

Wilfred Michael Wollheim, Ph.D.

Curriculum Vitae

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EDUCATION

- 2005 Ph.D. University of New Hampshire, Earth Science
1994 M.S. University of Wyoming, Zoology
1989 B.S. with Honors. Cornell University, Natural Resources

PROFESSIONAL EXPERIENCE

- 2016-present Associate Professor, Department of Natural Resources and Environment,
University of New Hampshire
2010-2016 Assistant Professor, Department of Natural Resources and Environment,
University of New Hampshire
2008-present Co-Director, Water Systems Analysis Group, University of New Hampshire
2008-present Watershed Research Coordinator, Plum Island Long Term Ecological Research
Site, Essex County, MA.
2008-present Research Assistant/Associate Professor, Earth Systems Research Center,
University of New Hampshire
2007-2008 Research Scientist III, University of New Hampshire
2001-2006 Research Scientist II, University of New Hampshire
1999-2001 Graduate Research Assistant, University of New Hampshire
1994-1999 Research Assistant I and II, Ecosystems Center, Marine Biological Laboratory
1994 Teaching Assistant, Introductory Biology, University of Wyoming
1993 Teaching Assistant, Wetland Ecology, University of Wyoming
1991-1993 Graduate Research Assistant, University of Wyoming
1991 Research Technician, Institute of Ecosystem Studies, NY
1989-1990 Research Technician, Cornell University, NY
1988 Research Experience for Undergraduates, Hubbard Brook, NH

PROFESSIONAL MEMBERSHIPS

- Ecological Society of America
Society of Freshwater Scientists
American Society for Limnology and Oceanography
American Geophysical Union

CURRENT RESEARCH INTERESTS

- How humans and nature interact
How humans benefit from environmental processes
Biogeochemical and hydrological responses to urbanization and climate change
Controls of nutrient flux and attenuation in river networks
Ecosystem services in suburban and agricultural New England landscapes
Nitrogen and carbon cycling in aquatic environments
Global biogeochemistry of nutrients and carbon
Feedbacks among biogeochemistry, hydrology, and human activities through time

Development of continental scale aquatic ecosystem models

TEACHING

2019-Spring NREN 504: Freshwater Resources (4 credits, Every Spring)

2017-Fall Guest Lectures: NR900 research perspectives, NR401 environmental perspectives, Watershed Hydrology.

2017-Fall NREN 993: Hot Topics: Understanding Science Denialism - Past, Present, and Future.

2011-Present NREN 751/851: Aquatic Ecosystems (4 credits, Every Fall)

2017-Spring NREN 791: Capstone Experience (1 credit)

2013-Present NREN 905: Grant Writing (2 credits, Every Spring)

2012-Present NREN 707/807: Environmental Modeling (4 credits, Every Other Spring).

2014-Fall NREN 995.02: Data Analysis Methods for Temporally Intensive Hydrology and Biogeochemistry Measurements (2 credits).

2014-Fall NREN 995.04: Macroscale Carbon Modeling (2 credits).

2008-Present Guest Lecture – NREN 400: Science Perspectives (Every Fall)

2012-Present Guest Lecture – NREN 900: Approaches to Research (Every Fall)

2013/Spring NREN 993: Hot Topics: An Aquatic Symphony (2 credits)

2011/Spring Guest Lecture - Freshwater Resources (Burdick)

2009/Fall Macroscale Hydrology: Application of Hydrology in Support of Sustainability (co-taught with R. Lammers) (4 credits)

2009/Spring Watershed Hydrology (3 credits)

2008/Fall Guest Lecture – Environmental Modeling (Frolking/Hurt)

2008/Spring Guest Lecture – Aquatic ecosystems (McDowell/Gettel)

1994 Teaching Assistant, Introductory Biology, University of Wyoming

1993 Teaching Assistant, Wetland Ecology, University of Wyoming

1988 Undergraduate Teaching Assistant, The Vertebrates, Cornell University

STUDENT MENTORING (Major Advisees in Bold)

Additional Current Grad Students: Alexandra Evans, Brian Saccardi, David Simon, Chad Hammer, Chris Hunt, Wenchao Li - visiting scholar, Virginia Hoyt, Paige Clarizia

Additional Current Undergrad Students: Bonnie Turek, Maggie Phillips, Jake Gerhrung.

2018-present **Sarah Bower** (UNH, M.S. Natural Resources, Major Advisor)

2018-present **Eliza Balch** (UNH, M.S. Natural Resources, Major Advisor)

2017 **Eliza Balch** (Earlham College, Undergraduate)

2017-ongoing **Mason Caceres** (UNH, Undergraduate, NREN Env. Sci)

2016-ongoing **Daniel Bolster** (UNH, M.S. Natural Resources, Major Advisor)

2016-ongoing **Drew Robison** (UNH, Ph.D. NRESS, Major Advisor)

2015-ongoing **Chris Whitney** (UNH, Ph.D. NRESS, Major Advisor)

2015-ongoing Lindsey Williams (UNH, PhD. NRESS) - Committee Member

2015-ongoing Sophie Burke (UNH, PhD. NRESS) - Committee Member

2016-2017 **Moussa Siri** (UNH, Undergraduate, NREN Env. Sci) – McNair Scholar advisor

2016-2018 **Kyle Hacker** (UNH, Undergraduate, NREN Env. Sci) – REU advisor

2016-2017 **Emily Balcom** (UNH, Undergraduate, NREN Env. Sci) – REU advisor

2016-ongoing Michael Bogonko (UNH, PhD. NRESS) - Committee Member

2015-ongoing Sam Ingraham (UNH, M.S. Natural Resources) – Committee Member

2014-2016 **Tao Haung** (UNH, M.S., Natural Resources) – Major Advisor
2014-ongoing **Chris Cook** (UNH, M.S., Natural Resources) – Major Advisor
2014-2016 Sophie Wilderotter (UNH, M.S. Earth Science) – Committee Member
2014-ongoing Amanda Beal (UNH, NRESS) – Committee Member
2013-2016 Josh Buonapane (UNH, Undergraduate, NREN Env. Sci) – REU advisor
2013-2017 **Chris Whitney** (UNH, M.S., Natural Resources) – Major Advisor
2012-ongoing Shan Zuidema (UNH, PhD. NRESS) – Committee Member
2012-2017 Lauren Koenig (UNH, PhD. NRESS) - Committee Member
2012-2015 Bianca Rodriguez (UNH, M.S. Natural Resources) – Committee Member
2012-2017 Leslie Atwood (UNH, PhD. NRESS) - Committee Member
2012-2014 Nicholas Shonka (UNH, M.S. Natural Resources) – Committee Member
2012-2014 Laura Diemer (UNH, M.S. Natural Resources) – Committee Member
2012-2014 David Rosengarten (UNH, M.S. Earth Science) - Committee Member
2012-ongoing **Joshua Cain** (UNH, M.S. Natural Resources) - Major Advisor
2011(summer) **Sophia Burke** (UNH B.S. Natural Resources, NSF-REU program)
2011-2014 **Allison Price** (UNH, M.S. Natural Resources) - Major Advisor
2010-2014 Kate Lawrence (UNH, M.S. Earth Science) - Committee Member
2011-2017 Rich Brereton (UNH, PhD. NRESS) - Committee Member
2011-2012 **Clayton Hutchinson** (UNH, B.S. Natural Resources, UNH-URC poster)
2011-2014 Anna Meyer (UNH, M.S. Natural Resources) – Committee Member
2011-2016 Danielle Grogan (UNH, PhD. NRESS) - Committee Member
2011-2012 Lucy Parham (UNH, M.S. Natural Resources) – Committee Member
2011-2012 Jason Baillio (UNH, M.S. Natural Resources) – Committee Member
2010-2014 **Claire Treat** (UNH, Ph.D. NRESS) – Major Advisor
2009-2014 **Nat Morse** (UNH, Ph.D. NRESS) – Major Advisor
2009-2012 **Kevin Hanley** (UNH, M.S. Earth Science) – Major Advisor
2009-2012 Amanda Hope (UNH, M.S. Natural Resources) – Committee Member
2009(summer) Valerie Schoepfer (UNH B.S. Natural Res. NSF-REU program) – Advisor
2009(summer) **Wade Shaver** (U. Toledo, B.S.) UNH/NASA Research & Discover Program
2008-2010 Gary Lemay (UNH, M.S. Civil Engineering) – Committee Member
2007-2009 **Nathaniel Morse** (UNH, M.S. Natural Resources) – Major Advisor
2007-2009 **Rob Stewart** (UNH, M.S. Earth Science) – Major Advisor
2004-2007 Jody Potter (UNH, M.S. Natural Resources) – Committee Member
2005-2008 Joseph Thouin (UNH, M.S. Earth Science) – Committee Member

STUDENT AWARDS AND HONORS

2019 Andrew Robison: Society of Freshwater Science: Winner of 2019 Mulholland Award (\$1000)
2019 Bonnie Turek: Society of Freshwater Science: Undegraduate Travel Award (\$500)
2019 Sarah Bower: UNH Summer TA Fellowship
2018 Chris Whitney: SFS Endowment Award
2017 Andrew Robison: NRESS and UNH Graduate School Travel Grants
2017 Mason Caceres: Environmental Science Undergraduate. Weeks Research Fellowship

Wilfred Michael Wollheim, Ph.D.

- 2017 Kyle Hacker: SURF
2016 Chris Whitney: EPA STAR Fellowship (three years, fully funded. Written as M.S. student to support his PhD research).
2013 Claire Treat: Published News and Views piece in Nature.
2013 Claire Treat: UNH Dissertation Year Fellowship
2012 Nat Morse: Society of Freshwater Scientists Presidential Endowment Fund award (\$1,000)
2012 Kevin Hanley: American Geophysical Union, Outstanding Student Paper (Oral) for Understanding controls on dissolved organic carbon flux and lability in United States watersheds. San Francisco.
2009 Rob Stewart: Long Term Ecological Research All Scientists Meeting, 4th Honorable Mention for Best Student Poster for: Separation of river network scale nitrogen removal among the main channel and two transient storage compartments.

POSTDOCTORAL FELLOW ADVISING

- 2014-2016 **Nihar Samal** (UNH, Post Doc, obtained PhD from Jadavpur U., India)
2012-2014 **Madeleine Mineau** (UNH, Post Doc, obtained PhD from Idaho State U., now Research Assistant Professor in EOS, UNH)
2012-2015 **Ken Sheehan** (UNH, Post Doc, obtained PhD from West Virginia U.)
2011-2013 **Kyle Whittinghill** (UNH, Post Doc, obtained PhD from U. of Minnesota, now an Assistant Professor at St. Olaf College, MN)
2011-2015 **Richard Carey** (UNH, Post Doc, obtained PhD from U. of Florida, now Research Scientist 2 at UNH)
2008-2009 **Gretchen Gettel** (UNH, Post Doc, obtained PhD from Cornell U., now at UNESCO- International Hydrologic Institute, Netherlands)

PANELIST

- 2017 (May) NSF- Arctic System Science
2016 (November) LTER synthesis working group
2016 (October) NSF-Ecosystem Science
2015 (March) NSF-Ecosystem Science
2011 (March) NSF-Ecosystem Science
2010(September) NASA-Carbon Cycle Science
2007 NASA-ESSF (Earth System Science Fellowship)

JOURNAL EDITOR

- 2013-2104 Biogeochemistry (Guest Editor, Special Issue on Urban Streams)

JOURNAL REVIEWER

Proceedings of the National Academy of Science, Environmental Science and Technology, Ecosystems, Nature Geoscience, Freshwater Science, Journal of the American Water Resources Association, Biogeoscience, Earth Interactions, Ecology, Geophysical Research Letters, Water Resources Research, Global Biogeochemical Cycles, Journal of the North American

Benthological Society, Biogeochemistry, Journal of Environmental Quality, Limnology and Oceanography, Water Soil and Air Pollution, USGS-Peer Review

PROGRAM/PROPOSAL REVIEWER

NSF Biological Oceanography (2018), Deutsche Forschungs Gemeinschaft (2017), New York Agricultural Experiment Station (2017), NSF Arctic Natural Science (2016), LTER synthesis working group Review Panel (2016), NSF Ecosystems Panel (2011, 2015, 2016), NSF Geobiology and Low Temperature Geochemistry (2015, 2019), Maryland SeaGrant (2015), Maine Agriculture Experiment Station (2013, 2014), Vermont Water Resources Center (2012), New Hampshire Water Resources Center (2012), Minnesota Water Resources Center (2011), NSF-Hydrology (2011, 2017, 2018), NOAA/NSF-CAMEO, NSF-OPP, NSF-GEO/EAR, NASA-LBA, NSF-GRS (Geography and Regional Science), NASA-Carbon, NASA-TE (Terrestrial Ecology), National Institute of Climate Change Research (2006 and 2007), UNH-WRRC (Water Resources Research Center), Minnesota Sea Grant (2011)

HONORS

2019 Best Teacher Award, Department of Natural Resources and Environment, UNH
2017 Outstanding Reviewer for Journal Biogeochemistry
2017 Nutrient Sensor Action Challenge Stage 1 Award
<https://www.epa.gov/innovation/nutrient-sensor-action-challenge-stage-i-winners>
2013 Outstanding Reviewer for Journal Biogeochemistry
2004 Outstanding Student Paper Award – Biogeosciences Section – AGU Montreal
1989 Honors, Department of Natural Resources, Cornell University

UNIVERSITY SERVICE

2018-present. UNH Hamel Center; Summer Undergraduate Research Fellowship (SURF) review committee
2018-present Coordinator: Environmental Science Degree Program, Department of Natural Resources and Environment, University of New Hampshire
2017-2018. Interim Chair, COLSA Undergraduate Research Conference organizing committee
2012-present Member, COLSA Undergraduate Research Conference organizing committee
2017-2018 Workforce Development Taskforce for UNH
2017-2018 Hamel Center SURF Proposal Review Committee
2017-present Promotion and Tenure Review Committee for COLSA, UNH
2017-2018. Search Committee, External Chair for new Department of Agriculture, Nutrition and Food Systems in COLSA, UNH.
2016-present Hubbard Endowment Review Committee. Earth Systems Research Center. EOS. UNH
2016-04 Panelist: Women in Science and Engineering. Implicit Bias.
2016-2017 Interim Coordinator: Environmental Science Degree Program, Department of Natural Resources and Environment, University of New Hampshire

Wilfred Michael Wollheim, Ph.D.

- 2009-present Co-Director (with R. Lammers) Water Systems Analysis Group (ESRC/EOS)
- 2015-2018 Undergraduate Research Conference - Integrated Science and Engineering, Planning Committee.
- 2014-2018 Member, COLSA Academic Affairs Committee
- 2015-2016 Search Committee, Environmental Microbiology Cluster hire
- 2014-2015 Search Committee, UNH Bioscience Librarian
- 2014(Spring) Chair, Search Committee, NREN Environmental Science Lecturer
- 2013-present Coordinating Committee For NH-EPSCoR Ecosystems and Society (PI committee)
- 2013(Fall) Search Committee, UNH Bioscience Librarian
- 2013 and 2015 (Fall) Organic Dairy Research Field Day
- 2012-2013 NH Sea Grant Know the Coast Day/Ocean Appreciation Day presenter (annual)
- 2012-present COLSA Undergraduate Research Conference organizing committee
- 2011-present CUAHSI representative for UNH
- 2012-2014 PreAward Services Working Group
- 2012-2014 Summer Teaching Assistant Fellowship Committee
- 2011(Fall) NRESS recruitment booth at AGU in San Francisco
- 2011-2012 Research and Development Infrastructure Committee
- 2011(Spring) Panelist for UNH ADVANCE Collaborative Scholarship Award program
- 2011(Spring) UNH Representative at Northeast Forum of USDA: Adapting to Climate Change in the Northeast: Water Quantity and Quality Challenges for Agricultural and Natural Systems
- 2011(Spring) Interviewee for Class Project - Faris al-Hashmi (turned into newspaper article for the New Hampshire)
- 2008-2011 Curriculum Committee - Institute for the Study of Earth, Ocean and Space
- 2009(Fall) Co-Organizer of the UNH Environmental Science Seminar Series with the theme of Ecosystem Services (<http://www.unh.edu/nressphd/Env-Sci-Seminars-09.html>)
- 2008 Representative for EOS at Association of Ecosystem Research Centers

OUTSIDE SERVICE

- 2019 Informal Outside Reviewer, Arctic Long Term Ecological Research, Annual Meeting, Review Site Review Presentations.
- 2019 Panelist, Climate Change Action Forum. Community Church of Durham. March 10, 2019
- 2018 Organizer of NSF Macrosystem Biology Workshop. Scaling of Aquatic Metabolism to Entire River Networks. Durham NH, May 2018.
- 2018 Co-organizer of AGU Workshop, Washington DC. *Enhancing measurements of pCO₂ in freshwaters using high frequency in situ sensors: options and best practices.* (December 2018).
- 2018 Co-organizer of LTER Workshop, Monterey CA. Inter-site comparison of aquatic function over entire surface water networks across LTER sites using. (October 2018)
- 2017- 2018. Guest summer instructor on stream ecosystems and urbanization, Museum Institute of Teaching Science. One day in July each year

Wilfred Michael Wollheim, Ph.D.

- 2017-present Mentor, Stream Resiliency Research Coordination Network (RCN) Working Group III: Spatial Analysis
- 2019-present. Chair, NEON Aquatic Technical Working Group
- 2017-present Member, NEON Aquatic Technical Working Group
- 2019-present. Chair, Technical Advisory Committee, Piscataqua Region Estuarine Partnership (PREP)
- 2016-present Member, Technical Advisory Committee, Piscataqua Region Estuarine Partnership (PREP)
- 2017-2018 Chair, Endowment Committee – Society of Freshwater Scientists
- 2016 (Fall) Panelist: LTER synthesis working group Review Panel
- 2016 (Fall) Panelist: NSF Ecosystem Science Proposal Review Panel
- 2016 (Spring) Presenter and Participant: New Hampshire Stakeholders Workshop, Concord NH. May 17, 2016
- 2015 (Spring) Panelist: NSF Ecosystem Science Proposal Review Panel
- 2014-present Member, Technical Advisory Committee – Parker, Ipswich, Essex River Restoration Progress Committee
- 2014-present Member Endowment Committee – Society of Freshwater Scientists
- 2014 (Spring) Organizer of NASA funded Workshop. Co-conveners Mineau, Salisbury, Green. Strategies to Improve Understanding of DOC Dynamics through Time-varying Regional to Continental Scale Models. Held at UNH. Jun 9-10, 2014. 22 Participants.
- 2013-2014 Guest Editor, Biogeochemistry. Special Issue on Urban Streams.
- 2013-present Mentor for new faculty on EPSCoR project at Keene St. University (D. Burchsted)
- 2013-present Durham-UNH Integrated Permit Technical Advisory Committee
- 2011-2017 NEON Aquatic Advisory Committee
- 2012-present Student Oral Presentation Judge At Annual Meeting each year of the Society of Freshwater Science.
- 2009-present Watershed Research Team Lead for Plum Island LTER (co-PI on project)
- 2011(Fall) AGU student oral presentation judge, San Francisco CA, December 2011
- 2011 (Spring) Student Oral Presentation Judge: North American Benthological Society Meeting in Providence RI, May 2011
- 2011 (Spring) Panelist: NSF Ecosystem Science Proposal Review Panel
- 2010 (Fall) Poster Judge: AGU Fall Meeting in San **Francisco**. December 2010.
- 2010 (Fall) Panelist: NASA Carbon Cycle Science Review Panel
- 2010 (Spring) Poster Judge - NABS Annual Meeting in Sante Fe NM. June 2010.
- 2010 (Spring) Co-Organizer of LTER All Scientist Meeting Follow-on Synthesis Workshop with J. Kominoski, R. Barnes, J. Blair, E. Hotchkiss, and A. Ulseth. Predicting the influence of inland climate change on continental-scale carbon and nutrient processing in river networks. June 2010
- 2010 (Spring) Co-Organizer of Special Session at National Meeting of ASLO/NABS: Development of Continental-Scale Aquatic Ecosystem Models. June 2010
- 2009 (Fall) Co-Organizer of LTER Working Group: Quantifying carbon and nutrient transformations in aquatic ecosystems at regional to continental scales. LTER All Scientists Meeting, Estes Park CO. September 2009.

Wilfred Michael Wollheim, Ph.D.

- 2009-2014 Unfunded Co-Investigator (Active) – NSF-ULTRAex: Boston Metropolitan Area ULTRA: Exploring past, current and future socio-ecological dynamics in a founding city.
- 2009-present Liaison – Plum Island Estuary LTER site contact for National Ecological Observatory Network (NEON)
- 2008-2012 Working Group Member (Active) - NSF-Cuashi Hydrologic Synthesis Activity. Humans Transforming the Hydrologic Cycle
- 2004-present Technical Advisory Committee, Ipswich River Watershed Association (IRWA)
- 2007 NASA Review Panel (ESSF - Earth System Science Fellowship)
- 2007 Invited Speaker – EPA Workshop – Common Ground For Conserving Ecosystem Services
- 2006 Invited Speaker – Mississippi River Science Symposium: Sources, Transport, and Fate of Nutrients in the Mississippi and Atchafalaya River Basins.
- 2004-2006 GIS Day guide, EOS, UNH
- 2003 Invited Speaker – Ipswich River Watershed Restoration Conference
- 2003 Presentation at Ipswich River Watershed Association (IRWA) annual meeting
- 2002 Presentation at IRWA annual meeting
- 2002 Contributor – IRWA report: A multivariate regression analysis of dissolved oxygen in the Ipswich River mainstem.

EXTERNAL RESEARCH FUNDING

- 2018-2019. New Hampshire SeaGrant: Development Support for Quantifying the impact of dam removals on nitrate retention using low cost nitrate sensors. \$6,500.
- 2018-2019. EPA Low Cost Nutrient Sensor Challenge: Quantifying the impact of dam removals on nitrate retention using low cost nitrate sensors. \$10,000
- 2017-2020. A framework for understanding water quality at river network scales. \$20,000 per year.
- 2016-2022 NSF-LTER. LTER-Plum Island Ecosystems: Dynamics of a coastal ecosystem in a region of rapid climate change. 424,888 (UNH Portion). 1 mo Summer/yr
- 2016-2018 EPA: Estimating Spatially Explicit Water Quality Benefits throughout River Systems: Development of Next Generation Stated Preference Methods Using National Probability Samples and Online Labor Pools. Lead PI at UNH with Rob R. Johnston. \$200,000 (UNH portion). 1 mo Summer/yr.
- 2017 NH-AES Equipment Grant: Purchase of Mass Inlet Mass Spectrometer. \$50,000
- 2014-2017 NH-AES: Are all non-point sources created equally? Understanding the role of landscape heterogeneity and nutrient retention processes in agricultural and suburban lands of Sea Coast NH. \$30,000.
- 2013-2016 NSF EPSCoR Track 2 (with U Maine). Collaborative Research: Strengthening the scientific basis for decision making: Advancing sustainability science and knowledge-action capacities in coupled coastal systems. (w/ J. Nisbet - PI). Lead of watershed modeling portion. \$217,524 (Wollheim portion). 1 Summer/yr

- 2013-2015 University of New Hampshire: Baseline quantification of the magnitude and timing of non-point nitrogen fluxes in the Oyster River and its impacted tributaries. Lead PI, with Carey, Mulukutla. \$142,243 in year 1, \$95,000 in year 2
- 2012-2016 NSF-LTER. **OCE-1238212** LTER-PIE: Interactions Between External Drivers, Humans and Ecosystems in Shaping Ecological Process in a Mosaic of Coastal Landscapes and Estuarine Seascapes. Lead PI at UNH with A. Giblin, C. Hopkinson, L. Deegan, G. Pontius, J. Vallino, J. Morris. \$322,688 (UNH portion). 1.0 mo Summer/yr.
- 2012-2014 NOAA-SEAGRANT. Understanding the Mechanisms Controlling Storm Event Nitrogen Fluxes from the Lamprey River Watershed using Continuous in situ Sensors. Lead PI, with McDowell, Robinson, Peterson, Dailey, Toppin, Pellerin. \$200,000. 0.25 Summer/yr
- 2012-2013 NSF-EPA ULTRA. EPA ULTRA Climate Project. Lead PI at UNH, with P. Warren, C. Polsky. \$9,000 (UNH portion).
- 2011-2016 NSF-EPSCoR Track 1. Interaction Among Climate, Land Use, Ecosystem Services and Society (Named Co-Investigator, w/ J. Nisbet - PI). Lead of aquatic modeling portion. \$1,600,000 (Water Systems Analysis Group portion). \$20,000,000. 1 summer/yr
- 2011-2014 NH-AES: Scaling the Impact of Agricultural Activity on Water Quality Through Time and Space in the Great Bay Watershed. \$30,000.
- 2011-2015 NSF-Macrosystem Biology. #EF1065255 Collaborative Research: Stream Consumers and Lotic Ecosystem Rates (SCALER): Scaling from Centimeters to Continents. Lead PI at UNH, with Dodds (overall Lead PI), Ballantine, Bowden, Whiles, Rosemond, Jones, McDowell. \$735,916 (UNH portion). \$464,567 (Wollheim portion). 0.25 Summer/yr.
- 2011-2014 NSF-EaSM. Type 2 - LOI02170327 - EaSM-1049181 A Regional Earth System Model of the Northeast Corridor: Analyzing 21st Century Climate and Environment. Lead PI at UNH with Vorosmarty, Duchlin, Gonzalez, Melillo. \$300,000 (UNH Portion). 1.5 mo AY/yr.
- 2010-2012 NSF-LTER. Plum Island Sound Comparative Ecosystem Study. Lead PI at UNH with A. Giblin, C. Hopkinson, L. Deegan, J. Vallino, J. Morris. \$154,283 (UNH portion).
- 2010-2013. EPA-STAR: *Consequences of Global Change on Water Quality*. Impact of Climate Change and Variability on the Nation's Water Quality and Ecosystem State. lead PI at UNH with C. Vorosmarty (CCNY), and L. Poff (U. Colorado). \$300,000 (UNH portion).
- 2009-2012 NSF *Chemical Oceanography*. ETBC: Collaborative Research: Controls on the Flux, Age, and Composition of Terrestrial Organic Carbon Exported by Rivers to the Ocean. Lead PI at UNH with M. Holmes (WHRC), Peucker-Ehrenbrink (WHOI) and others. \$83,687 (UNH portion).
- 2009-2012. NSF-CSAS. Collaborative Research: How Does Changing Seasonality Affect the Capacity of Arctic Stream Networks to Influence Nutrient Fluxes from the Landscape to the Ocean? lead PI at UNH with B. Bowden (UVM) and M. Gooseff (PSU). \$340,920 (UNH portion).
- 2009-2013. NASA-NEWS. Tracking Dissolved Organic Carbon and Its Absorption Characteristics Along the Aquatic Continuum Over Time Using a Remote Sensing

- Based Approach. lead PI, with Co-I's J. Salisbury (at UNH), and G. Aiken (USGS). \$740,592.
- 2007-2011 *NSF-DEB-Coupled Human Natural Systems*. Suburbanization, Water-Use, Nitrogen Cycling & Eutrophication in the 21st Century: Interactions, Feedbacks & Uncertainties in a Massachusetts Coastal Zone. Lead PI at UNH with C. Polsky, C. Hopkinson, G. Pontius, C. Vorosmarty. \$336,826.
- 2006-2009 *NSF-DEB-Ecosystems*. Collaborative Research: Understanding the Scaling of N Cycle Controls Throughout a River Network. Lead PI at UNH with C. Vorosmarty, B. Peterson, C. Hopkinson, M. Gooseff. \$369,292.
- 2004-2010 *NSF-LTER*. Plum Island Sound Comparative Ecosystem Study. Lead PI at UNH with A. Giblin, C. Hopkinson, B. Peterson, L. Deegan, J. Vallino, J. Morris. \$407,544.

PUBLICATIONS (In Review, In Press, or Accepted; First Authors from Wollheim Lab Highlighted in Bold, * represents student led papers)

- Ruegg, J., K.B. Guido, K.J. Farrell, M.B. Flinn, A. Algerich, E. Garcia, A.D. Rosemond, B. Penaluna, C. Song, M. Whiles, C.L. Baker, W.B. Bowden, M. Douglas, T.K. Harms, J.B. Jones, J.S. Kominoski, W.H. McDowell, D. McMaster, S.P. Parker, M.T. Trentman, W.M. Wollheim. In Review. Aquatic consumer biomass, richness, and trophic composition depends on stream network position and biome.
- Li W, Lei Q, Yen H, Zhai L, Wollheim WM, Liu H, Hu W, Qiu W, Luo J, Zhang L, Wang H, Ren T. Transport and Retention of Diffuse Livestock-Derived N at the Watershed Scale across Flow Conditions
- Huang T., W.M. Wollheim, S. H. Jones. In Preparation. Removal of Bacterial Pathogens by River Networks. *Freshwater Science*.
- Wollheim W.M., G. Mulukutla, E. Balch. 2019. Quantifying the impact of dam removals on nitrate retention using low cost nitrate sensors. Report for Phase 2 of the EPA Low Cost Nutrient Sensor Challenge. 22pp.
- Borsuk M., G. Mavrommati, N. Samal, S. Zuidema, W. Wollheim, S. Rogers, A. Thorn, D. Lutz, M. Mineau, C. Grimm, C. Wake, R. Howarth, K. Gardner. In Press. Comparative multiattribute valuation of ecosystem services across a range of regional land-use, socioeconomic, and climate scenarios. *Ecology and Society*
- Bernal S., A. Lupon, W.M. Wollheim, F. Sabater, S. Poblador, E. Marti. 2019. Supply, demand, and in-stream retention of dissolved organic carbon and nitrate during storms in Mediterranean forested headwater streams. *Frontiers in Environmental Science*. doi: 10.3389/fenvs.2019.00060
- Song C, WK Dodds, J Ruegg, A Argerich, CL Baker, WB Bowden, MM Douglas, KJ Farrell, MB Flinn, EA Garcia, AM Helton, TK Harms, S Jia, JB Jones, LE Koenig, JS Kominoski, WH McDowell, D McMaster, SP Parker, AD Rosemond, CM Ruffing, KR Sheehan, MT Trentman, MR Whiles, WM Wollheim, F Ballantyne. 2018. Warming induces asymmetric

- convergence of stream metabolic balance. *Nature Geoscience*.
<https://doi.org/10.1038/s41561-018-0125-5>
- Hopkinson CS, JT Morris, S Fagherazzi, WM Wollheim, PA Raymond. 2018. Lateral marsh edge erosion as a source of sediments for vertical marsh accretion. *Journal of Geophysical Research: Biogeosciences*. 123. <https://doi.org/10.1029/2017JG004358>
- Talbot CJ, EM Bennett, K Cassell, DM Hanes, EC Minor, H Paerl, PA Raymond, R Vargas, PG Vidon, WM Wollheim, MA Xenopoulos. 2018. The impact of flooding on aquatic ecosystem services. *Biogeochemistry*. <https://doi.org/10.1007/s10533-018-0449-7>
- Koenig L.E., C. Song, W.M. Wollheim, J. Ruegg, W.H. McDowell. 2017. Nitrification increases nitrogen export from a tropical river network. *Freshwater Science*. 2017. 36(4):DOI: 10.1086/694906.
- Wollheim W.M.**, Bernal S., Burns D.A., Czuba J.A., Driscoll C.T., Hansen A.T., Hensley R.T., Hosen J.D., Inamdar I., Kaushal S.S., Koenig L.E., Lu Y.H., Marzadri A., Raymond P., A Scott D., Stewart R.J., Vidon P.G., Wohl E. 2018. River network saturation concept: factors influencing the balance of biogeochemical supply and demand of river networks. *Biogeochemistry*: <https://doi.org/10.1007/s10533-018-0488-0>
- Wollheim, W.M.**, G.K. Mulukutla, C. Cook, R.O. Carey. 2017. Aquatic nitrate retention at river network scales across flow conditions determined using nested in situ sensors. *Water Resources Research*. 10.1002/2017WR020644
- Li W, Zhai L, Lei Q, Wollheim WM, Liu J, Liu H, Hu W, Ren T, Wang H, Liu S. 2018. Influences of agricultural land use composition and distribution on nitrogen export from a subtropical watershed in China. *Science of the Total Environment*. 642:21-32.
<https://doi.org/10.1016/j.scitotenv.2018.06.048>
- ***Zuidema, S.** W.M. Wollheim, M.M. Mineau, M.B. Green, R.J. Stewart. 2018. Chloride impairment in a New England river network: regional assessment using a dynamic watershed transport model. *Journal of Environmental Quality*. doi:10.2134/jeq2017.11.0418
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PRESENTATIONS (First Authors from Wollheim Lab Highlighted in Bold)

2018

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- 2017
- Wollheim WM. 2017. River network saturation hypothesis: factors influencing biogeochemical demand of entire river networks relative to supply USGS NAQWA Webinar Series. October 19, 2017.
- Robison, A.L., Balch, E., and W.M. Wollheim. 2017. Spatial patterns of greenhouse gases across an urbanization gradient in a suburban river network. 2017. American Geophysical Union meeting, New Orleans, LA. (Poster)
- Balch, E., Robison, A.L., and W.M. Wollheim. 2017. The carbon commute: Effects of urbanization on dissolved organic carbon quality on a suburban New England river network. 2017. American Geophysical Union meeting, New Orleans, LA. (Poster)
- Zuidema S., Wollheim, WM, Schloss, AL, 2017. Chloride and temperature threats to aquatic ecosystems for uncertain futures in New Hampshire and Great Bay watersheds. Annual

Meeting of New England Association of Environmental Biologists. Hartford, CT, 2017-03-14

Whitney, C.T. and Wollheim, W.M. 2017. Rates and drivers of nitrogen removal by freshwater wetlands in nutrient enriched coastal watersheds. 2017 Society for Freshwater Science meeting, Raleigh, NC. (Oral)

Huang, T., W.M. Wollheim, and R.J. Stewart. 2017. Assessing fecal indicator bacteria removal in New England watersheds. 41st Annual New England Association of Environmental Biologists Conference. Hartford, Connecticut. Mar 14-16, 2017.

Huang, T., W.M. Wollheim, and R.J. Stewart. 2017. Environmental control of fecal indicator bacteria from land to the ocean: the importance of river networks. Plum Island Ecosystems LTER All Scientists Meeting. Woods Hole, Massachusetts. Mar 6-8, 2017.

Huang, T., W.M. Wollheim, and R.J. Stewart. 2017. Quantifying fecal indicator bacteria removal in New England watersheds for ecosystem service management. 2017 Lamprey River Symposium. University of New Hampshire, Durham, New Hampshire. Jan 9, 2017.

Wollheim, W.M. Mulukutla, G.K, Cook, C.S., Carey, R.O.. 2017. Aquatic nitrate retention at river network scales across flow conditions determined using nested in situ sensors. 2017 Society for Freshwater Science meeting, Raleigh, NC. (Oral)

Wollheim, W.M., 2017. The importance of aquatic ecosystem function at watershed to regional scales. [Northeastern University Marine and Environmental Sciences](#). Northeastern University Marine Science Center. March 16, 2017.

Wollheim, W.M., 2017. Changes in biogeochemical supply and demand during storm events alter the role of river networks in controlling downstream exports. **AGU Chapman Conference on Extreme Climate Event Impacts on Aquatic Biogeochemical Cycles and Fluxes**. San Juan, Puerto Rico. January 23, 2017.

2016

Wollheim, W.M., and SCALER Research Team. 2016. Mass balances of dissolved gases at river network scales across biomes. In Special Session: Gas Fluxes from and into Inland Waters: Scaling Based on Hydrodynamics and Biogeochemistry. American Geophysical Union Annual Meeting, San Francisco, CA, December, 2016 (Oral).

Wollheim, W.M., 2016. The importance of aquatic ecosystem function at watershed to regional scales. Earth System Science Interdisciplinary Center Seminar Series. University of Maryland. November 28, 2016.

Wollheim, W.M., 2016. The importance of aquatic ecosystem function at watershed to regional scales. Life Sciences Seminar Series. University of Alaska, Fairbanks, Institute of Arctic Biology. September 30, 2016

Wollheim, W.M., 2016. The importance of aquatic ecosystem function at watershed to regional scales. Biogeosciences Seminar Series. Boston University. September 12, 2016

Huang, T., 2016. Fecal indicator bacteria removal by river networks. Thesis defense. University of New Hampshire, Durham, New Hampshire. Aug 5, 2016.

Balcom, E. C. Bunyon, W. Wollheim. 2016. Effects of freshwater tributary inputs on fecal coliform levels in Little Bay. UNH Summer Undergraduate Research Conference.

Hacker, K., W.M. Wollheim, C. Whitney, and A. Robison. 2016. Greenhouse Gas Emissions of Two Dammed Reservoirs. UNH Summer Undergraduate Research Conference.

- Zuidema, S, WM Wollheim, 2016, Characterizing the present and future extent of chloride impairment in the Merrimack River New Hampshire, USA, Society for Freshwater Sciences Annual Meeting, Sacramento, CA, May 23, 2016.
- Wollheim, W., W. Dodds, M. Whiles, K. Sheehan, R. Stewart, F. Ballantyne, C. Baker, W. Bowden, K.J. Farrell, M. Flinn, K. Gido, T. Harms, A. Helton, J. Jones, L.E. Koenig, W. McDowell, S. Parker, A. Rosemond, J. Ruegg, C. Song, M. Trentman, and J.S. Kominoski. Scaling laws for aquatic metabolism vs. watershed size. 2016 Society for Freshwater Science meeting, Sacramento, CA. (Oral)
- Cook, C., W.M. Wollheim, G. Mulukutla. 2016. Understanding storm event nitrate export in different land uses. 2016 Society for Freshwater Science meeting, Sacramento, CA. (Oral)
- Dodds, W.K., W. Wollheim, C. Baker, F. Ballantyne, B. Bowden, M. Evans-White, K. Farrell, M. Flinn, B. Frenette, E. Garcia, J. Guinnip, T. Harms, S. Higgs, D. Hoeinghaus, J. Jones, L. Koenig, J.S. Kominoski, D. Larson, R. Lehrter, R. Mapes, W. McDowell, D. McMaster, S. Parker, B. Penaluna, A. Rosemond, J. Ruegg, J. Scott, K. Sheehan, A. Siders, C. Song, M. Spangler, R. Taylor, M. Trentman, M. Whiles, and A. Argerich. Implications of spatial heterogeneity for scaling lotic metabolism. 2016 Society for Freshwater Science meeting, Sacramento, CA. (Oral).
- Wollheim, W.M., S. Zuidema, N. Samal, Z. Zhou, R. Stewart, C. Wake. 2016. Coupled and terrestrial and aquatic regional responses to land use change and climate variability. Scenarios, Services, and Society Research Coordination Network Workshop III: Moving Ecosystem Service Models to Human Benefits. Burlington VT. May 19, 2016.
- Wollheim, W.M. 2016. Coupled and terrestrial and aquatic regional responses to land use change and climate variability. New Hampshire Stakeholders Workshop, Concord NH. May 17, 2016.
- Wollheim, W.M. 2016. Dissolved Organic Carbon in Surface Waters. New Hampshire Department of Environmental Services. April 19, 2016. (Invited).
- Stewart, R.J., W.M. Wollheim, M.M. Mineau, K.A. Whittinghill, S. Zuidema, B. Rosenzweig. Natural vs. Anthropogenic Aquatic Infrastructure: How Aquatic Ecosystem Services of DIN Removal Interact with Wastewater Treatment in the Northeast U.S., New Hampshire Water and Watershed Conference, Plymouth NH, March 2016.
- Zuidema, S, Chloride impairment of the Merrimack River through 2100:the interactive roles of climate, development, and management. New Hampshire Waters and Watersheds, Plymouth, NH, March 18, 2016.
- Huang, T., W.M. Wollheim, R.J. Stewart. 2016. The role of river networks in regulating fecal coliform. 2016 NH Water & Watershed Conference. Plymouth State University, Plymouth, New Hampshire. Mar 18, 2016.

2015

- Whitney, C.T., W.M. Wollheim, G. Mulukutla, A. Lightbody.** 2015. Fluvial Wetland Nitrogen Removal in Shallow Sloped, Coastal New England Watersheds. American Geophysical Union Annual Meeting, San Francisco, CA, December, 2015. (Poster)
- Wollheim, W.M., R.J. Stewart, G.R. Aiken, K.D. Butler, N.B. Morse, and J. Salisbury.** 2015. Removal of terrestrial dissolved organic carbon in aquatic ecosystems of a temperate river network. American Geophysical Union Annual Meeting, San Francisco, CA, December, 2015. (Oral)

- Dodds, et al. 2015. Biome Context and Lotic Ecosystem Rates. American Geophysical Union Annual Meeting, San Francisco, CA, December, 2015. (Poster)
- Song, C. et al. 2015. Temperature sensitivity of stream gross primary production and respiration from the tropics to the arctic. American Geophysical Union Annual Meeting, San Francisco, CA, December, 2015. (Poster)
- Wollheim, W.M.**, N. Samal, Z. Zhou, S. Zuidema, R.J. Stewart, M. M. Mineau. 2015. Coupled terrestrial and aquatic regional responses to land use change and climate variability in a temperate New England watershed. American Geophysical Union Annual Meeting, San Francisco, CA, December, 2015. (Oral)
- Samal, N.R.**, W.M. Wollheim, R.J. Stewart, S. Zuidema, A. Proussevich, S. Glidden, T. Huang. 2015. Sensitivity of New England Stream Temperatures to Air Temperature and Precipitation Under Projected Climate. American Geophysical Union Annual Meeting, San Francisco, CA, December, 2015. (Poster)
- Buonpane, J.M.**, W.M. Wollheim, C.T. Whitney. 2015. What factors control the percentage of nitrogen that gets exported downstream from man-made reservoirs? American Geophysical Union Annual Meeting, San Francisco, CA, December, 2015. (Poster)
- Huang, T.**, W.M. Wollheim, R.J. Stewart. 2015. Fecal Coliform Removal by River Networks. American Geophysical Union Annual Meeting, San Francisco, CA, December, 2015. (Oral)
- Zuidema, S.**, A. Thorn, W.M. Wollheim, C.P. Wake, M. M. Mineau. 2015. Understanding potential futures of riverine chloride impairment in New England USA due to climate change, groundwater storage, and human activities. American Geophysical Union Annual Meeting, San Francisco, CA, December, 2015. (Poster)
- Mineau, M.M.**, W.M. Wollheim, R.J. Stewart, and C.W. Hunt. 2015. Developing a regional to continental scale model of dissolved organic carbon fluxes and processing in river networks. Annual Meeting of the Society of Freshwater Science. Milwaukee, WI. (Oral).
- Carey, R.O.**, W.M. Wollheim, G. Mulukutla. 2015. Variable coupling of carbon, nitrogen, and phosphorus concentrations during baseflow and storms in a suburbanizing watershed. Annual Meeting of the Society of Freshwater Science. Milwaukee, WI. (Oral).
- Sheehan, K.**, W.M. Wollheim et al. 2015. Beyond our reach? Extrapolating network-scale aquatic metabolism from reach-scale observation. Annual Meeting of the Society of Freshwater Science. Milwaukee, WI. (Oral).
- Wollheim, W.M.**, M.M. Mineau, R.J. Stewart, S. Zuidema, N. Samal. T. Huang, Z. Zhou. 2015. Understanding land use and climate impacts on water quality across spatial scales: interactions of scale, intensity, dilution, and ecosystem services (ISIDES). Annual Meeting of the Society of Freshwater Science. Milwaukee, WI. (Oral)
- Huang, T.**, W.M. Wollheim, R.J. Stewart. 2015. Increasing the understanding of pathogen removal ecosystem service by aquatic ecosystems to improve water sustainability. Maine Sustainability & Water Conference. Augusta Civic Center, Augusta, Maine. March 31, 2015.
- Huang, T.**, W.M. Wollheim, R.J. Stewart. 2015. A modeling approach to evaluate pathogen loading and in-stream removal at the watershed scale. . New Hampshire Watersheds 2015 Joint NEAEB/NH Water & Watershed Conference: Partnerships for Environmental Progress. March 18-20, 2015, Bartlett, NH
- Wollheim, W.M.** 2015. Understanding the Controls of Multiple Water Quality at Regional Scales by Linking a Spatially Distributed Model and an In-Situ Sensor Network. New Hampshire Watersheds 2015 Joint NEAEB/NH Water & Watershed Conference: Partnerships for Environmental Progress. March 18-20, 2015, Bartlett, NH

- Wollheim, W.M.** G. Mulukutla, R.O. Carey, C. Cook, W. McDowell, J. Potter, L. Snyder, M. Daley, K. Toppin, K. Robinson, T. Smith. 2015. Understanding the mechanisms controlling storm event nitrate fluxes from the Lamprey River Watershed using continuous in situ sensors. New Hampshire Sea Grant Site Review. Durham. NH
- Wollheim, W.M.**, G. Mulukutla, et al. 2015. Understanding the mechanisms controlling storm event nitrate fluxes from the Lamprey River Watershed using continuous *in situ* sensors. 2015 New Hampshire Sea Grant Symposium. Durham, NH.
- Wollheim, W.M.** 2015. Interactions of climate and land use in controlling nitrogen fluxes through the Oyster R. watershed in 2013 and 2014. Eighth Annual Lamprey River Symposium. Durham NH.

2014

- Cain, J.**, W. Wollheim, K. Sheehan, A. Lightbody. 2014. Heterogeneity in a Suburban River Network: Understanding the Impact of Fluvial Wetlands on Dissolved Oxygen and Metabolism in Headwater Streams. American Geophysical Union Annual Meeting, San Francisco, CA, December, 2014. (Poster).
- Hunt, C., J. Salisbury, W. Wollheim, M. Mineau, R. Stewart. 2014. The Buffering Balance: Modeling Arctic river total-, inorganic-, and organic-alkalinity fluxes. American Geophysical Union Annual Meeting, San Francisco, CA, December, 2014. (Oral).
- Kaushal S, W. McDowell, W. Wollheim, S. Duan et al. 2014. Tracking evolution of urban biogeochemical cycles: salinization of fresh water. American Geophysical Union Annual Meeting, San Francisco, CA, December, 2014. (Oral).
- Rosenzweig, B. et al. 2014. A megaregion-scale approach for assessing the impacts of climate change and strategic management decisions in the Northeast United States. (Wollheim 8th author out of 14 total). American Geophysical Union Annual Meeting, San Francisco, CA, December, 2014. (Poster).
- Wilderotter, S. A. Lightbody, L. Kalnejais, W. Wollheim. 2014. Transient Storage Parameterization of Wetland-dominated Stream Reaches. American Geophysical Union Annual Meeting, San Francisco, CA, December, 2014. (Poster).
- Stewart, R.** W. Wollheim, K. Whittinghill, M. Mineau, B. Rosenzweig. 2014. Natural and Anthropogenic Water Treatment: How Riverine Ecosystem Services of Nitrogen Removal Interact with Wastewater Treatment Infrastructure in the Northeast U.S. American Geophysical Union Annual Meeting, San Francisco, CA, December, 2014. (Poster).
- Wollheim, W.** G. Mulukutla, C. Cook, R. Carey. 2014. Understanding dynamic pattern and process across spatial scales in river systems using simultaneous deployments of in situ sensors. (*Invited*). American Geophysical Union Annual Meeting, San Francisco, CA, December, 2014. (Oral).
- Zuidima, S.**, W. Wollheim, M. Green, M. Mineau, R. Stewart, E. Volitis. 2014. Regional Analysis of River Conductivity Maps Salinity Driven Aquatic Habitat Degradation Potential Throughout New England. American Geophysical Union Annual Meeting, San Francisco, CA, December, 2014. (Poster).
- Wollheim, W.M.** 2014. NSF-EPSCoR Ecosystems and Society Biogeophysical Research Accomplishments. Reverse Site Visit. National Science Foundation. Arlington VA, Sept. 17, 2014.

- Wollheim, W.M.** 2014. Scaling aquatic ecosystem rates to river network scales. Third MacroSystems Biology PI Meeting. National Science Foundation. Arlington VA. June 19-20, 2014.
- Wollheim, W. M.,** G.R. Aiken, K.E. Butler, R. Stewart, N. Morse, K.R. Sheehan, J. Salisbury. 2014. Fate of terrestrial dissolved organic matter within a New England river network. Joint Aquatic Science Meeting, Portland OR. May 2014. (Oral).
- Carey, R. O.,** W.M. Wollheim, G.K. Mulukutla. 2014. Variance among storm-event carbon, nitrogen, and phosphorus fluxes in a suburbanizing watershed. Joint Aquatic Science Meeting, Portland OR. May 2014. (Oral).
- Sheehan, K. R.,** W.M. Wollheim, J. Reugg, K. Farrell. Network scale modeling of dissolved oxygen in river from fine scale data: is the whole a sum of its parts? Joint Aquatic Science Meeting, Portland OR. May 2014. (Oral).
- Wollheim, W.M.** 2014. Plum Island Ecosystem Long Term Ecological Research: Watershed Research Accomplishments. LTER Three Year Site Review. Newburport MA. May 6-7, 2014.
- Wollheim, W.M.** 2014. Monitoring nonpoint nitrogen sources in the Oyster River Watershed using continuous sensors. Durham/UNH Integrated Permit Project Team/Agency Meeting. Portsmouth NH.
- Wollheim, W.M.** 2014. Water quality in the Oyster River Watershed: Interactions of storm events and land use in headwater and mainstem river. Seventh Annual Lamprey River Symposium. Durham NH.

2013

- Wollheim, W.M.,** R. Stewart; K.R. Sheehan. 2013. A general framework for incorporating heterogeneity of aquatic ecosystems into aquatic network models to understand biogeochemical fluxes (*Invited*). American Geophysical Union Annual Meeting, San Francisco, CA, December 9, 2013. (Oral).
- Lightbody, A., K. Lawrence, W.M. Wollheim. 2013. Contribution of Surface Transient Storage to Nitrogen Retention within Wetland-Dominated Stream Reaches. American Geophysical Union Annual Meeting, San Francisco, CA, December 9, 2013. (Poster)
- Miara, A., C. J. Vorosmarty, R. Stewart, W.M. Wollheim, B. Rosenzweig. 2013. Riverine ecosystem services and the thermoelectric sector: strategic issues facing the Northeastern United States. American Geophysical Union Annual Meeting, San Francisco, CA, December 9, 2013. (Poster).
- Hutyra, L., Y. Yang, J. Kim, C. Cheng, P. O'Brien, S. Rouhani E.M. Douglas, C. Nicolson, R. Ryan, C. Schaaf, P. Warren, W.M. Wollheim. Future scenarios of urbanization and its effects on water quantity and quality in three New England watersheds. American Geophysical Union Annual Meeting, San Francisco, CA, December 9, 2013. (Poster).
- Whittinghill, K.A.,** R. Stewart, M. Mineau, W.M. Wollheim, R.B. Lammers. Modeling Nitrogen Processing in Northeast US River Networks. American Geophysical Union Annual Meeting, San Francisco, CA, December 9, 2013. (Poster).
- Mineau, M.,** W.M. Wollheim, R. Stewart, M. Daley, W.H. McDowell. 2013. Factors controlling aquatic dissolved inorganic nitrogen removal and export in suburban watersheds. American Geophysical Union Annual Meeting, San Francisco, CA, December 9, 2013. (Oral).
- Rosenzweig, B., C.J. Vorosmarty, A. Miara, R. Stewart, W.M. Wollheim, X. Lu, D.W. Kicklighter, N. Ehsani, K. Shikhmacheva, P. Yang. Incorporating human activities into an

- earth system model of the Northeastern United States: socio-hydrology at the regional scale. American Geophysical Union Annual Meeting, San Francisco, CA, December 9, 2013. (Poster).
- Vorosmarty, C.J., A. Miara, B. Rosenzweig, F. Duchin, N. Dileki, R. Stewart, W.M. Wollheim, J.M. Melillo, D.W. Kicklighter, B.M. Fekete, P. Yang, J. Gonzalez. 2013. NE-RESM: An Integrated Water Resource Assessment and Solutions Platform for the U.S. Northeast. American Geophysical Union Annual Meeting, San Francisco, CA, December 9, 2013. (Oral).
- Carey, R.O.**, W.M. Wollheim, G. Mulukutla, C. S. Cook. 2013. Stream Nitrate Concentrations Diverge at Baseflow and Converge During Storms in Watersheds with Contrasting Urbanization. Presented at American Geophysical Union Fall Meeting, San Francisco, CA, December 9, 2013. (Poster).
- Whittinghill, K.A.**, M.M. Mineau, W.M. Wollheim, R.B. Lammers, and R.J. Stewart. 2013. Modeling Nitrogen Processing in New England River Networks. Gordon Research Conference: Catchment Science: Interactions of Hydrology, Biology, and Geochemistry. Andover NH.
- Wollheim, W.M.** R.J. Stewart, K. Whittinghill, M.M. Mineau, K. Sheehan, R. Smith, I. Hale. 2013. Understanding interactions between ecosystem services and water quality across the riverscape: The ISEES Model. Annual Meeting of the Society of Freshwater Science. Jacksonville FL. (Oral)
- Mineau, M.M.** I.J. Fernandez, W.M. Wollheim, J.L. Campbell. 2013. Elevated N deposition is associated with decoupling of DON and DOC processing in northeastern USA headwater streams. Annual Meeting of the Society of Freshwater Science. Jacksonville FL. (Oral)
- Morse, N.B.** and W.M. Wollheim. 2013. Influence of Nutrient Stoichiometry on In-Stream Uptake of NH₄ and PO₄ in Suburban New England Streams. Annual Meeting of the Society of Freshwater Science. Jacksonville FL. (Oral)
- Price, A.J.** W.M. Wollheim, G. Mulukutla, W.H. McDowell. 2013. Headwater nitrogen flux and storm response among land use types through seasons. Annual Meeting of the Society of Freshwater Science. Jacksonville FL. (Oral)
- Wollheim, W.M.** 2013. Storm Event Nutrient Monitoring in River Networks. DES Nitrogen in Stormwater: Sources and Solutions Workshop. Portsmouth NH.
- Morse, N.B.** and W.M. Wollheim. 2013. Using in-stream boron concentrations to explain phosphorus dynamics in urbanizing river networks NH Watershed Conference. New Hampshire Watershed Conference. Plymouth NH.
- Mineau M.M.** , K. Whittinghill, and W.M. Wollheim. 2013. Modeling Nitrogen Processing in New Hampshire River Networks NH Watershed Conference. New Hampshire Watershed Conference. Plymouth NH.
- Hunt, C.W.**, W.M. Wollheim, J.S. Salisbury, K.W. Hanley, G.R. Aiken. 2013. Modeling the export of DOC from large watersheds and its influence on the optical properties of coastal waters. Annual meeting of the American Society of Limnologists and Oceanographers. New Orleans, LA. (Oral)
- Miara, A., Vörösmarty, C.J., Stewart, R.J., Wollheim, W.M. and Rosenzweig, B.R. "A Regional Earth System Model to Assess Energy and Environmental Tradeoffs". Presented at Engineering Sustainability: Innovation and the Triple Bottom Line, Pittsburgh, PA, April 8, 2013.

Price, A. and W.M. Wollheim. 2013. Headwater stream nutrient diurnal flux and storm response in the Lamprey River watershed. Sixth Annual Lamprey River Symposium. Durham NH.

Mulukutla, G. and W.M. Wollheim. 2013. From the Lamprey River to the Great Bay Estuary: Examining the dynamics of nitrate and dissolved organic matter transport using in situ sensors. Sixth Annual Lamprey River Symposium. Durham NH.

2012.

Carey, R.O., W.M. Wollheim, G.K. Mulukutla. 2012. Carbon , nitrogen, and phosphorus stoichiometry during storms in a suburbanizing watershed. Presented at American Geophysical Union Fall Meeting, San Francisco, CA, December 3, 2012. (Poster).

Hunt, C. W., W. M. Wollheim, J. Salisbury, R. Stewart, K. Hanley, and G. R. Aiken. 2012. Linking headwaters to the coast: modeling DOC export at the large watershed scale. Presented at American Geophysical Union Fall Meeting, San Francisco, CA, December 6, 2012. (Poster).

Mulukutla, G., R.O. Carey, W.M. Wollheim, J. Salisbury, High frequency measurements using in situ sensors in a coupled watershed-estuary reveal factors driving DOC variability. Presented at American Geophysical Union Fall Meeting, San Francisco, CA, December 3, 2012. (Oral).

Price, A., W.M. Wollheim, G.K. Mulukutla, R.O. Carey, W.H. McDowell. 2012. Headwater nutrient concentration patterns in response to storm events across land use types using in situ sensors. Presented at American Geophysical Union Fall Meeting, San Francisco, CA, December 3, 2012. (Poster).

Stewart, R. J., Wollheim, W. M., Miara, A., Vorosmarty, C. J., Rosenzweig, R., Fekete, B. Capacity of River Networks to Buffer Thermal Impacts of Power Plants in the Northeast United States. Presented at the American Geophysical Union Annual Fall Meeting, San Francisco, CA., December 5, 2012. (Poster).

Treat, C.C., M. Bhagat, J. Talbot, R.K. Varner, S. Grandy, S.A. Ewing, W.M. Wollheim, S. Frolking. 2012. Controls on soil carbon loss with permafrost thaw in Alaskan peatland ecosystems. Presented at American Geophysical Union Fall Meeting, San Francisco, CA, December 4, 2012. (Poster).

Whittinghill, K.A., W.M. Wollheim, W.B. Bowden, M.N. Gooseff, A.N. Wlostkowski. 2012. Spatial and temporal variability in sources and fate of dissolved carbon and nutrients in an arctic river network. Presented at American Geophysical Union Fall Meeting, San Francisco, CA, December 7, 2012. (Poster).

Wollheim, W.M., R.J. Stewart, C. Polsky, R. Pontius, C. Hopkinson. 2012. Impacts and socioeconomic feedbacks associated with regionalization of water supply in a suburban New England watershed. Presented at American Geophysical Union Fall Meeting, San Francisco, CA, December 4, 2012. (Poster).

Bowden, W.B., M.S. Kosh, G. Waldvogel, M.N. Gooseff, W.M. Wollheim, K.A. Whittinghill, A.N. Wlostkoski, A.D. Jacobson, J.W. McClelland, T.A. Douglas, G.O. Lehn, A. Baker. 2012. Seasonal asynchrony in terrestrial nutrient production and demand drives nutrient delivery to arctic streams. Presented at American Geophysical Union Fall Meeting, San Francisco, CA, December 3, 2012. (Oral).

Covino. T.P., W.B. Bowden, M.N. Gooseff, W.M. Wollheim, B.L. McGlynn, K.A. Whittinghill, A.N. Wlostkoski, M.R. Herstand. 2012. Deciphering relationships between in-stream travel times, nutrient concentrations, and uptake through analysis of hysteretic and non-hysteretic

- kinetic behavior. Presented at American Geophysical Union Fall Meeting, San Francisco, CA, December 3, 2012. (Poster).
- Duncan, J.M., L.E. Band, I.F. Creed, C. Duffy, M.B. Green, P.M. Groffman, C. Tague, K.A. Whittinghill, W.M. Wollheim. 2012. Bridging the divide: understanding controls on N export by scale from headwater streams to eastern North America. Presented at American Geophysical Union Fall Meeting, San Francisco, CA, December 3, 2012. (Oral).
- Gooseff, M.N., M.N. Taptich, A.N. Wlostkowski, K. Gerech, R.A. Payn, A.S. Ward, W.B. Bowden, M. Fitzgerald, B.L. McGlynn, K. Singha, W.M. Wollheim. 2012. Connecting streams to wetland through stream-groundwater exchange as determined from the channel. (Invited). Presented at American Geophysical Union Fall Meeting, San Francisco, CA, December 7, 2012. (Oral).
- Miara, A., Vörösmarty, C.J., Stewart, R.J., Wollheim, W.M. and Rosenzweig, B.R. “A Model of Water Resources and Thermoelectric Plant Productivity Considering Changing Climates and Environmental Policy”. Presented at the American Geophysical Union Fall Meeting, San Francisco, CA, December 3, 2012.
- Rosenzweig, B.R., Miara, A., Stewart, R.J., Wollheim, W.M. and Vörösmarty, C.J. “Aquatic Ecosystem Services in the 21st Century Northeast Corridor: Assessment Using a Regional Earth System Model.” Presented at the American Geophysical Union Fall Meeting, San Francisco, CA, December 7, 2012. (Poster).
- Salisbury, J.S., D.C. Vandemark, S. Fournier, R. Nicolas, B. Chaperon, A. Manino, W.M. Wollheim. 2012. Linking the continental landmass to biogeochemical variability in the coastal ocean: the role of hydrological models and new satellite ocean color and salinity sensors (Invited). Presented at American Geophysical Union Fall Meeting, San Francisco, CA, December 4, 2012. (Oral).
- Vörösmarty, C.J., Duchin, F., Melillo, J.M., Wollheim, W.M., Gonzalez, J., Kicklighter, D.W., Rosenzweig, B. R., Yang, P., Lengyel, F. and Fekete, B.M. A Regional Earth System Model of the Northeast Corridor: Analyzing 21st Century Climate and Environment. Invited talk presented at the American Geophysical Union Annual Fall Meeting, San Francisco, CA, December 3, 2012.
- Wlostkowski, A.N., M.N. Gooseff, W.B. Bowden, W.M. Wollheim, K.A. Whittinghill. 2012. Hydrogeomorphic contrast between inlet and outlet streams of a high arctic lake influence stream-groundwater exchange. Presented at American Geophysical Union Fall Meeting, San Francisco, CA, December 3, 2012. (Oral).
- Miara, A., Vörösmarty, C.J., Stewart, R.J., Wollheim, W.M. and Rosenzweig, B.R. “A Model of Water Resources and Thermoelectric Plant Productivity Considering Changing Climates and Environmental Policy”. Presented at the ASME International Mechanical Engineering Congress, Houston, TX. November 15, 2012.
- Morse, N.B.**, W.M. Wollheim. 2012. Relative influence of urbanization, hydrology, and seasonality on nutrient fluxes to the Plum Island Estuary, MA, USA. Inaugural International Conference of the America’s Coastal and Estuarine Research Federation (CERF). 11-14 November, 2012. Mar del Plata, Argentina. (Oral).
- Carey R.O.**, W.M. Wollheim, and G. Mulukutla. 2012. Seasonal Storm Event Concentration-Discharge Hysteresis in a Suburbanizing Watershed. Society for Freshwater Science Annual Meeting. May 2012, Louisville, KY. (Oral).

- Morse, N.B.** and Wollheim., W.M. Influence of flow on seasonal nutrient fluxes in suburban rivers draining a coastal New England watershed. Society of Freshwater Science Annual Meeting. May, 2012. Louisville, KY. (Oral)
- Wollheim, W.M.**, T.K. Harms, R.J. Stewart, B.J. Peterson, K. Morkeski, M. Gooseff, M. Briggs, C. Hopkinson. Nitrate reaction rates among aquatic habitats in a New England Coastal watershed. Society of Freshwater Science Annual Meeting. May 2012. Louisville, KY. (Oral).
- Morse, N.B.** and Wollheim., W.M. Influence of suburbanization on N and P fluxes in rivers draining to the Plum Island Estuary. Graduate Research Conference. April, 2012; Durham, NH.
- Whittinghill, K.A.**, W.M. Wollheim, W.B. Bowden, M.N. Gooseff, M.R. Herstand, and A.N. Wlostowski. 2012. Examining effects of changing seasonality on arctic stream nutrients using a model of in-stream and hyporheic zone biogeochemical cycling. Abstract and poster presentation at the International Polar Year From Knowledge to Action Conference, Montreal, Canada. April 2012. (Poster).
- Morse, N.B.** and W.M. Wollheim. of stoichiometry and land use on uptake of NH₄ and PO₄ in New England streams. LTER All Scientist Meeting. September 2012; Estes Park, CO. (Poster)
- Vande Castle, J. , C. Luecke, P. Groffman, D. Childers, C. Driscoll, R. Schmitt, J. Magnuson, H. Ducklow, W.M. Wollheim, D. Siegal, K. Cavanaugh and J. Porter. 2012. Key Aquatic Research Findings of the U.S. Long Term Ecological Research Program. Annual Meeting of the American Society of Limnology and Oceanography. Japan.
- Campbell, J.L. S.D. Sebestyen, E.R. Boose, W.M. Wollheim, E.H. Stanley. 2012. Climate change, snowpack, and biogeochemical cycling in northern temperate forest ecosystems. Annual Meeting of the Ecological Society of America, Portland, OR.
- Cain, J.S.**, Wollheim, W.M., Sheehan, Ken. Understanding the contribution of natural and anthropogenic factors to low dissolved oxygen in rivers of the Ipswich River Watershed. 2012 LTER ASM Student Poster.
- Carey R.O.**, W.M. Wollheim, and G. Mulukutla. 2012. Seasonal Storm Event Concentration-Discharge Hysteresis in a Suburbanizing Watershed. Society for Freshwater Science Annual Meeting. May 2012, Louisville, KY. (Oral).
- Morse, N.B.** and Wollheim., W.M. Influence of flow on seasonal nutrient fluxes in suburban rivers draining a coastal New England watershed. Society of Freshwater Science Annual Meeting. May, 2012. Louisville, KY. (Oral).
- Wollheim, W.M.** 2012. "Influence of climate change on water quality". Invited talk presented at the EPA Region 1 Science to Achieve Results (STAR) Research Forum. Boston, MA, March 2012.
- Morse, N.B.** and W.M. Wollheim. Influence of suburbanization on N and P fluxes in rivers draining to the Plum Island Estuary. Graduate Research Conference. April, 2012; Durham, NH.
- Whittinghill, K.A.**, W.M. Wollheim, W.B. Bowden, M.N. Gooseff, M.R. Herstand, and A.N. Wlostowski. 2012. Examining effects of changing seasonality on arctic stream nutrients using a model of in-stream and hyporheic zone biogeochemical cycling. Abstract and poster presentation at the International Polar Year From Knowledge to Action Conference, Montreal, Canada. April 2012. (Poster).

- Carey R.O.**, W.M. Wollheim, and G. Mulukutla. 2012. Detecting Storm and Baseflow Biogeochemical Patterns in the Lamprey River Using Continuous In Situ Sensors. New Hampshire Water and Watershed Conference. March 2012, Plymouth, NH. (Oral)
- Whittinghill, K.A.**, W.M. Wollheim, W.B. Bowden, M.N. Gooseff, M.R. Herstand, L. Snyder, C.C. Treat, G. Waldvogel, and A.N. Wlostowski. 2012. Changing Seasonality in Arctic Stream Networks (CSASN). Oral presentation at the Arctic LTER Annual All Scientist Meeting, Woods Hole, Massachusetts. March 2012. (Oral).
- Morse, N.B.** and Wollheim., W.M. Influence of suburbanization on C, N and P fluxes in rivers draining to the Plum Island Estuary. PIE LTER Annual Meeting. March, 2012; Woods Hole, MA.
- Wollheim, W.M. 2012. Plum Island Ecosystem Watershed Research. PIE All Scientists Meeting. Woods Hole MA. March 2012, Woods Hole, MA. (Oral)
- Wollheim, W.M. 2012. Influence of climate change on water quality. EPA Region 1 Science to Achieve Results (STAR) Research Forum. (Invited). March 2012, Boston MA (Oral).
- Wollheim, W.M. 2012. What controls water quality in space and time? Presentation to New Hampshire Cooperative Extension. March 2012, Concord NH.
- Carey R.O.**, W.M. Wollheim, and G. Mulukutla. 2012. Continuous In Situ Sensors in the Lamprey River: Storm Event Nutrient Dynamics Across Seasons. Lamprey River Symposium. January 2012, Durham, NH. (Oral)

2011.

- Wollheim, W.M. and R.J. Stewart. 2011. Accounting for heterogeneity of nutrient dynamics in riverscapes. (Invited). AGU. December 2011. San Francisco CA. (oral)
- Hanley, K.W.**, W.M. Wollheim, J.E. Salisbury, G.R. Aiken. 2011. Understanding controls on dissolved organic carbon flux and lability in United States watersheds. American Geophysical Union Annual Meeting. December 2011, San Francisco, CA. (Oral)
- Carey R.O.**, W.M. Wollheim, and G. Mulukutla. 2011. Monitoring Urban Water Quality Variability Using Continuous In Situ Sensors. American Geophysical Union Annual Meeting. December 2011, San Francisco, CA. (Oral)
- Whittinghill, K.A.**, W.M. Wollheim, W.B. Bowden, M.N. Gooseff, M.R. Herstand, and A.N. Wlostowski. 2011. Examining effects of changing seasonality on arctic stream nutrients using a model of in-stream and hyporheic zone biogeochemical cycling. American Geophysical Union Annual meeting, San Francisco, California. December 2011. (Poster)
- Hanley, K.W.**, W.M. Wollheim, J.E. Salisbury, G.R. Aiken. 2011. Understanding Controls on Dissolved Organic Carbon Quantity and Quality in United States Watersheds. National Aeronautics and Space Administration Carbon Cycle and Ecosystems Joint Science Workshop. October 2011, Alexandria, VA. (Poster)
- Wollheim, W.M. 2011. Towards sustainable suburbia: The role of scale, heterogeneity, and the spatial distribution of aquatic ecosystem services. (Invited). Natural Resources and Earth System Science Seminar Series. October 2011. University of New Hampshire. (Oral)
- Wollheim, W.M., R.O. Carey, G.K. Mulukutla, B. Pellerin, J. Saraceno. 2011. Application of aquatic in situ sensors in MA and NH: PIE-LTER, Lamprey R. and NH-EPSCOR. Joint NERC Environmental Sensor Network/Sensor NIS Workshop. October, 2011, Hubbard Br. NH. (Oral)
- Whittinghill, K.A.**, W.M. Wollheim, W.B. Bowden, M.N. Gooseff, M.R. Herstand, C.C. Treat, and A.N. Wlostowski. 2011. Examining effects of changing seasonality on arctic stream

- nutrients using a model of in-stream and hyporheic zone biogeochemical cycling. Abstract and poster presentation at the Catchment Science Gordon Research Seminar and Gordon Research Conference, Lewiston, Maine. July 2011. (Poster)
- Wollheim W. M. 2011. Coupling Continuous In Situ Data and Modeling: Towards Mechanistic Understanding of Watershed Biogeochemical Dynamics. (Invited). Joint USGS- CUAHSI workshop on In Situ Optical Water Quality Sensor Networks. June 2011. National Conservation Training Center, Shepherdstown, West Virginia.
- Wollheim, W.M., R.J. Stewart, B.J. Peterson, C.J. Vorosmarty. 2011. Nitrogen efficiency loss at global scales: limits to the effectiveness of freshwater aquatic ecosystems as regulators of N flux to the coastal ocean. Invited talk in Special Session: Linking Landscapes: Watersheds to the Ocean. 59th North American Benthological Society Annual Meeting. May 2011, Providence, RI. (Oral)
- Morse, N.B.** and Wollheim., W.M. Influence of suburbanization on C, N and P fluxes in rivers draining to the Plum Island Estuary. Oral Presentation at the 59th North American Benthological Society Annual Meeting. May, 2011; Providence, RI.
- Hanley, K.W.**, W.M. Wollheim, J.E. Salisbury, G.R. Aiken. 2011. Examining controls on dissolved organic carbon quantity and quality in large U.S. rivers. 59th North American Benthological Society Annual Meeting. May 2011, Providence, RI. (Poster)
- Stewart, R.J.**, W.M. Wollheim, C. Polsky, R.G. Pontius, C.S. Hopkinson. 2011. Modeling the impact of land cover change and water withdrawals on runoff and N retention in the Ipswich River, MA. 59th North American Benthological Society Annual Meeting. May 2011, Providence, RI. (Poster)
- Wollheim, W.M. 2011. Modification of suburban nutrient fluxes by stream channels and floodplains. New Hampshire Water Conference. Plymouth NH. March 2011. (Oral)
- Wollheim, W.M., and G. Mulukutla. 2011. Characterization of storm event carbon, nitrogen, and phosphorus in the Lamprey River using in situ sensors. Lamprey R. Symposium, Durham NH. January 2011. (Oral)
- 2010.**
- Hanley, K. W.**, W.M. Wollheim, J. Salisbury, G. Aiken. 2010. Examining Controls on Dissolved Organic Carbon Quantity and Quality in Large North American Rivers. Annual Meeting of the American Geophysical Union, December 2010, San Francisco. (Poster)
- Wollheim, W. M., B. A. Pellerin, J. Saraceno, C. Hopkinson, A. Hope, and N. Morse. 2010. Modification of suburban carbon and nitrogen fluxes by a coupled channel/floodplain system assessed using in situ sensors. Annual Meeting of the American Geophysical Union, December 2010, San Francisco. (Oral)
- Wollheim, W. M., R. Stewart, M. Gooseff, and M. Green. 2010. Dynamics of nitrogen saturation in river networks. (Invited), Annual Meeting of the American Geophysical Union, December 2010, San Francisco. (Oral)
- Stewart, R.J.**, W.M. Wollheim, R.B. Lammers, and B.M. Fekete. 2010. A process-based approach for modeling global water temperatures in large rivers. Joint Annual Meeting of ASLO/NABS. June 2010. Sante Fe, NM. (Oral)
- Wollheim, W. M., B. J. Peterson, and C. J. Vorosmarty. 2010. Decline in aquatic ecosystem service efficiency magnifies global flux of anthropogenic nitrogen to coastal zones, Joint Annual Meeting of ASLO/NABS. June 2010. Sante Fe, NM. (Poster).

Wollheim, W.M. 2010. Connectivity, Residence Time, and Reactivity (CRR) in River Networks. (Invited), Interactive Session: Crossing Ecosystem Boundaries by Quantifying Biogeochemical Reaction Versus Transport Across the Hydrologic Continuum. Joint Annual Meeting of ASLO/NABS. June 2010. Sante Fe, NM.

Wollheim, W.M. 2010. Evolution of Ecosystem Services in a Coastal New England Watershed. Harvard Forest Seminar Series. April 2010.

Wollheim, W.M. 2010. A historical perspective on ecosystem services in coastal New England Watersheds: Suburbanization in Context. Lamprey River Symposium. January, 2010 (Oral).

2009 and earlier.

Stewart, R.J., W.M. Wollheim, M.N. Gooseff, M.A. Briggs, J.M. Jacobs, B.J. Peterson, and C.S. Hopkinson. 2009. Separation of river network scale nitrogen removal among main channel and two transient storage compartments. LTER - All Scientist Meeting, September 14-16, 2009, Estes Park, Colorado. (Poster) (received 4th honorable mention in student poster competition).

Wollheim, W.M., M.B. Green, B.A. Pellerin, J.M. Duncan, G.M. Gettel, C. Hopkinson, C. Polsky, R. Pontius. 2009. Evolving demand for ecosystem services and their impact in a coastal New England watershed. AGU Fall Meeting, San Francisco, December 13-18. (Oral).

Wollheim, W.M. 2009. Changes in freshwater aquatic regulation of land-to-ocean fluxes due to human activities and climate change. University of Maine Environmental Seminar Series. Oct. 2, 2009. Orono ME.

Wollheim, W.M. 2009. Watershed to Estuaries Connections: An Ecosystem Services Perspective. CUASHI Summer Institute 2009. City College of New York. July 2009. (Oral).

Wollheim, W.M., B.J. Peterson, G.M. Gettel, C.S. Hopkinson, T.K. Harms. 2009. Increased spiraling lengths in urban headwater streams - potential buffering mechanisms by river networks. North American Benthological Society Annual Meeting, Grand Rapids, MI. May 2009. Invited: Special Session - Advances in Stream Biogeochemistry: The Legacy and Promise of 30 Years of the Nutrient Spiralling Concept (Oral)

Wollheim, W.M., R. Stewart, G.M. Gettel. 2009. Hydrological and Biological Controls of Aquatic N Removal in River Networks. Lamprey River Symposium. January, 2009 (Oral)

Wollheim, W.M., R. Stewart, M. Briggs, G. Gettel, M. Green, M. Gooseff, T. Harms, C. Hopkinson, K. Morkeski, N. Morse, B. Peterson. 2008. Assessing the influence of various aquatic ecosystem types on biogeochemical fluxes at river network scales. AGU Fall Meeting, San Francisco, December 15-18. (Oral)

Wollheim, W.M. et al. 2008. Suburban impacts on nitrogen fluxes at the scale of river networks. 2nd Symposium on Urbanization and Stream Ecology, Salt Lake Plaza Hotel, Salt Lake City, Utah, May 23-24, (Oral)

Wollheim, W.M. et al. 2008. Nutrient removal in point source dominated river systems – interactions of dilution, saturation and hydraulic loads. North American Benthological Society Annual Meeting, Salt Lake City, Utah. (Oral)

Wollheim W.M. 2008. Long Term Observations in the Ipswich and Parker River Watersheds, MA. Lamprey River Hydrologic Observatory Symposium. Durham NH. (Oral)

Wollheim, W. M., C. J. Vorosmarty, B. Fekete, P. Milly, K. Findell, and B. J. Peterson 2007, Understanding nitrogen removal processes within river networks over annual time scales: implications of saturation. Eos Trans. AGU, 88, Fall Meeting Supplement. (Poster)

- Wollheim W., M. Vorosmarty C.J., Bouwman A.F., Green P., Harrison J., Linder E., Peterson B., Seitzinger S., Syvitski J. 2007. The Role of Rivers, Lakes, and Reservoirs in the Global Aquatic N Cycle Using A Spatially Distributed Within-Basin Approach. 30th Congress of the International Society of Limnology. Montreal Canada. (Oral)
- Wollheim W.M., Vorosmarty C.J., Peterson B.J., Hopkinson C.H. 2007. River network N removal over annual time scales - incorporating time varying hydrological conditions. North American Benthological Society Annual Meeting, Columbia SC. (Oral)
- Wollheim, W.M., Vorosmarty, C.J., Peterson B.J. and Hopkinson, C.H. 2006. The controls of aquatic denitrification in a 5th order river network. Denitrification Research Coordinating Network Workshop: Denitrification Modeling Across Terrestrial, Freshwater and Marine Systems. Institute for Ecosystem Studies, Millbrook NY. Poster. (Poster)
- Wollheim, W.M. 2006. Nitrogen Removal Capacity of Entire River Networks—Interactions of Geomorphic, Hydraulic and Biological Factors. Science Symposium: Sources, Transport, and Fate of Nutrients In the Mississippi and Atchafalaya River Basins. Minneapolis MN. (Oral)
- Wollheim, W.M., Vorosmarty, C.J., Peterson B.J. and Hopkinson, C.H. 2006. Nutrient Removal and Stream Size in the Ipswich R. Network, Plum Island LTER. LTER All Scientists Meeting, Estes Park, Colorado. (Oral)
- Wollheim, W.M., Vorosmarty, C.J., Peterson B.J. and Hopkinson, C.H. 2006. Geomorphic, hydrological and biological controls of nutrient removal in river networks. NABS Annual Meeting, Anchorage Alaska. (Oral)
- Wollheim, W.M., Vorosmarty, C.J., Green, P.A., Peterson B.J., Seitzinger, S.P., Harrison, J.A., Bjerklie, D.M. 2005. The Relative Importance of Terrestrial and Aquatic N Sinks in the Global N Cycle: An Inverse Approach. ASLO Aquatic Sciences Meeting. Salt Lake City, Utah. (Oral)
- Wollheim, W.M. B.A. Pellerin, Vorosmarty, C.J., and Hopkinson, C.H. 2004. Nitrogen Removal by the River Network of the 400 km² Ipswich R. Watershed, MA, USA. AGU Joint Assembly – Montreal, Canada. (Poster)
- Wollheim, W.M., B.A. Pellerin, Vorosmarty, C.J., and Hopkinson, C.H. 2003. N retention as a function of land use and watershed size in northeastern MA. LTER All Scientists Meeting, Seattle, Washington.
- Wollheim, W.M., B.J. Peterson et al. 2000. Estimates of Nitrogen Loading to Streams Using In-Stream Processing Rates. NABS Annual Meeting. Keystone, Colorado.
- Wollheim W. M., B. J. Peterson, W. B. Bowden, N.B. Grimm, J.L. Meyer, D. Sanzone, P.J. Mulholland, J.L. Tank, and J.R. Webster. 1998. Estimating ammonium uptake length using ¹⁵N-biota and water column ¹⁵NH₄ during tracer additions to streams. Bulletin of the North American Benthological Society 15.
- Wollheim, W. M. and B. J. Peterson. 1997. The impact of recycling on estimates of travel distance in ¹⁵N experiments. Bulletin of the North American Benthological Society 14.
- Wollheim, W. M., J. C. Finlay, B. J. Peterson, W. B. Bowden, D. Arscott. 1996. Nitrogen uptake by bryophytes in reference and fertilized reaches of an Arctic Tundra river. Bulletin of the North American Benthological Society 13.
- Wollheim, W. M. and B. J. Peterson. 1995. Nitrogen cycling in a lake outlet stream: comparing model results with nitrogen isotope tracer data. Bulletin of the North American Benthological Society 12.

WORKSHOP PARTICIPATION (2009 – present)

Urban Stream Workshop. July 2013. Annapolis MD. July 8-10, 2013

Northeast Megaregion Workshop. The Megaregion as Socio-Ecological Unit—Multi-level governance of water, energy, and carbon in the Northeast Megaregion of the United States. Annapolis MD. May 28-30, 2013.

LTER All Scientists Meeting. The Unique role of the LTER Network in the Anthropocene: Collaborative Science Across Scales. Estes Park, Colorado. Sept 10-13, 2012.

Joint NERC Environmental Sensor Network/Sensor NIS Workshop. October 24-26, 2011. Hubbard Brook, NH.

Sustainable Ecosystem Learning Community Workshop, August 24-26, 2011, Durham NH.

CUAHSI Sensor Workshop. June 2011. Shepardstown WV. Breakout Leader for two breakout sessions (Bang for the Buck with in situ sensors; Integrating optical measurements to improve predictions)

USDA Northeast Forum. March 24, 2011. Greenbelt MD.

¹⁵N Food Web Workshop. January 13-14, 2011. Manhattan KS.

CUAHSI Summer Institute Capstone Event: A history of human-water interactions in the Northeast United States: dynamics in a water-rich environment July 26-27, 2009. West Point NY.

CUAHSI Sensors Workshop: In situ optical sensors for water quality. Aug 2 -5, 2009. University of Vermont, Burlington VT.

LTER Synthesis Workshop: Ecosystem response to diminished snow and ice in a warming climate. Mar. 31 – Apr 1, 2009. Woods Hole MA.

LTER Synthesis Workshop: Disturbance legacies in material fluxes. Feb 9 – 11, 2009. Durham NH.