

# **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**

- 2023-present Professor, Department of Natural Resources and Environment, University of New Hampshire  
2016-2023 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.  
2008-2010 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  
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  
Flux of macro- and micro-plastic through freshwater ecosystems

Global biogeochemistry of nutrients and carbon  
Feedbacks among biogeochemistry, hydrology, and human activities through time

### TEACHING

- 2022-2023-Spring Guest Lecture at Purdue University: AGEC 528: Global Change and the Challenge of Sustainably Feeding a Growing Planet.
- 2019-Present NR 504: Freshwater Resources (4 credits, Every Spring)
- 2017-Fall Periodic Guest Lectures: NR900 research perspectives, NR401 Natural Resources Perspectives, NR 703/803 Watershed Water Quality Management.
- 2017-Fall NR 993: Hot Topics: Understanding Science Denialism - Past, Present, and Future.
- 2011-Present NR 751/851: Aquatic Ecosystems (4 credits. Every Other Fall)
- 2017-Spring NR 791: Capstone Experience (1 credit)
- 2013-Present NR 905: Grant Writing (2 credits. Every Other Spring)
- 2012-Present NR 707/807: Environmental Modeling (4 credits. Every Other Spring).
- 2014-Fall NR 995.02: Data Analysis Methods for Temporally Intensive Hydrology and Biogeochemistry Measurements (2 credits).
- 2014-Fall NR 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 NR 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)

- 2023-ongoing **Laura Diemer** (UNH, Ph.D. NRESS, Major Advisor)
- 2023-ongoing Eric Parker (UNH, Ph.D. NRESS, Committee Member)
- 2023-ongoing Cheristy Jones (UNH, Ph.D. NRESS, Committee Member)
- 2023(Summer)Kaleigh Hummel (Undergraduate, Natural Resources, SURF)
- 2022(Summer)**Jackie Harris** (Undergraduate, Earth Science, SURF and Honors Thesis)
- 2021-ongoing **Reese Levea** (UNH, Ph.D. NRESS, Major Advisor)
- 2021-ongoing **Ashif Hassan Abir** (UNH, Ph.D. NRESS, Major Advisor)
- 2021-ongoing **Emily Lever** (UNH, M.S. Natural Resources, Major Advisor)
- 2021-2023 **Josh Buonpane** (UNH, M.S. Natural Resources, Major Advisor)
- 2020-ongoing **Lara Munro** (UNH, Ph.D. NRESS, Major Advisor)
- 2015-2023 **Chris Whitney** (UNH, Ph.D. NRESS, Major Advisor)
- 2014-2022 **Shan Zuidema** (UNH, Ph.D. NRESS, Major Advisor with Dr. Matt Davis)
- 2020(summer)**Jess Strzempko** (Sussman summer fellowship, Clark University)
- 2021(summer)**Ethan Manley** (Sussman summer fellowship, Clark University)

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2021(summer) **Al Searing** (Undergraduate, NREN Env. Sci.)  
2021-present Eric Moore (PhD Committee, University of Connecticut)  
2016-2021 **Drew Robison** (UNH, Ph.D. NRESS, Major Advisor)  
2017-2021 Alexandra Evans (PhD committee)  
2015-2021 Chris Hunt (PhD committee)  
2019-2020 Karen Moran-Rivera (MS committee)  
2018-2020 **Sarah Bower** (UNH, M.S. Natural Resources, Major Advisor)  
2018-2020 **Eliza Balch** (UNH, M.S. Natural Resources, Major Advisor)  
2016-2020 **Daniel Bolster** (UNH, M.S. Natural Resources, Major Advisor)  
2020(summer) **Julie Bobyock** (Undergraduate, NREN Env. Sci.)  
2019(summer) **Cynthia Bova** (Undergraduate, NREN Env. Sci., SURF)  
2019(summer) **Carter Snay** (Undergraduate, NREN Env. Sci., Weeks Fellowship)  
2017-2019 Brian Saccardi (MS committee)  
2017-2019 Chad Hammer (MS committee)  
2017-2019 **Wenchao Li** - visiting scholar from China  
2019-2020 **Yue Hu** visiting faculty scholar from China  
2018-2019 Paige Clarizia (MS committee)  
2017-2018 David Simon (MS committee)  
2018(summer) **Bonnie Turek** (Undergraduate, NREN Env. Sci.. LTER REU)  
2018(summer) **Maggie Phillips** (Undergraduate, NREN Env. Sci., Honors Thesis)  
2018(summer) **Jake Gehrug** (Undergraduate, NREN Env. Sci., SURF)  
2015-2020. Virginia Hoyt (UNH MS student)  
2017-summer **Eliza Balch** (Earlham College, Undergraduate)  
2017-2018 **Mason Caceres** (UNH, Undergraduate, NREN Env. Sci)  
2015-2019 Lindsey Williams (UNH, PhD. NRESS) - Committee Member  
2015-2020 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  
2014-2016 **Tao Haung** (UNH, M.S., Natural Resources) – Major Advisor  
2014-2016 Sophie Wilderotter (UNH, M.S. Earth Science) – Committee Member  
2013-2016 Josh Buonapane (UNH, Undergraduate, NREN Env. Sci) – REU advisor  
2013-2017 **Chris Whitney** (UNH, M.S., Natural Resources) – Major Advisor  
2012-2022 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  
2012-2020 **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)

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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	<b>Claire Treat</b> (UNH, Ph.D. NRESS) – Major Advisor
2009-2014	<b>Nat Morse</b> (UNH, Ph.D. NRESS) – Major Advisor
2009-2012	<b>Kevin Hanley</b> (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)	<b>Wade Shaver</b> (U. Toledo, B.S.) UNH/NASA Research & Discover Program
2008-2010	Gary Lemay (UNH, M.S. Civil Engineering) – Committee Member
2007-2009	<b>Nathaniel Morse</b> (UNH, M.S. Natural Resources) – Major Advisor
2007-2009	<b>Rob Stewart</b> (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**

2023	Josh Buonpane: Society of Freshwater Science: Endowment Award (\$1000)
2022	Josh Buonpane: Summer TA Fellowship
2019	Andrew Robison: Society of Freshwater Science: Winner of 2019 Mulholland Award (\$1000)
2019	Bonnie Turek: Society of Freshwater Science: Undergraduate 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
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	<b>Nihar Samal</b> (UNH, Post Doc, obtained PhD from Jadavpur U., India)
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- 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**

- 2021 NSF Macrosystem Biology  
2021 NH AES Review Panel  
2019-present UNH SURF review panel  
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**

Ecological Applications, Water, JGR-Biogeosciences, Citizen Science, Water Resources Research, 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**

North Carolina Water Resources Center (2023), NSF Ecosystems (2020, 2021), NSF Biological Oceanography (2018), Deutsche Forshungs Gemeinschaft (2017), New York Agricultural Experiment Station (2017), NSF Arctic Natural Science (2016, 2022), LTER synthesis working group Review Panel (2016), NSF Ecosystems Panel (2011, 2015, 2016), NSF Geobiology and Low Temperature Geochemistry (2015, 2019, 2022), 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, 2022, 2023), 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

- 2023 UNH COLSA Deans Award of Distinction  
2019 Best Teacher Award, Department of Natural Resources and Environment, UNH  
2019 Nutrient Sensor Action Challenge Stage 2 Award  
<https://www.epa.gov/newsreleases/epa-and-federal-partners-announce-winners-water-quality-challenge>  
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

- 2023-present UNH Watershed and Ecosystem Taskforce (Co-chair)  
2023 Search Committee, Community and Environmental Planner (Chair)  
2022 Search Committee, PREP director (member)  
2020-2022 UNH Faculty Senate (NREN representative)  
2020-2022 COLSA Executive Committee (Faculty Senate Representative)  
2021-2022 UNH Transportation Planning Committee (Faculty Senate Representative)  
2021 Search Committee, Environmental Justice Faculty Hire in NREN (member)  
2020-2021 Faculty Fellow for Research and Engagement Academy  
2020-2021 NREN, Diversity, Equity, and Inclusiveness Committee (Member)  
2019 UNH Fulbright Review Committee  
2018-present. UNH Hamel Center; Undergraduate Research Fellowship review committee  
2018-present Coordinator: Environmental Science Degree Program, Department of Natural Resources and Environment, University of New Hampshire  
2019-2021. Chair, COLSA Undergraduate Research Conference organizing committee  
2012-2021. Member, COLSA Undergraduate Research Conference organizing committee  
2017-2018 Workforce Development Taskforce for UNH  
2017-2018 Hamel Center SURF Proposal Review Committee  
2017-2019 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.  
2016-2019 Hubbard Endowment Review Committee. Earth Systems Research Center. EOS. UNH  
2016 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  
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

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- 2014(Spring) Chair, Search Committee, NREN Environmental Science Lecturer
- 2013-2016 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)
- 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**

- 2023-present Society of Freshwater Science Vice President Elect
- 2022-present Expert consultant for Delaware Riverkeeper Network on commission plans and estuarine model used for improving dissolved oxygen conditions in the estuary.
- 2019-2021 Consultant for VHB regarding water quality impact of the Mill Pond Dam removal in Durham NH
- 2020-2022 Portland Area Nutrient Group Advisory Committee
- 2019-present. Co-chair, Technical Advisory Committee, Piscataqua Region Estuarine Partnership (PREP)
- 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 pCO<sub>2</sub> 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

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- 2017-2019 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
- 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
- 2014-2019 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.
- 2013-2015 Mentor for new faculty on EPSCoR project at Keene St. University (D. Burchsted)
- 2013-2017 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.
- 2009-2014 Unfunded Co-Investigator (Active) – NSF-ULTRAex: Boston Metropolitan Area ULTRA: Exploring past, current and future socio-ecological dynamics in a founding city.



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- 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**

- 2022-2024 NH-AES CREATE: An On-the-go Sensor to Enable Low-cost, In-situ and Rapid Measurements of Deep Soil Carbon/Nitrogen. (PI Shaad Mahmud in CEPS) \$50,000
- 2022-2023 Friend of Big Island Pond: Impact of Shoreline Development on Water Quality Throughout Big Island Pond. \$16,948.
- 2022-2028 NSF: LTER: Plum Island Ecosystems, the impact of changing landscapes and climate on interconnected coastal ecosystems. \$468,531. (UNH Portion, PI: A. Giblin @ MBL).
- 2022 Ocean Conservancy: Tracking plastic bottle through river systems. \$103,814.
- 2021-2022 DOE-FICUS: Assessing the contribution of sediment bioirrigation to the oxidative removal of methane from a fluvial wetland. (w/ PI Emil Ruff, MBL) \$0 (Budget is for analysis at DOE labs)
- 2021 AES Equipment Grant: Enhanced Carbon and Nitrogen Cycle Research for Hatch with Elementar Elemental Analyzer (w/ co-PI W.M. McDowell)
- 2021-2023 NOAA, Seagrant, Long Island Sound Study: Can Watershed Land Use Legacies Inform Nitrogen Management? \$129,954
- 2021-2024 NSF-Hydrology: Collaborative Proposal: Plastic Spiraling In River Networks (Plastic-SIReN): Determining the controls of watershed plastic fluxes using a field and modeling approach. \$429,900.
- 2020-2023. New Hampshire AES: The response of water quality and aquatic ecosystem function to changing land use and variable climate in New England. \$20,000 per year.
- 2019 EPA Low Cost Nutrient Sensor Challenge – Phase 2. Quantifying the impact of dam removals on nitrate retention using low cost nitrate sensors. \$50,000
- 2019-2022 NSF-Macrosystems Biology: Collaborative Proposal: MSA: Controls on coupled nitrogen & carbon cycles of watersheds across eco-regions. \$219,588.
- 2019-2022. NSF-Macrosystems Biology: Collaborative Proposal: MRA: Linking land-to-water transport & stream carbon cycling to inform macrosystem carbon balance (Virginia Tech is lead). \$176,653.

- 2019-2022. NSF-INFEWS: INFEWS/T2: Identifying Sustainability Solutions through Global-Local-Global Analysis of a Coupled Water-Agriculture-Bioenergy System (Purdue University is lead). \$820,000.
- 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. New Hampshire AES: 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.

#### **THESES AND DISSERTATIONS**

- Buonpane, J. 2023. Controls of Benthic Microbial Communities in Headwater Streams Across a Land Use Gradient in Northeastern USA. M.S. Thesis. University of New Hampshire.
- Whitney, C. 2023. Understanding the Role of Impounded Water Bodies in River Network Nutrient Exports in a Dynamic Landscape. PhD Dissertation. University of New Hampshire.
- Zuidema, S. 2022. Interventions Towards Sustainable Watershed Management as Demonstrated by Hydrologic Simulation. PhD Dissertation. University of New Hampshire.
- Robison, A.L. 2021. Carbon emissions from streams and rivers: Integrating methane emission pathways and storm carbon dioxide emissions into stream and river carbon balances. PhD Dissertation. University of New Hampshire.

- Balch, E.C. 2020. Taking nitrogen by storm: spatial and temporal controls on nitrogen processing in a small stream. M.S. Thesis. University of New Hampshire.
- Bolster, D. 2020. Quantifying the effects of land use and flow regime on metabolism of New England Streams. M.S. Thesis. University of New Hampshire. 101pp.
- Cain, J.S. 2020. The influence of fluvial wetlands on metabolism and dissolved oxygen along a shallow sloped stream continuum. MS Thesis. University of New Hampshire.
- Bower, S.E. 2020. Effects of storms on nitrate removal and greenhouse gas emissions from fluvial wetland dominated surface water flow paths. MS Thesis. University of New Hampshire.
- Whitney, C. 2017. Rates and drivers of nitrogen removal by fluvial wetlands in urbanizing coastal watersheds. MS Thesis. University of New Hampshire.
- Huang, T. 2016. Fecal indicator bacteria removal by river networks. MS Thesis. University of New Hampshire.
- Treat, C. 2014. Effects of climate change on carbon and nitrogen cycling in permafrost soils of Alaska. PhD Dissertation. University of New Hampshire.
- Morse, N.B. 2014. Quantifying the impact of urbanization on N and P inputs, transformations, removal and fluxes in watersheds draining to the Plum Island Estuary. PhD Dissertation. University of New Hampshire.
- Price, A. 2014. Nitrate dynamics across temporal scales and land use types on three headwater catchments observed using high-frequency measurements. MS Thesis. University of New Hampshire.
- Hanley, K. 2012. Dissolved organic carbon quantity and quality in North American rivers and streams. MS Thesis. University of New Hampshire.

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

- Hu, Y., C. Liu, W.M. Wollheim, and B. Luo. In Review. Prediction of Dissolved Oxygen Concentrations in a River Using Hybrid Deep Learning Neural Networks and Routine Hydrometeorological Data. *Hydrological Processes*.
- Whitney, C., W.M. Wollheim, and J.M. Buonpane. 2023. Small reservoir grab sample data, Parker, Ipswich, Lamprey, and Oyster River Watersheds, 2015 - 2020 ver 1. Environmental Data Initiative. <https://doi.org/10.6073/pasta/aab85a3ba288e5c12df228bf91221be2> (Accessed 2023-06-15).
- Whitney, C.T., W.M. Wollheim, A.J. Gold, J.M. Buonpane. In Press. Small reservoirs as nitrogen transformers: Accounting for seasonal variability in inorganic and organic nitrogen processing. *JGR-Biogeosciences*.
- Robison A.L., L. E. Koenig, J. D. Potter, L. E. Snyder, C. W. Hunt, W. H. McDowell, W. M. Wollheim. In Review. Adaptation of an open-source CO<sub>2</sub> sensor for lotic ecosystems: examining concentration and emission uncertainties across a range of stream sizes and land uses. *Limnology and Oceanography – Methods*.
- Conroy H., E. R. Hotchkiss, K. M. Cawley, K. Goodman, R. O. Hall Jr., J. B. Jones, W. M. Wollheim, D. Butman 2023. Seasonality Drives Carbon Emissions along a Stream Network. *JGR-Biogeosciences*. 128(8), e2023JG007439. <https://doi.org/10.1029/2023JG007439>

- Jankowski K. J., K. Johnson, L. Sethna, P. Julian, A. S. Wymore, A. J. Shogren, P. K. Thomas, P. L. Sullivan, D. M. McKnight, W. H. McDowell, R. Heindel, J. B. Jones, W. Wollheim, B. Abbott, L. Deegan, and J. C. Carey. 2023. Long-term changes in concentration and yield of riverine dissolved silicon from the poles to the tropics. *Global Biogeochemical Cycles*.
- Zuidema S., Wollheim W.M., Kucharik C.J., and Lammers R.S. (In Review). Existing wetland conservation programs miss nutrient reduction targets. *Communications Earth and Environment*.
- Zuidema S., Liu J., Chepeliev M.J, Johnson D.R., Baldos U.L, Frolking S., Kucharik C.J., Wollheim W.M. and Hertel T.H. (In Press). US Climate Policy can Contribute to Improved Water Quality and Reduce Hypoxia in the Gulf of Mexico. *PNAS*.
- Tucker, J., W. Wollheim, C. Whitney. 2022. Connected by Water. *Gulf of Maine Institute Journal*. Vol. Issue 1. <https://www.gulfofmaineinstitute.org/gomijournalv4i1summer2022>
- Grogan, D. S., Zuidema, S., Prusevich, A., Wollheim, W. M., Glidden, S., and Lammers, R. B. 2022. Water balance model (WBM) v.1.0.0: a scalable gridded global hydrologic model with water-tracking functionality, *Geosci. Model Dev.*, 15, 7287–7323, <https://doi.org/10.5194/gmd-15-7287-2022>.
- Johnston, R.J., K. Moeltner, S. Peery, T. Ndebele, Z. Yao, S. Crema, W.M. Wollheim, E Besedin. 2023. Spatial Dimensions of Water Quality Value in New England River Networks. *Proceedings of the National Academy of Science*. 120: <https://doi.org/10.1073/pnas.2120255119>
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- Robison AL, Wollheim WM, Perryman CR, Cotter AR, Mackay JE, Varner RK, Clarizia P and Ernakovich JG (2022) Dominance of Diffusive Methane Emissions From Lowland Headwater Streams Promotes Oxidation and Isotopic Enrichment. *Front. Environ. Sci*. 9:791305. doi: 10.3389/fenvs.2021.791305
- Huang T., Wollheim W.M., Jones S.H. Removal of Fecal Indicator Bacteria by River Networks. *Water* 2022, 14, 617. <https://doi.org/10.3390/w14040617>
- Mulukutla, G. K., W. M. Wollheim, J. E. Salisbury, R. O. Carey, T. K. Gregory, and W. H. McDowell. 2022. High-Frequency Concurrent Measurements in Watershed and Impaired Estuary Reveal Coupled DOC and Decoupled Nitrate Dynamics. *Estuaries and Coasts* 45:445–461
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## **MEDIA**

For Wollheim et al. (2022)

<https://www.unh.edu/unhtoday/2022/03/water-works>

You Tube video created by elementary school science coordinator Ellen Ervin, discussing the water quality of College Brook (“Learning about Watershed Ecosystems”, <https://www.youtube.com/watch?v=jFHwhO2a5tU>). The video had 367 views as of 2/27/22.

For EPA Phase 2 Prize (2019)

<https://www.epa.gov/newsreleases/epa-and-federal-partners-announce-winners-water-quality-challenge>

<https://colsa.unh.edu/nhaes/article/2019/09/sensors>

For Zuidema et al. (2018)

<https://granitegeek.concordmonitor.com/2018/07/23/road-salt-is-really-doing-a-number-on-the-merrimack-river-watershed/>

[https://www.eagletribune.com/news/new\\_hampshire/miles-of-merrimack-watershed-tainted-by-road-salt/article\\_2c291a69-f8c5-5b91-9016-7ab973fd6297.html](https://www.eagletribune.com/news/new_hampshire/miles-of-merrimack-watershed-tainted-by-road-salt/article_2c291a69-f8c5-5b91-9016-7ab973fd6297.html)

<https://www.nhpr.org/post/road-salt-ends-nh-rivers-scientists-worry-about-fish-and-plant-habitat>

<https://www.bostonglobe.com/metro/2018/07/24/road-salt-runoff-pollutes-merrimack-river-watershed-study-says/qow9GUbMCRYqaGJGZod6TN/story.html>

For Samal et al. (2017):

Interviewed on NHPR, Clip on WBUR

<https://www.unh.edu/unhtoday/2017/12/unh-researchers-find-effects-climate-change-could-accelerate-mid-century>

<https://www.apnews.com/8fd29f12551c480881f01c1b1ff382b5/Climate-change-could-mean-trouble-for-skiers,-anglers> (Picked up in Seattle Times, San Francisco Chronicle)

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[https://www.reddit.com/r/EcoInternet/comments/7kj28d/climate\\_change\\_could\\_mean\\_trouble\\_for\\_nh\\_skiers/](https://www.reddit.com/r/EcoInternet/comments/7kj28d/climate_change_could_mean_trouble_for_nh_skiers/)

<https://www.usnews.com/news/best-states/new-hampshire/articles/2017-12-16/climate-change-could-mean-trouble-for-skiers-anglers>

<http://www.concordmonitor.com/Climate-Change-Future-Trends-14388959>

<http://www.seacoastonline.com/news/20171216/climate-change-could-mean-trouble-for-skiers-anglers>

<http://www.fosters.com/article/20171216/AP02/312169989>

For Wollheim et al. (2017)

<https://phys.org/news/2017-12-stronger-storms-hamper-ability-streams.html>  
<http://nhpr.org/post/unh-study-stronger-storms-make-it-harder-rivers-clean-pollution#stream/0>,  
including interview

Also in Foster Daily Democrat; Keene Sentinel

2017. Another View: The March of Science. Fosters Daily Democrat (Seacoast New Hampshire daily newspaper) <http://www.fosters.com/news/20170418/another-view-march-of-science>

2016. <http://newengland.stewardshipnetwork.org/story/undergraduate-students-lead-volunteer-storm-watchers-water-quality-investigation>

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[http://www.fosters.com/apps/pbcs.dll/article?AID=/20130423/GJNEWS\\_01/130429776/-1/FosNEWS02&template=GreatBayRegion](http://www.fosters.com/apps/pbcs.dll/article?AID=/20130423/GJNEWS_01/130429776/-1/FosNEWS02&template=GreatBayRegion)

2012. EOS Spheres "Composing an Aquatic Symphony" Fall 2012.

[http://www.eos.unh.edu/Spheres\\_1012/aquatic.shtml](http://www.eos.unh.edu/Spheres_1012/aquatic.shtml)

2012. NH EPSCoR UTube Channel: EPSCoR Lamprey River Water Study  
<http://nhpr.org/post/unh-study-stronger-storms-make-it-harder-rivers-clean-pollution#stream/0>  
[http://www.youtube.com/watch?v=o\\_bAjDII6GU](http://www.youtube.com/watch?v=o_bAjDII6GU)

2012. Nashua Telegraph: "Nutrient runoff turns useful salt marshes into useless mudflats, finds long-term study" <http://www.nashuatelegraph.com/granitegeek/979685-468/nutrient-runoff-turns-useful-salt-marshes-into.html>

### **PRESENTATIONS (Wollheim Lab Lead only)**

Wollheim, W.M, A.L Robison, C. Whitney, E. Balch, D. Bolster S. Bower. N<sub>2</sub>:Ar disequilibrium as indicator of N fixation vs. denitrification across space and time in river networks of New England, USA. Society for Freshwater Science Meeting, June 2023, Brisbane AUS. Oral.

Lever E, W.M. Wollheim, S. Zuidema, R. Lammers, T. Hoellein, C. Rochman, F. Peterson, E. Kazmierczak, B. Schwenk, A. Zhu, J. Haney. 2023. Plastic accumulation in a suburban North American River Network. Society for Freshwater Science Meeting, June 2023, Brisbane AUS. Oral.

Buonpane, J.M. , W.M. Wollheim, J. Ernakovich, A.S. Wymore, A. Robison. 2023. Controls of benthic microbial communities across a land use gradient in Northeastern USA. Society for Freshwater Science Meeting, June 2023, Brisbane AUS. Oral.

Wollheim W.M. 2023. Scaling river network aquatic function through space and time. Pacific Northwest Laboratory River Corridor Meeting (Virtual)

Munro L, Green, M, Ollinger S, Wollheim, W. 2022, December, Nutrients Come and Go, but C:N Ratios are Forever: A Continental Scale Perspective on Changing C:N Ratios From Land to Water. Poster at the American Geophysicists Union (AGU) annual meeting, Chicago, IL.

Abir, A. H., Wollheim, W. M., Hotchkiss, E. R., Butman, D. E., Jones, J., Munro, L., ... & Goodman, K. J. 2022, December. Partitioning the Fate of Soil Carbon Dioxide Between

- Losses to Atmosphere and Subsurface Hydrologic Flow Paths. Poster at *Fall meeting 2022*. AGU, Chicago, IL.
- Munro L, Green, M, Ollinger S, Wollheim, W. 2022, August, Large scale analysis of watershed nitrogen and carbon coupling across eco-regions. Poster at the Ecological Society of America (ESA) annual meeting, Montreal, QC.
- Whitney, C.T., W.M. Wollheim. Effects of Beaver-Mediated Serial Discontinuities on Catchment-Scale Nutrient Exports. Poster at LTER All Scientists' Meeting. September 2022.
- Wollheim, W.M. 2022. Scaling river network aquatic function through space and time. Plenary for DOE Environmental System Science PI Meeting, May 24, 2022.
- Wollheim, W.M, C. Whitney, A. Giblin, I. Forbrich, J.S. Lesser, J. Nelson, N. Weston, C.L. Hopkinson. 2022. Propagation of climate signals from watershed into estuaries in suburban New England. Joint Aquatic Science Meeting, May 2022, Grand Rapids MI. Oral.
- Buonpane, J.M. , W.M. Wollheim, J. Ernakovich, A.S. Wymore, L. Bernhardt. 2022. Relationship Between Stream Microbial Communities and Land Use in a Suburbanizing. Joint Aquatic Science Meeting, May 2022, Grand Rapids MI. Poster.
- Olson, K, J.B. Jones, E.R. Hotchkiss, D Butman, W.M. Wollheim, K. Goodman, K.M. Cawley, F.M. Iannucci. 2022. Transport of Terrestrial DIC and CO<sub>2</sub> to Boreal Headwater Streams: Role of Hydrologic Transport and Terrestrial Productivity. Joint Aquatic Science Meeting, May 2022, Grand Rapids MI. Poster.
- Zuidema, S., W.M. Wollheim, R.B. Lammers, C. Kucharik, J. Liu Existing wetland conservation programs demonstrate tradeoffs between intensive and extensive conservation paradigms. Joint Aquatic Science Meeting, May 2022, Grand Rapids MI. Oral.
- Munro, L., W.M. Wollheim, M. Green, S. Ollinger. 2022. Large Scale Analysis of Watershed Nitrogen and Carbon Coupling Across Eco-regions. Joint Aquatic Science Meeting, May 2022, Grand Rapids MI. Oral.
- Conroy, H.D., D. Butman, E.R. Hotchkiss, W.M. Wollheim, J.B. Jones. 2022. Spatial Trends in Carbon Fluxes in Headwater Streams: A Case Study at Martha Creek in Stabler, WA. Joint Aquatic Science Meeting, May 2022, Grand Rapids MI. Oral.
- Schwenk, B.A., T.J. Hoellein, E.M. Kasmierczak, F. Peterson, C. Rochman, X. Zhu, S. Zuidema, R.B. Lammer, E.K. Lever, W.M. Wollheim. 2022. Stormwater-Mediated Transport of Macroplastic Litter in Urban Watersheds. Joint Aquatic Science Meeting, May 2022, Grand Rapids MI. Poster.
- Dionisio, A., J.M. Buonpane, E.M. Moore, W.M. Wollheim, 7 others, A.M. Helton. 2022. How Do Historic Land Uses Affect Stream Ecosystems? The Role of Structural Legacies. Joint Aquatic Science Meeting, May 2022, Grand Rapids MI. Poster.
- Whitney, C., W.M. Wollheim. 2022. Beaver pond biogeochemistry and the effect of serial discontinuities on catchment-scale nutrient exports. Joint Aquatic Science Meeting, May 2022, Grand Rapids MI. Oral.
- Jankowski, K, plus 16 authors including Wollheim. 2022. Synthesis of long-term trends in river silicon across biomes shows widespread changes but highly variable drivers. Joint Aquatic Science Meeting, May 2022, Grand Rapids MI. Oral.
- Wollheim, W.M. 2022. The fate of artificial organic matter (PLASTIC!) in aquatic ecosystems. Durham Active Retirement Association. April 2022.

- Wollheim, W.M. 2022. The fate of natural and artificial organic matter in aquatic ecosystems. New England Biolab Seminar Series. January 2022.
- Wollheim, W.M., A.L. Robison, S. Bower, C.T. Whitney. 2021. Biogeochemical responses of fluvial wetland flow paths to storms in a suburban watershed. American Geophysical Union Fall Meeting. December 2021
- Wollheim, W.M. 2021. Beavers and Dams. Piscataqua-Gundalow Science Café. December 2021.
- Wollheim, W.M. 2021. Fluvial Wetlands and Nitrogen Retention in Coastal Watersheds. Parker, Ipswich, Essex River Restoration Annual Meeting, December 2021.
- Wollheim, W.M. 2021. Scaling cumulative function of aquatic networks. Natural Resources and the Environment Seminar Series. University of Connecticut. Storrs CT. September 2021
- Wollheim, W.M. 2021. Scaling cumulative function of aquatic networks. Water and Environment Seminar Series. Helmholtz-Zentrum für Umweltforschung-UFZ June 2021.
- Balch, E., G. Mulukutla, W.M. Wollheim. Fate of N in a small reservoir: Insights from sensors & spatial sampling in Mill Pond, Durham NH. Poster at NH SeaGrant Symposium. January 2021.
- Balch, E., W.M. Wollheim, A. Wymore, A. Lightbody. Taking nitrogen by storm: Insights from sensors and spatial sampling. Poster at AGU Annual Meeting, December 2020.
- Bobyock, J, W.M. Wollheim. 2020. The Impact of Water Withdrawals on Summer Low Flows in the Ipswich River Watershed, MA, USA. Poster at AGU Annual Meeting, December 2020.
- Robison, A.L., W.M. Wollheim, A. Cotter, C. Perryman, J. Mackay, J. Ernakovich, P. Clarizia, and R.K. Varner. Methane dynamics in headwater streams: integrating gas fluxes, isotopes, and microbial community data. Association for the Sciences of Limnology and Oceanography. June 2021.
- Robison, A.L., W.M. Wollheim, L.E. Koenig, J.D. Potter, L.E. Snyder, and W.H. McDowell. The impact of storms on CO<sub>2</sub> emissions from streams and rivers. Society of Freshwater Science. May 2021.
- Robison, A.L., W.M. Wollheim, L.E. Koenig, J.D. Potter, L.E. Snyder, and W.H. McDowell. Storms disproportionately contribute to CO<sub>2</sub> efflux from streams and rivers on annual timescales. American Geophysical Union Fall Meeting. December 2020.
- Robison, A.L. and W.M. Wollheim. Carbon emissions from headwater streams: an overlooked source in landscape greenhouse gas budgets. Graduate Climate Conference. October 2020.
- Strzempko, Jessica, W.M. Wollheim 2020. Characterization of Wetland Scaling and Influence in the Ipswich and Parker River Watersheds of Northeastern Massachusetts. American Geophysical Union Fall Meeting. December 2020.
- Whitney, C.T., W.M. Wollheim, M. Palace, C. Herrick. Using High-Resolution Remotely-Sensed Data to Assess Beaver-Related Land Cover Change in Northeastern Coastal Watersheds. Oral presentation given at the Society for Freshwater Science Annual Meeting. Virtual. May 2021.
- Whitney, C.T., W.M. Wollheim, M. Palace, C. Herrick. Assessing The Expansion of Beaver in Northeastern Coastal Watersheds Using High-Resolution Remotely-Sensed Data and the Implications for Biogeochemical Fluxes. Poster given at the American Geophysical Union Fall Meeting. Virtual. December 2020.
- Whitney, C.T. and W.M. Wollheim. High-Frequency Data Reveal Variability in Dissolved Organic Matter and Nitrate Fluxes From a Small Coastal Reservoir. Poster given at the Society for Freshwater Science Annual Meeting. Virtual. June 2020.

- Wollheim, W.M., G.M. Mulukutla, C. Whitney, A. Robison. Understanding river network scale function using high frequency sensors. Oral given at the Society for Freshwater Science Annual Meeting. Virtual. June 2020.
- Wollheim, W.M., E. Balch, D. Bolster, S. Bower, C. Whitney, A. Robison. Ambient N<sub>2</sub>:Ar in surface waters: How useful for understanding reactive N? Oral given at American Geophysical Union Fall Meeting. December 2020
- Wollheim, W.M., S. Bower, C. Whitney, A. Robison. Storms, nitrogen retention and greenhouse gas evasion in fluvial wetland dominated flow paths: Is there a tradeoff? Oral given at the Society for Freshwater Science Annual Meeting. Virtual. May 2021.
- Wollheim, W.M. College Br. Flooding 2013-present. Presented to the Durham Conservation Commission, November 2020.

2019

- Wollheim, W.M. 2019. Scaling ecosystem function of entire river networks using networks of sensors. Gordon Conference on Catchment Science.

**2018**

- Wollheim W.M., W.B. Bowden, T.K. Harms, A.M. Helton, L.E. Koenig, A. Robison, SCALER Project Team. 2018. Metabolic Scaling of River Networks. American Geophysical Union meeting, Washington, DC. (Oral)
- Robison A, Balch E, Wollheim WM. 2018. Spatial patterns of greenhouse gases across an urbanization gradient in a suburban river network. American Geophysical Union meeting, Washington, DC. (Poster)
- Wollheim, W.M. 2018. An Aquatic Symphony: the revolution in in situ water quality sensing and what it means for watershed science and management. University of Alabama. Dept. of Geological Sciences Seminar Series. November 2018.
- Wollheim, W.M. 2018. River network saturation concept: factors influencing the balance of biogeochemical supply and demand of river networks. University of Alabama. Water Resources Seminar Series. November 2018.
- Wollheim, W.M. 2018. Effects of land use practices on nutrient flows. Slow the Flow for Coastal Climate Resilience Workshop. Northeast Climate Adaptation Science Center. Boston MA. (Oral)
- Wollheim, W.M. 2018. Climate and Land Cover Change – Impacts to Ecosystem Services in Great Bay. New Hampshire Coastal Climate Summit. Coastal Adaptation Working Group. June 2018. (Oral)
- 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. Annual Meeting of the Ecological Society of America, New Orleans LA. (Oral)
- Bolster, D.R., WM Wollheim. 2018. The effects of land use on metabolism, nitrate assimilation, and denitrification in new england streams. Society for Freshwater Science Annual Meeting. Detroit, MI. May 2018. (Oral)



- Wollheim, WM et al. 2018. River network saturation hypothesis: factors influencing biogeochemical demand of entire river networks relative to supply. Society for Freshwater Science Annual Meeting. Detroit, MI. May 2018 (Oral)
- Whitney, C.T. and W.M. Wollheim, Effect of small dam removals on physical and biogeochemical processes. Society for Freshwater Science Annual Meeting. Detroit, MI. May 2018. (Oral)
- Wollheim, WM. 2018. An aquatic symphony: the ongoing revolution in *in situ* water quality sensing and what it means for watershed science and resource management. New Hampshire Water and Watersheds Conference. Plymouth NH. March 23, 2018, Plenary Presentation.

## 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. Prousevich, 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 8<sup>th</sup>

- 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 NH<sub>4</sub> and PO<sub>4</sub> 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 21<sup>st</sup> 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 NH<sub>4</sub> and PO<sub>4</sub> 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. 30<sup>th</sup> 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 km<sup>2</sup> 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 <sup>15</sup>N-biota and water column <sup>15</sup>NH<sub>4</sub> 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 <sup>15</sup>N 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.