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JOHN A. HARRISON

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EDUCATION

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

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PROFESSIONAL POSITIONS

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| 2018 – Present  | <b>Edward R. Meyer Distinguished Professor (Full)</b> , School of the Environment, Washington State University                    |
| 2020, 2026      | <b>Cox Visiting Professor</b> , Earth System Science Dept., Stanford University                                                   |
| 2013–2014, 2025 | <b>Visiting Scholar</b> , Utrecht University Geochemistry Group, Netherlands                                                      |
| 2019            | <b>Visiting Professor and GRIL Fellow</b> , Groupe de Recherche Interuniversitaire en Limnologie, Université du Québec à Montréal |
| 2012 – 2018     | <b>Edward R. Meyer Distinguished Professor (Associate)</b> , School of the Environment, Washington State University               |
| 2006 – 2012     | <b>Assistant Professor</b> , School of Earth and Environmental Sciences, Washington State University                              |
| 2009 – 2013     | <b>U.S. Environmental Protection Agency Expert Hire</b> , Ecosystem Services Research Program Nitrogen Theme                      |
| 2005 – 2006     | <b>CALFED Science Fellow</b> , Department of Land, Air, and Water Resources, University of California, Davis                      |
| 2003 – 2005     | <b>UNESCO Postdoctoral Associate</b> , Institute of Marine and Coastal Sciences, Rutgers University                               |
| 1997 – 2003     | <b>NSF and NASA Graduate Fellow</b> , Stanford University, Department of Geological and Environmental Sciences                    |
| 1995 – 1996     | <b>Samuel T. Arnold Science and Policy Fellow</b> , Brown University, Costa Rica, Taiwan, and England                             |

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RESEARCH INTERESTS

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Greenhouse-Gas Emissions from Reservoirs: Established globally influential understanding of methane and carbon dioxide emissions from reservoirs, changing how inland waters are incorporated into climate budgets;

Global Nutrient Transport: Developed watershed-to-ocean models for nitrogen, phosphorus, silica, and carbon transport that underpin global biogeochemical assessments;

Freshwater Biogeochemistry: Advanced understanding of nutrient processing across rivers, lakes, and reservoirs linking hydrology with ecosystem function;

Science Informing Policy: Research informed UNESCO assessments, IPCC-related work, and water-management strategies used by agencies worldwide;

Interdisciplinary Environmental Science: Built collaborations integrating ecology, engineering, hydrology, economics, and Earth-system science to solve applied environmental problems.

## AWARDS AND HONORS

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|---------------------------------------------------------------------------------------------------------------------------------------|----------------|
| Sahlin Faculty Excellence Award for Research, Scholarship, and Arts                                                                   | 2026           |
| Distinguished Faculty Award, WSU College of Arts and Sciences                                                                         | 2025           |
| Fellow, Association for the Sciences of Limnology and Oceanography                                                                    | 2017 – Present |
| Edward R. Meyer Distinguished Professorship (awarded twice)                                                                           | 2013 – Present |
| Chancellor's Award for Research Excellence (WSU, Vancouver)                                                                           | 2016           |
| Ecological Society of America Sustainability Science Award<br>(w. <i>Seeds of Sustainability</i> , Matson <i>et al.</i> , 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, <sup>+</sup>Technician directly supervised by Harrison)

(Total citations: >14,525; h-Index: 46; Citations since 2021: >6,230)

(Manuscripts designated as "In Preparation" available upon request)

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96. **Harrison, J.A.**, P. Mireles\*, S. Flaska<sup>+</sup>, D.E. Ballenger\*, and A. Nesper<sup>+</sup> (In Preparation)  
Klamath River large dam removals reduce greenhouse gas emissions, for submission to *Nature Geoscience*.
  
95. Villamarin, C., A. Gafni, E. Geisler, H.M. Abdulla, R. Abdellatif, A. Abubakr, K. Adu-Boahen, J. Anderson, J.L. Attayde, R. Bao Casal, J. Bárta, L. Barrett, M. Barthazar, M. Benavides, S. Benelli, L.E. Brown, R. Carballeira, A. Coët, S. Comer-Warner, E. Cruz-Rivera, D.G.F. Cunha, J. Damashek, O.H.E. Ding, L. Dow, D.P. Fewer, S. Gkelis, C.J. Gobler, V.M.C. Gonçalves, R. Gonzalez-Pinzon, H.P. Grossart, V. Gupta, D. Hambright, **J.A. Harrison**, N. Hayes, C. Hill, G. Iketani, P. Juneau, S. Law, J. Magasin, A. Machado, M. Magri, B. Manirakiza, A.M. Marcarelli, F.O. Masele, C. Menezes, M. Morais, M. Moustaka-Gouni, J. Murdock, L.T. Nanganoa, J. Oakes, V. Ochoa-Herrera, H.W. Paerl, A. Pastor Oliveras, A. Paytan, A. Penha, M. Polz, S. Pinnow, E. Rahav, J.-B. Ramond, N.E. Ray, J. Ready, A.J. Reisinger, L. Renteria, U. Risse-Buhl, A. Robertson, J. Rücker, M. Ruiz Uriguen, A.L. Salomão, M.S. Seymour, M. Sieber, G. Singer, S.P. Singh, D. Sirová, R. Sommaruga, R. Sterner, J. Thajudeen, C. Thamaraiselvan, L. Thatcher, T.M. Tran, K. Turaani, K. Turk-Kubo, L.N. Wijewardene, C. Wirth, A. Zézé, M. Zilius, T. Turkeltraub, E. Bar Zeev (In Preparation) Temperature Regulates Global Freshwater Diazotrophy, for submission to *Nature*.
  
94. Balint, S., M. Berberich, E. Fluett-Chouinard, R. Fulweiler, **J.A. Harrison**, A. Marcarelli, A. Oczkowski, N.E. Ray, T. Scott, M. Sepp, and S.L. Spier (In Preparation) Global distribution of nitrogen fixation across the aquatic to marine continuum, for submission to *Nature*.
  
93. **Harrison, J.A.**, A.H.W. Beusen, A.F. Bouwman, J. Wang, and X. Liu (In Preparation)  
Linking the index of coastal eutrophication potential to harmful algal bloom occurrences, for submission to *Science*.

92. **Harrison, J.A.**, X. Liu, and A.F. Bouwman (Submitted; Invited) Prediction of eutrophication and hypoxia zones – implementation of an Index of Coastal Eutrophication Potential (ICEP) for coastal waters, in IOC-UNESCO. State of the Ocean Report 2026. Paris, IOC-UNESCO. (IOC Technical Series).
91. \*Mitchell, J., S.M. Bollens, **J.A. Harrison**, and G. Rollwagen-Bollens (In Revision; minor revisions requested) Effects of reservoir type (run-of-river vs. storage) on zooplankton assemblages, *J. Plankton Research*.
90. **Harrison, J.A.**, A.H.W. Beusen, A.F. Bouwman, J. Wang, and X. Liu (2026) Coastal nitrogen, phosphorus, and silica loading and sources: a new synthesis, *Global Biogeochemical Cycles*. doi: 10.1029/2026GB009128
89. \*Ballenger, D.E., and **J.A. Harrison**, (2026) Water level drawdowns in a shallow, eutrophic reservoir enhance CH<sub>4</sub> ebullition and CH<sub>4</sub> transfer efficiency from reservoir sediments, *Limnology and Oceanography Letters*, doi: 10.1002/lol2.70151
88. Bouwman, A.F., **J.A. Harrison**, and X. Liu (2024) Trends of eutrophication and alteration of nutrient ratios, in IOC-UNESCO. State of the Ocean Report 2024. Paris, IOC-UNESCO. (IOC Technical Series), pp. 13-17.
87. \*D'Ambrosio and **J.A. Harrison**, (2023) Measuring CH<sub>4</sub> fluxes from lake and reservoir sediments: a review of current methodologies & future directions, Chapter in REVIEWS in Environmental Science: Physical and biogeochemical processes driving methane sources, sinks and emissions in aquatic systems: The past, present and future under global change. pp. 98-116, doi: 10.3389/978-2-8325-2622-4.
86. Soued, C., **J.A. Harrison**, S. Mercier-Blais, Y.T. Prairie (2022) Reservoir CO<sub>2</sub> and CH<sub>4</sub> 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<sub>4</sub> 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<sub>4</sub> 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 *Methylobacter* sp. to the methylotroph *Methylothermobacter* 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<sub>2</sub> 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. Stokal, 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. Stokal, 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. Teurlinx, 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 aircapes: sources of nutrient pollution affecting habitat suitability for harmful algae, Chapter 4 in: *GEOHLAB 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, <sup>+</sup>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<sub>2</sub>O 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, <sup>+</sup>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 (FLA) 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. Poinssatte, 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 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.

42. \*McCrackin, M., **J.A. Harrison**, and J.E. Compton, (2014) Factors influencing seasonal export of dissolved inorganic nitrogen by major rivers, *Global Biogeochemical Cycles*, DOI: 10.1002/2013GB004723.
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.

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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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17. Seitzinger, S.P. and **J.A. Harrison** (2008), Sources and delivery of nitrogen to coastal systems, Chapter 8 in *Nitrogen in the Marine Environment, 2<sup>nd</sup> edition*. D. Capone, D.A. Bronk, M.R. Mullholland, E. Carpenter Eds., Academic Press, New York.
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12. **Harrison, J.A.**, S.P. Seitzinger, A.F. Bouwman, N.F. Caraco, A.H.W. Beusen and C. Vörösmarty (2005), Dissolved inorganic phosphorus export to the coastal zone: results from a spatially explicit, global model (NEWS-DIP), *Global Biogeochemical Cycles*, 19, GB4S03, doi:10.1029/2004GB002357, 1-15.
11. **Harrison, J.A.**, P.A. Matson and S. Fendorf (2005), Effects of a diel oxygen cycle on nitrogen transformations and greenhouse gas emission in a eutrophied, subtropical stream, *Aquatic Sciences*, doi:10.1007.s00027-005-0776-3, 1-8.

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.
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6. **Harrison, J.A.** and P.A. Matson (2003), Patterns and controls of nitrous oxide (N<sub>2</sub>O) 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](http://www.visionlearning.com)) - Online Textbook Module
3. **Harrison, J.A.** (2003), The nitrogen cycle (of microbes and men), ([www.visionlearning.com](http://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.
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## NON-REFEREED PUBLICATIONS

13. **Harrison, J. A.**, Beusen, A.H.W., Bouwman, A.F., Wang, J. & Liu, X. (2026). Nitrogen, phosphorus, and silicon inputs to coastal waters (COSCATs and LMEs) [Dataset]. In *Global Biogeochemical Cycles*. Zenodo. <https://doi.org/10.5281/zenodo.18626181>
12. **Harrison, J. A.**, Prairie, Y. T., Mercier-Blais, S., & Soued, C. (2021). Year 2020 reservoir methane and CO<sub>2</sub> emissions as predicted by the g-res model [Dataset]. In *Nature Geoscience*. 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 [Dataset]. In *Environmental Modeling and Software*. 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]. In *Limnology and Oceanography Letters*. <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: >\$22.3M; Total Directly to Harrison at WSU: >\$4.3M; Total External Funding Directly to Harrison at WSU: >\$4.2M)

**OVERVIEW TABLE: GRANTS WHILE AT WSU**

| Agency                                | No.<br>Grants | Total Funding | Funds to Harrison |
|---------------------------------------|---------------|---------------|-------------------|
| US National Science Foundation*       | 9             | \$10,624,996  | \$1,740,698       |
| US Army Corps of Engineers*           | 2             | \$700,000     | \$700,000         |
| US Bureau of Reclamation*             | 3             | \$687,000     | \$687,000         |
| UNESCO/UNEP‡                          | 2             | \$3,757,237   | \$269,055         |
| CALFED Bay Delta Authority†           | 1             | \$229,500     | \$229,500         |
| Paul G. Allen Foundation <sup>α</sup> | 1             | \$1,000,000   | \$100,000         |
| Murdock Charitable Trust <sup>α</sup> | 2             | \$190,500     | \$190,500         |
| NASA*                                 | 1             | \$1,200,000   | \$182,000         |
| WSU Internal†                         | 15            | \$3,733,873   | \$167,045         |
| US Geological Survey*                 | 6             | \$161,500     | \$132,000         |
| Stanford University <sup>α</sup>      | 1             | \$35,000      | \$35,000          |
| GRIL <sup>α</sup>                     | 1             | \$4,000       | \$4,000           |
| Howard Hughes Med. Inst. <sup>α</sup> | 1             | \$4,000       | \$4,000           |

‡International, \*National, †State, <sup>α</sup>Private

**ACTIVE GRANTS**

|             |                                                                                                                                                                                                                                                                                                                    |
|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2024 – 2027 | <i>Mainstreaming Beaver Based Restoration as a Natural Climate Solution across the Pacific Northwest</i> (Paul Allen Foundation), \$1,000,000, PI: J.P. Zaragola (J.A. Harrison WSU Co-PI; WSU Budget: \$200,000).                                                                                                 |
| 2024 – 2028 | <i>Using Klamath Basin Dam Removals to Understand how Water Drawdowns Affect Reservoir Greenhouse Gas Emissions</i> (US Bureau of Reclamation Science and Technology Program), \$450,000, PI: J.A. Harrison.                                                                                                       |
| 2023 – 2026 | <i>Using Klamath Basin Dam Removals to Understand how Water Drawdowns Affect Reservoir Greenhouse Gas Emissions</i> (US Bureau of Reclamation Climate Change Case Study Program), \$195,000, PI: J.A. Harrison.                                                                                                    |
| 2024 – 2026 | Meyer's Point Environmental Field Station Grant: <i>Carbon-based GHG emissions across a freshwater to salt-water gradient at Myer's Point Environmental Field Station</i> , \$10,000, PI: J.A. Harrison                                                                                                            |
| 2021 – 2026 | <i>DISES: RUI: Understanding the Use of Discretion and its Socio-Environmental Consequences for Reservoir Systems</i> (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 |

ACTIVE GRANTS CONTINUED

2020 – 2025      *Aquatic N<sub>2</sub>-Fixation Research Coordination Network* (NSF-RCN, DEB-2015825), \$499,700, PI: T. Scott (Harrison: Senior Personnel, Steering Committee Member)

PAST GRANTS

2024 – 2025      UNESCO/UNEP - 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.

2024 – 2025      USGS 104b Program: *Understanding how tungsten, an emerging contaminant, affects nutrient cycling in aquatic ecosystems*, \$30,000 Co-PIs: N. Strigul and J.A. Harrison.

2021 – 2024      *Learning About Biogeochemical Research Through Practice: Evaluating Interactions Between Phytoplankton, Nutrients and Oxidic Methane Production in Lacamas Lake* (Murdock Charitable Trust, Partners in Science Program), \$19,000, PI: J.A. Harrison

2024      *Regional Alliance for Inclusive Science Education (RAISE) Summer Research Internship Mentorship Grant*: \$4,000, PI: J.A. Harrison

2020      Cox Visiting Professorship, Stanford University, \$35,000, PI: J.A. Harrison

2019      Groupe de Recherche Interuniversitaire en Limnologie (GRIL) Fellowship, \$4,000, PI: J.A. Harrison

2019      International Travel Grant to visit Linköping 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).

PAST 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. Piovio-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. Piovio-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.
- 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

PAST GRANTS CONTINUED

- 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; WSU PI: J.A. Harrison)
- 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

PAST GRANTS CONTINUED

- 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)
- 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

## PRIOR GRANTS CONTINUED

|             |                                                                                                                                                                                                              |
|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2007 – 2008 | WSU, Vancouver Faculty Mini-grant: <i>Soil phosphorus availability and lupines during primary succession</i> , \$4,000; PI: J.A. Harrison (co-written with M. Murashkina)                                    |
| 2005 – 2008 | California Bay Delta Authority: <i>Modeling nutrient and organic carbon loads and sources in central valley watersheds: taking existing monitoring data to the next stage</i> , \$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 Graduate Research 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 (*Undergrad, **Grad)     | Credit Hrs. | Enrollment | Student Evaluation of<br>Instructor Overall<br>(Scale: 1-5; 5 = excellent) |
|-------------|---------------------------------------|-------------|------------|----------------------------------------------------------------------------|
| Spring 2007 | Principles of Chemistry II*           | 4           | 67         | 4.0                                                                        |
| Fall 2007   | Global Biogeochemistry*,**            | 3           | 18         | 4.7                                                                        |
| Spring 2008 | Principles of Chemistry II*           | 4           | 74         | 3.8                                                                        |
| Fall 2008   | Watershed Biogeochemistry**           | 3           | 9          | 4.8                                                                        |
| Spring 2009 | Principles of Chemistry II*           | 4           | 122        | 3.6                                                                        |
| Fall 2009   | Global Biogeochemistry*,**            | 3           | 11         | 4.4                                                                        |
| Spring 2010 | Principles of Chemistry II*           | 4           | 98         | 4.1                                                                        |
| Fall 2010   | Watershed Biogeochemistry**           | 3           | 5          | 4.8                                                                        |
| Spring 2011 | Introduction to Earth System Science* | 3           | 27         | 4.7                                                                        |
| Fall 2011   | Global Biogeochemistry*,**            | 3           | 15         | 4.5                                                                        |
| Spring 2012 | Introduction to Earth System Science* | 3           | 9          | 4.9                                                                        |
| Fall 2012   | Watershed Biogeochemistry**           | 3           | 5          | 4.8                                                                        |
| Spring 2015 | Watershed Biogeochemistry**           | 3           | 3          | 5.0                                                                        |
| Fall 2015   | Introduction to Earth System Science* | 3           | 23         | 4.3                                                                        |
| Fall 2016   | Introduction to Earth System Science* | 3           | 11         | 4.5                                                                        |
| Spring 2019 | Introduction to Earth System Science* | 3           | 38         | 4.4                                                                        |
| Fall 2021   | Watershed Biogeochemistry**           | 3           | 6          | No Data                                                                    |
| Spring 2023 | Introduction to Earth System Science* | 3           | 21         | 4.2                                                                        |
| Fall 2023   | Watershed Biogeochemistry**           | 3           | 4          | No Data                                                                    |

Average post-tenure student evaluation of “Instructor Effectiveness”: 4.6/5

\*undergraduate, \*\*graduate,

## OTHER TEACHING-RELATED ACTIVITIES

**Participating Faculty and Faculty Mentor for NSF Rivers, Watersheds, and Communities National Research Traineeship Program**, worked with other RWC NRT faculty to attain funding for this program, develop and deliver program-specific curriculum, and advised one Ph.D. student Fellow.

**Mentor for Howard Hughes Medical Institute-funded Southwest Washington “Regional Alliance for Inclusive Science Education” (RAISE) Summer Research Internship Program**, mentored an undergraduate summer intern.

**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

### **Former Postdoctoral Associates:**

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

Dr. Daniel Reed – (2014 – 2017) - Currently a Data Scientist at Oceansync Data Solutions Incorporated

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

|                 |                                                    |
|-----------------|----------------------------------------------------|
| *Ted Ballenger  | (Ph.D.) – NSF National Research Traineeship Fellow |
| John Buster     | (Ph.D.)                                            |
| Aaron Pelly     | (Ph.D.)                                            |
| *Paloma Mireles | (M.S.)                                             |
| Amanda Lavery   | (Ph.D.)                                            |
| Harry Wojtas    | (M.S.)                                             |

**Former Graduate Students (\*Harrison primary advisor, †co-advised, no symbol indicates Harrison on graduate committee)**

|                       |                                                                       |
|-----------------------|-----------------------------------------------------------------------|
| McKenzie Frazier      | (M.S.) – NSF National Research Traineeship Fellow                     |
| Jess Mitchell         | (M.S.)                                                                |
| Bianca Wong-Rodriguez | (M.S.)                                                                |
| 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<br>(Currently at USGS) |
| *Reed Norton          | (M.S.) – ULTRA-EX Research Assistant                                  |
| *Rebecca Martin       | (Ph.D.) – NSF Predoctoral Fellow, NSPIRE IGERT<br>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<br>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** (<sup>1</sup>WSU, <sup>2</sup>Current, <sup>3</sup>Received Award for Research)

| <u>Name</u>                         | <u>Project Title</u>                                                                                  |
|-------------------------------------|-------------------------------------------------------------------------------------------------------|
| Rachel Sipler                       | Understanding Nutrient Loading to the Mediterranean Sea                                               |
| Weihan Chang                        | Understanding Nutrient Loading and Primary Production in the Mediterranean Sea                        |
| Cali Benfit <sup>1</sup>            | Nitrogen dynamics in Lacamas Lake                                                                     |
| Dawn Freeman <sup>1,3</sup>         | Nitrogen fixation in Lacamas Lake                                                                     |
| Elliott Whitling <sup>1,3</sup>     | Denitrification in Lacamas Lake                                                                       |
| Kathleen Denlinger <sup>1</sup>     | Tracing inlet waters in Lacamas Lake                                                                  |
| Abraham Robles <sup>1</sup>         | Techniques for biogeochemical analysis                                                                |
| Zack Budiselic <sup>1,3</sup>       | Sedimentation rates in Lacamas Lake                                                                   |
| Maria Glavin <sup>1,3</sup>         | Understanding and quantifying drawdown effects on methane emissions from Lacamas Lake sediments       |
| Drew Houston <sup>1</sup>           | Nitrogen dynamics in Lacamas Lake                                                                     |
| Melissa Knudson <sup>1,3</sup>      | Phosphorus loss and retention over 30 years of soil development on Mt. St. Helens' Pumice Plain       |
| Jason Jacobsen <sup>1</sup>         | Lacamas Lake nitrogen dynamics                                                                        |
| James "Stu" McNeal <sup>1</sup>     | Developing an autonomous water sampler for lakes and reservoirs                                       |
| Michelle Schafer <sup>1</sup>       | Characterizing sediments from Pacific NW reservoirs across a trophic gradient                         |
| Anna Withington <sup>1</sup>        | (NSF REU) Evaluating the role of alternative electron acceptors in methane dynamics of Lake sediments |
| Francesca Frattaroli <sup>2,3</sup> | (NSF REU) Development and testing of an autonomous methane ebullition sensor                          |
| Terryn Mitchell <sup>1,2</sup>      | (NSF REU) Evaluation of conservative tracers in Lacamas Lake sediments and waters                     |
| Amaanjit Singh                      | Measurements in support of stormwater research                                                        |
| Rebecca Clarke <sup>1,2</sup>       | 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                  | Evaluating methods for calibration of low-cost methane sensors                                        |
| Caitlyn Guttormsen                  | (HHMI RAISE intern) Greenhouse gas fluxes from Pacific NW ponds                                       |
| Anneka Vossler                      | Effects of tungsten on methane production and consumption in lake sediments                           |

### **High School Interns**

|               |                                     |
|---------------|-------------------------------------|
| Maia Kawamura | Attended Dartmouth College          |
| Selina Zou    | Attended University of Pennsylvania |

### **Undergraduate Academic and Career Advising**

|       |              |
|-------|--------------|
| 2024  | 9 Students   |
| 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 | 204 Students |

## PUBLISHED ABSTRACTS

(FIRST-AUTHORED ONLY, PAST 5 YEARS, OF >100 TOTAL)

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**Harrison, J.A.**, Y.T. Prairie, S. Mercier-Blais, and C. Soued. Reservoirs and greenhouse gas emissions: recent progress in understanding the global problem and local solutions Washington State Lakes Protection Association (WALPA), Bellingham, WA 10/2026.

**Harrison, J.A.**, S.M. Bollens, M. Brady, K. Rajagopalan, G. Rollwagen-Bollens, and J. Yoder, 2024, Dynamics of Integrated Socio-Environmental Systems: Dams as Adaptive Management Systems (DISES: DAMS), WALPA & OLA Joint Lakes Conference, Portland, OR, 10/2024.

**Harrison, J.A.**, D.E. Ballenger, and S. Flaska, 2024, Methane and CO<sub>2</sub> emissions from four Pacific Northwest U.S. reservoirs with contrasting water management regimes, ASLO, Madison, WI, 6/2024.

**Harrison, J.A.**, S.M. Bollens, M. Brady, K. Rajagopalan, G. Rollwagen-Bollens, and J. Yoder, 2023, 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.

## INVITED SYMPOSIA

(PAST 5 YEARS, OF >60 TOTAL)

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**Harrison, J.A.** *Invited keynote plenary lecture for the annual scientific meeting of the Washington State Lake Protection Association (WALPA), Bellingham, WA, 10/2026.*

**Harrison, J.A.** *Dams and Greenhouse Gases, Lessons from the Pacific NW for the Globe (and vice-versa), UC Santa Cruz, Santa Cruz, CA, 3/2026.*

**Harrison, J.A.** *Dams and Greenhouse Gases, Lessons from the Pacific NW for the Globe (and vice-versa), UC Santa Cruz, Santa Cruz, CA, 3/2026.*

**Harrison, J.A.** *Dams and Greenhouse Gases, Lessons from the Pacific NW for the Globe (and vice-versa), UC Santa Cruz, Santa Cruz, CA, 3/2026.*

**Harrison, J.A.** *Dams and Greenhouse Gases, Lessons from the Pacific NW for the Globe (and vice-versa), Doerr School of Sustainability, Stanford University, Stanford, CA, 2/2026.*

**Harrison, J.A.** *Coastal nitrogen, phosphorus, and silicon sources: integrating land, sea, and human inputs, Geochemistry Faculty, Utrecht University, Utrecht, NL, 10/2025.*

**Harrison, J.A.** *Dynamics of Integrated Socio-Environmental Systems: Dams as Adaptive Management Systems*, CEREO Panel on Interdisciplinary Research, Research Week, Pullman, WA, 9/2024.

**Harrison, J.A.** *Dynamics of Integrated Socio-Environmental Systems: Dams as Adaptive Management Systems*, CEREO Panel on Interdisciplinary Research, Research Week, Pullman, WA, 9/2024.

**Harrison, J.A.** *Greenhouse Gas Emissions from Reservoirs: Processes and Drivers*, US Bureau of Reclamation-sponsored *GbG Emissions in Reservoirs Training Workshop*, virtual workshop, 8/2024.

**Harrison, J.A.** *Greenhouse Gas Emissions from Reservoirs: Estimating Fluxes at Scale*, US Bureau of Reclamation-sponsored *GbG Emissions in Reservoirs Training Workshop*, virtual workshop, 8/2024.

**Harrison, J.A.** *Greenhouse Gas Emissions from Reservoirs*, Columbia Riverkeeper Webinar, recorded and shared via YouTube (<https://www.columbiariverkeeper.org/2024/methane-webinar-thanks-for-joining-us/>), 5/2024.

**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.** *Understanding Greenhouse Gas Emissions from Reservoirs: Insights from Field Studies and a Global Model*, American Rivers Webinar, Vancouver, WA, 1/2022.

## ACADEMIC SERVICE

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### NATIONAL/INTERNATIONAL

- **Member:** Steering Committee for the NSF-funded Aquatic N<sub>2</sub>-Fixation Research Coordination Network (2020 – Present)
- **Invited Guest Editor for *Limnology and Oceanography*** special issue on aquatic greenhouse gas fluxes (2026 – Present) – Journal Impact Factor: 3.7
- **Associate Editor for *Biogeochemistry*** (2015 – 2020) – Journal Impact Factor: 3.9
- **Co-chair and North American Chair, Global Nutrient Export from Watersheds (Global NEWS) model development and implementation working group:** (2003–Present)
- **Co-chair and North American Chair, UNESCO-IOC Nutrients and Coastal Impacts Research Programme** (2008 – Present)
- **Member:** Scientific Steering Committee for the International Hydropower Association (IHA) G-res Tool Working Group (2018 – Present)
- **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 (2024)
- **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 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 – Present)
- **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)

## COLLEGE/UNIVERSITY/CAMPUS

- **WSU Presidential Search Advisory Committee (PSAC) Member** (2024)
- **Co-Director:** Water Chemistry Facility (2017 – Present)
- **Member:** Water Communications Committee (2018 – Present)
- **Member:** Washington Stormwater Center Director Search Committee (2016 – 2017)
- **Member:** WSU, Vancouver Research Advisory Committee (2014 – 2017)
- **Member:** Natural Sciences Graduate Studies Advisory Committee (2014 – 2017)
- **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)
- **Coordinator:** WSU, Vancouver Science Programs Seminar, (Spring 2007)

## DEPARTMENT

- **Program Leader (Campus Chair):** School of the Environment, Vancouver (2020 – 2025)
- **Member: School of the Environment Leadership Team** (2020 – 2025)
- **Chair: 4 pre-tenure faculty mentoring committees:** Jeff Manning (2023 – Present), Gretchen Rollwagen-Bollens (2017 – 2022), Kevan Moffett Mentoring Committee (2015 – 2022), and Jennifer McIntyre (2021 – 2022)
- **Member: 2 additional pre-tenure faculty mentoring committees:** Sarah Roley (2021 – 2022) and Jennifer McIntyre (2016 – 2022)
- **Member:** School of the Environment Vision and Strategy Committee (2016 – Present)
- **Chair: 3 tenure-track faculty searches:** Water Scientist (2017 – 2018), Regional Climatologist (2016 – 2017), Environmental Chemist (2014 – 2015)
- **Member:** 5 additional tenure-track faculty searches: Environmental Microbiology (2017), Environmental Hydrologist (2013 – 2014), Aquatic/Riparian Ecologist (2012 – 2013), Environmental Geophysicist, (2006 – 2007), Ecohydrologist (2007 – 2008)
- **Member:** School of the Environment Curriculum Committee – WSU Pullman and WSU, Vancouver, (2011 – 2012)
- **Member:** SEES Visioning Committee (2010 – 2011)
- **Member:** School of Earth and Environmental Science (SEES) Reorganization Research Subcommittee (2009)
- **Member:** SEES Water hire pre-search committee (2009)

## REFEREEING WHILE AT WSU

*(number of reviews if more than 1)*

### Proposals and External Promotion Packets:

**2026:** *German Research Foundation (Deutsche Forschungsgemeinschaft, DFG)*  
**2025:** *National Science Foundation, 2 packets for promotion to Full Professor*  
**2024:** *National Science Foundation, 1 tenure packet*  
**2023:** *National Science Foundation EPSCoR Site Review, 2 tenure packets*  
**2022:** *National Science Foundation Panel*  
**2020:** *National Science Foundation EPSCoR (virtual) Site Review*  
**2019:** *National Science Foundation*  
**2018:** *National Science Foundation, Make our Planet Great Again Program*  
**2017:** *National Science Foundation (3), Make our Planet Great Again Program (2)*  
**2016:** *NOAA Coastal Hypoxia Research Program Panel (6 proposals), National Science Foundation*  
**2015:** *National Science Foundation (2)*  
**2014:** *National Science Foundation, and Panel*  
**2013:** *National Science Foundation (2)*  
**2012:** *National Science Foundation*  
**2011:** *National Science Foundation*  
**2010:** *National Science Foundation, and Panel*  
**2009:** *National Science Foundation*  
**2008:** *Kearney Foundation, Icelandic Science Centre for Research*  
**2007:** *Kearney Foundation*

### Journals and Books:

**2026:** *Limnology and Oceanography*  
**2025:** *Limnology and Oceanography, Nature*  
**2024:** *Nature*  
**2023:** *Nature (2)*  
**2022:** *Nature (2), Limnology and Oceanography*  
**2021:** *Global Biogeochemical Cycles, Limnology and Oceanography Letters*  
**2020:** *Biogeochemistry (2), Science Advances*  
**2019:** *Global Biogeochemical Cycles, Biogeochemistry, Science of the Total Environment*  
**2018:** *PLOS-One, River Research and Applications, Biogeochemistry (2), EPA Pre-submission External Review*  
**2017:** *PNAS, Biogeochemistry (2), JGR-Biogeosciences, JAWRA*  
**2016:** *Biogeochemistry, Limnology and Oceanography, Global Biogeochemical Cycles*  
**2015:** *Nature, Biogeochemistry, Limnology and Oceanography*  
**2014:** *Ecology, National Park Service and USGS Reports, Journal of Marine Systems, AMBIO*  
**2013:** *Limnology and Oceanography*  
**2012:** *Science, Geophysical Research Letters*  
**2011:** *Science, JGR-Biogeoscience*  
**2010:** *Journal of Environmental Quality, Environmental Modelling and Software, Estuaries and Coasts*  
**2009:** *Limnology and Oceanography, Freshwater Biology, Elsevier Book Proposal*  
**2008:** *Biogeochemistry(2), Journal of Environmental Quality, J. Hydrology, J. North American Benthological Society, Marine and Freshwater Research*  
**2007:** *Biogeochemistry, Environmental Pollution, JGR Biogeosciences*

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**2006:** *Ecological Applications, Global Biogeochemical Cycles, Journal of Environmental Quality, UNEP-Global Environmental Outlook 4, Water Research*

#### 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

July 2026

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