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Education

Ph.D., Geological & Environmental Sciences, Stanford University	2003
Bachelor of Science (Honors), Biological Sciences, Brown University	1995

Positions Held

2018 – Present	**Edward R. Meyer Distinguished Professor (Full),** School of the Environment, Washington State University
2020	**Cox Visiting Professor:** Earth System Science Dept., Stanford University
2019	**Visiting Professor and GRIL Fellow:** Groupe de Recherché Interuniversitaire en Limnologie, Université du Québec à Montréal
2012 – 2018	**Edward R. Meyer Distinguished Professor (Associate**), School of the Environment, Washington State University
2013 – 2014	**Visiting Scholar**, Utrecht University Geochemistry Group, Netherlands
2006 – 2012	**Assistant Professor**, School of Earth and Environmental Sciences, Washington State University
2009 – 2013	**U.S. Environmental Protection Agency Expert Hire**, Ecosystem Services Research Program Nitrogen Theme
2005 – 2006	**CALFED Science Fellow**, Department of Land, Air, and Water Resources, University of California, Davis
2003 – 2005	**UNESCO Postdoctoral Associate**, Institute of Marine and Coastal Sciences, Rutgers University
1997 – 2003	**NSF and NASA Graduate Fellow,** Stanford University, Department of Geological and Environmental Sciences
1995 – 1996	**Samuel T. Arnold Science and Policy Fellow**, Brown University, Costa Rica, Taiwan, and England

Honors and Awards

Fellow, Association for the Sciences of Limnology and Oceanography	2017 – Present
Edward R. Meyer Distinguished Professorship	2013 – Present
Chancellor's Award for Research Excellence (WSU Vancouver)	2016
Ecological Society of America Sustainability Science Award (w. *Seeds of Sustainability, Matson et al.*, co-authors)	2013
Two US EPA Scientific and Technological Achievement Awards	2012 & 2020
WSU College of Science Young Faculty Performance Award	2010

Peer-reviewed Publications

*(*Postdoc or student directly supervised by Harrison, +Technician directly supervised by Harrison)*

87. Bouwman, A.F., X. Liu, and **J.A. Harrison,** (Submitted) Trends of nutrients and eutrophication, in IOC-UNESCO. State of the Ocean Report 2024. Paris, IOC-UNESCO. (IOC Technical Series), pp. xx-xx.

86. Soued, C., **J.A. Harrison**, S. Mercier-Blais, Y.T. Prairie (2022) Reservoir CO_2 and CH_4 emissions and their climate impact over the period 1900-2060, *Nature Geoscience.* 10.1038/s41561-022-01004-2.

85. *D'Ambrosio and **J.A. Harrison**, (2022) Measuring CH_4 fluxes from lake and reservoir sediments: a review of current methodologies & future directions, *Frontiers in Environmental Science.* doi: 10.3389/fenvs.2022.850070.

84. *D'Ambrosio, S.L., S.M. Henderson, J.R. Nielson, and **J.A. Harrison**, (2022) In situ flux estimates reveal large variations in methane flux across the bottom boundary layer of a eutrophic lake, *Limnology and Oceanography.* doi: 10.1002/lno.12193

83. Bouwman, A.F. and **J.A. Harrison,** (2022) Trends of nutrients and eutrophication, in IOC-UNESCO. 2022. State of the Ocean Report, pilot edition. Paris, IOC-UNESCO. (IOC Technical Series, 173), pp. 13-15.

82. Delwiche, K.B., **J.A. Harrison**, J.D. Maasakkers, M.P. Sulprizo, D.J. Jacob, E.M. Sunderland, and J. Worden (2022) ResME – A global mechanistic model for methane emissions from hydroelectric reservoirs, *Journal of Geophysical Research – Biogeosciences.* 10.1029/2022JG006908

81. Bollens, S.M., **J.A. Harrison**, M.G. Kramer, G. Rollwagen-Bollens, T.D. Counihan, S.B. Robb-Chavez, and S.T. Nolan (2021) Calcium concentration in the lower Columbia River, USA, and its implications for invasive bivalves, *River Research and Applications*, 1–6. https://doi.org/10.1002/rra.3804

80. Peacock, M., J. Audet, D. Bastviken, M.N. Futter, V. Gauci, A. Grinham, **J.A. Harrison,** M.S. Kent, S. Kosten, C.E. Lovelock, A. J. Veraart, and C.D. Evans (2021) Global importance of methane emissions from drainage ditches and canals, *Environmental Research Letters.* 16 044010. https://doi.org/10.1088/1748-9326/abeb36

79. Prairie, Y.T., S. Mercier-Blais, **J.A. Harrison**, C. Soued, P. del Giorgio, A. Harby, J. Alm, V. Chanudet, and R. Nahas (2021). A new modeling framework to assess biogenic GHG emissions from reservoirs: The G-res Tool, *Environmental Modeling and Software.* https://doi.org/10.1016/j.envsoft.2021.105117.

78. **Harrison, J.A.**, Y.T. Prairie, S. Mercier-Blais, and C. Soued, (2021) Year-2020 Global Distribution and Pathways of Reservoir Methane and Carbon Dioxide Emissions According to the Greenhouse Gas from Reservoirs (G-res) Model, *Global Biogeochemical Cycles.* https://doi.org/10.1029/2020GB006888. (Wiley "Top Cited Paper")

77. *Grieger, S., and **J.A. Harrison** (2021) Long-term Disconnect between Nutrient Inputs and Riverine Exports in a Semi-arid, Agricultural Watershed: Yakima River Basin 1945-2012, *JGR-Biogeosciences*. https://doi.org/10.1029/2020JG006072.

76. *D'Ambrosio, S., and **J.A. Harrison** (2021) Methanogenesis exceeds CH_4 consumption in eutrophic lake sediments. *Limnology and Oceanography Letters*. https://doi.org/10.1002/lol2.10192. (Wiley "Top Cited Paper")

75. van Grinsven, S., J.S.S. Damsté, **J.A. Harrison**, L. Polerecky, and L. Villanueva (2021) Nitrate enables the transfer of methane-derived carbon from the methanotroph Methylobactersp.to the methylotroph Methylotenera sp. in eutrophic lake water, *Limnology and Oceanography*. https://doi.org/10.1002/lno.11648

74. *Metson, G.S., J. Lin, **J.A. Harrison**, J.E. Compton (2020) Four decades of watershed nitrogen and phosphorus balances in the Willamette River Basin, Oregon, USA, *JGR-Biogeosciences*. https://doi.org/10.1029/2020JG005792

73. *Metson, G.S., G. MacDonald, A. Leach, J. Compton, **J.A. Harrison**, and J.N. (2020) Consumer-oriented phosphorus and nitrogen footprints for U.S. diets, *Environmental Research Letters*. https://doi.org/10.1088/1748-9326/aba781

72. van Grinsven, S., J.S.S. Damsté, **J.A. Harrison**, and L. Villanueva (2020) Impact of electron acceptor availability on methane-influenced microorganisms in an enrichment culture obtained from a stratified lake, *Frontiers in Microbiology*. https://doi.org/10.3389/fmicb.2020.00715

71. *Steenstra, P., N. Strigul, and **J.A. Harrison** (2020) Tungsten in Washington State Surface Waters. *Chemosphere*. 242:1-11. https://doi.org/10.1016/j.chemosphere.2019.125151.

70. Hinshaw, S.E., T. Zhang, **J.A. Harrison**, and R.A. Dahlgren (2020) Excess N_2 and denitrification in riverbed porewaters and groundwaters of the San Joaquin River, California, *Water Resources Research*. 168:1-12. https://doi.org/10.1016/j.watres.2019.115161.

69. van Grinsven, S., D. Jaap, A.A. Asbun, J. Engelmann, **J.A. Harrison**, and L. Villanueva (2020) Methane oxidation by Methylobacter in an anoxic lake stimulated by nitrate and sulfate, *Environmental Microbiology*, https://doi.org/10.1111/1462-2920.14886.

68. Lovelock, C.E., C. Evans, N. Barros, Y.T. Prairie, J. Alm, D. Bastviken, J. J. Beaulieu, M. Garneau, A. Harby, **J.A. Harrison**, D. Pare, H. Lerche Raadal, B. Sherman, C. Zhang, S.M. Ogle, A. Grinham, B.R. Deemer, M. dos Santos, S. Kosten, M. Peacock, Z. Li, V. Stepanenko (2019), Chapter 7: Wetlands, in the *2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories*.

67. *Deemer, B.R. and **J.A. Harrison** (2019) Summer redox dynamics in a eutrophic reservoir and sensitivity to a summer's-end drawdown event, *Ecosystems*. https://doi.org/10.1007/s10021-019-00362-0.

66. **Harrison, J.A.**, A.H.W Beusen, G. Fink, T. Tang, M. Strokal, A.F. Bouwman, *G.S. Metson, and L. Vilmin (2019) Modeling phosphorus in rivers at the global scale: recent successes, remaining challenges, and near-term opportunities, *Current Opinion in Environmental Sustainability*. 36: 68-77. https://doi.org/10.1016/j.cosust.2018.10.010.

65. **Perkins, K.R., G. Rollwagen-Bollens, S.M. Bollens, and **J.A. Harrison** (2019) Variability in the vertical distribution of chlorophyll in a spill-managed temperate reservoir, *Lake and Reservoir Management*. 35(2): 119–126. https://doi.org/10.1080/10402381.2019.1566935.

64. van Vliet, M.T.H., M. Flörke, **J.A. Harrison**, N. Hofstra, V. Keller, F. Ludwig, J.E. Spanier, M. Strokal, Y. Wada, Y. Wen, and R. Williams (2019) Model inter-comparison design for large-scale water quality models, *Current Opinion in Environmental Sustainability*. 36: 59-67. https://doi.org/10.1016/j.cosust.2018.10.013.

63. *Rose, V.J., *W.M. Forney, *R.A. Norton, and **J.A. Harrison** (2019) Catchment characteristics, water quality, and cyanobacterial blooms in Washington and Oregon lakes, *Lake and Reservoir Management. Written with graduate students in Watershed Biogeochemistry course.* DOI: 10.1080/10402381.2018.1518940.

62. Janssen, A.B.G., J.H. Janse, A.H.W. Beusen, M. Chang, **J.A. Harrison**, I. Huttunen, X. Kong, J. Rost, S. Teurlincx, T.A. Troost, D. van Wijk, and W.M. Mooij (2019) How to model algal blooms in any lake on earth, *Current Opinion in Environmental Sustainability*. https://doi.org/10.1016/j.cosust.2018.09.001.

61. Glibert, P.M., A.H.W. Beusen, **J.A. Harrison**, H. Dürr, A.F. Bouwman, and G. Laruelle (2018) Changing land-, sea-, and airscapes: sources of nutrient pollution affecting habitat suitability for harmful algae, Chapter 4 in: *GEOHAB Synthesis Book; The Ecology and Oceanography of Harmful Algal Blooms,* P.M. Glibert Ed., Springer Nature.

60. Prairie, Y.T., J. Alm, J.J. Beaulieu, N. Barros, T. Battin, J. Cole, P. del Giorgio, T. DelSontro, F. Guérin, A. Harby, **J.A. Harrison**, S. Mercier-Blais, D. Serça, S. Sobek, and D. Vachon, (2018) Greenhouse gas emissions from freshwater reservoirs: what does the atmosphere see? *Ecosystems*. DOI: 10.1007/s10021-017-0198-9.

59. Beaulieu J.J., D.A. Balz, +M.K. Birchfield, **J.A. Harrison**, C.T. Nietch, M.C. Platz, W.C. Squier, S. Waldo, J.T. Walker, K.M. White, and J.L. Young (2018) Effects of an experimental water-level drawdown on methane emissions from a eutrophic reservoir, *Ecosystems*. DOI: 10.1007/s10021-017-0176-2. – *Chosen for cover art.*

58. *Norton, R., **J.A. Harrison**, C.K. Keller, and K. B. Moffett (2017) Effects of storm size and frequency on nitrogen retention, denitrification, and N_2O production in bioretention swale mesocosms, *Biogeochemistry*, DOI 10.1007/s10533-017-0365-2.

57. *Metson, G. S., J. Lin, **J.A. Harrison**, and J.E. Compton (2017) Linking 2012 terrestrial P inputs to riverine export from watersheds across the United States, *Water Research,* 10.1016/j.watres.2017.07.037.

56. *Reed, D.C., *B.R. Deemer, S. van Grinsven, and **J.A. Harrison** (2017) Do elusive electron acceptors mediate anaerobic methane oxidation in lakes and reservoirs?, *Biogeochemistry*, 10.1007/s10533-017-0356-3.

55. *McCrackin, M.L., E.J. Cooter, R.L. Dennis, **J.A. Harrison**, and J.E. Compton (2017) Alternative futures of dissolved inorganic nitrogen export from the Mississippi River Basin: influence of crop management, atmospheric deposition, and population growth, *Biogeochemistry*. doi:10.1007/s10533-017-0331-z.

54. Lajtha, K., E. Bai, T. Baisden, B. Bowden, J. Brookshire, E. Brzostek, S. Crow, C. Driscoll, C. Evans, J. Finlay, M. Fisk, S. Grandy, L. Hamdan, **J. Harrison**, C. Hawkes, K. Kalbitz, S. Kaushal, M. Kramer, E. Matzner, J. Melack, J. Mulder, S. Porder, J. Sanderman, E. Stanley, J. Tank, M. Vile, M. Voss, K. Wieder, and S. Ziegler (2017) Brave New World, *Biogeochemistry*. doi**:** 10.1007/s10533-017-0316-y.

53. **Harrison**, **J.A.**, *B.R. Deemer, [+]M.K. Birchfield, and *M. O'Malley (2017) Reservoir water-level drawdowns accelerate and amplify methane emission, *Environmental Science & Technology*. doi**:** 10.1021/acs.est.6b03185.

52. *Reed, D.C., and **J.A. Harrison** (2016) Linking nutrient loading and oxygen in the global coastal ocean: a modelling analysis, *Global Biogeochemical Cycles.* 30, doi:10.1002/2015GB005303.

51. *Deemer, B.R., **J.A. Harrison**, S. Li, J.J. Beaulieu, T. DelSontro, N. Barros, J. F. B. Neto, S.M. Powers, M.A. dosSantos, and J.A. Vonk, (2016) Greenhouse gas emissions from reservoir water surfaces: a new global synthesis, *Bioscience*, doi: 10.1093/biosci/biw117, *Selected as BioScience Editor's Choice, Featured in Science Magazine, Washington Post, The Guardian, and on PRI's Science Friday, among others.*

50. Lienard, J., **J.A. Harrison**, and N. Strigul, (2016) U.S. forest response to projected climate-related stress: a "tolerance" perspective, *Global Change Biology*. doi:10.1111/gcb.13291.

49. *Bellmore, R.A., **J.A. Harrison**, J.A. Needoba, E. Brooks, and C.K. Keller, (2015) Hydrologic control of dissolved organic carbon and nitrogen and dissolved organic matter quality in a semi-arid artificially drained agricultural catchment, *Water Resources Research.* 51, 8146–8164, 10.1002/2015WR016884.

48. *Deemer, B.R., S.M. Henderson, and **J.A. Harrison**, (2015) Chemical mixing in the bottom boundary layer of a eutrophic reservoir: the effects of internal seiching on nitrogen dynamics, *Limnology and Oceanography,* 1-24, doi: 10.1002/lno.10125.

47. Lienard, J., **J.A. Harrison**, and N. Strigul, (2015) Analysis of the U.S. forest tolerance patterns depending on current and future temperature and precipitation, in USDA General Technical Report: *Pushing Boundaries: New Directions in Inventory Techniques & Applications Forest Inventory & Analysis (FIA) Symposium 2015, PNW-GTR-931.*

46. *Yurkewycz, R.P., J.G. Bishop, C.M. Crisafulli, **J.A. Harrison** and R.A. Gill. (2014) Effect of the northern pocket gopher on ecosystem processes and plant communities in primary succession. *Oecologia.* DOI 10.1007/s00442-014-3075-7.

45. *McCrackin, M., **J.A. Harrison**, and J.E. Compton, (2014) Future riverine nitrogen export to US coastal regions: prospects for improving water quality amid future population growth, *Journal of Environmental Quality,* 10.2134/jeq2014.02.0081.

44. Adam, J.C. Stephens, S.H. Chung, M.P. Brady, R.D. Evans, C.E. Kruger, B.K. Lamb, M.L. Liu, C.O. Stöckle, J.K. Vaughan, K. Rajagopalan**, J.A. Harrison**, C.L. Tague, A. Kalyanaraman, Y. Chen, A. Guenther, F.Y. Leung, L.R. Leung, A.B. Perleberg, J. Yoder, E. Allen, S. Anderson, B. Chandrasekharan, K. Malek, T. Mullis, *C. Miller, T. Nergui, J. Poinsatte, J. Reyes, J. Zhu, J.S. Choate, X. Jiang, R. Nelson, J.H. Yoon, G.G. Yorgey, K.J. Chinnayakanahalli, A.F. Hamlet, B. Nijssen. (2014) BioEarth: A Regional Biosphere-Relevant Earth System Model to Inform Agricultural and Natural Resource Management Decisions. *Climatic Change,* DOI:10.1007/s10584-014-1115-2.

43. Liu, M., K. Rajagopalan, S. H. Chung, X. Jiang, **J. Harrison**, T. Nergui, A. Guenther, *C. Miller, J. Reyes, C. Tague, J. Choate, E.P. Salathé, C.O. Stöckle, and J. C. Adam, (2014) What it is the importance of climate model bias when projecting the impacts of climate change on land surface processes? *Biogeosciences,* doi:10.5194/bg-11-2601-2014.

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41. *Jacobs, A., and **J.A. Harrison**, (2014) The effects of floating vegetation on denitrification, nitrogen retention, and greenhouse gas production in wetland microcosms, *Biogeochemistry,* DOI 10.1007/s10533-013-9947-9.– *Chosen for cover art.*

40. *Sobota D.J., J.E. Compton, and **J.A. Harrison** (2013) Reactive nitrogen in the United States: How certain are we about sources and fluxes? *Frontiers in Ecology and the Environment*. doi:10.1890/110216.
39. *McCrackin, M., **J.A. Harrison**, and J.E. Compton, (2013) A comparison of NEWS and SPARROW models to understand sources of nitrogen delivered to US coastal areas, *Biogeochemistry*, doi:10.1007/s10533-012-9809-x.

38. Baron, J.S., E.K. Hall, B.T. Nolan, J.C. Finlay, E. Bernhardt, **J.A. Harrison**, F. Chan, and E.W. Boyer, (2013) The interactive effects of human-derived nitrogen loading and climate change on aquatic ecosystems of the United States, *Biogeochemistry*. DOI 10.1007/s10533-012-9788-y.

37. **Harrison, J.A.,** P. Frings, A.H.W. Beusen, D.J. Conley, and *M.L. McCrackin (2012) Global importance, patterns, and controls of dissolved silica retention in lakes and reservoirs, *Global Biogeochemical Cycles*, doi:10.1029/2011GB004228.

36. *Deemer, B., K.E. *Goodwin, K. Birchfield, *K. Dallavis, *J. Emerson, *D. Freeman, *E. Henry, *T. Lee, *L. Wynn, and **J.A. Harrison** (2012) Elevated nitrogen and phosphorus concentrations in urbanizing southwest Washington streams. *Northwest Science.* 86(4):237-247. *Written with graduate students in Watershed Biogeochemistry course*

35. Davidson, E.A., M.B. David, J.N. Galloway, C.L. Goodale, R. Haeuber, **J.A. Harrison**, R.W. Howarth, D. Jaynes, R. Lowrance, B.T. Nolan, J.L. Peel, R. Pinder, E. Porter, C.S. Snyder, A.R. Townsend, M.H. Ward, P. Whitney (2012), Minimizing Releases and Impacts of Excess Nitrogen in the Environment, *Issues in Ecology.* **15**:1-16

34. *Martin, R., and **J.A. Harrison** (2011) Effect of high flow events on in-stream dissolved organic nitrogen concentration. *Ecosystems*. DOI: 10.1007/s10021-011-9483-1.

33. Ahrens, T., **J.A. Harrison**, J.M. Beman, P. Jewett, and P.A. Matson (2011) Nitrogen in the Yaqui Valley: sources, transfers, and consequences, Chapter 10 in: P.A. Matson (Ed.) *Seeds of Sustainability: Lessons from the Birthplace of the Green Revolution in Agriculture*, Island Press, Washington D.C.. *Won the 2013 ESA Sustainability Science Award.*

32. *Sobota, D.S., **J.A. Harrison,** and R.A. Dahlgren (2011) Linking Dissolved and Particulate Phosphorus Export in Rivers Draining California's Central Valley with Anthropogenic Sources at the Regional Scale. *Journal of Environmental Quality*. 40(4): 1290-1302, doi: 10.2134/jeq2011.0010.

31. Compton, J.E., **J.A. Harrison**, R.L. Dennis, T.L. Greaver, B.H. Hill, S.J. Jordan, H. Walker, and H.V. Campbell (2011) Ecosystem services altered by human changes in the nitrogen cycle: A new perspective for US decision making. *Ecology Letters*. 1-12, doi: 10.1111/j.1461-0248.2011.01631.x. *Highlighted by Faculty of 1000*, *Awarded US EPA Scientific and Technological Achievement Award in 2012*.

30. *Deemer, B.R., **J.A. Harrison**, and *E.W. Whitling (2011) Microbial dinitrogen and nitrous oxide production in a small eutrophic reservoir: An in situ approach to quantifying hypolimnetic process rates. *Limnology and Oceanography*, 56(4) 1189-1199, doi:10.4319/lo.2011.56.4.1189.

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25. **Harrison, J.A.,** R. Maranger, R.B. Alexander, A. Giblin, P.-A. Jacinthe, E. Mayorga, S.P. Seitzinger, *D.J. Sobota, and W. Wollheim (2009), The regional and global significance of nitrogen retention in lakes and reservoirs. *Biogeochemistry*, 10.1007/s10533-008-9272-x.

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10. Seitzinger, S.P., **J.A. Harrison**, E. Dumont, A.H.W. Beusen, and A.F. Bouwman (2005), Sources and delivery of carbon, nitrogen, and phosphorus to the coastal zone: an overview of Global NEWS models, *Global Biogeochemical Cycles*, GB4S05, doi:10.1029/2005GB002453, 1-11.

9. Dumont, E., **J.A. Harrison**, C. Kroeze, E.J. Bakker and S.P. Seitzinger (2005), Global distribution and sources of DIN export to the coastal zone: results from a spatially explicit, global model (NEWS-DIN), *Global Biogeochemical Cycles, 19*, GB4S02, doi:10.1029/2005GB002488, 1-14.

8. Beusen, A.H.W., A.L.M. Dekkers, A.F. Bouwman, W. Ludwig and **J.A. Harrison** (2005), Estimation of global river transport of sediments and associated particulate carbon, nitrogen, and phosphorus, *Global Biogeochemical Cycles,* 19, GB4S05, doi:10.1029/2005GB002453, 1-19.

7. Deegan, L.A., H.E. Golden, **J. Harrison**, K. Kracko (2005), Swimming performance and metabolism of 0+ year *Thymallus arcticus*, *Journal of Fish Biology*, 67(4), 910-918. JIF: 1.7

6. **Harrison, J.A.** and P.A. Matson (2003), Patterns and controls of nitrous oxide (N_2O) emissions from drainage waters of the Yaqui Valley, Sonora, Mexico. *Global Biogeochemical Cycles, 17,* (3), 1080, doi:10.1029/2002GB001991, 1-13.

5. **Harrison, J.A.** (2003), *Nitrogen Dynamics and Greenhouse Gas Production in Yaqui Valley Surface Drainage Waters*, Doctoral Thesis, Stanford University.

4. **Harrison, J.A.** (2003), The carbon cycle (what goes around comes around), (www.visionlearning.com) - Online Textbook Module

3. **Harrison, J.A.** (2003), The nitrogen cycle (of microbes and men), (www.visionlearning.com) - Online Textbook Module.

2. Deegan, L.A., A. Wright, S.G. Avayzian, J.T. Finn, H. Golden, R.R. Merson and **J.A. Harrison** (2002), Nitrogen loading alters seagrass ecosystem structure and support of higher trophic levels. *Aquatic Conservation: Marine and Freshwater Ecosystems*, *12*:193-212.

1. **Harrison, J.A.** and P.A. Matson (2000), The atmosphere as a global commons, Chapter 10 in *Protecting the Commons*, Burger, J., R. Norgaard, E. Ostrom, D. Policansky, and B.D. Goldstein (eds.), Island Press, Washington D.C.

Non-Peer-Reviewed Publications

12. **Harrison, J. A.**, Prairie, Y. T., Mercier-Blais, S., & Soued, C. (2021). Year 2020 reservoir methane and CO_2 emissions as predicted by the g-res model. Zenodo. https://doi.org/10.5281/zenodo.4632428

11. Prairie, Y. T., Mercier-Blais, S., **Harrison, J. A.**, Soued, C., del Giorgio, P., Harby, A., et al. (2021). G-res tool modelling database. Zenodo. https://doi.org/10.5281/zenodo.4711132

10. *D'Ambrosio, S., and **J.A. Harrison** (2021) Methane production & oxidation rates in lakes and reservoirs. *figshare*. Dataset. https://doi.org/10.6084/m9.figshare.12811778.v2

9. **Harrison, J.A.,** N. Barros, D. Bastviken, B.R. Deemer, C. Evans, A. Grinham, A. Harby, C. Lovelock, M. Peacock, Y. Prairie, B. Sherman, S. Sobek, and L. Tranvik (2019) Dams: weigh pros and cons case by case, *Nature* **568**, 171, doi: 10.1038/d41586-019-01137-2.

8. Baron, J.S., E.K. Hall, B.T. Nolan, J.C. Finlay, E.S. Bernhardt, **J.A. Harrison**, F. Chan and E.W. Boyer, (2012) The Interactive Effects of Human-Derived Nitrogen Loading and Climate Change on Aquatic Ecosystems of the United States, Chapter 5 in Suddick, E.C., Davidson, E.A., *The Role of Nitrogen in Climate Change and the Impacts of Nitrogen-Climate Interactions on Terrestrial and Aquatic Ecosystems, Agriculture, and Human Health in the United States: A Technical Report Submitted to the US National Climate Assessment*. North American Nitrogen Center of the International Nitrogen Initiative (NANC-INI), Woods Hole Research Center, 149 Woods Hole Road, Falmouth, MA, 02540-1644 USA.

7. Bouwman, A.F., **J.A. Harrison**, S.P. Seitzinger, and E. Mayorga (2010), Linking watersheds to coastal marine ecosystems: global nutrient river export trajectories 1970-2050. ISSN 2070-2442, 2010, Issue 2, pp. 5-13.

6. **Harrison, J.A.** (2009), *Nitrogen Pollution and Greenhouse Gases in Yaqui Valley Streams: Understanding the Downstream Legacy of the Green Revolution*. 114 pp. Lambert Academic Publishing, Köln, Germany, ISBN 978-3-8383-1486-0.

5. Bouwman, A.F., and **J.A. Harrison** (2009), The challenge of coastal nutrient over-enrichment, *GPA Outreach: Oceans and Coasts Newsletter*, January-March 2009, UN Environment Programme Press.

4. **Harrison, J.A.**, Notes from the Southern Ocean (2007), *Open Spaces Magazine*.

3. **Harrison, J.A.**, R. Lee., E. Dumont, and S. P. Seitzinger (2005), Workshop user manual for IOC Global NEWS-DIN watershed nutrient export model.

2. **Harrison, J.A.** (2001), Agriculture and pollution in the developing world: understanding the link between fertilizer use, greenhouse gases, and coastal change in Sonora, Mexico, (http://www.stanford.edu/group/i-rite/statements/2001/harrison.html), Stanford Research Communication Web Page.

1. L. Haimson et al. (1995), *A Moment of Truth*, **J.A. Harrison** (contributor) Environmental Defense Fund Press, New York.

Grants and Contracts (2005 – Present)

(Total as PI or Co-PI: >$20,539,000;
Total External Funding Directly to Harrison at WSU: >$3,749,000)

2023 – 2025	Using Klamath Basin Dam Removals to Understand how Water Drawdowns Affect Reservoir Greenhouse Gas Emissions (US Bureau of Reclamation Climate Change Case Study Program), $195,000, PI: J.A. Harrison.
2024 – 2025	IPA/WSU 2023 - Calculate Non-Riverine Components of Coastal Nutrient Inputs to COSCATs from Upwelling and Onwelling, and (for N) From Marine N Fixation and N Deposition (UNESCO-Intergovernmental Oceanographic Commission), $139,055, PI: J.A. Harrison.
2021 – 2025	DISES: RUI: Understanding the Use of Discretion and its Socio-Environmental Consequences for Reservoir Systems (NSF Dynamics of Integrated Socio-Environmental Systems), $1,600,000, PI: J.A. Harrison, Co-PIs: S. Bollens, G. Rollwagen-Bollens, J. Yoder, and M. Brady; Senior Personnel: K. Rajagopalan
2020 – 2024	Aquatic N_2-Fixation Research Coordination Network (NSF-RCN, DEB-2015825), $499,700, PI: T. Scott (Harrison: Senior Personnel)
2021 – 2024	Learning About Biogeochemical Research Through Practice: Evaluating Interactions Between Phytoplankton, Nutrients and Oxic Methane Production in Lacamas Lake (Murdock Charitable Trust, Partners in Science Program), $19,000, PI: J.A. Harrison
2020	Cox Visiting Professorship, Stanford University, $35,000, PI: J.A. Harrison
2019	Groupe de Recherché Interuniversitaire en Limnologie (GRIL) Fellowship, $4,000, PI: J.A. Harrison
2019	International Travel Grant to visit Linkoping Sweden, $1,000, PI: J.A. Harrison
2019 – 2020	WSU Vancouver Faculty Mini-grant: *Solubility and speciation of tungsten for biogeochemical modeling in Washington State Watersheds*, $6,000 Co-PIs: N. Strigul and J.A. Harrison.
2018 – 2019	USGS 104b Program: *Understanding controls on mobility and toxicity of tungsten, an emerging threat to Washington's waters*, $27,500; Co-PIs: N. Strigul and J.A. Harrison.
2017 – 2018	WSU Vancouver Faculty Seed-grant: *Developing fundamental new knowledge of stormwater nitrogen pollution removal by unsaturated bioswales: testing novel methods and generating compelling preliminary data,* $5,000; PI: J.A. Harrison (co-written with S. Kintner and Co-PI K. Moffett).

Grants (continued)

2017 – 2018 WSU Vancouver Faculty Seed-grant: *Development of a hyperspectral remote sensing approach for detection of algae blooms and methane emissions from SW Washington lakes,* $7,000; PI: N. Strigul; Co-PIs: J.A. Harrison and G. Rollwagen-Bollens.

2017 WSU Infrastructure Grant: *Inaugural Instrumentation for Establishing the WSUV Environmental Mapping Core Facility*, $89,000; PI: S. Henderson; Co-PIs K. Moffett, N. Strigul, and J.A. Harrison.

2017 WSU Infrastructure Grant: *Enhancing critical research infrastructure for water sustainability and global change science: transportation, storage and experimental facilities*, $25,000; PI: J. Bishop; Co-PIs: S. Bollens, J.A. Harrison, S. Henderson, M. Kramer, K. Moffett, L. New, J. Piovia-Scott, S. Porter, G. Rollwagen-Bollens, C. Schultz, and N. Strigul.

2016 – 2018 Murdock Charitable Trust; *WSU Vancouver Water Instrumentation*, $171,500; PI: J.A. Harrison; Co-PIs: M. Kramer, J. Piovia-Scott, S. Porter, and K. Moffett.

2016 – 2021 National Science Foundation Innovations at the Food-Energy-Water Nexus (INFEWS) *INFEWS/T1 Global-FEWS: Global Food, Energy, Water, and Land Security in a Climate-Constrained World*, $2,999,249; PI: J. Adam, Co-PIs: J. Boll, T. Fortenbery, J. Givens, M. Goldsby, S. Hampton, J.A. Harrison, S. Katz, C. Kruger, M. Liu, D. McLarty, J. Padowski, C. Stockle, and J. Yoder, WSU Vancouver Portion: $168,357; WSU Vancouver PI: Harrison.

2016 – 2018 US Army Corps of Engineers-Institute for Water Resources: *Characterizing Variability and Controls of Greenhouse Gas Emissions from Pacific Northwest Reservoirs, with Implications for Possible Mitigation Measures*, $300,000; PI: J.A. Harrison.

2016 – 2017 WSU Grand Challenge Program Grant:, *Maximizing the potential for green stormwater infrastructure to save energy and provide clean water for people and the fish they eat***,** $ 3,511,885; PI: Stark, J.; Co-PIs: P. Glazebrook, S. Hampton, J.A. Harrison, A. Jayakaran, and A. Love.

2016 – 2017 WSU Grand Challenge Seed Grant: *Optimizing GSI efficacy by integrating hydrologic, cultural, and socioeconomic elements in a watershed spanning the urban-agriculture continuum*, $74,509; PI: Jayakaran; Co-PIs: J. Wu, S. Hampton, M. Sanchez, M. Brady, J.A. Harrison, J. Stark, J. Kaytes, and D. Moore.

2016-2017 WSU External Mentoring Grant: Mentorship for John Harrison in support of research and administration goals, $2,050; PI: J.A. Harrison.

Grants (continued)

2014 – 2019	National Science Foundation, Ecosystems: *Integrating biogeochemistry and physics to understand nitrogen transformation in lakes and reservoirs*, $574,995; PI: J.A. Harrison; Co-PI: S. Henderson
2016-2017	USGS 104b Program: *Understanding links between water, nitrogen, and greenhouse gases in "green" infrastructure*, $27,500; Co-PIs: J.A. Harrison and K.B. Moffett
2015-2016	WSU Center for Environmental Research, Education and Outreach Food, Energy and Water Seed Grant *An integrated biophysical-economic study of a model FEW system: Columbia River reservoir storage and spill*, $24,943; PI: Bollens; Co-PIs: J.A. Harrison, G. Rollwagen-Bollens, M. Brady, P. Wandschneider, and H. Chouinard
2014	College of Arts and Sciences International Travel Grant, $1,000, PI: J.A. Harrison
2012 – 2015	World Bank Global Environment Facility funding to UNEP and UNESCO-IOC**:** *Global foundations for reducing nutrient enrichment and oxygen depletion from land based pollution, in support of Global Nutrient Cycle,* ($3,618,182, Overall Project PI: Datta, WSU Vancouver Portion $130,000; WSU PI: J.A. Harrison)
2013 – 2015	Earth, Ecosystems, and Society (CEREO) Fellowship, $30,000, PI: J.A. Harrison
2012 – 2015	US Army Corps of Engineers-Institute for Water Resources: *Characterizing greenhouse gas emissions from water reservoirs and possible mitigation measures with water level drawdown policy implications for the Pacific Northwest,* $400,000; PI: J.A. Harrison
2012 – 2013	Supplement to Collaborative Research: NSF ULTRA-Ex: *Collaborative Research: How do feedbacks between governance and biophysical systems affect resilience of urban socio-ecological systems?* ($88,000, Overall Project PI: Yeakley, WSU, Vancouver portion: $21,000; WSU PI: Bollens, S.M., Co-PIs: J.A. Harrison, G. Rollwagen-Bollens, M. Stephan, and P. Thiers)
2012 – 2016	NSF Water Sustainability and Climate, ultimately funded by USDA: *Watershed Integrated System Dynamics Modeling (WISDM): Feedbacks among biogeochemical simulations, stakeholder perception, and water policy,* $1,495,640 (Project PI: C. Huyck-Orr, WSU Vancouver Portion $256,000; WSUV PI: J.A. Harrison)

Grants (continued)

2011 – 2013 NSF Hydrology/Ecosystems/Geobiology and Low Temperature Geochemistry: *Emerging Topics in Biogeochemical Cycles* (*ETBC): Interacting hydrological and biogeochemical controls on nitrogen transformation hot spots and hot moments in a eutrophic reservoir*, $129,996; PI: J.A. Harrison, Co-PI: S. Henderson

2012 – 2013 USGS 104b Program: *Climate change, land-water transfer, and in-stream fate of nitrogen in an agricultural setting,* $27,000; PI: C. Huyck-Orr, Co-PI: J.A. Harrison

2011 – 2016 NSF Earth System Modeling (EaSM), ultimately funded by USDA: *Collaborative Research: Understanding biogeochemical cycling in the context of climate variability using a regional Earth system modeling framework*, $3,053,000; (Project PI: J. Adam, WSU Vancouver Portion $196,000; WSUV PI: J.A. Harrison)

2011 – 2012 WSU Vancouver Faculty Mini-grant: *Quantifying temperature effects on denitrification in wetland sediments,* $5,000; PI: J.A. Harrison (co-written with A. Jacobs)

2010 – 2012 Collaborative Research: NSF ULTRA-Ex: *Collaborative Research: How do feedbacks between governance and biophysical systems affect resilience of urban socio-ecological systems?* ($184,416, Overall Project PI: A. Yeakley, WSU, Vancouver portion: $31,341; WSU PI: S.M. Bollens, Co-PIs: J.A. Harrison, G. Rollwagen-Bollens, M. Stephan, and P. Thiers)

2010 – 2011 WSU Vancouver Faculty Mini-grant: *Agriculture's role as a source of dissolved organic nitrogen to surface waters,* $4,995; PI: J.A. Harrison (co-written with R. Martin).

2010 – 2011 USGS 104b Program: *Developing a novel, interdisciplinary approach to understand hot moments in reservoir nutrient transformation,* $28,000; PIs: J.A. Harrison and S. Henderson

2009 – 2010 U.S. Bureau of Reclamation: *Modeling nitrogen loads and sources in central valley watersheds: taking existing monitoring data to the next stage,* $42,000; PI: J.A. Harrison

2007 – 2010 NASA-ROSES**:** *Further tests on a modeling framework to detect and analyze changes in land-to-coastal fluxes of freshwater and constituents,* $1,200,000; PI: C. Vörösmarty (WSU Vancouver Portion $182,000; WSU PI: J.A. Harrison)

2008 – 2009 USGS 104b Program: *Reservoir sediments: biofilter or environmental liability?* $25,000; PI: J.A. Harrison

2008 – 2009 WSU Vancouver Faculty Mini-grant: *Summer spill events and nutrients in the Columbia River,* $4,000; PI: J.A. Harrison (co-written with D. Sobota)

Grants (continued)

2007 – 2008 USGS 104b Program: *Lacamas Lake and other Northwest reservoirs as bioreactors: how do dams affect downstream nutrient transport?* $24,000; PI: J.A. Harrison

2007 – 2008 WSU Vancouver Faculty Mini-grant: *Soil phosphorus availability and lupines during primary succession,* $4,000; PI: J.A. Harrison (co-written with M. Murashkina)

2005 – 2008 California Bay Delta Authority: *Modeling nutrient and organic carbon loads and sources in central valley watersheds: taking existing monitoring data to the next stage,* $229,500; PI: J.A. Harrison

Fellowships and Grants to Harrison as a Student

NSF Dissertation Enhancement Award	(~$16,000)	2001 – 2002
NASA Earth System Science Graduate Fellowship	(~$75,000)	1999 – 2002
NSF Pre-doctoral Fellowship	(~$75,000)	1997 – 2000
Two McGee Fellowships, Stanford University	(~$10,000)	1998 & 2000
Samuel T. Arnold Fellowship, Brown University	($16,000)	1995 – 1996
Brown University Writing and Rhetoric Fellowship	(~$2,000)	1993 & 1994
Two NSF Research Experience for Undergraduates Grants	(~$15,000)	1993 & 1994
Woods Hole Research Consortium Fellowship Award	($2,000)	1992

Teaching and Advising

WSU Courses

Semester	Course Title	Credit Hrs.	Enrollment
Spring 2007	Principles of Chemistry II	4	67
Fall 2007	Global Biogeochemistry	3	18
Spring 2008	Principles of Chemistry II	4	74
Fall 2008	Watershed Biogeochemistry	3	9
Spring 2009	Principles of Chemistry II	4	122
Fall 2009	Global Biogeochemistry	3	11
Spring 2010	Principles of Chemistry II	4	98
Fall 2010	Watershed Biogeochemistry	3	5
Spring 2011	Introduction to Earth System Science	3	27
Fall 2011	Global Biogeochemistry	3	15
Spring 2012	Introduction to Earth System Science	3	9
Fall 2012	Watershed Biogeochemistry	3	5
Spring 2015	Watershed Biogeochemistry	3	3
Fall 2015	Introduction to Earth System Science	3	23
Fall 2016	Introduction to Earth System Science	3	11
Spring 2019	Introduction to Earth System Science	3	38
Fall 2021	Watershed Biogeochemistry	3	6
Spring 2023	Introduction to Earth System Science	3	21
Spring 2023	Watershed Biogeochemistry	3	4

Average post-tenure student evaluation of "Instructor Effectiveness": 4.7/5

Other Teaching-related Activities

Participating Faculty in NSF-funded Nitrogen Systems Policy Integrated Research and Education, Integrated Graduate Education and Research Training (NSPIRE-IGERT) Program, worked with other core NSPIRE faculty to attain funding for this program, develop and deliver program-specific curriculum, and advised 2 Ph.D. student Fellows.

Participating Faculty in NSF-funded "Partners in Discovery" GK-12 grant, advised 9 graduate student GK-12 Fellows.

Organizer/Leader Nutrient Loading and Large Marine Ecosystems Workshop, World Bank/GEF, Paris, France, 1/2006, with S. Seitzinger, designed, developed and taught a short course on the application of global river nutrient export models; participants included 8 leading scientists from 7 distinct developing world regions

Supervisor for Technicians, Stanford University, Rutgers University, and WSU-Vancouver 2000 -Present, Trained and supervised 5 technicians for periods up to 3 years.

Founder/Organizer of Stanford Biogeochemistry Seminar, Stanford University, 1999 - 2000 Conceived, attained funding for, organized, and led the first Stanford Biogeochemistry Seminar, which subsequently lasted for at least 5 years (20+ participants/year, 12 speakers/year, budget $5000/yr)

Writing and Rhetoric Fellow, Brown University, Providence, RI, 1993 - 1994, Taught writing and speaking skills to Brown University undergraduates for 3 semesters.

Mentoring and Advising

Past Postdoctoral Associates:

Dr. Genevieve Metson – (NRC Postdoc, 2015-2017); Co-advised with Jana Compton at EPA's-Western Ecology Division, Currently Faculty at Linköping University

Dr. Daniel Sobota (2007-2014) – NRC Postdoc (2010-2012) and ORISE postdoc (2012-2014); Co-advised with Jana Compton at EPA's-Western Ecology Division, Currently a Research Scientist at OR Department of Environmental Quality

Dr. Michelle McCrackin (2010-2014) - NRC Postdoc; Co-advised with Jana Compton at EPA's-Western Ecology Division, Currently a Research Scientist at the Baltic Nest Institute in Stockholm, Sweden

Dr. Daniel Reed – (2014-2017) - Currently an Aquatic Biologist at the Bedford Institute of Oceanography

Current Graduate Students (*Harrison primary advisor, ¶co-advised, no symbol indicates Harrison on graduate committee)

*Ted Ballenger	(Ph.D.)
McKenzie Frazier	(M.S.)
Jess Mitchell	(M.S.)
Bianca Wong-Rodriquez	(M.S.)

Past Graduate Students (*Harrison primary advisor, ¶co-advised, no symbol indicates Harrison on graduate committee)

Salvador Robb-Chavez	(M.S.)
Jarod Cable	(M.S.)
Jeffrey Nielson	(Ph.D.)
*Sofia D'Ambrosio	(Ph.D.) – NSF Graduate Research Fellowship
*Sammi Grieger	(M.S.) – INFEWS Research Assistant
Vanessa Rose	(Ph.D.) – NSF Graduate Research Fellowship
*Corey Ruder	(M.S.) – NSF Graduate Research Fellowship
*Will Forney	(M.S.) – WISDM Research Assistant
¶Phil Steenstra	(M.S.)
¶Sarah Kintner	(M.S.) – Green Stormwater Infrastructure Res. Asst.
Lauren Burns	(M.S.)
Sean Nolan	(M.S.)
Craig Haskell	(Ph.D.) – NSF GK-12 Fellow
Mailea Miller-Pierce	(Ph.D.) – NSPIRE IGERT Fellow
*Bridget Deemer	(Ph.D.) – NSPIRE IGERT Fellow, EPA STAR Fellow (Currently at USGS)
*Reed Norton	(M.S.) – ULTRA-EX Research Assistant
*Rebecca Martin	(Ph.D.) – NSF Predoctoral Fellow, NSPIRE IGERT Fellow
*Cody Miller	(M.S.) – USDA Bio Earth Research Assistant
Ricardi Duvil	(Ph.D.) – NSPIRE IGERT Fellow
*Allison Jacobs	(M.S.) – 2011, 2012 NSF GK-12 Fellow (Now at Puget Sound Energy)
*Bridget Deemer	(M.S.) – 2010 NSF GK-12 Fellow
*Kara Goodwin	(M.S.) – 2010 NSF GK-12 Fellow (Now at US EPA)
Keith Sorenson	(M.S.) – 2012 NSF GK-12 Fellow
Louise Wynn	(M.S.) – 2011
Jennifer Blaine	(M.S.) – 2010 NSF GK-12 Fellow
Kassi Dallavis	(M.S.) – 2010 NSF GK-12 Fellow
Ray Yurkewycz	(M.S.) – 2010 NSF GK-12 Fellow
Jennifer Duerr	(M.S.) – 2009 NSF GK-12 Fellow
Kate Olsen	(M.S.) – 2009 NSF GK-12 Fellow
Nathan Reynolds	(M.S.) – 2009

Undergraduate Research Assistants ([1]WSU, [2]Current, [3]Received Award for Research)

Name	Project Title
Rachel Sipler	Understanding Nutrient Loading to the Mediterranean Sea
Weihan Chang	Understanding Nutrient Loading and Primary Production in the Mediterranean Sea
Cali Benfit[1]	Nitrogen dynamics in Lacamas Lake
Dawn Freeman[1,3]	Nitrogen fixation in Lacamas Lake
Elliott Whitling[1,3]	Denitrification in Lacamas Lake
Kathleen Denlinger[1]	Tracing inlet waters in Lacamas Lake
Abraham Robles[1]	Techniques for biogeochemical analysis
Zack Budiselic[1,3]	Sedimentation rates in Lacamas Lake
Maria Glavin[1,3]	Understanding and quantifying drawdown effects on methane emissions from Lacamas Lake sediments
Drew Houston[1]	Nitrogen dynamics in Lacamas Lake
Melissa Knudson[1,3]	Phosphorus loss and retention over 30 years of soil development on Mt. St. Helens' Pumice Plain
Jason Jacobsen[1]	Lacamas Lake nitrogen dynamics
James "Stu" McNeal[1]	Developing an autonomous water sampler for lakes and reservoirs
Michelle Schafer[1]	Characterizing sediments from Pacific NW reservoirs across a trophic gradient
Anna Withington[1]	(NSF REU) Evaluating the role of alternative electron acceptors in methane dynamics of Lake sediments
Francesca Frattaroli[2,3]	(NSF REU) Development and testing of an autonomous methane ebullition sensor
Terryn Mitchell[1,2]	(NSF REU) Evaluation of conservative tracers in Lacamas Lake sediments and waters
Amaanjit Singh	Measurements in support of stormwater research
Rebecca Clarke[1,2]	Quantifying the phosphorus footprint of different agricultural products
Hannah Mirenta	Measuring dissolved gases in a eutrophic reservoir
Bethany Davis	Calibrating low-cost, autonomous greenhouse gas sensors
Daniella Magnusson	Calibrating low-cost, autonomous methane sensors

High School Interns

Maia Kawamura	Went on to Dartmouth College
Selina Zou	Went on to The University of Pennsylvania

Undergraduate Academic and Career Advising

2023	10 Students
2022	10 Students
2021	9 Students
2020	10 Students
2019	10 Students
2018	10 Students
2017	11 Students
2016	10 Students
2015	10 Students
2014	8 Students
2013	10 Students
2012	10 Students
2011	10 Students
2010	10 Students
2009	10 Students
2008	25 Students
2007	14 Students
2006	8 Students
Total	195 Students

Selected Published Abstracts

(Only First-authored Since Tenure)

Harrison, J.A., S.M. Bollens, M. Brady, K. Rajagopalan, G. Rollwagen-Bollens, and J. Yoder, 2022, Dynamics of Integrated Socio-Environmental Systems: Dams as Adaptive Management Systems (DISES: DAMS), SFS Meeting, Brisbane, AU 6/2023.

Harrison, J.A., S.M. Bollens, M. Brady, K. Rajagopalan, G. Rollwagen-Bollens, and J. Yoder, 2022, Dynamics of Integrated Socio-Environmental Systems: Dams as Adaptive Management Systems (DISES: DAMS), AGU Fall Meeting, Chicago, IL 12/2022.

Harrison, J.A., Y.T. Prairie, S. Mercier-Blais, and C. Soued. *Global Distribution and Pathways of Reservoir Methane and Carbon Dioxide Emissions According to the Greenhouse Gas from Reservoirs (G-res) Model*, AGU Fall Meeting, New Orleans, LA 12/2021.

Harrison, J.A., G. Metson, and A.H.W. Beusen. *Recent successes and near-term challenges in modeling P loading to surface waters*, AGU Fall Meeting, New Orleans, LA 12/2017.

Harrison, J.A., B.R. Deemer, and M.K. Birchfield. *Controls on reservoir methane ebullition: a case study*, ASLO, Santa Fe, NM 6/2016.

Harrison, J.A., B.R. Deemer, and M.K. Birchfield. *Reservoir water level drawdown is an important and manageable control on methane release to the atmosphere*, ASLO, Granada, Spain 2/2015.

Harrison, J.A., B.R. Deemer, and M.K. Birchfield, *Reservoir water level drawdown is an important and manageable control on methane release to the atmosphere*, AGU, San Francisco, CA, 12/2014.

Harrison, J.A., J. Mogollón, A.F. Bouwman, and A.H.W. Beusen, *Insights from a New Accounting and Synthesis of Coastal Nutrient Delivery at the Global Scale*, IMBER, Bergen, Norway, 6/14

Harrison, J.A., B.R. Deemer, and M.K. Birchfield, *Water level management and methane bubble emissions from reservoirs in the Pacific Northwest U.S.*, Joint Aquatic Sciences Meeting, Portland, OR 5/14.

Harrison, J.A., P. Frings, and D.J. Conley, *Regional and global controls and potential significance of dissolved silica retention in lakes and reservoirs*, Ecological Society of America, Portland, OR: 8/12.

Harrison, J.A., P. Frings, and D.J. Conley, *Regional and global controls and potential significance of dissolved silica retention in lakes and reservoirs*, American Society of Limnology and Oceanography, Kyoto, Japan: 7/12.

Harrison, J.A., B.R. Deemer, and M. Glavin, *The role of reservoirs and reservoir operation in controlling water quality and greenhouse gas production: examples from a global model and a case study*, Society for Freshwater Science, 6/2012.

Harrison, J.A., P. Frings, and D.J. Conley, *Regional and global controls and potential significance of dissolved silica retention in lakes and reservoirs*, AGU, San Francisco, CA: 12/11.

Invited Symposia

Harrison, J.A. *Dynamics of Integrated Socio-Environmental Systems: Dams as Adaptive Management Systems*, CEREO Panel on Interdisciplinary Research, Research Week, Pullman, WA, 10/2023.

Harrison, J.A. *Understanding Greenhouse Gas Emissions from Reservoirs: Insights from Field Studies and a Global Model*, Linköping, Sweden, 5/2023.

Harrison, J.A. *Greenhouse Gas Emissions from Reservoirs: Insights from Field Studies and Modeling*, WSU Pullman CEE, Pullman, WA, 11/2022.

Harrison, J.A. *The Global Change and Watershed Biogeochemistry Lab*, WSU Research Council, Pullman, WA, 11/2021.

Harrison, J.A. *Understanding Greenhouse Gas Emissions from Reservoirs: Insights from Field Studies and a Global Model*, Stanford University, Stanford, CA, 2/2020.

Harrison, J.A. *Bubble trouble: understanding methane emissions from reservoirs in the Pacific Northwest US and beyond*, McGill University, Montreal, QC, 10/2019.

Harrison, J.A. *Bubble trouble: understanding methane emissions from reservoirs in the Pacific Northwest US and beyond/ Trouble ébullitif: comprendre les émissions de méthane des réservoirs du Pacifique Nord-ouest et d'ailleurs*, University of Quebec in Montreal (UQAM), Montreal, QC, 10/2019.

Harrison, J.A. *River Nutrient Inputs to the Global Coastal Ocean: Patterns, Causes, and Consequences,* Washington State University Science Seminar, Washington State University, Vancouver, Vancouver, WA, 2/2018.

Harrison, J.A. *Coastal hypoxia and marine sensitivity to land-based inputs in indicators of coastal water quality,* UNESCO, Paris, France, 12/2017.

Harrison, J.A., G. Metson, and A.H.W. Beusen (Invited). *Recent successes and near-term challenges in modeling P loading to surface waters*, AGU Fall Meeting, New Orleans, LA 12/2017.

Harrison, J.A. *Magnitudes and impacts of nutrient fluxes to the global coastal ocean in the Anthropocene,* Carnegie Institute, Stanford University, Stanford, CA, 12/2017.

Harrison, J.A. Recent advances and next steps in our understanding of phosphorus transfers at regional to global scales**,** Wageningen, Netherlands, 9/2017, *invitation includes invitation to lead-author a review paper.*

Harrison, J.A. *Magnitudes and impacts of nutrient fluxes to the global coastal ocean in the Anthropocene: insights from the Global Nutrient Export from Watersheds (NEWS) model,* Waterloo, Ontario, CA, 6/2016.

Harrison, J.A. *Bubble Trouble: Water Level Management and Methane Emissions from Reservoirs in the Pacific Northwest*, Center for Environmental Research, Education, and Outreach, WSU, Pullman, WA, 3/2016.

Harrison, J.A. *Water Level Management and Methane Emissions from Reservoirs in the Pacific Northwest EPA and Corps of Engineers*, Webinar, 3/2016.

Harrison, J.A. *Bubble Trouble: Water Level Management and Methane Emissions from Reservoirs in the Pacific Northwest Oregon State University Water Resources Graduate Group*, Corvallis, OR, 1/2016.

Harrison, J.A. *Water Level Management and Methane Emissions from Reservoirs in the Pacific Northwest U.S.*, EPA, Cincinnati, OH, 12/2014.

Harrison, J.A. *Water Level Management and Methane Emissions from Reservoirs in the Pacific Northwest U.S.*, WEBEX for USBR and USACE Leadership, 9/2014.

Harrison, J.A. *The Global Nutrient Export from Watersheds (NEWS) Model: An Overview with Relevance to Coastal Margins and Future Earth*, Bergen, Norway, 6/2014

Harrison, J.A. *Watershed Nutrient Fluxes in the Anthropocene: Insights from In Situ and In Silico Approaches*, Utrecht University, 10/2013.

Harrison, J.A. *Watershed Nutrient Fluxes in the Anthropocene: Insights from In Situ and In Silico Approaches*, University of Washington, 4/2013.

Harrison, J.A. *Urban Areas as Sources of Surface Water Pollution at the Global Scale*, University of Washington, 4/2013.

Harrison, J.A., B.R. Deemer, and M. Glavin, *The role of reservoirs and reservoir operation in controlling water quality and greenhouse gas production: examples from a global model and a case study*, Society for Freshwater Science, 6/2012.

Harrison, J.A., *The role of reservoirs and reservoir operation in controlling water quality and greenhouse gas production: examples from a global model and a case study*, Oregon Health and Science University, 5/2012.

Harrison, J.A., *Rivers, nutrients, humans: insights from a case study and a global model*, USGS Oregon Water Science Center, Portland, OR: 6/2010.

Harrison, J.A., *Chancellor's Seminar: Coastal nutrient over-enrichment: a pressing 21st century issue*, Vancouver, WA: 3/09. (video-taped and re-broadcast on Vancouver Public Access Television multiple times)

Harrison, J.A. and D. J. Sobota, *Insights into stream and river biogeochemistry from a few large-scale analyses*, Oregon State University, Corvallis, OR: 11/08.

Harrison, J.A., *Nutrient Delivery to the Coastal Zone: Insights from a Case Study and a Global Model*, Western Washington University, Bellingham, WA: 11/08.

Harrison, J.A., *Regional and global approaches to understanding N-related ecosystem services*, Environmental Protection Agency, Portland, OR: 8/08.

Harrison, J.A., *Nutrient transport through watersheds: how much do people and lakes matter?* Washington State University, Civil and Environmental Engineering Department, Pullman, WA: 11/2007.

Harrison, J.A., *Rivers, nutrients, and greenhouse gases: insights from a case study and a global model*, USGS Cascade Volcanoes Observatory, Vancouver, WA: 1/2007.

Harrison, J.A., *Rivers, nutrients, and greenhouse gases: insights from a case study and a global model*, Zoology Department Seminar, Oregon State University: 11/2006.

Harrison, J.A., *Rivers, nutrients, and greenhouse gases: insights from a case study and a global model*, Ecosystems Center, Marine Biological Laboratory, Woods Hole, MA: 5/2006.

Harrison, J.A., *Rivers, nutrients, and greenhouse gases: insights from a case study and a global model*, San Diego State University, San Diego, CA: 3/2006.

Harrison, J.A., *Human impacts on watershed fluxes of bioactive chemicals: insights from modeling and field-based approaches*, Washington State University, Vancouver and Pullman (2 lectures), WA: 3/2006.

Harrison, J.A., *Rivers, nutrients, and greenhouse gases: insights from a case study and a global model*, University of Texas, Austin, TX: 3/2006.

Harrison, J.A., *Human impacts on watershed biogeochemistry: insights from modeling and field-based approaches*, Bodega Bay Marine Lab, Bodega Bay, CA: 2/2006.

Harrison, J.A., *Urban areas as sources of pollution*, Ecological Society of America, Merida, Mexico: 1/2006.

Harrison, J.A., *Human impacts on watershed biogeochemistry: insights from modeling and field-based approaches*, University of California-Davis, Davis, CA: 4/2005.

Harrison, J.A., *Dissolved inorganic phosphorus export to the coastal zone: results from a spatially-explicit, global model*, University of California-Davis, Davis, CA: 4/2005.

Harrison, J.A., *Rivers, nutrients, and greenhouse gases: insights from a case study and a global model*, Purdue University, West Lafayette, IN: 3/2005.

Harrison, J.A., *Human impacts on watershed biogeochemistry: insights from modeling and field-based approaches*, Indiana University, Bloomington, IN: 1/2005.

Harrison, J.A., *Global-NEWS models and global dissolved nitrogen and phosphorus export to the coastal zone: early results from a multi-element, multi-form approach*, Institute of Ecosystem Studies, Millbrook, NY: 1/2005.

Harrison, J.A., S.P. Seitzinger, N.F Caraco, A.F. Bouwman, A. Beussen, and C.J. Vörösmarty. *Global NEWS models and global dissolved nitrogen and phosphorus export to the coastal zone: early results from a multi-element, multi-form approach*. UNESCO, Paris, France: 5/2004.

Harrison, J.A., *Global NEWS models and global dissolved nitrogen and phosphorus export to the coastal zone: early results from a multi-element, multi-form approach*. RIVM, Bilthoven, Netherlands: 12/2003.

Harrison, J.A., *Spatially explicit models for river export of dissolved organic nitrogen and soluble reactive phosphorus: successes and challenges*. UNESCO, Paris, France: 3/2003.

Harrison, J.A., *Nitrogen dynamics and nitrous oxide (N_2O) production in drainage waters and estuaries of an intensively farmed, subtropical valley*, Department of Environmental Science, Policy, and Management, UC Berkeley, CA: 1/2002.

Harrison, J. A., *Nitrogen dynamics in Yaqui Valley drainage waters*, Annual meeting of the Yaqui Valley research group, San Carlos, Mexico: October 2001.

Harrison, J.A., *Nitrogen dynamics and nitrous oxide (N_2O) production in drainage waters and estuaries of an intensively farmed, subtropical valley*, Water Resources Group at USGS, Menlo Park, CA: 12/2001.

Harrison, J.A., *Nitrogen dynamics and nitrous oxide (N_2O) in the drainage waters of the Yaqui Valley*, Annual meeting of the Yaqui Valley research group, Stanford University, CA: 10/2001.

Harrison, J.A. *Climate change: Is it real?* Portland chapter of the World Affairs Council: 11/2000.

Harrison, J.A. *The role of natural scientists in Taiwanese and Costa Rican environmental policy formulation: successes and challenges*: Presentation of Arnold Fellowship research results, Taiwan Forestry Research Institute; Taipei, Taiwan: 7/1996.

Harrison, J.A. *The role of tropical ecologists in Costa Rican environmental policy*, La Selva Tropical Research Station, Costa Rica: 3/1996.

Academic Service

Service at WSU

Program Leader: School of the Environment, Vancouver (2020 – Present)

Co-Director: Water Chemistry Facility (2017-Present)

Chair: Gretchen Rollwagen-Bollens' Mentoring Committee (2017 – 2022)

Member: Sarah Roley's Mentoring Committee (2021 – 2022)

Member: Jennifer McIntyre's Mentoring Committee (2016 – 2022, Chair 2021-2022)

Member: School of the Environment Vision and Strategy Committee (2016 – 2022)

Chair: Kevan Moffett's Mentoring Committee (2015 – 2022)

Member: Water Communications Committee (2018 – Present)

Chair: Water Scientist Faculty Search Committee (2017 – 2018)

Member: Environmental Microbiology Faculty Search Committee (2017)

Chair: Regional Climatologist Faculty Search Committee (2016 – 2017)

Member: Washington Stormwater Center Director Search Committee (2016 – 2017)

Chair: Environmental Chemist Search Committee – WSU Vancouver, (2014-2015)

Member: WSU Vancouver Research Advisory Committee (2014 –2017)

Member: Natural Sciences Graduate Studies Advisory Committee (2014 – 2017)

Member: Environmental Hydrologist Search Committee - WSU Vancouver, (2013 – 2014)

Ex Officio Member: CAHNRS Water Management Task Force (2013 – 2014)

Member: Vice Chancellor for Academic Affairs Search Committee- WSU Vancouver, (2012 – 2013)

Participant: WSU Provost's Leadership Academy (2012)

Member: Aquatic/Riparian Ecologist Search Committee - WSU Pullman, (2012 – 2013)

Member: School of the Environment Curriculum Committee – WSU Pullman and WSU Vancouver, (2011 – 2012)

Member: Environmental Geophysicist Search Committee - WSU Vancouver, (2006 – 2007)

Member: Ecohydrologist Search Committee - WSU Pullman, (2007 – 2008)

Member: SEES Reorganization Research Subcommittee (2009)

Member: SEES Water hire pre-search committee (2009)

Member: SEES Visioning Committee (2010 – 2011)

Coordinator: WSU, Vancouver Science Programs Seminar, (Spring 2007)

Undergraduate Advisor: ~166 WSU Vancouver undergraduates, (Fall 2006 – present)

Professional Service outside WSU

Associate Editor for *Biogeochemistry* (2015-2020) – Journal Impact Factor: 4.8

Member: External Advisory Committee for Vermont NSF EPSCoR Program (2019-2023)

External Site Reviewer for NSF EPSCoR Program (2020, 2023)

Invited Lead Author for Coastal Water Quality chapter in UNESCO State of the Oceans Report (2023)

Invited Lead Author "Flooded Lands" Chapter for United Nations Intergovernmental Panel on Climate Change Task Force on National Greenhouse Gas Inventories (2016-2019)

Member and Chair: Association for the Sciences of Limnology and Oceanography (ASLO) Ruth Patrick Awards Committee (2018-2023)

Co-organizer/Co-chair 3 scientific sessions at 2017 winter meeting of the Association for the Study of Limnology and Oceanography (ASLO) and one scientific session at 2017 Fall Meeting of the American Geophysical Union

Co-chair ASLO/SFS/SWS/APS Joint Aquatic Science Meeting, Portland, OR (2012-2014)

Panelist (twice): NSF Ecosystem Science, Division of Environmental Biology

Project Co-Chair (with Lex Bouwman) and North American Chair: UNESCO-IOC-funded Global Nutrient Export from WaterSheds (Global NEWS) project, (2003-Present)

U.S. Environmental Protection Agency Expert: Consultant for U.S. EPA's Ecosystem Services Research Program, Nitrogen Focus, (2009-2013)

Organizer/Co-chair special session on Continental Scale Nutrient Transport at ASLO/NABS joint meeting, Santa Fe, NM, (2010)

Organizer/Co-chair special session on Climate and Nitrogen Dynamics in Aquatic Systems at ASLO/NABS joint meeting, Santa Fe, NM, (2010)

Organizer/Co-chair special session on Nitrogen Sources in the Continental US, San Francisco, CA (2011)

President: Rutgers-IMCS Postdoctoral Association, (2003 - 2005)

Reviews

Proposals:

Ad hoc and panel reviewer for *National Science Foundation Ecosystem Science and EPSCoR programs,* **ad hoc reviewer for** *France's Make our Planet Great Again Program, panelist for NOAA's Coastal Hypoxia Research Program Panel, the Kearney Foundation, and the Icelandic Science Centre for Research*

Journals and Books:

Reviwer for *Nature, Limnology and Oceanography***,** *Global Biogeochemical Cycles, Limnology and Oceanography Letters***,** *Biogeochemistry, Science Advances, Science of the Total Environment, PLOS-One, River Research and Applications, EPA Pre-submission External Review, PNAS, JGR-Biogeosciences, JAWRA***,** *Ecology, National Park Service and USGS Reports, Journal of Marine Systems, AMBIO, Science, Geophysical Research Letters, Journal of Environmental Quality, Environmental Modelling and Software, Estuaries and Coasts, Freshwater Biology, Elsevier, J. Hydrology, J. North American Benthological Society, Marine and Freshwater Research, Environmental Pollution, Ecological Applications, and UNEP's Global Environmental Outlook 4*

Professional Memberships

American Geophysical Union
American Society of Limnology and Oceanography
Sigma Xi

Workshops Attended

UNESCO-IOC/UNEP Expert Workshop on Ocean Sustainability Indicators, Paris, France, 2018

Global Water Quality Modeling, OECD, Wageningen, NL, 2017

Earth Cube: Geochemistry and Biogeochemistry of Inland Waters, Boulder, CO, 2013

Connecting the Dots II: Understanding Linkages between Hypoxia and Fisheries, Smithsonian Environmental Research Center, Annapolis, MD, 2010

National Nitrogen Assessment Workshop, Boulder, CO, 2010

National Meeting of U.S. E.P.A. Ecosystem Services Research Program, Athens, GA, 2009

Connecting the Dots: Understanding Linkages Between Hypoxia and Fisheries, Smithsonian Environmental Research Center, Annapolis, MD, 2009

Global Nutrient Export from Watersheds Workshops, UNESCO, Paris, France, 2003, 2004, 2005, 2007, 2008, and 2009

NSF Research Coordination Network in Modeling Denitrification, Institute of Ecosystem Studies, Millbrook, NY, 2007

Dissertations Initiative for the Advancement of Limnology and Oceanography (DIALOG VII), Dauphin Island, AL, 2005, Selective symposium for recent Ph.D. recipients in the aquatic sciences

The First Global and Regional Scenarios Workshop of GEO-4, Bangkok, Thailand, 2005, One of ten representatives from North America to United Nations Environment Programme-organized workshop to explore environmental consequences of four distinct regional and global development scenarios

Nitrate Stable Isotopes Workshop, USGS, Menlo Park, 2002

Integrating Research in a Teaching Environment Program (I-RITE), Stanford University, 2001, short course on communicating research to public

Stable Isotope Ecology Course, University of Utah, 1998, selective short course in the use of stable isotopes in environmental research

References Available Upon Request