in the South Fork Eel River. Oral presentation at the 48th annual meeting of the North American Benthological Society, Keystone, CO.
- Finlay, J.C., M.E. Power, and G. Cabana. 1999. Effects of Water Velocity on Algal Carbon Isotope Ratios: Implications for River Food Web Studies. Oral presentation at the Aquatic Sciences Meeting of the American Society for Limnology and Oceanography, Santa Fe, NM.
- Finlay, J.C. 1999. Stable Carbon Isotope Ratios of River Biota: Implications for Energy Flow in Lotic Food Webs. Oral presentation at the 47th annual meeting of the North American Benthological Society, Duluth, MN.

Symposia and Workshop Presentations, Invited

- Finlay, J.C., J. Neff, S. Davydov, A. Davydova, S. Zimov. Sources and fluxes of river DOC in the Kolyma River watershed of north east Siberia, 12/05. American Geophysical Union, San Francisco, CA.
- Finlay, J.C. 9/04. Small river food webs. Identification of food web structure in large rivers. USGS-BRD Workshop, La Crosse, WI.
- Finlay, J.C. 2/03. Overview of Kolyma River NSF-ARCSS project. First International PARTNERS (Pan Arctic River Transport of nutrients, organic matter, and suspended sediments) workshop Woods Hole, MA.
- Finlay, J.C., G. Cabana, W. Rainey and M.E. Power. 2000. Use and Limits of Natural Abundance Stable Isotope Measurements to Understand Watershed-River Exchange. In: "Terrestrial-aquatic linkages: Linking communities across ecosystem boundaries: A symposium in memory of Gary Polis" a symposium at the 85th annual meeting of the Ecological Society of America,

Snowbird, UT.

Finlay, J.C. 2001. Controls of Algal Stable Carbon Isotope Ratios in Lotic Ecosystems. In: "What can the natural abundance of stable isotopes reveal about aquatic systems?" Symposium presentation at the 49th annual meeting of the North American Benthological Society, LaCrosse, WI.

SERVICE ACTIVITIES

Professional Memberships

American Society of Limnology and Oceanography, Ecological Society of America, North American Benthological Society. American Geophysical Union, United States Permafrost Association

Manuscript Reviews

Journals: *American Midland Naturalist* (1), *Aquatic Sciences* (1), *Biogeochemistry* (1), *Canadian Journal of Fisheries and Aquatic Sciences* (1), *Canadian Journal of Zoology* (1), *Chemical Geology* (1), *Ecology* (8), *Ecological Applications* (2), *Ecological Research* (4/06), *Ecology Letters* (3), *Ecosystems* (3/07), *Environmental Science and Technology* (1), *Freshwater Biology* (2), *Frontiers in Ecology* (1), *Fundamental and Applied Limnology/Archiv fuer Hydrobiologie* (1), *Geophysical Research Letters* (3), *Global Biogeochemical Cycles* (2), *Global Change Biology* (1), *Herpetological Conservation and Biology* (1), *Hydrobiologia* (1), *Hydrological Processes* (1), *Journal of Animal Ecology* (1), *Journal of Geophysical Research-Biogeosciences* (2), *Journal of the North American Benthological Society* (3), *Journal of Tropical Biology* (1), *Isotopes in Environmental and Health Studies* (1), *Limnology and Oceanography* (8), *Limnology and Oceanography Methods* (2), *Marine and Freshwater Research* (2), *Ecology Progress Series* (1), *Oecologia* (5), *Oikos* (1), *Paleobiology* (1), *Proceedings of the National Academy of Sciences* (2), *Rapid Communications in Mass Spectrometry*, *Science* (1), *The Scientific World* (1), *Transaction of the American Fisheries Society* (1), *Water Resources Research* (2)

Proposal Reviews

CalFED Ecosystem Restoration Program, NOAA (Ecology and Oceanography of Harmful Algal Blooms), NSF (Arctic Natural Sciences; Arctic Systems Science; CAREER; Ecology; Ecosystems; LTREB, M.J. Murdock Charitable Trust, Office of International Science and Engineering), NERC (UK granting agency), NSERC (Canadian Granting Agency), University of Nevada, USDA Agricultural Experiment Station, Tahoe Science Consortium-University of Nevada-Reno