Peter A. Raymond

Professor of Ecosystem Ecology
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School of Forestry & Environmental Studies
Birthplace: 06/08/1971, Denver CO

College and Graduate Education:

1995 – 1999	Ph.D., Doctor of Philosophy in Marine Science, Physical Sciences Department, Virginia Institute of Marine Science, College of William and Mary, Ph.D. Advisor: James Bauer
1993	Institute of Ecosystem Studies, Tibor T Polgar Fellow
1989 – 1993	Marist College, Environmental Chemistry major with Minor in Biology

Summary of Professional Career:

2010- present	Professor of Ecosystem Ecology, Yale School of the Environment
2014-present	Professor, Geology and Geophysics, Yale University
2019	Visiting Professor, Department of Earth Sciences, ETH Zurich
2015	Visiting Professor, Department of Environmental Science and Analytical Chemistry, Stockholm University
2013	Visiting Professor, Laboratoire des Sciences du Climat et de l'Environnement IPSL-LSCE, CEA-CNRS-UVSQ, Gif sur Yvette France
2007 – 2010	Associate Professor of Ecosystem Ecology, School of Forestry & Environmental Studies, Yale University
2009	Visiting Scientist, Smithsonian Tropical Research Institute, Bocas del Toro, Panama
2002 – 2007	Assistant Professor of Ecosystem Ecology, School of Forestry & Environmental Studies, Yale University
2002	Post Doctoral Scientist, Applied Ocean Physics and Engineering, Woods Hole Oceanographic Institution
1999 – 2001	Post Doctoral Scientist, Ecosystems Center, Marine Biological Laboratory
1993-1995	Institute of Ecosystem Studies, Research Assistant

Professional Honors or Recognition:

2020-22	Highly Cited Researcher (Clarivate Web of Science top 1%)
2017	Fellow American Association for the Advancement of Science (AAAS)
2017	Member Connecticut Academy of Science and Engineering
2016	Fulbright Scholar Sweden
2015	Plenary Speaker 2015 ASLO Aquatic Science Meeting
2009	Presented in the Oregon State Universities Visiting Scholar Frontiers Series
2006	Awarded NSF CAREER Grant for Faculty Early Career Development
2005	Estuarine Research Federation's Cronin Award for Young Scientist
2005	Lindeman Speaker, University of Minnesota EEB Department
2001	Contributor, Dissertation Initiative for Advancement of Limnology and Oceanography (DIALOG IV)
1993	Hudson River Foundation, Tibor T Polgar Fellow

Refereed Publications:

1 Caraco, N.F., J.J. Cole, P.A. Raymond, D.L. Strayer, M.L. Pace, S.E.G. Findlay, et al. 1997. Zebra mussel invasion in a large, turbid river: Phytoplankton response to increased grazing. Ecology 78: 588-602.

2 Raymond, P.A., N.F. Caraco and J.J. Cole. 1997. Carbon dioxide concentration and atmospheric flux in the Hudson River. Estuaries 20: 381-390.

3 Raymond, P.A. and J.E. Bauer. 2000. Bacterial consumption of DOC during transport through a temperate estuary. Aquatic Microbial Ecology 22: 1-12.

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5 Raymond, P.A. and J.E. Bauer. 2001. DOC cycling in a temperate estuary: A mass balance approach using natural C-14 and C-13 isotopes. Limnology And Oceanography 46: 655-667.

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7 Raymond, P.A. and J.E. Bauer. 2001. Riverine export of aged terrestrial organic matter to the North Atlantic Ocean. Nature 409: 497-500. doi:10.1038/35054034.

8 Raymond, P.A. and J.J. Cole. 2001. Gas exchange in rivers and estuaries: Choosing a gas transfer velocity. Estuaries 24: 312-317.
9 Raymond, P. and J. Cole. 2003. Increased alkalinity in the Mississippi - Response. Science 302: 986-987.
10 Raymond, P.A. and J.J. Cole. 2003. Increase in the export of alkalinity from North America's largest river. Science 301: 88-91. doi:10.1126/science.1083788.
11 Raymond, P.A. and C.S. Hopkinson. 2003. Ecosystem modulation of dissolved carbon age in a temperate marsh-dominated estuary. Ecosystems 6: 694-705.
12 Zappa, C.J., P.A. Raymond, E.A. Terray and W.R. McGillis. 2003. Variation in surface turbulence and the gas transfer velocity over a tidal cycle in a macro-tidal estuary. Estuaries 26: 1401-1415.
13 Raymond, P.A., J.E. Bauer, N.F. Caraco, J.J. Cole, B. Longworth and S.T. Petsch. 2004. Controls on the variability of organic matter and dissolved inorganic carbon ages in northeast US rivers. Marine Chemistry 92: 353-366.
14 Cooper, L.W., R. Benner, J.W. McClelland, B.J. Peterson, R.M. Holmes, P.A. Raymond, et al. 2005. Linkages among runoff, dissolved organic carbon, and the stable oxygen isotope composition of seawater and other water mass indicators in the Arctic Ocean. Journal of Geophysical Research-Biogeosciences 110.
15 Raymond, P.A. 2005. Carbon cycle - The age of the Amazon's breath. Nature 436: 469-470.
16 Raymond, P.A. 2005. The composition and transport of organic carbon in rainfall: Insights from the natural (C-13 and C-14) isotopes of carbon. Geophysical Research Letters 32. doi:10.1029/2005gl022879.
17 Striegl, R.G., G.R. Aiken, M.M. Dornblaser, P.A. Raymond and K.P. Wickland. 2005. A decrease in discharge-normalized DOC export by the Yukon River during summer through autumn. Geophysical Research Letters 32.
18 C. S. Garbe, R. A. Handler and B. Jahne. 2006. Air-water flux reconciliation between the atmospheric CO2 profile and mass balance techniques. International Workshop on Transport at the Air Sea Interface, Heidelberg, GERMANY. Sep 06-08.
19 Oh, N.H. and P.A. Raymond. 2006. Contribution of agricultural liming to riverine bicarbonate export and CO2 sequestration in the Ohio River basin. Global Biogeochemical Cycles 20.
20 Butman, D., P. Raymond, N.H. Oh and K. Mull. 2007. Quantity, C-14 age and lability of desorbed soil organic carbon in fresh water and seawater. Organic Geochemistry 38: 1547-1557. doi:10.1016/j.orggeochem.2007.05.011.
21 Longworth, B.E., S.T. Petsch, P.A. Raymond and J.E. Bauer. 2007. Linking lithology and land use to sources of dissolved and particulate organic matter in headwaters of a temperate, passive-margin river system. Geochimica Et Cosmochimica Acta 71: 4233-4250.
22 McGillis, W.R., J.W.H. Dacey, J.D. Ware, D.T. Ho, J.T. Bent, W.E. Asher, et al. 2007. Air-water flux reconciliation between the atmospheric CO2 profile and mass balance techniques. In: C. S. Garbe, R. A. Handler and B. Jahne, editors, Transport at the Air-Sea Interface: Measurements, Models and Parametrizations. Springer-Verlag Berlin, Berlin. p. 181-192.
23 Raymond, P.A., J.W. McClelland, R.M. Holmes, A.V. Zhulidov, K. Mull, B.J. Peterson, et al. 2007. Flux and age of dissolved organic carbon exported to the Arctic Ocean: A

carbon isotopic study of the five largest arctic rivers. Global Biogeochemical Cycles 21. doi:Gb4011 10.1029/2007gb002934.

24 Raymond, P.A. and N.H. Oh. 2007. An empirical study of climatic controls on riverine C export from three major U.S. watersheds. Global Biogeochemical Cycles 21.

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26 Zappa, C.J., W.R. McGillis, P.A. Raymond, J.B. Edson, E.J. Hintsa, H.J. Zemmelink, et al. 2007. Environmental turbulent mixing controls on air-water gas exchange in marine and aquatic systems. Geophysical Research Letters 34.

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29 Holmes, R.M., J.W. McClelland, P.A. Raymond, B.B. Frazer, B.J. Peterson and M. Stieglitz. 2008. Lability of DOC transported by Alaskan rivers to the arctic ocean. Geophysical Research Letters 35. doi:L03402 10.1029/2007gl032837.

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105. Chen, M. L., C. L. Li, C. Zeng, F. Zhang, P. A. Raymond and J. Hur (2019). "Immobilization of relic anthropogenic dissolved organic matter from alpine rivers in the Himalayan-Tibetan Plateau in winter." Water Research **160**: 97-106.
106. Drake, T. W., R. M. Holmes, A. V. Zhulidov, T. Gurtovaya, P. A. Raymond, J. W. McClelland and R. G. M. Spencer (2019). "Multidecadal climate-induced changes in Arctic tundra lake geochemistry and geomorphology." Limnology and Oceanography **64**: S179-S191.
107. Hosen, J. D., K. S. Aho, A. P. Appling, E. C. Creech, J. H. Fair, R. O. Hall, E. D. Kyzivat, R. S. Lowenthal, S. Matt, J. Morrison, J. E. Saiers, J. B. Shanley, L. C. Weber, B. Yoon and P. A. Raymond (2019). "Enhancement of primary production during drought in a temperate watershed is greater in larger rivers than headwater streams." Limnology and Oceanography **64**(4): 1458-1472.

108. Ishikawa, N. F., D. Butman and P. A. Raymond (2019). "Radiocarbon age of different photoreactive fractions of freshwater dissolved organic matter." Organic Geochemistry **135**: 11-15.
109. Mwanake, R. M., G. M. Gettel, K. S. Aho, D. W. Namwaya, F. O. Masese, K. Butterbach-Bahl and P. A. Raymond (2019). "Land use, not stream order, controls N2O concentration and flux in the upper Mara River basin, Kenya." JGR Biogeosciences.
110. Wagner, S., J. H. Fair, S. Matt, J. D. Hosen, P. Raymond, J. Saiers, J. B. Shanley, T. Dittmar and A. Stubbins (2019). "Molecular Hysteresis: Hydrologically Driven Changes in Riverine Dissolved Organic Matter Chemistry During a Storm Event." Journal of Geophysical Research: Biogeosciences **124**(4): 759-774.
111. Wild, B., A. Andersson, L. Bröder, J. Vonk, G. Hugelius, J. W. McClelland, W. Song, P. A. Raymond and Ö. Gustafsson (2019). "Rivers across the Siberian Arctic unearth the patterns of carbon release from thawing permafrost." Proceedings of the National Academy of Sciences: 201811797.
112. Yan, F. P., C. L. He, S. C. Kang, P. F. Chen, Z. F. Hu, X. W. Han, S. Gautam, C. Q. Yan, M. Zheng, M. Sillanpaa, P. A. Raymond and C. L. Li (2019). "Deposition of Organic and Black Carbon: Direct Measurements at Three Remote Stations in the Himalayas and Tibetan Plateau." Journal of Geophysical Research-Atmospheres **124**(16): 9702-9715.
113. Saunois, M., Stavert, A. R., Poulter, B., Bousquet, P., Canadell, J. G., Jackson, R. B., Raymond, P. A., Dlugokencky, E. J., Houweling, S., Patra, P. K., Ciais, P., Arora, V. K., Bastviken, D., Bergamaschi, P., Blake, D. R., Brailsford, G., Bruhwiler, L., Carlson, K. M., Carrol, M., Castaldi, S., Chandra, N., Crevoisier, C., Crill, P. M., Covey, K., Curry, C. L., Etiope, G., Frankenberg, C., Gedney, N., Hegglin, M. I., Höglund-Isaksson, L., Hugelius, G., Ishizawa, M., Ito, A., Janssens-Maenhout, G., Jensen, K. M., Joos, F., Kleinen, T., Krummel, P. B., Langenfelds, R. L., Laruelle, G. G., Liu, L., Machida, T., Maksyutov, S., McDonald, K. C., McNorton, J., Miller, P. A., Melton, J. R., Morino, I., Müller, J., Murgia-Flores, F., Naik, V., Niwa, Y., Noce, S., O'Doherty, S., Parker, R. J., Peng, C., Peng, S., Peters, G. P., Prigent, C., Prinn, R., Ramonet, M., Regnier, P., Riley, W. J., Rosentreter, J. A., Segers, A., Simpson, I. J., Shi, H., Smith, S. J., Steele, L. P., Thornton, B. F., Tian, H., Tohjima, Y., Tubiello, F. N., Tsuruta, A., Viovy, N., Voulgarakis, A., Weber, T. S., van Weele, M., van der Werf, G. R., Weiss, R. F., Worthy, D., Wunch, D., Yin, Y., Yoshida, Y., Zhang, W., Zhang, Z., Zhao, Y., Zheng, B., Zhu, Q., Zhu, Q. & Zhuang, Q. The Global Methane Budget 2000-2017. *Earth Syst. Sci. Data Discuss.* **2019**, 1-136, doi:10.5194/essd-2019-128 (2019).
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116. Brinkerhoff, C. B., Raymond, P. A., Maavara, T., Ishitsuka, Y., Aho, K. S. & Gleason, C. J. Lake Morphometry and River Network Controls on Evasion of Terrestrially Sourced Headwater CO2. *Geophysical Research Letters* **48**, e2020GL090068, doi:https://doi.org/10.1029/2020GL090068 (2021).

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120. Song, C., Wang, G., Haghipour, N. & Raymond, P. A. Warming and monsoonal climate lead to large export of millennial-aged carbon from permafrost catchments of the Qinghai-Tibet Plateau. *Environ. Res. Lett.* **15**, 074012, doi:10.1088/1748-9326/ab83ac (2020).
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127. Aho, K.S., Hosen, J.D., Logozzo, L.A., McGillis, W.R., Raymond, P.A., 2021. Highest rates of gross primary productivity maintained despite CO2 depletion in a temperate river network. Limnology and Oceanography Letters, 6(4): 200-206.
128. Behnke, M.I., McClelland, J.W., Tank, S.E., Kellerman, A.M., Holmes, R.M., Haghipour, N., Eglinton, T.I., Raymond, P.A., Suslova, A., Zhulidov, A.V., Gurtovaya, T., Zimov, N., Zimov, S., Mutter, E.A., Amos, E., Spencer, R.G.M., 2021. Pan-Arctic Riverine Dissolved Organic Matter: Synchronous Molecular Stability, Shifting Sources and Subsidies. Global Biogeochemical Cycles, 35(4): e2020GB006871.
129. Brinkerhoff, C.B., Raymond, P.A., Maavara, T., Ishitsuka, Y., Aho, K.S., Gleason, C.J., 2021. Lake Morphometry and River Network Controls on Evasion of Terrestrially Sourced Headwater CO2. Geophysical Research Letters, 48(1): e2020GL090068.
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131. Liu, M., Zhang, Q., Maavara, T., Liu, S., Wang, X., Raymond, P.A., 2021. Rivers as the largest source of mercury to coastal oceans worldwide. Nature Geoscience.
132. Liu, S., Kuhn, C., Amatuli, G., Aho, K.S., Butman, D., Allen, G.H., Lin, P., Pan, M., Yamazaki, D., Brinkerhoff, C.B., Gleason, C.J., Xia, X., Raymond, P.A., 2022. The importance of hydrology in routing terrestrial carbon to the atmosphere via global streams and rivers. PNAS.
133. Maavara, T., Logozzo, L., Stubbins, A., Aho, K., Brinkerhoff, C., Hosen, J., Raymond, P., 2021. Does Photomineralization of Dissolved Organics Matter in Temperate Rivers? Journal of Geophysical Research: Biogeosciences, 126(7): e2021JG006402.
134. Marzadri, A., Amatulli, G., Tonina, D., Bellin, A., Shen, L.Q., Allen, G.H., Raymond, P.A., 2021. Global riverine nitrous oxide emissions: the role of small streams and large rivers. Science of The Total Environment: 145148.
135. Rosentreter, J.A., Borges, A.V., Deemer, B.R., Holgerson, M.A., Liu, S., Song, C., Melack, J., Raymond, P.A., Duarte, C.M., Allen, G.H., Olefeldt, D., Poulter, B., Battin, T.I., Eyre, B.D., 2021. Half of global methane emissions come from highly variable aquatic ecosystem sources. Nature Geoscience, 14(4): 225-230.
136. Saiers, J.E., Fair, J.H., Shanley, J.B., Hosen, J., Matt, S., Ryan, K.A., Raymond, P.A., 2021. Evaluating Streamwater Dissolved Organic Carbon Dynamics in Context of Variable Flowpath Contributions With a Tracer-Based Mixing Model. Water Resources Research, 57(10): e2021WR030529.
137. Stavert, A.R., Saunois, M., Canadell, J.G., Poulter, B., Jackson, R.B., Regnier, P., Lauerwald, R., Raymond, P.A., Allen, G.H., Patra, P.K., Bergamaschi, P., Bousquet, P., Chandra, N., Ciais, P., Gustafson, A., Ishizawa, M., Ito, A., Kleinen, T., Maksyutov, S., McNorton, J., Melton, J.R., Müller, J., Niwa, Y., Peng, S., Riley, W.J., Segers, A., Tian, H., Tsuruta, A., Yin, Y., Zhang, Z., Zheng, B., Zhuang, Q., 2022. Regional trends and drivers of the global methane budget. Global Change Biology, 28(1): 182-200.

138. Xu, R., Tian, H., Pan, N., Thompson, R.L., Canadell, J.G., Davidson, E.A., Nevison, C., Winiwarter, W., Shi, H., Pan, S., Chang, J., Ciais, P., Dangal, S.R.S., Ito, A., Jackson, R.B., Joos, F., Lauerwald, R., Lienert, S., Maavara, T., Millet, D.B., Raymond, P.A., Regnier, P., Tubiello, F.N., Vuichard, N., Wells, K.C., Wilson, C., Yang, J., Yao, Y., Zaehle, S., Zhou, F., 2021. Magnitude and Uncertainty of Nitrous Oxide Emissions From North America Based on Bottom-Up and Top-Down Approaches: Informing Future Research and National Inventories. Geophysical Research Letters, 48(23): e2021GL095264.
139. Yoon, B., Hosen, J.D., Kyzivat, E.D., Fair, J.H., Weber, L.C., Aho, K.S., Lowenthal, R., Matt, S., Sobczak, W.V., Shanley, J.B., Morrison, J., Saiers, J.E., Stubbins, A., Raymond, P.A., 2021. Export of photolabile and photoprimable dissolved organic carbon from the Connecticut River. Aquatic Sciences, 83(2): 23.

Non-Refereed Publications

Raymond, P.A., 2005. The Age of the Amazon's Breath. Nature, 436 469-470.

Extramural Grants

2021- NASA- Carbon Monitoring Systems. Blue Carbon Prototype Products for Mangrove Methane and Carbon Dioxide Fluxes (BLUEFLUX). Co-PI of 200k sub-contract, Benjamin Poulter NASA GFC lead.

2020 National Science Foundation- EAR Division of Earth Sciences. RAPID: Hydrologic control on SARS-CoV-2 transfer to streams

2018- National Science Foundation- Cross Cutting Activities. Watershed Rules of Life. $900,000. Lead PI, sub contract to Colin Gleason (UMass) and Byron Crump (Oregon State)

2017-2021 NASA- Carbon Cycle Science. Magnitude and controls on the lateral transport of carbon via streams and rivers. $961,500. Lead PI, sub-contract to David Butman (University Washington).

2015-2019 National Science Foundation- DEB. Collaborative Research: Linking microbial diversity, gene expression, and the transformation of terrestrial organic matter in major U.S.rivers. $1,532,000. Co-PI, with Byron Crump (lead, University of Oregon), Aron Stubbins (Skiddaway), and George Aiken (USGS)

2014-2021 National Science Foundation- Biological Sciences, MacroSystems Biology. Collaborative Research: RUI: The Pulse-Shunt Concept: A conceptual framework for quantifying and forecasting watershed DOM fluxes and transformations at the MacroSystem scale. $2,400,000. Lead PI, with James Saiers (Yale FES), Bill Sobczak (Holy Cross), Aron Stubbins (Skiddaway), and Jon Morrison, Jamie Shanley, Brian Pellerin (USGS)

2013-2106 National Science Foundation- DEB. The Pulse-Shunt Hypothesis: Predicting the

Evolution of DOM Composition and DOM Subsidies in Drainage Networks. $600,000. Lead PI, with James Saiers (Yale-FES)

2012-2015 National Science Foundation- DEB. Collaborative research: Is the export of ancient, labile carbon from glacial ecosystems driven by the deposition of fossil fuel combustion byproducts? $706,000. With Aron Stubbins (Lead PI) and Marc Friscer (lead-Skiddaway), Robert Spencer (WHRC), and Eran Hood and Jason Fellman (Univ.Alaska Southeast).

2012-2016 National Science Foundation- Arctic Science Division. The Arctic Great Rivers Observatory. $2,633,299. With Robert Holmes (lead PI- WHRC), Bruce Peterson (MBL), James McClelland (U-Texas Austin)

2011-2015 National Aeronautics and Space Administration- Carbon Cycle Science Program. United States Stream and River CO_2 Evasion. $507,000. Lead PI, with Karen Seto (Yale FES) and Yongtao Guan (Yale School of Public Health)

2008-2011. National Science Foundation-Polar Observing Systems. Collaborative Research: IPY: Arctic Great Rivers Observatory (Arctic-GRO). $1,544,000. With Bruce Peterson (MBL, Lead PI), Max Holmes (WHRC) and Jim McClelland (U-Texas, Austin)

2006 – 2011 National Science Foundation-Ecosystems. CAREER: The Lateral Transport of Watershed Atmospheric Carbon by Rivers. $580,000. Lead PI.

2005 – 2009 National Science Foundation-Physical Oceanography. Collaborative Research: Determining the Air-Water CO2 Flux in Coastal Systems. $671,000. With C. Zappa (Lamont, lead PI) and Wade McGillis (Lamont)

2004 – 2007 National Science Foundation-Ecosystems. Collaborative Research: Aquatic Plant Beds as Biogeochemical Hot Spots in a Large River Ecosystem. $60,000 subcontract. With N Caraco (lead PI- IES), S Findlay (IES), S Macintyre (UC-Santa Barbara), W McGillis (Lamont)

2004 – 2007 National Science Foundation-Integrated Carbon Research EAR. Collaborative Research: Assessing the Variability and Modification of Age, Character and Reactivity of Organic Carbon Delivered by Rivers and Estuaries to an Ocean Margin. $847,000. With J Bauer (lead PI-William & Mary), J Cole (IES), N Caraco (IES), S Petsch (Umass-Amherst).

2004 – 2006 NOAA. O2 and O2 air-water exchange in Florida Bay: Hydrodynamic controls on the gas transfer velocity and linkages to net ecosystem metabolism. $37,000 subcontract. With W McGillis (Lamont, lead PI), J E Boyer (FIU).

2004 – 2007 National Science Foundation-Ecosystems. Collaborative Research: Delivery and Fate of Old Terrestrial Organic Matter in a Riverine Ecosystem. $847,000. With

J Cole (lead PI, IES), J Bauer (William & Mary), N Caraco (IES).

2002 – 2003 Hudson River Foundation. Measurements and Modeling of the Gas Transfer Velocity in the Hudson River Estuary, $92,000. with Wade McGillis (Lamont)

Invited Seminars and Symposia

2021. Utah Valley University. Greenhouse Gas Evasion from Global Streams and River

2021. Tianjin University. Greenhouse Gas Evasion from Global Streams and Rivers.

2021. New Haven Teachers Institute. Physical Science of Climate Change

2020. Stockholm University. The Global Carbon and Methane Budget.

2020 The Henry Ferguson Museum. The Physical Science of Climate Change

2019 UMASS. DOM export from a large temperate watershed

2019 UMEA University. DOM export from a large temperate watershed

2019 ETH Zurich. Pulsed transport of terrestrial DOM to coastal waters

2019 ETH, Zurich. Rivers, DOC and radiocarbon

2018 AGU Fall meeting, Stream and River Methane Fluxes

2018 AGU Fall Meeting, Greenhouse gas evasion from streams and rivers

2018 Department of Energy Watershed SFA workshop, Watersheds as integrators of terrestrial processes

2017 The College of the Holy Cross. The role of inland waters in the global carbon budget

2016 DOE Terrestrial Aquatic Interfaces (TAI) workshop, Carbon cycling in the TAI

2016 Ocean Carbon and Biogeochemistry workshop, Woods Hole, Inland water dissolved fluxes

2016 Woods Hole Oceanographic Institute, Pulsed transport of DOM to coastal waters.

2016 Linkoping University, Drainage basins as reactors

2016 Uppsala University, Scaling stream and river CO_2 evasion

2016 EGU, Arctic River organic matter transport

2016 Helsinki University, Drainage basins as biogeochemical reactors

2016 Uppsala University, The Pulse Shunt Concept

2016 University of Stockholm, The Pulse Shunt Concept.

2015 Chemical Oceanography Gordon Conference. Hydrologic events strengthen land-ocean connection

2015 Bigelow Laboratory for Ocean Sciences. Drainage basins as reactors

2015 ASLO Ocean Science 2015 Plenary Speaker. Drainage basins as reactors

2014 University of Florida. The Pulse-Shunt-Concept: A new conceptual framework for understanding the biogeochemistry of drainage basins.

2014 Boston University. The Pulse-Shunt-Concept: A new conceptual framework for understanding the biogeochemistry of drainage basins.

2014 Northeastern University. The carbon chemistry of rivers.

2014 Duke University. Inland waters and global carbon.

2013 The University of Alabama. The Pulse-Shunt-Concept: A new conceptual framework for understanding the biogeochemistry of drainage basins.

2013 Global CO2 emissions from inland waters. 9th International Carbon Dioxide Conference. Beijing, China

2013 Global CO2 Emissions from Inland Waters. CNRS, France.

2012 AGU Fall Meeting, Warming Waters: Role of Freshwaters in Regional and Global Carbon and nutrient cycling session. San Francisco CA

2012 Frontier Talk, SOM-5 International Workshop. The Pulse-Shunt-Concept: A new conceptual framework for understanding DOM fluxes and reactions in drainage basins. Ascona, Switzerland

2012 Ocean Carbon and Biogeochemistry Workshop. Land-ocean transport and linkages with global change session. Woods Hole, MA.

2012 Keynote speaker. Goldschmidt Conference, Montreal. The dynamics of continental weathering session

2012 LSCE, France. Dissolved organic Carbon Export from Streams.

2012	IGBP, France. Anthropogenic Impacts on Dissolved Inorganic Carbon River Fluxes.
2012	MBL Ecosystems Center Seminar Series
2011	Woods Hole Oceanographic Geodynamics Seminar Series.
2011	Lehigh University Foster Hewitt Lecture Series.
2011	University of Rhode Island Ecology Seminar Series
2010	AGU Fall Meeting, Managing Water Resources Risks session. San Francisco, CA
2010	Wesleyan Earth and Environmental Sciences Seminar
2010	AGU Summer meeting, session Inland and Littoral Waters as a Land-Ocean-Atmosphere Interface in the Global Carbon Cycle.
2009	AGU Fall meeting, session Manmade Global Change and Material Cycles. San Francisco, CA.
2009	Oregon State University Frontiers Visiting Scholar Series, Corvallis OR
2009	Oregon State College of Ocean and Atmospheric Sciences, Corvallis OR
2009	Ecosystems Center, Woods Hole MA.
2008	Purdue, Department Earth and Atmospheric Sciences, West Lafayette IN
2008	University of Montana, Center for Ethics, Missoula MT
2008	University of Connecticut, Avery Point Campus, Groton CT.
2007	Catchment Science Gordon Conference. New London N.H.
2007	MIT, Department of Earth and Planetary Sciences. Boston MA.
2007	Columbia, Lamonty Doherty Earth Observatory, Palisades N.Y.
2006	Univ. South Carolina, Marine Sciences Program, Columbia S.C.
2006	Rutgers, Institute of Marine and Coastal Sciences, New Brunswick N.J.
2006	Organic Geochemistry Gordon Conference, Plymouth N.H.

2006	Goldschmidt Conference (Keynote), Melbourne Australia
2006	Geochemical Earth Reference Model Workshop (Plenary), Columbia NYC
2006	Institute of Ecosystem Studies, Millbrook N.Y
2005	Carnegie Institution of Plant Biology, Stanford CA
2005	Univ. Minnesota, Dept. EE&B (Lindeman speaker), St. Paul MN
2004	University of Connecticut Avery Point Marine Campus, Groton CT.
2004	University of Massachusetts/Amherst, Geology Department, Amherst MA
2003	Symposium on new approaches in marine organic biogeochemistry, Friday Harbor Laboratory, Seattle WA
2002	AGU (invited talk), San Francisco CA
2002	Yale School of Forestry and Environmental Studies, New Haven CT
2002	Stroud Water Research Center, Avondale PA.
2001	DIALOG IV, Bermuda
2000	WHOI, Applied Ocean Physics and Engineering department, Woods Hole MA
2000	Lawrence Livermore National Laboratory, Livermore CA
1999	Estuarine Research Federation annual meeting (invited talk), New Orleans LA

External Service and Effort

2019-present	Co-Leader of Global Carbon Projects global methane effort.
2020-present	Member of the Science and Technology Working Group for the CT Governor's Council on Climate Change
2019-present	Contributor to Global Carbon Projects RECCAP2
2018-present	Member US Carbon Cycle Aquatic Continuum Science Focus Group
2017-2018	Contributor Author to the US Global Change Research Program Second State of the Carbon Cycle Report

2017-2021	Editor in Chief of Global Biogeochemical Cycles
2016-present	Science Board of Roger Tory Peterson Estuary Center
2016-present	President Branford Land Trust
2016	Participant and member of the writing Team for DOE "Research Priorities to Incorporate Terrestrial-Aquatic Interfaces in Earth System Models
2014-2016	Board of Directors Branford Land Trust
2013-2015	Study Manager and lead author for Connecticut Academy of Sciences and Engineering study "Methods to measure phosphorus limits and make future projections" (Working Group 2 from CT Public Act 12-155). http://www.ctcase.org/reports/phosphorus/phosphorus.pdf
2013-2015	Member NEON Science Symposia and Workshop committee
2010-2015	Associate Editor, Journal of Geophysical Research- Biogeosciences
2012-2013	Steering Committee for 9th International Carbon Dioxide Conference- Beijing
2011-2013	Lead Author of Technical input report "Impacts of climate change on biodiversity, ecosystems and ecosystem services" to 2013 U.S. National Climate Assessment
2011-2014	Contributing author to IPCC AR5 Assessment Report: The Physical Science Basis
2011-2013	Contributor to RECCAP component of Global Carbon Project
2011-2012	Member of the National Climate Assessments Ecosystems, Biodiversity, and Ecosystem Services: Assessing Climate Change Impacts and Evaluating Responses Working Group
2007-2012	Member of the United States Carbon Cycle Scientific Steering Group (CCSSG)
2010-2012	Assistant Chair United States Carbon Cycle Scientific Steering Group
2009	Invited participant in the second workshop of the "Site and Regional Continental Interim Synthesis of the North American Carbon Program". Oak Ridge TN, November 2009
2009	Invited participant in NSF sponsored workshop on "Frontiers in Exploration of the Critical Zone II: The Geobiology of Weathering and Erosion". Washington DC, October 2009.

2009	Invited participant in the Coupled Biogeochemical Event at the Ecological Society of America's annual meeting, August 2009
2008-2010	Contributed to the Coastal Interm Synthesis activities of the North American Carbon program
2008	Invited participated and presented at Terrestrial and Coastal Carbon Fluxes in the Gulf of Mexico scoping workshop in St. Petersburg Florida
2007	External reviewer of the EPA's "Estuarine Nutrient Criteria Development: State of the Science" document
2005	Participant ORION regional planning meeting, Avery Point CT
2005	Invited participant in North American Continental Margins (NACM) workshop, Boulder
2005	International Scientific Steering Committee for the 37th International Colloquium on Ocean Dynamics session on Gas Transfer at Water Surfaces, Leige
2005	Invited participant Hudson River Foundation "State of Knowledge" workshop
2004	Invited participant River Dominated Ocean Margins (RioMAR) workshop, New Orleans
2003	Presenter Northeast Association of Forest Managers annual meeting
2003	Co-Chaired special session INQUA conference, Reno
2003	Co-Chaired special session ERF meeting, Seattle

University Service

2022-present	Advisory Board for the American Journal of Science
2019-present	Member of University Instrumentation Committee
2018-present	Member University Core Facilities Task Force
2018-present	Member YSE Title IX Committee
2017-present	Lead of Yale YSE Climate Initiative
2010-present	Director Yale Analytical and Stable Isotope Center
2014-present	Member Yale Committee of Natural Lands

2008-2021 Member of the Yale Institute for Biospherical Studies faculty council

2014-2015 Standing Advisory and Appointments Committee for the School of Forestry & Environmental Studies

2011-2012 Member of the Yale Climate and Energy Institutes Policy and Strategy Board

2011-2012 Member University Wide Committee on Sexual Misconduct

2008-2012 Member of the Yale Climate and Energy Institute's executive committee

2007-2013 Participant in the Peabody Museum EVOLUTION's program

2002-2010 Member of Center Earth System Science Center for Stable Isotopes Studies faculty advisory board

Doctoral-Student Advising

Chair/Co-Chair

Rebecca Barnes (FES- 2009; received a NSF-Geosciences post doctoral fellowship), David Butman (FES, 2012), Maura Bozeman (FES, 2012), Yong Zhao (FES, in progress), Bryan Yoon (2019), Lisa Walsh (2021), Kelly Aho (2021), Laura Logozzo (in progress), Jonathan Gewirtzman (in progress)

Masters-Student Advising

Alexandra Williamson (2004), Huiyan Zhao (2005). Rishi Das (2005), David Butman (2006), David Grifith (2007), Yong Zhao (2007), James Collins (2011), Hui Wen Cheng (2010), Martin Bouda (2010), Bryan Yoon (2012), Kelly Aho (2015), Emily Ury (2016), Matt Schultz (2016), Elizabeth Creech (2018), Rachel Lowenthal (2018), Yishen Li (2019), Itai Boneh (2021), Ben Girgenti (in progress), Frannie Adams (in progress)

Post Doctoral Associates

Neung Hwan Oh (2003-2005), Henry Wilson (2009-2011, co-advisor), LiQing Jiang (2010-2011,), David Butman (2011-), Jay Zarnetsky (2012-2013), Jake Hosen 2015-present, Wenjun Song (2016-present), Longzhu Shen (2017-2018), Shaoda Liu (2017-2021), Taylor Maavara (2019-present), Meghan Taylor (2019-2021), Judith Rosentreter (2021-present), Maodian Liu (2019-present)

Post Graduates Associates
Mark Hoover (2011-2013)

Dissertation Opponent
Ville Kasurinen, Helsinki University, April 2016
Sivakiruthika Natchimuthu, Linkoping University, May 2016

Dissertation Licentiate Examiner
Audrey Campeau, Uppsala University, February 2016
Liselott Kutch, Stockholm University, June 2016

Undergraduate Senior Thesis/Project
Emily Far (G&G 2014)

Profesional Affiliations (last 5 years)

American Geophysical Union
American Society of Limnology and Oceanography
Estuarine Research Federation
American Association for the Advancement of Science

Peer Review Service

Journals

Limnology & Oceanography, Marine Chemistry, Archiv fuer Hydrobiolobie, Estuaries, Proceedings of the National Academy, Estuary and Coastal Shelf Science, Hydrobiologia Deep Sea Research II, Aquatic Microbial Ecology, Nature, Journal of Geophysical Research- Oceans, Global Biogeochemical Cycles, Geophysical Research Letters, Biogeosciences, Ecol Monogr., Science, Chemical Geology, Geochimica et Cosmochimica Acta, Limnology and Oceanography Methods, Journal of Geophysical Research-Earth Surfaces, European Journal of Soil Science, Ecology , Ecosystems, Marine Geology, Applied Geochemistry, Nature-Geoscience, Oceanography, Global Change Biology, Earth and Planetary Science Letters, Journal of Geophysical Sciences-Biogeosciences, Nature Science Reports, Limnology and Oceanography: Fluids and Environments, Inland Waters, Proceedings of the National Academy of Sciences, Environmental Fluid Mechanics, Environmental Science and Technology, Northeastern Naturalist, Geology.

Books

Chapters: Biogeochemistry of Estuaries

Proposals

National Science Foundation (Ecosystems, Chemical Oceanography, Physical Oceanography, Integrated Carbon Cycle Research, Hydrology, Low Temperature Geochemistry, Margins, Geomorphology and Land-Use Dynamics Program), CALFED, American Chemical Society, Fonds de recherché- Quebec, SeaGrant, Swedish Research Council, European Commission

Panel Service. NSF IGERT pre-proposal (2002), NSF Ecosystems (2005, 2007 and 2008). NSF Ecosystems pre-proposal (2014).