

REBECCA B NEUMANN

Curriculum Vitae

Civil and Environmental Engineering
Wilcox 168
Box 352700
Seattle, WA 98195

Phone: 206.221.298
Fax: 206.685.3836
Email: rbneum@uw.edu

Webpage: <https://www.uwhydrobiogeochem.com/>

EDUCATIONAL HISTORY

Massachusetts Institute of Technology, Cambridge, MA
Ph.D., Environmental Engineering
January 2010
Dissertation: *The Hydrogeochemistry of Pond and Rice Field Recharge:
Implications for the Arsenic Contaminated Aquifers in Bangladesh*

Rice University, Houston, TX
B.S., Civil Engineering
B.A., Art and Art History
January 2002, *magna cum laude*

Highlighted entries new since last merit review

EMPLOYMENT HISTORY

University of Washington, Department of Civil & Environmental Engineering
Seattle, WA, USA
Associate Professor, 2018 – present
Assistant Professor, 2011 – 2018

Harvard University, Department of Organismic & Evolutionary Biology
Cambridge, MA, USA
NOAA Climate and Global Change Postdoctoral Fellow, 2009 – 2011

Massachusetts Institute of Technology, Department of Civil & Environmental Engineering
Cambridge, MA, USA
Graduate Researcher and Teaching Assistant, 2003 – 2009

EG&G Technical Services
Volpe National Transportation Systems Center
Cambridge, MA, USA
Environmental Engineer, 2002 – 2003

Los Alamos National Laboratory
Los Alamos, NM, USA
Engineering Technician, summer 1998, 1999, 2001

AWARDS AND HONORS

- Pack Leader in Laboratory Safety Award, University of Washington Environmental Health & Safety (2021)
- American Geophysical Union's Charles S. Falkenberg Award for contributions to the quality of life, economic opportunities and stewardship of the planet through the use of Earth science information (2018)
- Outstanding Faculty Mentor Award, University of Washington Department of Civil & Environmental Engineering (2017)
- Department of Energy, Office of Science, Early Career Research Award (2013)
- NOAA Climate and Global Change Postdoctoral Fellowship (2009)
- Best Poster Award, Gordon Research Conference, Environmental Sciences: Water (2008)
- Outstanding Student Paper Award, American Geophysical Union Fall Meeting (2007)
- Fellow of the Martin Family Society for Sustainability (2006)
- National Science Foundation Graduate Research Fellowship (2004)
- Massachusetts Institute of Technology's Presidential Fellowship (2003)
- Parish Fellowship and Leadership Rice Envision Grant (2001)
- Max Roy Scholarship for full tuition to Rice University for four years (1997)

PUBLICATIONS

Superscript legend: graduate student¹, undergraduate student^{1*}, high school student^{1**}, technician², and postdoc³ directly supervised by Neumann.

The number of citations according to Google Scholar is listed in parentheses at the end of each reference.

Refereed archival journal publications

Total citations: 2013 (as of 04/24/23); h-index: 20; i10-index: 27

1. **Neumann, R.B.**; Paredes Fernández, S.²; Andrews, L.; Alarcón, J.A.; InterACTION Labs Working Group. Influence of Water Hyacinth (*Eichhornia Crassipes*) on Concentration and Distribution of *Escherichia Coli* in Water Surrounding an Informal Floating Community in Iquitos, Peru. *GeoHealth* **2023**, *7*, e2022GH000768, doi:[10.1029/2022GH000768](https://doi.org/10.1029/2022GH000768).
2. Waldo, N.B.¹; Chistoserdova, L.; Hu, D.; Gough, H.L.; **Neumann, R.B.** Impacts of The Wetland Sedge *Carex Aquatilis* on Microbial Community and Methane Metabolisms. *Plant Soil* **2022**, *471*, 491–506, doi:[10.1007/s11104-021-05239-7](https://doi.org/10.1007/s11104-021-05239-7). (citations: 2)
3. Thelemaque, N.; Cotherman, A.; Pearson, R.; Eichelberger, L.; **Neumann, R.B.**; Kaminsky, J.A. Identifying the Built, Natural, and Social Factors of Successful and Failed Rural Alaskan Water Projects: Perspectives from State and Regional Professionals. *ACS EST Water* **2022**, doi:[10.1021/acsestwater.2c00201](https://doi.org/10.1021/acsestwater.2c00201).
4. Strickman, R.J.³; Larson, S.^{1*}; Huang, H.; Kakouros, E.; Marvin-DiPasquale, M.; Mitchell, C.P.J.; **Neumann, R.B.** The Relative Importance of Mercury Methylation and Demethylation in Rice Paddy Soil Varies Depending on the Presence of Rice Plants. *Ecotoxicology and Environmental Safety* **2022**, *230*, 113143, doi:[10.1016/j.ecoenv.2021.113143](https://doi.org/10.1016/j.ecoenv.2021.113143). (citations: 1)
5. Fung, S.R.¹; Hull, E.A.; Burkart, K.; Gawel, J.E.; Horner-Devine, A.R.; **Neumann, R.B.** Seasonal Patterns of Mixing and Arsenic Distribution in a Shallow Urban Lake. *Water Resources Research* **2022**, *58*, e2022WR032564, doi:[10.1029/2022WR032564](https://doi.org/10.1029/2022WR032564). (citations: 2)

6. Waldrop, M.P.; McFarland, J.; Manies, K.; Leewis, M.C.; Blazewicz, S.J.; Jones, M.C.; **Neumann, R.B.**; Keller, J.K.; Cohen, L.; Euskirchen, E.S.; et al. Carbon Fluxes and Microbial Activities from Boreal Peatlands Experiencing Permafrost Thaw. *J Geophys Res Biogeosci* **2021**, doi:[10.1029/2020JG005869](https://doi.org/10.1029/2020JG005869). (citations: 16)
7. Waldo, N.B.¹; Tfaily, M.M.; Anderton, C.; **Neumann, R.B.** The Importance of Nutrients for Microbial Priming in a Bog Rhizosphere. *Biogeochemistry* **2021**, *152*, 271–290, doi:[10.1007/s10533-021-00754-2](https://doi.org/10.1007/s10533-021-00754-2). (citations: 4)
8. Tao, J.³; Zhu, Q.; Riley, W.J.; **Neumann, R.B.** Warm-Season Net CO₂ Uptake Outweighs Cold-Season Emissions over Alaskan North Slope Tundra under Current and RCP8.5 Climate. *Environ. Res. Lett.* **2021**, *16*, 055012, doi:[10.1088/1748-9326/abf6f5](https://doi.org/10.1088/1748-9326/abf6f5). (citations: 5)
9. Tao, J.³; Zhu, Q.; Riley, W.J.; **Neumann, R.B.** Improved ELMv1-ECA Simulations of Zero-Curtain Periods and Cold-Season CH₄ and CO₂ Emissions at Alaskan Arctic Tundra Sites. *The Cryosphere* **2021**, *15*, 5281–5307, doi:[10.5194/tc-15-5281-2021](https://doi.org/10.5194/tc-15-5281-2021).
10. Paporisch, A.; Bavli, H.; Strickman, R.J.³; **Neumann, R.B.**; Schwartz, N. Root Exudates Alters Nutrient Transport in Soil. *Water Resources Research* **2021**, *57*, e2021WR029976, doi:[10.1029/2021WR029976](https://doi.org/10.1029/2021WR029976). (citations: 4)
11. Marcaida, M.; Farhat, Y.¹; Muth, E.-N.; Cheythyrih, C.; Hok, L.; Holtgrieve, G.; Hossain, F.; **Neumann, R.**; Kim, S.-H. A Spatio-Temporal Analysis of Rice Production in Tonle Sap Floodplains in Response to Changing Hydrology and Climate. *Agricultural Water Management* **2021**, *258*, 107183, doi:[10.1016/j.agwat.2021.107183](https://doi.org/10.1016/j.agwat.2021.107183). (citations: 1)
12. Hull, E.A.; Barajas, M.; Burkart, K.A.; Fung, S.R.¹; Jackson, B.P.; Barrett, P.M.³; **Neumann, R.B.**; Olden, J.D.; Gawel, J.E. Human Health Risk from Consumption of Aquatic Species in Arsenic-Contaminated Shallow Urban Lakes. *Science of The Total Environment* **2021**, 145318, doi:[10.1016/j.scitotenv.2021.145318](https://doi.org/10.1016/j.scitotenv.2021.145318). (citations: 28)
13. Farhat, Y.A.¹; Kim, S.-H.; Seyfferth, A.L.; Zhang, L.; **Neumann, R.B.** Altered Arsenic Availability, Uptake, and Allocation in Rice under Elevated Temperature. *Science of The Total Environment* **2021**, *763*, 143049, doi:[10.1016/j.scitotenv.2020.143049](https://doi.org/10.1016/j.scitotenv.2020.143049). (citations: 26)
14. Emerson, J.B.; Varner, R.K.; Wik, M.; Parks, D.H.; **Neumann, R.B.**; Johnson, J.E.; Singleton, C.M.; Woodcroft, B.J.; Tollerson, R.; Owusu-Dommey, A.; et al. Diverse Sediment Microbiota Shape Methane Emission Temperature Sensitivity in Arctic Lakes. *Nature Communications* **2021**, *12*, 5815, doi:[10.1038/s41467-021-25983-9](https://doi.org/10.1038/s41467-021-25983-9). (citations: 9)
15. Ebi, K.L.; Anderson, C.L.; Hess, J.J.; Kim, S.-H.; Loladze, I.; **Neumann, R.B.**; Singh, D.; Ziska, L.; Wood, R. Nutritional Quality of Crops in a High CO₂ World: An Agenda for Research and Technology Development. *Environmental Research Letters* **2021**, doi:[10.1088/1748-9326/abfcfa](https://doi.org/10.1088/1748-9326/abfcfa). (citations: 31)
16. Ward, N.D.; Megonigal, J.P.; Bond-Lamberty, B.; Bailey, V.L.; Butman, D.; Canuel, E.A.; Diefenderfer, H.; Ganju, N.K.; Goñi, M.A.; Graham, E.B.; Hopkinson, C.S.; Khangaonkar, T. ; Langley, J.A.; McDowell, N.G.; Myers-Pigg, A.N.; **Neumann, R.B.**; Osburn, C.L.; Price, R.M.; Rowland, J.; Sengupta, A.; Simard, M.; Thornton, P.E.; Tzortziou, M.; Vargas, R.; Weisenhorn, R.B.; Windham-Myers L. Representing the Function and Sensitivity of Coastal Interfaces in Earth System Models. *Nature Communications* **2020**, *11*, 2458, doi:[10.1038/s41467-020-16236-2](https://doi.org/10.1038/s41467-020-16236-2). (citations: 114)
17. Turner, J.C.^{1*2}; Moorberg, C.J.³; Wong, A.; Shea, K.; Waldrop, M.P.; Turetsky, M.R.; **Neumann, R.B.** Getting to the Root of Plant-Mediated Methane Emissions and Oxidation in a Thermokarst Bog. *Journal of Geophysical Research: Biogeosciences* **2020**, *125*, e2020JG005825, doi:<https://doi.org/10.1029/2020JG005825>. (citations: 23)

18. Wilson, R.M.; **Neumann, R.B.**; Crossen, K.B.; Raab, N.M.; Hodgkins, S.B.; Saleska, S.R.; Bolduc, B.; Woodcroft, B.J.; Tyson, G.W.; Chanton, J.P.; et al. Microbial Community Analyses Inform Geochemical Reaction Network Models for Predicting Pathways of Greenhouse Gas Production. *Frontiers in Earth Science* **2019**, *7*, doi:[10.3389/feart.2019.00059](https://doi.org/10.3389/feart.2019.00059). (citations: 15)
19. Waldo, N.B.¹; Hunt, B.K.; Fadely, E.C.; Moran, J.J.; **Neumann, R.B.** Plant Root Exudates Increase Methane Emissions through Direct and Indirect Pathways. *Biogeochemistry* **2019**, *145*, 213–234, doi:[10.1007/s10533-019-00600-6](https://doi.org/10.1007/s10533-019-00600-6). (citations: 42)
20. **Neumann, R.B.**; Moorberg, C.J.³; Lundquist, J.D.; Turner, J.C.^{1*2}; Waldrop, M.P.; McFarland, J.W.; Euskirchen, E.S.; Edgar, C.W.; Turetsky, M.R. Warming Effects of Spring Rainfall Increase Methane Emissions From Thawing Permafrost. *Geophysical Research Letters* **2019**, *46*, 1393–1401, doi:[10.1029/2018GL081274](https://doi.org/10.1029/2018GL081274). (citations: 65)
21. Gillispie, E.C.; Matteson, A.R.; Duckworth, O.W.; **Neumann, R.B.**; Phen, N.; Polizzotto, M.L. Chemical Variability of Sediment and Groundwater in a Pleistocene Aquifer of Cambodia: Implications for Arsenic Pollution Potential. *Geochimica et Cosmochimica Acta* **2019**, *245*, 441–458, doi:[10.1016/j.gca.2018.11.008](https://doi.org/10.1016/j.gca.2018.11.008). (citations: 27)
22. Barrett, P.M.³; Hull, E.A.; Burkart, K.; Hargrave, O.; McLean, J.; Taylor, V.F.; Jackson, B.P.; Gawel, J.E.; **Neumann, R.B.** Contrasting Arsenic Cycling in Strongly and Weakly Stratified Contaminated Lakes: Evidence for Temperature Control on Sediment–Water Arsenic Fluxes. *Limnology and Oceanography* **2019**, *64*, 1333–1346, doi:[10.1002/lno.11119](https://doi.org/10.1002/lno.11119). (citations: 26)
23. Pracht, L.E.¹; Tfaily, M.M.; Ardissono, R.J.^{1*}; **Neumann, R.B.** Molecular Characterization of Organic Matter Mobilized from Bangladeshi Aquifer Sediment: Tracking Carbon Compositional Change during Microbial Utilization. *Biogeosciences* **2018**, *15*, 1733–1747, doi:[10.5194/bg-15-1733-2018](https://doi.org/10.5194/bg-15-1733-2018). (citations: 39)
24. Barrett, P.M.³; Hull, E.A.; King, C.E.; Burkart, K.; Ott, K.A.; Ryan, J.N.; Gawel, J.E.; **Neumann, R.B.** Increased Exposure of Plankton to Arsenic in Contaminated Weakly-Stratified Lakes. *Science of The Total Environment* **2018**, *625*, 1606–1614, doi:[10.1016/j.scitotenv.2017.12.336](https://doi.org/10.1016/j.scitotenv.2017.12.336). (citations: 22)
25. **Neumann, R.B.**; Seyfferth, A.L.; Teshera-Levy, J.²; Ellingson, J.^{1*} Soil Warming Increases Arsenic Availability in the Rice Rhizosphere. *Agricultural & Environmental Letters* **2017**, *2*, doi:[10.2134/acl2017.02.0006](https://doi.org/10.2134/acl2017.02.0006). (citations: 28)
26. Lin, T.Y.; Hafeznezami, S.; Rice, L.; Lee, J.; Maki, A.; Sevilla, T.; Stahl, M.; **Neumann, R.B.**; Harvey, C.; Suffet, I.H.M.; Badruzzaman, A.B.M.; Jay, J.A. Arsenic Oxyanion Binding to NOM from Dung and Aquaculture Pond Sediments in Bangladesh: Importance of Site-Specific Binding Constants. *Applied Geochemistry* **2017**, *78*, 234–240, doi:[10.1016/j.apgeochem.2016.12.026](https://doi.org/10.1016/j.apgeochem.2016.12.026). (citations: 12)
27. Espeleta, J.F.³; Cardon, Z.G.; Mayer, K.U.; **Neumann, R.B.** Diel Plant Water Use and Competitive Soil Cation Exchange Interact to Enhance NH₄⁺ and K⁺ Availability in the Rhizosphere. *Plant and Soil* **2017**, *414*, 33–51, doi:[10.1007/s11104-016-3089-5](https://doi.org/10.1007/s11104-016-3089-5). (citations: 19)
28. **Neumann, R.B.**; Blazewicz, S.J.; Conaway, C.H.; Turetsky, M.R.; Waldrop, M.P. Modeling CH₄ and CO₂ Cycling Using Porewater Stable Isotopes in a Thermokarst Bog in Interior Alaska: Results from Three Conceptual Reaction Networks. *Biogeochemistry* **2016**, *127*, 57–87, doi:[10.1007/s10533-015-0168-2](https://doi.org/10.1007/s10533-015-0168-2). (citations: 33)
29. **Neumann, R.B.**; Pracht, L.E.¹; Polizzotto, M.L.; Badruzzaman, A.B.M.; Ali, M.A. Sealing Rice Field Boundaries in Bangladesh: A Pilot Study Demonstrating Reductions in Water Use, Arsenic Loading to Field Soils, and Methane Emissions from Irrigation Water. *Environmental Science & Technology* **2014**, *48*, 9632–9640, doi:[10.1021/es500338u](https://doi.org/10.1021/es500338u). (citations: 11)

30. **Neumann, R.B.**; Pracht, L.E.¹; Polizzotto, M.L.; Badruzzaman, A.B.M.; Ali, M.A. Biodegradable Organic Carbon in Sediments of an Arsenic-Contaminated Aquifer in Bangladesh. *Environmental Science & Technology Letters* **2014**, *1*, 221–225, doi:[10.1021/ez5000644](https://doi.org/10.1021/ez5000644). (citations: 67)
31. **Neumann, R.B.**; Cardon, Z.G.; Teshera-Levy, J.; Rockwell, F.E.; Zwieniecki, M.A.; Holbrook, N.M. Modelled Hydraulic Redistribution by Sunflower (*Helianthus Annuus* L.) Matches Observed Data Only after Including Night-Time Transpiration: HR Model with Night-Time Transpiration Fits Data. *Plant, Cell & Environment* **2014**, *37*, 899–910, doi:[10.1111/pce.12206](https://doi.org/10.1111/pce.12206). (citations: 20)
32. Polizzotto, M.L.; Lineberger, E.M.; Matteson, A.R.; **Neumann, R.B.**; Badruzzaman, A.B.M.; Ashraf Ali, M. Arsenic Transport in Irrigation Water across Rice-Field Soils in Bangladesh. *Environmental Pollution* **2013**, *179*, 210–217, doi:[10.1016/j.envpol.2013.04.025](https://doi.org/10.1016/j.envpol.2013.04.025). (citations: 68)
33. **Neumann, R.B.**; Cardon, Z.G. The Magnitude of Hydraulic Redistribution by Plant Roots: A Review and Synthesis of Empirical and Modeling Studies: Tansley Review. *New Phytologist* **2012**, *194*, 337–352, doi:[10.1111/j.1469-8137.2012.04088.x](https://doi.org/10.1111/j.1469-8137.2012.04088.x). (citations: 305)
34. **Neumann, R.B.**; St. Vincent, A.P.^{1*}; Roberts, L.C.; Badruzzaman, A.B.M.; Ali, M.A.; Harvey, C.F. Rice Field Geochemistry and Hydrology: An Explanation for Why Groundwater Irrigated Fields in Bangladesh Are Net Sinks of Arsenic from Groundwater. *Environmental Science & Technology* **2011**, *45*, 2072–2078, doi:[10.1021/es102635d](https://doi.org/10.1021/es102635d). (citations: 70)
35. **Neumann, R.B.**; Ashfaq, K.N.; Badruzzaman, A.B.M.; Ali, M.A.; Shoemaker, J.K.; Harvey, C.F. Reply to 'Aquifer Arsenic Source'. *Nature Geoscience* **2011**, *4*, 656–656. (citations: 10)
36. **Neumann, R.B.**; Ashfaq, K.N.; Badruzzaman, A.B.M.; Ashraf Ali, M.; Shoemaker, J.K.; Harvey, C.F. Anthropogenic Influences on Groundwater Arsenic Concentrations in Bangladesh. *Nature Geoscience* **2010**, *3*, 46–52, doi:[10.1038/ngeo685](https://doi.org/10.1038/ngeo685). (citations: 390)
37. **Neumann, R.B.**; Polizzotto, M.L.; Badruzzaman, A.B.M.; Ali, M.A.; Zhang, Z.S.^{1**}; Harvey, C.F. Hydrology of a Groundwater-Irrigated Rice Field in Bangladesh: Seasonal and Daily Mechanisms of Infiltration. *Water Resources Research* **2009**, *45*, doi:[10.1029/2008WR007542](https://doi.org/10.1029/2008WR007542). (citations: 57)
38. **Neumann, R.B.**; LaBolle, E.M.; Harvey, C.F. The Effects of Dual-Domain Mass Transfer on the Tritium–Helium-3 Dating Method. *Environmental Science & Technology* **2008**, *42*, 4837–4843, doi:[10.1021/es7025246](https://doi.org/10.1021/es7025246). (citations: 20)
39. Harvey, C.F.; Ashfaq, K.N.; Yu, W.; Badruzzaman, A.B.M.; Ali, M.A.; Oates, P.M.; Michael, H.A.; **Neumann, R.B.**; Beckie, R.; Islam, S.; et al. Groundwater Dynamics and Arsenic Contamination in Bangladesh. *Chemical Geology* **2006**, *228*, 112–136, doi:[10.1016/j.chemgeo.2005.11.025](https://doi.org/10.1016/j.chemgeo.2005.11.025). (citations: 384)

Other significant research dissemination

Consortium Authorship:

1. Fremin, B.J.; Bhatt, A.S.; Kyrpides, N.C.; Sengupta, A.; Sczyrba, A.; Maria da Silva, A.; Buchan, A.; Gaudin, A.; Brune, A.; Hirsch, A.M.; et al. Thousands of Small, Novel Genes Predicted in Global Phage Genomes. *Cell Reports* **2022**, *39*, 110984, doi:[10.1016/j.celrep.2022.110984](https://doi.org/10.1016/j.celrep.2022.110984).
2. Nayfach, S.; Roux, S.; Seshadri, R.; Udwy, D.; Varghese, N.; Schulz, F.; Wu, D.; Paez-Espino, D.; Chen, I.-M.; Huntemann, M.; et al. A Genomic Catalog of Earth's Microbiomes. *Nature Biotechnology* **2020**, 1–11, doi:[10.1038/s41587-020-0718-6](https://doi.org/10.1038/s41587-020-0718-6).

Media Coverage and Outreach Products:

- EOS News, “[Understanding enhanced arsenic pollution in shallow lakes](#)” by Marc F.P. Bierkens. November 29, 2022.
- Guest discussing climate change on [The Everything Else Show](#), a YouTube show reaching a diverse audience that includes climate-change deniers. January 19, 2022.
- [KIRO 7 New Coverage](#) of Hull et al. (2021) showing human health effects of arsenic contaminated fish in Puget Sound lakes. September 26, 2021. Dr. Neumann interviewed for the piece.
- Town Hall Seattle. [UW Engage Science: Impact of Environment on Rice](#), by Yasmine Farhat. May 24, 2021.
- [Recorded public meeting and Q&A](#) regarding risk analysis for arsenic in lakes, January 13, 2021.
- EOS News, “[Will rising temperatures make rice too toxic to eat?](#)” by Nikk Ogasa. December 2, 2020
- Washington State Lake Protection Association Newsletter, “[Seasonal mixing patterns in shallow lake controls vertical distribution of arsenic](#)” by Samantha Fung. December 2019
- UW News, “[Warmer temperatures will increase arsenic level in rice, study show](#)” by Sarah McQuate. December 2019 (lead to coverage by KUOW FM Seattle)
- Informational and artistic video about methylmercury contamination of rice, “[Healthy rice for a growing world](#)” by Rachel Strickman. November 2019
- UW CEE News, “[Lakes with a legacy](#)” by Brooke Fisher. October 2019
- Washington State Lake Protection Association Newsletter, “[Arsenic mobility and bioavailability in South King County lakes](#),” by Jim Gawel et al. August 2019
- UW CEE News, “[Safeguarding a staple food](#),” by Brooke Fisher. June 2019
- UW Tacoma News, “[Diving for data: solving the arsenic riddle](#),” by John Burkhardt. April 2019
- UW News, “[Early spring rain boosts methane from thawing permafrost by 30 percent](#),” by Sarah McQuate. February 2019 (lead to coverage of story by multiple different media outlets)

MISCELLANEOUS

Outside Professional Work for Compensation (1460s)

Name of Organization	Start Date	End Date	Number of Days	Description of Activity
Frontier / Stripe	10/2022	11/2022	5	Provided scientific review of proposed carbon dioxide removal (CDR) projects seeking funding from Frontier/Stripe. Evaluated the ability of projects to remove carbon dioxide for >1,000 years and their likelihood of success.
Independent Consultant	2017	2021	168 hours = 21 work days	Provided expert advice to the Port of Tacoma for remediating an arsenic-contaminated site. Worked with consultants to design sampling and analysis plans and interpret data. Collaborated in development of a flow and transport model. Presented findings to site managers at the Department of Ecology.

OTHER SCHOLARLY ACTIVITY

Invited lectures and seminars

1. Symposium: Enhanced Rock Weathering, hosted by Yale Center for Natural Carbon Capture. Invited panelist for *Panel 1: Scientific Unknowns*. (April 2023).
2. Workshop: Resilience Planning for Small and Medium Water Systems in Washington, hosted by Climate Impacts Group at UW and Office of Drinking Water at Washington Department of Health, *Climate Impacts on Groundwater Quantity & Quality*. (March 2022)
3. University of Minnesota, St. Anthony Falls Laboratory Bi-weekly seminar series, *Transport of thermal energy by rain in thawing permafrost landscapes*. (March 2020)
4. Massachusetts Institute of Technology, Department of Civil & Environmental Engineering Seminar Series, *Transport of thermal energy by rain in thawing permafrost landscapes*. (September 2020)
5. University of New Mexico, Department of Earth and Planetary Sciences Seminar Series, *Human and ecosystem health: arsenic in food, water, plants and animals*. (September 2020)
6. Interagency Arctic Research Policy Committee, *Transport of thermal energy by rain in permafrost landscapes*. (April 2020); given jointly with Joel F Eklof
7. UW College of Engineering Lecture Series: The Future of Food, *Human and ecosystem health: arsenic in food, water, plants and animals*. (October 2019)
8. Environmental Molecular Sciences Laboratory, Pacific Northwest National Laboratory, *Rain increases methane production and methane oxidation in a boreal thermokarst bog*. (August 2017).
9. University of Washington, Program on Climate Change Summer Institute at Friday Harbor, *Global warming and food quality: initial investigations into the impact of elevated soil temperature on arsenic biogeochemistry and arsenic uptake by rice*. (September 2015).
10. University of Washington, Department of Civil and Environmental Engineering, *Climate change and arsenic uptake by rice: impact of elevated soil temperature on rhizosphere arsenic biogeochemistry and arsenic uptake by rice*. (February 2015).
11. University of British Columbia, Department of Earth, Ocean and Atmospheric Sciences, *Climate change and arsenic uptake by rice: Impact of elevated soil temperature on rhizosphere arsenic biogeochemistry and arsenic uptake by rice*. (January 2015).
12. University of Washington, School of Environmental and Forest Sciences, *Climate change and arsenic uptake by rice: impact of elevated soil temperature on rhizosphere oxygen dynamics and arsenic concentrations in rice tissue*. (October 2014).
13. University of Delaware, Plant and Soil Sciences, *Climate change and arsenic uptake by rice: impact of elevated soil temperature on rhizosphere oxygen dynamics and arsenic concentrations in rice tissue*. (September 2014).
14. University of Washington, Department of Civil and Environmental Engineering, *The bioavailability of organic carbon in recharge water and aquifer sediment: implications for groundwater arsenic contamination in Bangladesh*. (June 2014).
15. Environmental Molecular Sciences Laboratory, Pacific Northwest National Laboratory, *The magnitude and timing of hydraulic redistribution by sunflower (*Helianthus annuus*): an empirical and modeling investigation*. (September 2013).
16. University of Washington, Department of Civil and Environmental Engineering, *Arsenic contaminated groundwater in Bangladesh: the role of surface recharge*. (October 2012)

17. Washington State University, Department of Civil and Environmental Engineering, *The magnitude and timing of hydraulic redistribution by sunflower (Helianthus annuus): an empirical and modeling investigation*. (September 2012).
18. University of California Los Angeles, Department of Civil and Environmental Engineering, *Arsenic contaminated groundwater in Bangladesh: the role of surface recharge*. (March 2012).
19. University of Washington Tacoma, Environmental Science Department, *The hydrogeochemistry of pond and rice field recharge: implications for arsenic contaminated aquifers in Bangladesh*. (October 2011).
20. University of Washington, Program on Climate Change, *The hydrogeochemistry of pond and rice field recharge: implications for arsenic contaminated aquifers in Bangladesh*. (October 2011).
21. University of Washington, Chemical Oceanography, *The hydrogeochemistry of pond and rice field recharge: implications for arsenic contaminated aquifers in Bangladesh*. (September 2011).
22. Wellesley College, Geoscience Department, *The hydrogeochemistry of pond and rice field recharge: implications for arsenic contaminated aquifers in Bangladesh*. (April 2011).
23. Harvard School of Public Health, Department of Environmental Health. *The hydrogeochemistry of pond and rice field recharge: implications for arsenic contaminated aquifers in Bangladesh*. (December 2010).
24. Marine Biological Laboratories, Ecosystem Center, *The hydrogeochemistry of pond and rice field recharge: implications for arsenic contaminated aquifers in Bangladesh*. (February 2010).
25. Harvard School of Public Health, Superfund Research Program, *The hydrogeochemistry of pond and rice field recharge: implications for arsenic contaminated aquifers in Bangladesh*. (November 2009).
26. US Geological Survey, Denver Office, *The arsenic contamination problem in Bangladesh: investigating the role of rice fields*. (May 2005).

Presentations given at conferences and professional meetings.

Superscript legend: graduate student¹, undergraduate student^{1*}, technician² and postdoc³ directly supervised by Neumann. The presenter is in bold. Only presentations by Neumann, her students and her postdoctoral researchers are listed.

1. **Eklof, J.**¹, J.D. Lundquist, M.P. Waldrop, J. Tao, B. Dafflon, K. Ring², R.B. Neumann. "Thermals Regimes Observed at a Discontinuous Permafrost Site in Interior, Alaska." *American Geophysical Union*, Chicago, IL (December 2022).
2. **Fung S.R.**¹, J.E. Gawel, A. Horner-Devine, R.B. Neumann. "Short-term patterns of summer arsenic cycling in a temperate, polymictic lake." *Washington Lake Protection Association Annual Meeting*, Richland, WA (October 2022).
3. **Fung S.R.**¹, J.E. Gawel, A. Horner-Devine, R.B. Neumann. "Short-term patterns of summer arsenic cycling in a temperate, polymictic lake." *Physical Processes in Natural Waters 2022*, Vancouver, BC (July 2022).
4. **Tao, J.**³, Q. Zhu, W.J. Riley, G. Bisht, J. Eklof, R.B. Neumann. "The role of advective heat transfer in affecting permafrost thaw and methane emissions at a hillslope thermokarst bog." *2021 American Geophysical Union Fall Meeting*, New Orleans, LA (December 2021).
5. **Farhat, Y.A.**¹, S.-H. Kim, A Seyfferth, L Zhang, R.B. Neumann. "Factors contributing to increased arsenic in rice under warmer temperatures." *American Geophysical Union Fall Meeting*, New Orleans, LA (December 2021).

6. **Eklof, J.F.**¹, MP. Waldrop, B. Dafflon, B.M. Jones, J. Tao³, **R.B. Neumann**. “High-Resolution Thaw Dynamics of Two Latitudinally Distant Alaska Thermokarst Sites: A Field Study.” *American Geophysical Union Fall Meeting*, New Orleans, LA (December 2021).
7. **Tao, J.**³, Q. Zhu, W.J. Riley, **R.B. Neumann**. “The increasing trend in warm-season net CO₂ uptake outweighs that in cold-season emissions from the Alaskan Arctic tundra under a warming climate.” *2020 American Geophysical Union Fall Meeting*, remote (December 2020).
8. **Neumann, R.B.**, J. Eklof¹, M.P. Waldrop, B.M. Jones, C.J. Moorberg³, J. Lundquist, J. Turner^{1*2}, J.W. Mcfarland, E.S. Euskirchen, C. Edgar, M.R. Turetsky. “Thermal transport by rain into thawing permafrost landscapes (invited).” *2020 American Geophysical Union Fall Meeting*, remote (December 2020).
9. **Eklof, J.**¹, M.P. Waldrop, B.M. Jones, J. Lundquist, **R.B. Neumann**. “Ability of thermal energy from rainfall to warm and thaw soils at a thermokarst site in south-central Alaska.” *2020 American Geophysical Union Fall Meeting*, remote (December 2020).
10. **Farhat, Y.A.**¹, L. Zhang, S.-H. Kim, **R.B. Neumann**. “Understanding the mechanisms associated with elevated temperature and increased arsenic in rice.” *American Geophysical Union Fall Meeting*, online (December 2020).
11. **Farhat, Y.A.**¹, G.W. Holtgrieve, M. Marcaida, S.-H. Kim, **R.B. Neumann**. “Connections Between Floodplain Location and Soil Mineral Nutrition in the Tonle Sap Floodplain, Cambodia (invited).” *American Geophysical Union Fall Meeting*, online (December 2020).
12. **Fung S.R.**¹, E.A. Hull, K. Burkart, M. Barajas, J.E. Gawel, A. Horner-Devine, **R.B. Neumann**. “Impacts of stratification and mixing patterns on arsenic mobilization and health risks in urban lakes.” *2020 NIEHS Superfund Research Program Annual Meeting*, online (December 2020).
13. **Fung S.R.**¹, E.A. Hull, K. Burkart, M. Barajas, J.E. Gawel, A. Horner-Devine, **R.B. Neumann**. “Seasonal patterns of mixing and arsenic concentrations in a small, arsenic contaminated lake.” *WALPA Annual Conference*, online (October 2020).
14. **Fung, S.R.**¹, E.A. Hull, K. Burkart, M. Barajas, J.E. Gawel, A. Horner-Devine, **R.B. Neumann**. “Vertical flux of arsenic from lakebed sediments: mixing patterns and seasonal arsenic regimes.” *2019 Ocean Sciences Meeting*, San Diego, CA (February 2020).
15. **Strickman, R.J.**³, C.P.J. Mitchell, M.C. Marvin-DiPasquale, **R.B. Neumann**. “Relationship of mercury methylation and demethylation potential rates to methylmercury concentrations in vegetated and unvegetated rice paddy soil.” *2019 American Geophysical Union Fall Meeting*, San Francisco, CA (December 2019).
16. **Neumann, R.B.**, P.M. Barrett, E.A. Hull, S.R. Fung, K. Burkart, C.E. King, O. Hargrave, A.R. Horner-Devine, J.D. Olden, J.E. Gawel, **R.B. Neumann**. “Legacy arsenic contamination in urban lakes: the unique vulnerability of shallow weakly-stratified lakes.” *2019 American Geophysical Union Fall Meeting*, San Francisco, CA (December 2019).
17. **Farhat, Y.A.**¹, S.H. Kim, S. Strant, L. Zhang, **R.B. Neumann**. “Climate change and food quality: altered arsenic availability and uptake in rice under a hotter future.” *2019 American Geophysical Union Fall Meeting*, San Francisco, CA (December 2019).
18. **Eklof, J.F.**¹, MP. Waldrop, B. Jones, **R.B. Neumann**. “Thaw dynamics of a rapidly degrading isolated permafrost plateau in south-center Alaska. *2019 American Geophysical Union Fall Meeting*, San Francisco, CA (December 2019).

19. **Strickman, R.J.**³, C.P.J. Mitchell, M.C. Marvin-DiPasquale, R.B. Neumann. “Elevated CO₂ may increase methylmercury accumulation in rice grain.” *14th International Conference on Mercury as a Global Pollutant*, Krakow, Poland (September 2019).
20. **Fung, S.R.**¹, E.A. Hull, K. Burkart, M. Barajas, J.E. Gawel, A. Horner-Devine, R.B. Neumann. “Vertical flux of arsenic from lakebed sediments: mixing patterns and seasonal arsenic regimes.” *2019 Washington Lake Protection Association Annual Meeting*, Chelan, WA (October 2019)
21. **Fung, S.R.**¹, E.A. Hull, K. Burkart, M. Barajas, J.E. Gawel, A. Horner-Devine, R.B. Neumann. “Vertical flux of arsenic from lakebed sediments: external forcing mechanisms and lake mixing patterns.” *2019 Superfund Research Program Meeting*, Seattle, WA (November 2019)
22. **Neumann, R.B.**, P.M. Barrett³, E.A. Hull, S.R. Fung, K. Burkart, C.E. King, O. Hargrave^{1*}, A. Horner-Devine, J.E. Gawel. “Legacy arsenic contamination in freshwater ecosystems: the unique vulnerability of shallow weakly-stratified lakes.” Keynote presentation. *2018 Superfund Research Program Meeting*, Sacramento, CA (November 2018)
23. **Fung, S.**¹, E.A. Hull, K. Burkart, J.E. Gawel, A. Horner-Devine, R.B. Neumann. “An examination of processes influencing vertical flux of arsenic from lakebed sediment.” *2018 Superfund Research Program Meeting*, Sacramento, CA (November 2018)
24. **Barrett, P.M.**³, E.A. Hull, K. Burkart, V.F. Taylor, B.P. Jackson, J.E. Gawel, R.B. Neumann. “Chemical speciation and biological uptake of arsenic in urban lakes with legacy pollution in lakebed sediment.” K.C. Donnelly Speaker. *2018 Superfund Research Program Meeting*, Sacramento, CA (November 2018)
25. **Waldo, N.B.**¹, M.M. Tfaily, J. Moran, D. Hu, J.B. Cliff, H.L. Gough, L. Chistoserdova, D. Beck, R.B. Neumann. “Using mass spectroscopy to examine wetland carbon flow from plants to methane.” *2017 American Geophysical Union Fall Meeting*, New Orleans, LA (December 2017).
26. **Waldo, N.B.**¹, R.B. Neumann. “Tiny and hidden but changing your world: the importance of soil microbes to climate change.” *2017 American Geophysical Union Fall Meeting*, New Orleans, LA (December 2017).
27. **Neumann, R.B.**, C.J. Moorberg³, J.C. Turner^{1*2}, A. Wong¹, M.P. Waldrop, E.S. Eukirchen, C. Edgar, M.R. Turetsky. “Rain increases methane production and methane oxidation in a boreal thermokarst bog.” *2017 American Geophysical Union Fall Meeting*, New Orleans, LA (December 2017).
28. **Neumann, R.B.**, C.J. Moorberg³, J.C. Turner^{1*2}, A. Wong¹, M.P. Waldrop, E.S. Eukirchen, C. Edgar, M.R. Turetsky. “Environmental change and the conversion of permanently frozen ground to wetlands.” *2017 American Geophysical Union Fall Meeting*, New Orleans, LA (December 2017).
29. **Pracht, L.E.**¹, B. Beaulieu, B.D. Kocar, R.B. Neumann. “Evaluation of the mechanisms of arsenic sequestration in in-situ groundwater treatment systems implementing induced sulfate reduction via permeable reactive barriers with and without utilization of zero-valent iron.” *11th Washington Hydrogeology Symposium*, Tacoma, WA. (May 2017).
30. **Moorberg, C.J.**³, J.C. Turner^{1*2}, A. Wong¹, M.P. Waldrop, E. Eukirchen, C. Edgar, M.R. Turetsky, R.B. Neumann. “Rain promotes methane production and methane oxidation in a thermokarst bog in Interior Alaska.” *2017 Environmental System Science Principle Investigators Meeting*, Patomac, MD. (April 2017).
31. **Waldo, N.B.**¹, R.J. Ardisson^{1*}, E.C. Fadely^{1*}, B.K. Hunt^{1*}, H.L. Gough, L. Chistoserdova, D. Beck, R.B. Neumann. “A rhizosphere-scale investigation of root effects on wetland methane dynamics: a FICUS project.” *Genomics of Energy and Environment Meeting*, Walnut Creek, CA (March 2017).

32. **Barrett, P.M.**³, E.A. Hull, C.E. King, J.E. Gawel, R.B. Neumann, “Bioaccumulation of arsenic in aquatic food webs of contaminated lakes in the Puget Sound lowland.” *Association for the Sciences of Limnology and Oceanography 2017 Meeting*, Honolulu, HI. (February 2017).
33. **Neumann, R.B.**, L.E. Pracht¹, M.M. Tfaily. “Molecular characterization of dissolved organic matter mobilized from Bangladeshi aquifer sediment: tracking compositional change during microbial utilization.” *Association for the Sciences of Limnology and Oceanography 2017 Meeting*, Honolulu, HI. (February 2017).
34. **Pracht, L.E.**¹, M.L. Polizzotto, R.B. Neumann. “Microbially-mediated destabilization of sedimentary organic carbon: Isotopic tracking of carbon movement in laboratory incubations of glucose-amended aquifer sediment to determine priming effects.” *2016 American Geophysical Union Fall Meeting*, San Francisco, CA. (December 2016).
35. **Waldo, N.B.**¹, B.K. Hunt^{1*}, H.L. Gough, E.C. Fadely^{1*}, L. Chistoserdova, D. Beck, R.B. Neumann. “A rhizosphere-scale investigation of root effects on wetland methane dynamics.” *2016 American Geophysical Union Fall Meeting*, San Francisco, CA. (December 2016).
36. **Barrett, P.M.**³, E.A. Hull, C.E. King, J.E. Gawel, R.B. Neumann, “Enhanced transfer of arsenic into the aquatic food web in contaminated, oxic lakes in the Puget Sound lowland.” *NIEHS Environmental Health Science FEST*. Durham, NC. (December 2016).
37. **Waldo, N.B.**¹, E.C. Fadely^{1*}, B.K. Hunt^{1*}, H.L. Gough, L. Chistoserdova, D. Beck, R.B. Neumann. “A rhizosphere-scale investigation of root effects on wetland methane dynamics” *EMSL Integration 2016: Multiscale Ecosystems Analysis & Design*, Richland, WA. (September 2016).
38. **Barrett, P.M.**³, E.A. Hull, C.E. King, J.E. Gawel, R.B. Neumann, “Enhanced transfer of arsenic into the aquatic food web in contaminated, oxic lakes in the Puget Sound lowland.” *Gordon Research Conference, Environmental Sciences: Water*, Holderness, NH. (June 2016).
39. **Neumann, R.B.**, C.J. Moorberg³, A. Wong¹, M.P. Waldrop, M.R. Turetsky, “Methane flux and oxidation in a thermokarst bog in Interior Alaska: The role of plants.” *2016 Environmental System Science Principle Investigators Meeting*, Patomac, MD. (April 2016).
40. **Neumann, R.B.**, N.B. Waldo¹, B. Hunt^{1*}, H.L. Gough, L. Chistoserdova, D.A.C. Beck, “A rhizosphere-scale investigation of the relationship between plant productivity and methane emissions from wetlands.” *2016 Environmental System Science Principle Investigators Meeting*, Patomac, MD. (April 2016).
41. **Waldo, N.B.**¹, B.K. Hunt^{1*}, H.L. Gough, L. Chistoserdova, D.A.C. Beck, R.B. Neumann, “Effects of plant productivity on wetland methane dynamics: a rhizosphere-scale investigation.” *2016 Environmental System Science Principle Investigators Meeting*, Patomac, MD. (April 2016).
42. **Hunt, B.K.**^{1*}, N.B. Waldo¹, R.B. Neumann. “Quantitative oxygen concentration data at depth: the theory, methodology, and application of optodes” *7th Annual ESS Research Gala*, Seattle, WA. (March 2016).
43. **Neumann, R.B.**, C.J. Moorberg³, A. Wong¹, M.L. Waldrop, M.R. Turetsky, “Seasonal oxygen dynamic in a thermokarst bog in Interior Alaska: implications for rates of methane oxidation.” *2015 American Geophysical Union Fall Meeting*, San Francisco, CA. (December 2015).
44. **Waldo, N.B.**¹, F. Aslkhodapasand¹, C.J. Moorberg³, M.P. Waldrop, M.R. Turetsky, R.B. Neumann, “Location of methane oxidation in a boreal bog and fen: unsaturated zone or oxic water layer?” *2015 American Geophysical Union Fall Meeting*, San Francisco, CA. (December 2015).

45. **Neumann, R.B.**, J.F. Espeleta³, Z.G. Cardon, K.U. Mayer, E.B. Rastetter, “Nutrient hotspots and hot moments in the rhizosphere generated by oscillatory water flow and soil cation exchange. (Invited)” *2015 Geological Society of America Annual Meeting*, Baltimore, MD. (November 2015).
46. **Neumann, R.B.**, A.L. Seyfferth, J. Teshera-Levy², J. Ellingson^{1*}, “Elevated soil temperature increases arsenic uptake by rice and arsenic concentration in rice tissues: a pot experiment.” *2015 Geological Society of America Annual Meeting*, Baltimore, MD. (November 2015).
47. **Moorberg, C.J.**³, **R.B. Neumann**, “Rhizosphere methane oxidation in thermokarst bogs in the interior of Alaska.” *2015 ASA, CSA, SSSA International Annual Meetings — Synergy in Science: Partnering for Solutions*. Minneapolis, MN, (November 2015).
48. **Neumann, R.B.**, L.E. Pracht¹, R.J. Ardissono III^{1*}, M.L. Pollizzotto, A.B.M. Badruzzaman, M.M. Tfaily, “Biodegradable organic carbon in aquifer sediment from Bangladesh: implications for groundwater arsenic contamination.” *2015 Geological Society of America Annual Meeting*, Baltimore, MD. (November 2015).
49. **Ardissono III, R.J.**^{1*}, **R.B. Neumann**, J. Gawel, E. Hull, C. King, J. Ryan, "Characterizing organic carbon in an arsenic contaminated oxic lake." *2015 Washington Lake Protection Association Conference*, Walla Walla, WA. (October 2015).
50. **Waldo, N.B.**¹, A.S. Wong¹, C.J. Moorberg³, M.P. Waldrop, M.R. Turetsky, **R.B. Neumann**, “Using optical oxygen sensors and injection experiments to determine *in situ* microbial rate constants for methane oxidation and heterotrophic respiration in a boreal bog and fen” *2015 UW Program on Climate Change Summer Institute*, Friday Harbor, WA. (September 2015).
51. **Neumann, R.B.**, C.J. Moorberg³, M.P. Waldrop, M.R. Turetsky, “Seasonal oxygen dynamics in a thermokarst bog in Interior Alaska: implications for rates of methane oxidation.” *2015 Environmental System Science Principle Investigators Meeting*, Patomac, MD. (April 2015).
52. **Aslkhodapasand, F.**¹, K.U. Mayer, **R.B. Neumann**, “A mechanistic model of microbial competition in the rhizosphere of wetland plants.” *2014 American Geophysical Union Fall Meeting*, San Francisco, CA. (December 2014).
53. **Espeleta, J.F.**³, **R.B. Neumann**, Z.G. Cardon, K.U. Mayer, E.B. Rastetter, “Plant root-driven hydraulic redistribution, root nutrient uptake and carbon exudation interact with soil properties to generate rhizosphere resource hotspots that vary in space and time.” *2014 American Geophysical Union Fall Meeting*, San Francisco, CA. (December 2014).
54. **Neumann, R.B.**, S. Blazewicz, M.P. Waldrop, “Modeling CH₄ and CO₂ cycling using porewater stable isotopes in a thermokarst bog, Interior Alaska.” *2014 American Geophysical Union Fall Meeting*, San Francisco, CA. (December 2014).
55. **Pracht, L.E.**¹, R.J. Ardissono III^{1*}, M.L. Polizzotto, A.B.M. Badruzzaman, M.A. Ali, L. Pasatolic, **R.B. Neumann**, “Characterization of organic carbon and its bioavailability in recharge waters and aquifer sediments: implications for groundwater arsenic contamination in Bangladesh.” *2014 American Geophysical Union Fall Meeting*, San Francisco, CA. (December 2014)
56. **Espeleta, J.F.**³, Z.G. Cardon, K.U. Mayer, E.B. Rastetter, **R.B. Neumann**, “Hydraulic redistribution of water, nutrient uptake, and carbon exudation by plant roots interact with soil properties to drive complex spatial and temporal hotspots of rhizosphere resource availability. (Invited)” *99th Ecological Society of American Annual Meeting*, Sacramento, CA. (August 2014).
57. **Neumann, R.B.**, S.J. Blazewicz, M.P. Waldrop, M.R. Turetsky, C. Moorberg³, F. Aslkhodapasand¹, “Methane oxidation in boreal peatlands: rate estimates from porewater concentrations and stable carbon isotopes.” *2014 Environmental System Science Principle Investigators Meeting*, Patomac, MD. (April 2014).

58. **Neumann, R.B.**, S.J. Blazewicz, M.P. Waldrop, M.R. Turetsky, C.J. Moorberg³, F. Aslkhodapasand¹, “Methane oxidation in boreal peatlands: a joint field, laboratory and modeling investigation.” *2014 Environmental System Science Principle Investigators Meeting*, Patomac, MD. (April 2014.)
59. **Espeleta, J.F.**³, Z.G. Cardon, K.U. Mayer, E.B. Rastetter, **R.B. Neumann**. “Integration of soil microbial processes in a reactive transport model for simulating effects of root-controlled water flow on carbon and nutrient cycling.” *2013 American Geophysical Union Fall Meeting*, San Francisco, CA. (December 2013).
60. **Neumann, R.B.**, Z.G. Cardon, J. Teshera-Levy², F.E. Rockwell, M.A. Zwieniecki, N.M. Holbrook (2013) Modeled hydraulic redistribution by sunflower (*Helianthus annuus* L.) matches observed data only after including nighttime transpiration.” *2013 American Geophysical Union Fall Meeting*, San Francisco, CA. (December 2013).
61. **Neumann, R.B.**, J. Teshera-Levy², J. Ellingson^{1*}, “Climate change and arsenic uptake by rice: impact of elevated soil temperature on rhizosphere oxygen dynamics and arsenic concentration in rice tissue. (Invited)” *2013 ASA, CSSA, and SSSA International Annual Meetings — Water, Food, Energy & Innovation for a Sustainable World*, Tampa, FL. (November 2013).
62. **Pracht, L.E.**¹, B.T. Beaulieu, **R.B. Neumann**. “Arsenic fate following in-situ sulfate reduction: assessing the sustainability of a promising groundwater remediation strategy.” *2013 ASA, CSSA, and SSSA International Annual Meetings — Water, Food, Energy & Innovation for a Sustainable World*, Tampa, FL. (November 2013).
63. **Pracht, L.E.**¹, A. Fussell^{1*}, M.L. Polizzotto, M.A. Ali, A.B.M. Badruzzaman, **R.B. Neumann**, “The character of organic carbon in recharge water and arsenic mobilization in Bangladesh aquifers: land management implications.” *2012 American Geophysical Union Fall Meeting*, San Francisco, CA. (December 2012).
64. **Neumann, R.B.**, J. Levy², M. Larsen, R.N. Glud, “Visualization of oxygen dynamic in the rice rhizosphere under elevated CO₂ and temperature.” *2012 ASA, CSSA, and SSSA International Annual Meetings — Visions for a Sustainable Planet*, Cincinnati, OH. (October 2012).
65. **Neumann, R.B.**, L.E. Pracht¹, N.A. Schaner¹, M.L. Polizzotto, M.A. Ali, A.B.M. Badruzzaman, “The influence of rice field water management on groundwater arsenic concentrations in Bangladesh.” *2012 ASA, CSSA, and SSSA International Annual Meetings — Visions for a Sustainable Planet*, Cincinnati, OH. (October 2012).
66. **Neumann, R.B.**, J. Levy^{1*,2}, F.E. Rockwell⁴, M. Zwieniecki, Z.G. Cardon, N.M. Holbrook, “The magnitude of soil water redistributed by plants: a laboratory and modeling investigation.” *3rd Annual Pacific Northwest Climate Science Conference*, Boise, ID. (October 2012).
67. **Pracht, L.E.**¹ and **R.B. Neumann**, “The character of organic carbon in recharge water and arsenic mobilization in Bangladesh aquifers.” *UW/UBC 2012 Student Symposium on Hydrology and Water Resources*, Seattle, WA. (September 2012).
68. **Pracht, L.**¹, N. Schaner, **R.B. Neumann**, “Vulnerability of groundwater to arsenic contamination: investigations in Bangladesh and Cambodia.” *University of Washington Water Symposium*, Seattle, WA. (April 2012).
69. **Neumann, R.B.**, K.N. Ashfaq, M.L. Polizzotto, C.F. Harvey, A.B.M. Badruzzaman, M.A. Ali, “Recharge hydro-biogeochemistry and groundwater arsenic concentration in Bangladesh.” *Conference on Arsenic in Groundwater in Southern Asia*, Hanoi, Vietnam. (November 2011).
70. **Neumann, R.B.**, K.N. Ashfaq, M.L. Polizzotto, A.B.M. Badruzzaman, M.A. Ali, and C.F. Harvey, “The hydrogeochemistry of pond and rice field recharge: implications for arsenic contaminated aquifers in Bangladesh. (Invited)” *Goldschmidt 2011: Earth, Life and Fire*, Prague, Czech Republic. (August 2011).

71. **Neumann, R.B.**, F.E. Rockwell, M. Zwieniecki, Z.G. Cardon, N.M. Holbrook, “The magnitude of hydraulic redistribution by plants: a laboratory and modeling investigation.” *96th Annual Meeting of the Ecological Society of America: Earth Stewardship*. Austin, TX. (August 2011).
72. **Neumann, R.B.**, M. Zwieniecki, Z.G. Cardon, N.M. Holbrook, “The magnitude of hydraulic redistribution by plants: a laboratory investigation of biological and physical mechanisms.” *2010 American Geophysical Union Fall Meeting*, San Francisco, CA. (December 2010).
73. **Neumann, R.B.**, Zoe G. Carbon, N. Michele Holbrook “Hydraulic redistribution: possible explanations for discrepancies between field measurements and numerical models.” *6th Annual Harvard Plant Biology Symposium: Trees and the Global Environment*. Cambridge, MA. (April 2010).
74. **Neumann, R.B.**, K.N. Ashfaq, A.B.M. Badruzzaman, M.A. Ali, J.K. Shoemaker, C.F. Harvey, “Labile organic carbon in recharge and its impact on groundwater arsenic concentrations in Bangladesh.” *2009 American Geophysical Union Fall Meeting*, San Francisco, CA. (December 2009).
75. **Neumann, R.B.** and C.F. Harvey, “Pond and rice field recharge: implications for arsenic contaminated aquifers in Bangladesh.” *Gordon Research Conference on Environmental Sciences: Water*, Holderness, NH. (June 2008).
76. **Neumann, R.B.** and C.F. Harvey, “The hydrology and chemistry of rice field recharge in Bangladesh.” *2007 American Geophysical Union Fall Meeting*, San Francisco, CA. (December 2007).
77. **Neumann, R.B.** and C.F. Harvey, “Rice field hydrochemistry: implications for arsenic contaminated aquifers in Bangladesh. (Invited)” *Swiss Federal Institute of Aquatic Science and Technology Arsenic Workshop*, Zurich, Switzerland. (October 2007).
78. **Neumann, R.B.** and C.F. Harvey, “Rice field hydrology: implications for arsenic contaminated aquifers in Bangladesh.” *Geologic Society of America Annual Meeting*, Philadelphia, PA. (October 2006).
79. **Neumann, R.B.** and C.F. Harvey, “Rice field hydrology: implications for arsenic contaminated aquifers in Bangladesh.” *Gordon Research Conference on Flow and Transport in Permeable Media*, Andover, NH. (July 2006).
80. **Neumann, R.B.** and C.F. Harvey, “The impact of mass transfer on the $^3\text{H}/^3\text{He}$ dating method.” *2004 American Geophysical Union Fall Meeting*, San Francisco, CA. (December 2004).

Professional society memberships

American Geophysical Union, 2003 – present

Other

Journal reviewer (~4 to 5 per year):

Environmental Science and Technology; Environmental Science and Technology Letters; Plant Cell & Environment; Water Resources Research; Water Resources Management; Journal of Environmental Management; Plant and Soil; Water, Air, & Soil Pollution; Journal of Arid Environments; Geochimica Cosmochimica Acta; Oecologia; Environmental Chemistry; Environmental Science: Processes & Impacts; Scientific Reports

GRADUATE STUDENTS

Superscript Legend: * author on peer-reviewed publication, + author on conference presentation.

Chaired Doctoral Degrees

Student Name	Chair or Co-chair	Dissertation Title	Graduation Date	Current Employer
Yasmine Farhat ⁺ *	Chair	Altered Rice Nutritional Quality Resulting from Environmental Change: An Investigation into the Implications of Temperature, Phenology, and Flooding on Rice Metal and Metalloid Accumulation	Spring 2022	Postdoc at University of Beirut
Nicholas Waldo ⁺ *	Chair	A rhizosphere-scale investigation of root effects on wetland methane emissions	Spring 2019	Pacific Groundwater Group
Lara Pracht ⁺ *	Chair	Arsenic contaminated groundwater: exploration of the role of organic carbon in mobilization processes and evaluation of arsenic sequestration by <i>in situ</i> treatment systems.	Fall 2016	Oregon Institute of Technology

Current Doctoral Students

Student Name	Chair or Co-chair	Dissertation Topic	Status
Samantha Fung ⁺ *	Chair	Physical biogeochemistry: turbulent transfer of arsenic from shallow urban lakes	Passed General Exam Summer 2021
Joel Elkof ⁺	Chair	Biogeochemical consequences of advective heat transfer by rain in permafrost landscapes	Passed Qual. Exam Winter 2019
Robin Rhum	Chair	Mercury in the Amazon	

Chaired Masters Degrees

Student Name	Chair or Co-chair	Level of Supervision	Thesis Title	Graduation Date	Current Employer
Farnaz Aslkhod-apasand ⁺	Chair	Thesis	Integration of dynamic rhizospheric methane oxidation into a process-based methane emissions model	Fall 2016	Cardno

Other Significant Supervision

Postdoctoral Supervision

Name	Project Title	Dates	Current Employer
Jing Tao ⁺ *	Modeling carbon cycling in northern latitudes with Earth system models	01/2019 – 02/2023	Lawrence Berkely National Lab
Rachel Strickman ⁺ *	Mercury methylation and demethylation in the rice rhizosphere	11/2017 – 03/2022	n/a
Pamela Barrett ⁺ *	Arsenic in shallow unstratified and seasonally stratified urban lakes	1/2016 – 5/2018	Postdoc at Australian National University

Colby Moorberg ⁺⁺	Methane oxidation in the rhizosphere of wetland plants	1/2014 – 1/2015	Faculty at Kansas State University
Javier Espeleta ⁺⁺	Rhizosphere reactive transport modeling	1/2013 – 8/2015	Consultant, San José, Costa Rica

Non-thesis graduate research supervision

Student Name	Project Title	Dates	Current Employer
Andrea Wong ⁺	<i>In-situ</i> seasonal oxygen consumption in a peatland bog	10/2014 – 3/2016	City of Seattle
Margaret Honig	Arsenic in operationally defined mineral fractions of rice soil	2/2018 – present	n/a

Undergraduate research supervision

Student Name	Project Title	Dates
Catherine Ikeda	Rice biomass digestion – method development	6/2019 – 6/2020
Colin Kolbus	Arsenic and iron in rice grown at different temperatures	6/2019 – 6/2020
Mikaela Balkind	Rice growth and physiology as a function of temperature	2/2018 – 6/2019
Evan Lester	Rice soil porewater chemistry as a function of temperature	2/2018 – 6/2019
Sarah Larson	Oxygen and mercury dynamics in the rhizosphere of rice	1/2018 – 3/2020
Alex Ratcliff	Rice plant biomass as a function of growth temperature	5/2017 – 6/2018
Teresa Wang	Temperature impacts on rice grain quality	5/2017 – 6/2018
Jonathan McLean	Arsenic in operationally defined mineral fractions of contaminated lake sediments	5/2017 – 6/2018
Olivia Hargrave ⁺⁺	Organic carbon concentrations in urban arsenic contaminated lakes	6/2016 – 1/2018
Madeline Hubbard	Visualizing oxygen dynamics in the rhizosphere of rice	6/2016 – 8/2017
Robert Ardissono ⁺⁺	UV characterization of dissolved organic carbon in anoxic and oxic waters	9/2013 – 7/2017
Marina Kochuten	Methane flux and oxidation in rhizoboxes as a function of plant productivity	9/2016 – 6/2017
Ella Fadelye ⁺	Methane flux and oxidation in rhizoboxes as a function of plant productivity	6/2016 – 8/2016
Jesse Turner ⁺⁺	Methane flux and oxidation in a thermokarst bog with plant manipulation	4/2016 – 9/2016
Brianna Hunt ⁺	Oxygen optodes for informing wetland methane oxidation dynamics	9/2015 – 9/2016
Anna Tsai	Field investigation of methane flux and oxidation in a thermokarst bog	9/2014 – 9/2015
Joseph Ellingson ⁺⁺	Oxygen visualization around roots of rice plants	1/2013 – 8/2014
Hunter Brown	Arsenic mobilization in flow-through sediment columns	9/2012 – 8/2013
Katherine Markovich	Fulbright Fellow: Land use change and water quality in the Kandal Province of Cambodia	10/2012 – 8/2013
Alex Fussell ⁺	The link between organic carbon character and bioavailability	1/2012 – 8/2012
Farah Khan	Synthesis of groundwater chemistry data from arsenic contaminated aquifers in South and Southeast Asia	1/2008 – 8/2009
Allison St. Vincent [*]	Small volume alkalinity titrations and chemical characterization of rice field recharge in Bangladesh	1/2008 – 8/2009

High school student research supervision

Student Name	Project Title	Dates
Zhongyuan Serena Zhang*	Perimeter to area ratios and rice field recharge in Bangladesh	6/2008 – 9/2008

Graduate student committees

GSR indicates Graduate School representative

Student Name (Department)	Level of Supervision	Thesis/Paper Title	Quarter Completed
Hannah Conroy (CEE)	Ph.D. Committee (reader)	In progress	
Sabikunnahar Shorna (AFS)	Ph.D. Committee (reader)	In progress	
Yuqi Li (Urban Design & Planning)	Ph.D. Committee (GSR)	In progress	
Manuel Marcaida III (SEFS)	Master's Committee (reader)	A spatio-temporal analysis of rice production in Tonle Sap floodplains in response to changing hydrology and climate	Summer 2020
Johana Cantillo Polo (Biology)	Ph.D. Committee (GSR)	Canopy hydraulic redistribution – Water uptake by trees via canopy roots in epiphytic bryophyte mats	Spring 2020
Kahled Salam (CEE)	Ph.D. Qualifying Exam Committee	Not Applicable	Fall 2017
Asif Mahmood (CEE)	Ph.D. Qualifying Exam Committee	Not Applicable	Spring 2017
Sai Siddhartha (CEE)	Ph.D. Qualifying Exam Committee	Not Applicable	Fall 2015
Safat Sikder (CEE)	Ph.D. Qualifying Exam Committee	Not Applicable	Spring 2015
Yixin Mao (CEE)	Ph.D. Qualifying Exam Committee	Not Applicable	Winter 2015
Xiaodong Chen (CEE)	M.S. Committee (reader)	Model estimate of Pan-Arctic wetland methane emissions and their climate sensitivity during 1960–2006	Winter 2015
Shara Feld (CEE)	Ph.D. Qualifying Exam Committee	Not Applicable	Summer 2013
Theodore Bohn (CEE)	Ph.D. Committee (reader)	The effects of small-scale heterogeneity on the large-scale dynamics of West Siberian wetland carbon fluxes	Spring 2013
Ronda Strauch (CEE)	Ph.D. Qualifying Exam Committee	Not Applicable	Spring 2013

RESEARCH ACTIVITIES

Total Amount: \$11,781,703; My Amount: \$5,174,037

Funded Research

Funding Agency	Title	My Role (Other PI's / co-PI's)	Amounts	Dates (start - finish)
Computing for the Environment Initiative, University of Washington	Public lands in public hands: innovative technology and community science for parks and outdoor recreation	<u>co-PI</u> (PI: S. Wood, UW. co-PIs: M. Derrien, UW; A. Mashhadi, UW Bothell; Y. Peng, UW Bothell)	Total: \$50,000 Mine: \$0 (all UW money)	06/20/22 – 06/19/23
National Science Foundation	Collaborative Research: CAS-Climate: The Hydrologic Connection between Permafrost-Plateaus and Thaw-Bogs: Impact on Methane Emissions	<u>PI</u> (co-PI: J. Lundquist, UW)	Total: \$579,258 Mine: \$579,258	02/15/22 – 01/31/25
National Science Foundation	NNA Track 2: Groundwater treatment, delivery and use in rural Alaska	<u>PI</u> (Co-PI: J. Kaminsky, UW; L. Eichelberger, ANTHC)	Total: \$249,998 Mine: \$165,760	09/31/20 – 08/31/22
US-Israel Binational Agriculture Research and Development Fund	Exudates and Rhizosphere Nutrient Transport: Improving Plan Nutrient-Uptake Models	<u>Co-PI</u> (Co-PI: Nimrod Schwartz, Hebrew University of Jerusalem)	Total UW: \$91,000 Mine: \$91,000	10/01/19 – 09/30/22
National Science Foundation	NRT: Future Rivers: Training a Scientifically Innovative, Communication Savvy STEM Workforce for Sustaining Food-Energy-Water Services in Large and Transboundary River Ecosystems	<u>Co-PI</u> (PI: G. Holtgrieve, UW; Multiple other co-PIs and senior personnel)	Total: \$3,000,000 Mine: n/a	09/01/19 – 08/31/24
Department of Energy, Terrestrial Ecosystem Science	Effects of Rapid Permafrost Thaw on CO ₂ and CH ₄ Fluxes in a Warmer and Wetter Future	<u>PI</u> (Co-PI: Q. Zhu, LBNL)	Total: \$996,199 Mine: \$897,199	07/31/18 – 07/30/21

National Science Foundation, Ecosystem Studies	Collaborative Research: EAGER SitS: Automated Imaging Platform for In Situ Sensing and Analysis of Roots, Fungi, and Soil Solution Chemistry	<u>Collaborative PI</u> (Collaborative PI: C. Moorberg, Kansas State; Co-PI: Naiqian Zhang, Kansas State)	Total: \$302,018 Mine: \$109,528	01/01/19 – 12/31/19
National Science Foundation, Geobiology & Low Temperature Geochemistry	Spatial location and biogeochemical drivers of mercury methylation and demethylation in the rice rhizosphere	<u>PI</u> (Senior Personnel: R. Strickman, UW; M. Marvin-DiPasquale, USGS)	Total: \$350,384 Mine: \$350,384	11/01/17 – 10/31/20
UW Population Health Initiative Pilot Research Grant	InterACTION Labs: Piloting an interdisciplinary built environment community health program with an informal settlement in the Peruvian Amazon	<u>Co-PI</u> (PI: J. Zunt; Co-PIs: S. Gimbel, P. Rabinowitz, A. Lucia, B. Spencer, UW)	Total: \$77,500 Mine: \$9,704 (all UW money)	10/01/17 – 09/31/18
National Science Foundation, Innovations at the Nexus of Food, Energy and Water Systems, Track 1	Linking current and future hydrologic change to hydropower, human nutrition and livelihoods in the Lower Mekong Basin	<u>Senior Personnel</u> (PIs: J. Sabo, ASU; G. Holtgrieve, UW; Multiple other co-PIs and senior personnel)	UW Total: \$1,249,488 Mine: \$359,090	09/01/18 – 08/31/21
National Institute of Environmental Health Sciences, Superfund Hazardous Waste & Training Program	Center Title: Effects-related biomarkers of environmental neurotoxic exposures Project Title: Arsenic in shallow unstratified and seasonally stratified urban lakes: mobility, bioaccumulation and ecological toxicity	<u>PI for Project 4</u> (Center PI: E. Gallagher, UW; Co-PIs for Proj. 4: J. Gawel, UW Tacoma; E. Gallagher, UW; J. Olden UW; T. Bammler, UW; A. Horner-Devine, UW)	<u>Direct costs</u> Project 4 Total: \$1,088,521 Mine: \$704,036 (Match: \$33,526)	04/01/17 – 03/31/22
UW Innovation Award	The impact of climate change on food quality: micronutrients and toxins in rice	<u>PI</u> (Co-PI: S.-H. Kim, UW)	Total: \$130,000 Mine: \$130,000 (all UW money)	04/01/16 – 03/31/18

National Institute of Environmental Health Sciences, Superfund Hazardous Waste & Training Program	Center Title: Effects-related biomarkers of environmental neurotoxic exposures Project Title: Arsenic in shallow unstratified and seasonally stratified urban lakes: mobility, bioaccumulation and ecological toxicity	<u>PI for Project 4</u> (Center PI: E. Gallagher, UW; Co-PIs for Proj. 4: J. Gawel, UW Tacoma; J. Ryan, CU Boulder)	<u>Project 4</u> Total: \$497,150 Mine: \$188,200 (Sub: \$121,287) (Match: \$4,200)	04/01/15 – 03/31/17
National Aeronautics & Space Administration	Synthesis and Integration of recent research characterizing carbon cycle in Eurasia (NOTE: D. Lettenmaier transferred grant to me)	<u>CoPI</u> (PI: M. Rawlins, U. Mass; CoPIs: D. Lettenmaier, UW; K. McDonald, JPL)	Total: \$685,573 Mine: \$112,000	10/31/14 – 08/29/15 (as CoPI)
Department of Energy, Early Career Award	Methane oxidation in the rhizosphere of wetland plants	<u>PI</u>	Total: \$750,000 Mine: \$750,000	07/01/13 – 06/31/18
State of WA Water Research Center, US Geological Survey	Arsenic fate following <i>in-situ</i> sulfate reduction: Assessing the sustainability of a promising groundwater remediation strategy	<u>PI</u> (Co-PIs: J. Jay, UCLA; B. Beaulieu, Floyd Snider)	Total: \$54,016 Mine: \$54,016 (Match: \$25,216)	03/01/13 – 02/28/14
UW Royalty Research Fund	Methane oxidation in the rhizosphere of rice under elevated temperature and CO ₂ : A joint visualization, sampling, and modeling approach	<u>PI</u>	Total: \$28,142 Mine: \$28,142 (all UW money)	07/01/12 – 12/31/13
Department of Energy, Biological & Environmental Research	Hydraulic redistribution of water through plant roots — implications for carbon cycling and energy flux at multiple scales	<u>CoPI</u> (PI: Z. Cardon, MBL; CoPIs: D. Gage, U. Conn.; G. Wang, U. Conn.)	Total: \$1,048,327 Mine: \$255,000	06/15/12 – 06/14/15

Competitively Awarded Resource Proposals (peer reviewed)

Agency	Title	<u>My Role</u> (Other PI's / co-PI's)	Amounts	Dates (start - finish)
University of Washington Data Science Incubator Program	Climate refuge in urban areas: using spatial data to identify risk and benefit tradeoffs	<u>PI</u> (UW data scientist: Spencer Wood)	100 hours of dedicated time from data scientist	01/03/22 – 03/18/22
Department of Energy, Environmental Molecular Sciences	A rhizosphere-scale investigation of the relationship between plant productivity and methane emissions from wetlands	<u>PI</u> (CoPIs: H. Gough, UW; D. Beck, UW;	<u>In-Kind</u> Total: \$121,509 Mine: \$121,509	10/01/15 – 09/30/17

Laboratory and Joint Genome Institute		L. Chistoserdova, UW)		
Department of Energy, Environmental Molecular Sciences Laboratory	Characterizing biodegradable organic carbon mobilized from the sediments of an arsenic-contaminated aquifer in Bangladesh: Augmenting spectroscopic methods with FT-ICR-MS	PI	<u>In-Kind</u> Total: \$15,728 Mine: \$15,728	06/06/15 – 09/30/15

DOCUMENTATION OF TEACHING EFFECTIVENESS

Courses Taught & Student Evaluations

Course	Title	Q	Hrs	Enroll.	Evaluations? Response	Item 1+	Item 3+	Item 4+	Avg., Items 1-4+
CEE 350	Mass & Energy Balances in Environmental Engineering (remote)	F 22	4	32	Yes, 23/32 (online)	4.5	4.5	4.4	4.5
CEWA 596	Fate & Transport of Chemicals in the Environment	F 22	3	14	Yes, 6/14 (online)	4.8	4.7	4.8	4.7
CEE 475	Groundwater Hydrology	W 22	3	27	Yes, 9/27 (online)	4.3	4.5	4.5	4.4
CEWA 596	Fate & Transport of Chemicals in the Environment	F 21	3	27	Yes, 17/27 (online)	3.9	3.9	3.8	3.9
CEE 498A	Grand Challenges Impact Lab Seattle (joint with GH 490A)	S 21	5	28	Yes, 28/30	3.3	3.9	3.5	3.6
CEE 350	Mass & Energy Balances in Environmental Engineering (remote)	F 20	4	30	Yes, 23/30 (online)	4.4	4.3	4.5	4.4
CEE 496 CEWA 596	Fate & Transport of Chemicals in the Environment (remote)	F 20	3	33	Yes, 17/33 (online)	4.2	4.3	4.2	4.2
CEE 496 CEWA 596	Fate & Transport of Chemicals in the Environment	F 19	3	47	Yes, 33/47 (online)	3.3	3.5	3.1	3.3

CEE 475	Groundwater Hydrology	W 18	3	32	Yes, 27/32	4.3	4.8	4.2	4.3
CEE 350	Mass & Energy Balances in Environmental Engineering	F 17	4	15	Yes, 14/15	3.7	3.9	3.8	3.7
CEE 496 CEWA 596	Fate & Transport of Chemicals in the Environment	F 17	3	43	Yes, 35/43	4.4	4.5	4.4	4.5
CEE 599	Hydro-Biogeochemistry	S 17	3	7	Yes, 6/7	4.7	4.8	4.8	4.7
CEE 475	Groundwater Hydrology	W 17	3	32	Yes, 29/32	4.0	3.9	4.5	4.2
CEE 496 /551	Fate & Transport of Chemicals in the Environment	F 16	3	25	Yes, 23/25	4.7	4.6	4.7	4.7
CEE 475	Groundwater Hydrology	W 16	3	25	Yes, 23/25	4.3	4.8	4.8	4.6
CEE 496 /551	Fate & Transport of Chemicals in the Environment	F 15	3	41	Yes, 40/41	3.4	3.4	3.0	3.4
CEE 475	Groundwater Hydrology	W 15	3	38	Yes, 32/38	4.2	4.7	4.2	4.3
CEE 496 / 551	Fate & Transport of Chemicals in the Environment	F 14	3	41	Yes, 39/41	3.7	4.2	3.9	3.9
CEE 550	Environmental Chemical Modeling	S 14	3	11	Yes, 10/11	3.7	4.1	3.7	3.8
CEE 475	Groundwater Hydrology	W 14	3	26	Yes, 25/26	4.2	4.6	4.2	4.3
CEE 496 / 551	Fate & Transport of Chemicals in the Environment	F 13	3	23	Yes, 20/23	4.3	4.8	4.7	4.6
CEE 498	Fate & Transport of Chemicals in the Environment	F 12	3	21	Yes, 16/21	3.8	4.1	3.9	3.9
CEE 475	Groundwater Hydrology	S 12	3	39	Yes, 33/39	3.3	3.5	3.2	3.3
CEE 550	Environmental Chemical Modeling	W 12	3	16	Yes, 16/16	2.6	3.1	2.6	2.9

+Item 1: Adjusted median rating of course as a whole, Item 3: Adjusted median rating of instructor's contribution, Item 4: Adjusted median rating of instructor's effectiveness. All ratings are on a scale from 0 – 5.

Peer Teaching Evaluations

Course	Quarter	Reviewer
CEE 475	Winter 2022	Dr. Jessica Lundquist
CEE 496 / CEE 541 (now CEE 496 / CEWA 596)	Fall 2016	Dr. Jessica Lundquist
CEE 496	Fall 2015	Dr. Mark Benjamin

(now CEE 496 / CEWA 596)		
CEE 475	Winter 2014	Dr. Gregory Korshin
CEE 499 (now CEE 496 / CEWA 596)	Fall 2012	Dr. Gregory Korshin
CEE 475	Spring 2012	Dr. Jessica Lundquist
CEE 550	Winter 2012	Dr. Mark Benjamin

List of other teaching contributions

Co-developed new capstone course Grand Challenges Impact Lab Seattle focused on creating solutions that address issues associated with homelessness in Seattle. Offered for the first time in Spring 2021 (remotely over zoom).

Other supporting documents

From letter written by Dr. Jim Borgford-Parnell, Director and Instructional Consultant, Office for the Advancement of Engineering Teaching & Learning (ET&L) on May 15, 2017 for my tenure and promotion case:

“To date, you have invited ET&L to provide 12 SGIDs [Small Group Instructional Diagnosis], 12 LCIs [Last Class Interview], 12 analyses of IAS Yellow Sheet data, and an assessment of your research group. You have also introduced the formative assessment process to two of your graduate students. Each of those activities involved consultations focused on using formative assessment data to guide incremental improvements in your courses, your teaching and your mentoring. You also worked with ET&L on the design or redesign of three courses. This record certainly demonstrates your commitment to continuous course improvement, professional development, and to the enhancement of your students’ and mentee’s learning.”

SERVICE

Departmental service

- Justice, Equity, Diversity and Inclusion (JEDI) committee (2021 – present)
- Ad hoc committee on faculty performance (2020 – 2021)
- Search committee member for faculty position Environmental Engineering (2018)
- Search committee member for department chair (2017)
- Mentoring committee member for Mari Winkler (2016 – present)
- Mentoring committee member for David Butman (2016 – present)
- Department affairs committee member (2016 – 2018)
 - Chair 2017–2018 academic year
- Co-organized Environmental and Water Program faculty retreat (2016)
- Member of committee that developed BS Environmental Engineering degree (2014 – 2016)
- Search committee member for faculty position in Biological Systems Engineering for Energy and Environmental Resources Sustainability (2013)
- Graduate education committee member (2013 – 2016)

University service

- Energy Transformation Task Force (2022 – present)
- Institutional Chemical and Physical Safety committee (2021 – present)
- Environmental Stewardship Committee (2021 – present)
- Task force for Office of Global Affairs (OGA) to assess and reimagine OGA’s vision, mission, programs and services (2020 – 2021)

- University Faculty Senate (2019 – 2020)
- Faculty advisor for UW student chapter of Engineers Without Borders (2016 – present)
- Program on Climate Change advisory committee member (2016 – 2018)
- Reviewer of Mary Gates Undergraduate Research Scholarship applications (2015)
- Presented at pre-tenure workshop hosted by UW ADVANCE: “Taking the pulse of your graduate students’ experiences.” (2015)
- Mentor for students in Washington STARS in Engineering program (2014)
- Proposal reviewer for Royalty Research Fund (2012; 2017)
- Program on the Environment advisory committee member (2011 – 2019)

Professional society and other service

- Member of American Geophysical Union’s Sustainability Committee (2020)
- Co-organizer of a session at Association for the Sciences for Limnology and Oceanography Winter Meeting: “Anthropogenic impacts and environmental threats in urban freshwater ecosystems.” Honolulu, HI (2016)
- Co-organizer of a session at American Geophysical Union Fall Meeting: “Modeling and observations of coupled biophysical processes in terrestrial and aquatic environments across scales.” San Francisco, CA (2015)
- Organizing committee for “FEW: River FEWs: Workshop to explore the nexus between food, energy and water in a large international river system,” Seattle, WA. Funded by NSF (2015)
- Co-organizer of a session at American Geophysical Union Fall Meeting: “Measurement and Modeling of Root-Zone Processes Influencing Water, Carbon and Nitrogen Cycles at Various Scales.” San Francisco, CA (2012, 2013, 2014)
- Co-organizer of a session at American Geophysical Union Fall Meeting: “Geogenic groundwater contamination and its impact on agriculture and public health.” San Francisco, CA (2014)
- Judge of student presentations at American Geophysical Union Fall Meeting, San Francisco, CA (2012, 2013, 2014)
- Invited panelist for all-day Path of Professorship workshop at MIT for graduate and postdoctoral women considering tenure-track positions in science, engineering, and technology (2010)

Community service

- Commissioner (Position #4, Hydrologist), City of Seattle’s Urban Forestry Commission (2022 – present)
- Scientist for American Geophysical Union’s Thriving Earth Exchange Program working with a community in Otsego County, New York to create a detailed county-wide greenhouse gas (GHG) inventory and identify opportunities for GHG reductions (2021 – present)
- Development Team Member for EarthHero Climate Action phone app (January 2020 – present)
- Panelist for Seattle Youth Climate Action Network workshop at University of Washington (2017)
- UW Engineering Discovery Days Exhibit
 - Wetland Chemistry and Greenhouse Gases (2017)
 - Lights, Camera, Chemistry! (2016)

International, national or governmental service

- Climate Change Subcommittee of the Board of Scientific Counselors for the Environmental Protection Agency (2022 – present)
- Panel review for US-Israel Binational Agriculture Research and Development Fund (2021)
- Panel reviewer for National Science Foundation, Hydrologic Sciences Program (2018)
- External reviewer for California Environmental Protection Agency’s draft scientific document titled, *Proposed Naturally Occurring Concentrations of Inorganic Arsenic in White and Brown Rice* (2017)

- Panel reviewer for Department of Energy, Joint Genome Institute, Community Science Program (2017)
- Panel reviewer for National Science Foundation, Division of Chemical, Bioengineering, Environmental, Environmental Engineering Program (2017)
- Ad hoc reviewer for Department of Energy, Stanford Synchrotron Radiation Lightsource, User Access Proposal (2017)
- Invited contributor to two-day long workshop that identified research priorities for the Department of Energy, Office of Science, Biological and Environmental Research Program: “Research Priorities to Incorporate Terrestrial-Aquatic Interfaces in Earth System Models,” Rockville, MD (2016)
- Panel reviewer for Department of Energy, Office of Science, Lawrence Berkeley National Laboratory, Watershed Function Scientific Focus Area: Biogeochemical Dynamics from Genomes to Watershed Scales (2016)
- Panel reviewer for Department of Energy, Office of Science, Office of Biological and Environmental Research, Environmental System Sciences (2015)
- Ad hoc reviewer for National Science Foundation, Geobiology and Low Temperature Geochemistry Program (2013, 2014, 2015)
- Panel reviewer for National Science Foundation, Division of Chemical, Bioengineering, Environmental, Environmental Engineering Program (2012)
- Ad hoc reviewer for Croatian Science Foundation (2011)