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I aim to establish a baseline understanding of how ecosystems function naturally and predict the influence of disturbances and human activities on hydrological, biogeochemical, and ecological processes. Building on this baseline, I explore how human interventions can improve the ability for natural ecosystems to mitigate climate change by amplifying atmospheric carbon uptake.

### Education

2014 PhD Chemical Oceanography, School of Oceanography, University of Washington  
2010 MS Chemical Oceanography, School of Oceanography, University of Washington  
2008 BS Environmental Systems, Biology minor, University of California San Diego

### Professional Experience

2021-present **Fundamental & Applied Biogeochemistry Team Lead**, PNNL Coastal Sciences  
2016-present **Earth Scientist (Level 4 since 2022)**, PNNL Coastal Sciences Division  
2018-present **Faculty Fellow**, School of Oceanography, University of Washington  
2017-2018 **Affiliate Assistant Professor**, School of Oceanography, University of Washington  
2016 **Research Scientist**, Whitney Lab for Marine Bioscience, University of Florida  
2014-2016 **Post-Doctoral Research Associate**, Geological Sciences, University of Florida  
2007 **Research Assistant**, Woods Hole Oceanographic Institution  
2006-2008 **Research Assistant**, Scripps Institution of Oceanography  
2003 **Research Assistant**, Naval Post Graduate School

### Editorial Boards

2025-present **Associate Editor**: *Journal of Geophysical Research: Biogeosciences*  
2020-present **Associate Editor**: *Marine Chemistry*  
2018-present **Associate Editor**: *PLOS One*  
2023-2025 **Associate Editor**: *Scientific Reports*  
2022-2025 **Associate Editor**: *Frontiers in Marine Science*

### Honors and Awards – External Recognition

- 2023 American Geophysical Union (AGU) Biogeosciences Thomas Hilker Early Career Award
- 2022 Fellow of the Association for the Sciences of Limnology and Oceanography (ASLO)
- 2017, 2019 AGU Editor's Citation for Excellence in Refereeing, *JGR: Biogeosciences*
- 2012 National Science Foundation GK-12 teaching fellowship

### Peer-Reviewed Publications (4,217 citations, h-index = 29, i10-index = 65)

98. Guimond, J., Grande, E., Michael, H., Forbrich, I., Herndon, E., Noyce, G.L., Pratt, D., Regier, P., Ward, N.D., Arora, B. (2025) The hidden influence of terrestrial groundwater on salt marsh function and resilience. *Nature Water*. 3, 157–166. <https://doi.org/10.1038/s44221-024-00384-6>
97. Jones, K., Hemery, L., Ward, N.D., Regier, P., Ringham, M., Eisaman, M. (2025) Biological response of eelgrass epifauna, Taylor's Sea hare (*Phyllaplysia taylori*) and eelgrass isopod

- (*Idotea resecata*), to elevated ocean alkalinity. *Biogeosciences*. 22, 1615-1630. <https://doi.org/10.5194/bg-22-1615-2025>
96. Lønborg, C., Santos, I.F. Carreira, C., 35 other authors including Ward, N.D. (in press) Dissolved organic carbon in coastal waters: global patterns, stocks and environmental physical controls. *Global Biogeochemical Cycles*. 39 (5), e2024GB008407. <https://doi.org/10.1029/2024GB008407>
  95. Myers-Pigg, A.N., Moanga, D., Bond-Lamberty, B., Ward, N.D., Megonigal, J.P., White, E., Bailey, V., Kirwan, M. (2025) Advancing the understanding of coastal disturbances with a network-of-networks approach. *Ecosphere*. 16:e70156. <https://doi.org/10.1002/ecs2.70156>
  94. Ehosioke, S., Adebayo, M., Bailey, V., Bittencourt Peixoto, R., Emmanuel, E., Machado-Silva, F., Regier, P., Spanbauer, T., Thomas, S., Ward, N.D., Weintraub, M., Doro, K. (2024) Geophysical methods reveal the soil architecture and subsurface stratigraphic heterogeneities across land-lake interfaces along Lake Erie. *Journal of Soils and Sediments*. <https://doi.org/10.1007/s11368-024-03787-w>
  93. Hou, Z.J., Ward, N.D., Myers-Pigg, A., Lin, X., Waichler, S., Wiese Moore, C., Norwood, M.J., Regier, P., Yabusaki, S. (2024) Quantifying drivers of methane hydrobiogeochemistry in a tidal river floodplain system. *Water*. 16, 171. <https://doi.org/10.3390/w16010171>
  92. Khangaonkar, T., Carter, B.R., Premathilake, L., Yun, S.K., Ni, W., Stoll, M.M., Ward, N.D., Hemery, L., Torres Sanchez, C., Subban, C.V., Ringham, M.C., Eisaman, M.D., Pelman, T., Tallam, K., Feely, R.A. (2024) Mixing and dilution controls on marine CO<sub>2</sub> removal using alkalinity enhancement. *Environmental Research Letters*. 19, 104039. <https://doi.org/10.1088/1748-9326/ad7521>
  91. Li, B., Li, Z., Zheng, J., Jiang, P., Holmquist, J., Regier, P., Hammond, G., Ward, N.D., Huang, W., O'Meara, T., Pennington, S., Megonigal, J.P., Bailey, V., Chen, X. (2024) Integrated effects of site hydrology and vegetation on exchange fluxes and carbon cycling at the coastal terrestrial aquatic interface. *Water Resources Research*. 60 (6), e2023WR035580. <https://doi.org/10.1029/2023WR035580>
  90. Lønborg, C., Carreira, C., Abril, G., 67 other authors including Ward, N.D. (2024) A global database of dissolved organic matter (DOM) measurements in coastal waters (CoastDOM v1). *Earth System Science Data*. 16 (2), 1107-1119. <https://doi.org/10.5194/essd-16-1107-2024>
  89. Machado-Silva, F., Weintraub, M., Ward, N.D., Doro, K., Regier, P., Ehosioke, S. Thomas, S., Peixoto, R.; Sandoval, L., Forbrich, I., Kemner, K., O'Loughlin, E., Stetten, L., Spanbauer, T., Bridgeman, T., O'Meara, T., Rod, K., Patel, K., Megonigal, J.P., Rich, R., Bailey, V. (2024) Short-term groundwater level fluctuations drive subsurface redox variability. *Environmental Science & Technology*. 58 (33), 14687–14697. <https://doi.org/10.1021/acs.est.4c01115>
  88. Muller, K.A., Jiang, P., Hammond, G., Ahmadullah, T., Song, H., Kukkadapu, R., Ward, N.D., Bowe, M., Chu, R.K., Zhao, Q., Garayburu-Caruso, V.A., Roebuck, A., Chen, X. (2024) Lambda-PFLOTRAN: Workflow for incorporating organic matter chemistry informed by ultra high resolution mass spectrometry into biogeochemical modeling. *Geoscientific Model Development*. 17, 8955–8968. <https://doi.org/10.5194/gmd-17-8955-2024>
  87. Patel, K., Rod, K., Zheng, J., Regier, P., Machado-Silva, F., Bond-Lamberty, B., Chen, X., Day, D., Doro, K., Kaufman, M., Kovach, M., McDowell, N., McKeever, S., Megonigal, J.P., Norris, C., O'Meara, T., Rich, R., Thornton, P., Kemner, K., Ward, N.D., Weintraub, M., Bailey, V. (2024) Time to anoxia: Observations and predictions of oxygen drawdown following coastal flood events. *Geoderma*. 444, 116854. <https://doi.org/10.1016/j.geoderma.2024.116854>
  86. Ward, N.D. and Megonigal, J.P. (2024, invited). Researchers barking up (the right) tree find new mechanisms controlling methane transport by woody vegetation. *New Phytologist*. 242 (1). <https://doi.org/10.1111/nph.19565>

85. Ward, N.D., Bowe, M., Muller, K.A., Chen, X., Zhao, Q., Chu, R., Cheng, Z., Wietsma, T., Kukkadapu, R.K. (2024). Interactive effects of salinity, redox, and colloids on greenhouse gas production and carbon mobility in coastal wetland soils. *PLOS One*. 19 (12), e0316341. <https://doi.org/10.1371/journal.pone.0316341>
84. Adebayo, M.B., Bailey, V., Chen, X., Hopple, A., Jiang, P., Li, B., Li, Z., Martin-Hayden, J.M., Megonigal, P., Regier, P.J., Rich, R., Stegen, J.C., Smith, R.W., Ward, N.D., Woodard, S.C., Doro, K. (2023) A hydrogeophysical framework to assess infiltration during a simulated ecosystem-scale flooding experiment. *Journal of Hydrology*. 626, 130243. <https://doi.org/10.1016/j.jhydrol.2023.130243>
83. Bonin, P., Portas, A., Hardy, J., Guasco, S., Bianchi, T.S., Ward, N.D., Rontani, J.-F. (2023) Biological mechanisms underlying remineralization of vascular plant material in the presence of diatoms. *Aquatic Microbial Ecology*. 89, 99-117. <https://doi.org/10.3354/ame01999>
82. Buser-Young, B.Z., Garcia, P.E., Schrenk, M., Regier, P., Ward, N.D., Biçe, K., Brooks, S., Freeman, E., Lønborg, C. (2023) Determining the biogeochemical transformations of organic matter composition in rivers using molecular signatures. *Frontiers in Water*. 5. <https://doi.org/10.3389/frwa.2023.1005792>
81. Ding, J., McDowell, N., Fang, Y., Ward, N.D., Kirwan, M., Regier, P., Megonigal, J.P., Zhang, P., Zhang, H., Wang, W., Li, W., Pennington, S., Wilson, S., Stearns, A., Bailey, V. (2023) Modelling the mechanisms of conifer mortality under seawater exposure. *New Phytologist*. 239, 1679-1691. <https://doi.org/10.1111/nph.19076>
80. Hopple, A., Doro, K.O., Bailey, V.L., Bond-Lamberty, B., McDowell, N., Morris, K., Myers-Pigg, A., Pennington, S., Regier, P., Rich, R., Sengupta, A., Smith, R., Stegen, J., Ward, N.D., Woodard, S.C., Megonigal, J.P. (2023) Attaining freshwater and estuarine-water soil saturation in an ecosystem-scale coastal flooding experiment. *Environmental Monitoring and Assessment*. 195 (425). <https://doi.org/10.1007/s10661-022-10807-0>
79. Li, X., Sun, J., Zhang, H., Tan, H., Hui, R., Qi, J., Zhang, P., Ward, N.D., (2023) Warming decreases desert ecosystem functioning by altering biocrusts in drylands. *Journal of Applied Ecology*. 60, 2676-2687. <https://doi.org/10.1111/1365-2664.14528>
78. Morris, K., Bond-Lamberty, B., Day, D.J., Patel, K.F., Pennington, S.C., Ward, N.D., von Fischer, J. (2023) PoolDilutionR: an R package for easy optimization of isotope pool dilution calculations. *Methods in Ecology and Evolution*. 14 (11), 2728-2737. <https://doi.org/10.1111/2041-210X.14223>
77. Morrison, E., Liu, Y., Rivas-Ubach, A., Amaral, J.H.F., Shields, M., Osborne, T., Chu, R., Ward, N.D., Bianchi, T.S. (2023) Mangrove peat and algae leachates elicit rapid and contrasting molecular and microbial responses in coastal waters. *Communications Earth & Environment*. 4, 376. <https://doi.org/10.1038/s43247-023-00975-3>
76. Myers-Pigg, A.N., Pennington, S.C., Homolka, K., Lewis, A., Otenburg, O., Patel, K., Regier, P., Bowe, M., Boyanov, M., Conroy, N., Day, D., Norris, C., Roebuck, A., Stetten, L., Bailey, V., Kemner, K., Ward, N.D. (2023) Biogeochemistry of upland to wetland soils, sediments, and surface waters across coastal interfaces. *Scientific Data*. 10, 822. <https://doi.org/10.1038/s41597-023-02548-7>
75. Neu, V., Araújo, M.G., Guedes, V., Ward, N.D., Ribeiro, M.M., Richey, J.E., Krusche, A.V. (2023) Composition and flow of dissolved and particulate carbon and nitrogen in the lower Tocantins River. *Journal of Geophysical Research: Biogeosciences*. *Journal of Geophysical Research: Biogeosciences*. 128 (6), e2022JG006846. <https://doi.org/10.1029/2022JG006846>
74. Regier, P., Ward, N.D., Izquierdo, A., Baldwin, A.H., Day, D., McElhinny, J., Patel, K., Vargas, R., Zheng, J., EXCHANGE Consortium, Myers-Pigg, A. (2023). Coastal inundation regime moderates the short-term effects of sediment and soil additions on seawater oxygen and greenhouse gas

- dynamics: a microcosm experiment. *Frontiers in Marine Science*. 10. <https://doi.org/10.3389/fmars.2023.1308590>
73. Regier, P., Ward, N.D., Myers-Pigg, A., Grate, J., Freeman, M., Ghosh, R. (2023) Seasonal drivers of dissolved oxygen across a tidal creek-marsh interface revealed by machine learning. *Limnology & Oceanography*. 9999, 1-16. <https://doi.org/10.1002/lno.12426>
  72. Ward, N.D., Bianchi, T.S., Osburn, C.L., Myers-Pigg, A. (2023) Biogeochemical changes in estuaries. In *Climate Change and Estuaries*. Edited by Kennish, M.J., Paerl, H.W., Croswell, J.R. ISBN 9780367647520. <https://doi.org/10.1201/9781003126096-8>
  71. Coppola, A., Wagner, A., Lenartz, S., Seidel, M., Ward, N.D., Dittmar, T., Santin, C., Jones, M. (2022) The black carbon cycle and its role in the Earth system. *Nature Reviews: Earth & Environment*. 3, 516-532. <https://doi.org/10.1038/s43017-022-00316-6>
  70. Fremin, B.J., \*Global Phage Small Open Reading Frame Consortium (Includes \*Ward, N.D.), Bhatt, A., Kyrpides, N.C. (2022) Thousands of small, novel genes predicted in global phage genomes. *Cell Reports*. 39, 110984. <https://doi.org/10.1016/j.celrep.2022.110984>
  69. Lee, M., Ward, N.D., Kent, R. (2022) A novel resonant electro-physical transmutation method for water purification. *Nature Portfolio Journal: Clean Water*. 5 (35). <https://doi.org/10.1038/s41545-022-00179-w>
  68. Li, W., McDowell, N., Wang, W., Mackay, D., Leff, R., Zhang, P., Ward, N.D., Norwood, M., Yabusaki, S., Myers-Pigg, A., Pennington, S., Pivovarov, A., Waichler, S., Xu, C., Bond-Lamberty, B., Bailey, V. (2022) The influence of increasing atmospheric CO<sub>2</sub>, temperature, and vapor pressure deficit on seawater-induced tree mortality. *New Phytologist*. 235(5), 1767-1779. <https://doi.org/10.1111/nph.18275>
  67. McDowell, N.G., Ball, M., Bond-Lamberty, B., Kirwan, M.L., Krauss, K., Megonigal, J.P., Mencuccini, M., Ward, N.D., Weintraub, M., Bailey, V. (2022) Processes and mechanisms of coastal woody-plant mortality. *Global Change Biology*. 28(20), 5881-5900. <https://doi.org/10.1111/gcb.16297>
  66. Regier, P., Duggan, M., Myers-Pigg, A., Ward, N.D. (2022). Effects of random forest modeling decisions on biogeochemical time series predictions. *Limnology & Oceanography: Methods*. 21 (1), 40-52. <https://doi.org/10.1002/lom3.10523>
  65. Richey, J.E., Spencer, R., Drake, T.W., Ward, N.D. (2022) Fluvial carbon dynamics across the land to ocean continuum of great tropical rivers: the Amazon and Congo. *AGU Monograph Series*. In *Congo Basin Hydrology, Climate, and Biogeochemistry: A Foundation for the Future*. Edited by Alsdorf, D.E., Tshimanga, R., Moukandi, G. <https://doi.org/10.1002/9781119657002.ch20>
  64. Richey, J.E., Spencer, R., Drake, T.W., Ward, N.D. (2022) Dynamique du carbone fluvial dans le continuum terre-océan des grands fleuves tropicaux : l'Amazonie et le Congo. In *Hydrologie, Climat et Biogéochimie du Bassin du Congo: Une Base pour l'Avenir*. Edited by Alsdorf, D.E., Tshimanga, R., Moukandi, G. <https://doi.org/10.1002/9781119842125.ch20>
  63. Wang, W., Zhang, P., Zhang, H., Grossiord, C., Pennington, S., Norwood, M., Li, W., Pivovarov, A.L., Fernández-de-Uña, L., Leff, R., Yabusaki, S., Waichler, S., Bond-Lamberty, B., Bailey, V., Ward, N.D., McDowell, N. (2022) Severe declines in hydraulic capacity and associated carbon starvation drive mortality in seawater exposed Sitka-spruce (*Picea sitchensis*) trees. *Environmental Research Communications*. 4, 035005. <https://doi.org/10.1088/2515-7620/ac5f7d>
  62. Indivero, J., Myers-Pigg, A., Ward, N.D. (2021) Seasonal changes in the drivers of water physico-chemistry variability of a small freshwater tidal river. *Frontiers in Marine Science*. 8, 607664. <https://doi.org/10.3389/fmars.2021.607644>

61. Johnson, P., Merle, S.G., Bjorklund, T., Hautala, S.L., Baumberger, T., Liu, J., Ward, N.D., Wang, C. (2021) Methane Plume Emissions from Puget Sound faults within the Cascadia forearc. *Geochemistry, Geophysics, Geosystems*. 23, e2021GC010211. <https://doi.org/10.1029/2021GC010211>
60. Less, D.F.S., Ward, N.D., Richey, J.E., Cunha, A.C.C. (2021) Influence of seasonal and daily variation of discharge and tide on flow velocity in the Amazon River mouth. *Journal of Coastal Research*. 37(6), 1181–1192. <https://doi.org/10.2112/JCOASTRES-D-21-00010.1>
59. Li, W., Zhang, H., Wang, W., Zhang, P., Ward, N.D., Norwood, M., Myers-Pigg, A., Zhao, C., Leff, R.T., Yabusaki, S., Waichler, S., Bailey, V.L., McDowell, N.G. (2021) Changes in carbon and nitrogen metabolism during seawater-induced mortality of *Picea sitchensis* trees. *Tree Physiology*. 41(12), 2326–2340. <https://doi.org/10.1093/treephys/tpab073>
58. Norwood, M.J., Ward, N.D., McDowell, N.G., Myers-Pigg, A.N., Bond-Lamberty, B., Pennington, S., Wang, W., Kirwan, M., Hopple, A.M., Megonigal, J.P. (2021) Coastal forest seawater exposure increases stem methane concentration. *Journal of Geophysical Research: Biogeosciences*. 126, e2020JG005915. <https://doi.org/10.1029/2020JG005915>
57. Regier, P., Ward, N.D., Indivero, J., Wiese Moore, C., Norwood, M., Myers-Pigg, A. (2021) Biogeochemical control points of connectivity between a tidal creek and its floodplain. *Limnology & Oceanography: Letters*. 6 (3), 134-142. <https://doi.org/10.1002/lol2.10183>
56. Sawakuchi, H.O., Bastviken, D., Enrich-Prast, A., Ward, N.D., Richey, J.E., (2021) Low diffusive methane emissions from the main channel of a large Amazonian run-of-the-river reservoir attributed to high methane oxidation. *Frontiers in Environmental Science*. 9, 655455. <https://doi.org/10.3389/fenvs.2021.655455>
55. Sengupta, A., Stegen, J., Bond-Lamberty, B., Rivas-Ubach, A., Zheng, J., Handakumbura, P., Norris, C., Peterson, M.J., Yabusaki, S., Bailey, V., Ward, N.D. (2021) Antecedent conditions determine the biogeochemical response of coastal soils to seawater exposure. *Soil Biology & Biochemistry*. 108104. <https://doi.org/10.1016/j.soilbio.2020.108104>
54. Tagestad, J., Ward, N.D., Butman, D., Stegen, J.C. (2021) Small streams dominate US tidal reaches and will be disproportionately impacted by sea-level rise. *Science of the Total Environment*. 753, 141944. <https://doi.org/10.1016/j.scitotenv.2020.141944>
53. Valerio, A., Kampel, M., Vantrepotte, V., Ward, N.D., Richey, J.E. (2021) Optical classification of Lower Amazon waters based on in situ data and Sentinel-3 Ocean and Land Colour Instrument imagery. *Remote Sensing*. 13, 3057. <https://doi.org/10.3390/rs13163057>
52. Valerio, A.M., Kampel, M., Ward, N.D., Sawakuchi, H.O., Cunha, A.C., Krusche, A.V., Richey, J.E. (2021) CO<sub>2</sub> partial pressure and fluxes in the Amazon River Plume using in situ and remote sensing data. *Continental Shelf Research*. 215, 104348. <https://doi.org/10.1016/j.csr.2021.104348>
51. Zhang, P., McDowell, N.G., Zhou, X., Wang, W., Leff, R.T., Pivovarov, A.L., Zhang, H., Chow, P.S., Ward, N.D., Indivero, J., Yabusaki, S., Waichler, S., Bailey, V.L. (2021) Declining carbohydrate content of Sitka-spruce trees dying from seawater exposure. *Plant Physiology*. Kiab002. <https://doi.org/10.1093/plphys/kiab002>
50. Zhang, H., Li, X., N.G., Wang, W., Pivovarov, A.L., Li, W., Zhang, P., Ward, N.D., Myers-Pigg, A.N., Adams, H.D., Leff, R.T., Wang, A., Yuan, F., Wu, J., Yabusaki, S., Waichler, S., Bailey, V., Guan, D., Wang, A., McDowell, N. (2021) Seawater exposure causes hydraulic damage in dying Sitka-spruce trees. *Plant Physiology*. <https://doi.org/10.1093/plphys/kiab295>
49. Schafer, T., Ward, N.D., Julian, P., Reddy, K.R., Osborne, T.Z. (2020) Impacts of hurricane disturbance on water quality across the aquatic continuum of a black-water river to estuary

- complex. *Journal of Marine Science and Engineering*. 8 (12).  
<https://doi.org/10.3390/jmse8060412>
48. Silva, G.C.X., Abreu, H.M., Ward, N.D., Cunha, H.F.A., Brito, D.C., Cunha, A.C. (2020) Environmental impacts of dam reservoir filling in the East Amazon. *Frontiers in Water*. 2 (11).  
<https://doi.org/10.3389/frwa.2020.00011>
  47. Wang, W., McDowell, N., Pennington, S., Grossiord, C., Leff, R., Ward, N.D., Megonigal, J.P., Bond-Lamberty, B., Bailey, V. (2020). Tree growth, transpiration, and water-use efficiency between shoreline and upland red maple (*Acer rubrum*) trees in a coastal forest. *Agricultural and Forest Meteorology*. 295, 108163. <https://doi.org/10.1016/j.agrformet.2020.108163>
  46. Ward, N.D., Bianchi, T.S., Martin, J.B., Quintero, C.J., Sawakuchi, H.O., Cohen, M. (2020) Pathways for methane emissions and oxidation that influence the net carbon balance of a subtropical cypress swamp. *Frontiers in Earth Science*. 8, 573357.  
<https://doi.org/10.3389/feart.2020.573357>
  45. Ward, N.D., Megonigal, J.P., Bond-Lamberty, B., Bailey, V., Butman, D., Canuel, E.A., Diefenderfer, H., Ganju, N.K., Goñi, M.A., Graham, E.B., Hopkinson, C.S., Khangaonkar, T., Langley, J.A., McDowell, N.G., Myers-Pigg, A.N., Neumann, R.B., Osburn, C.L., Price, R.M., Rowland, J., Sengupta, A., Simard, M., Thornton, P.E., Tzortziou, M., Vargas, R., Weisenhorn, P.B., Windham-Myers, L. (2020) Representing the function and sensitivity of coastal interfaces in Earth System Models. *Nature Communications*. 11 (2458). <https://doi.org/10.1038/s41467-020-16236-2>
  44. Yabusaki, S., Myers-Pigg, A., Ward, N.D., Waichler, S.R., Sengupta, A., Hou, Z., Chen, X., Fang, Y., Duan, Z., Serkowski, J., Indivero, J., Wiese Moore, C., Gunn, C. (2020) Floodplain inundation and salinization from a recently restored first-order tidal stream. *Water Resources Research*. 56, e2019WR026850. <http://dx.doi.org/10.1029/2019WR026850>
  43. Zayas-Santiago, C., Rivas-Ubach, A., Kuo, L.J., Ward, N.D., Zimmerman, R.C. (2020) Metabolic profiling reveals biochemical pathways responsible for eelgrass response to elevated CO<sub>2</sub> and temperature. *Scientific Reports*. 10 (4693). <https://doi.org/10.1038/s41598-020-61684-x>
  42. Araújo, K.R., Sawakuchi, H.O., Bertassoli Jr., D.J., Sawakuchi, A.O., da Silva, K.D., Bernardi, T.V., Ward, N.D., Pereira, T.S. (2019) Carbon dioxide (CO<sub>2</sub>) concentrations and emission in the newly constructed Belo Monte hydropower complex in the Xingu River, Amazonia. *Biogeosciences*. 16 (18), 3527-3542. <https://doi.org/10.5194/bg-16-3527-2019>
  41. Arellano, A.R., Bianchi, T.S., Osburn, C.L., D'Sa, E.J., Oviedo-Vargas, D., Ward, N.D., Joshi, I., Ko, D., Shields, M.R., Kurian, G., Green, J. (2019) Mechanisms of blue carbon export in estuaries with contrasting carbon sources. *Journal of Geophysical Research: Biogeosciences*. 124 (10), 3168-3188. <https://doi.org/10.1029/2018JG004868>
  40. Bianchi, T.S. and Ward, N.D. (2019) Editorial: The Role of Priming in Terrestrial and Aquatic Ecosystems. *Frontiers in Earth Science*. 7 (321). <https://doi.org/10.3389/feart.2019.00321>
  39. Bond-Lamberty, B., Pennington, S., Jian, J., Megonigal, P., Sengupta, A., Ward, N.D. (2019) Soil respiration variability and correlation across a wide range of temporal scales. *Journal of Geophysical Research: Biogeosciences*. 124, 3672-3685. <https://doi.org/10.1029/2019JG005265>
  38. Chamberlain, C., Bianchi, T.S., Brown, A.L., Cohen, M.J., Dong, X., Flint, M.K., Martin, J.B., McLaughlin, D.L., Murray, A.B., Pain, A., Quintero, C., Ward, N.D., Zhang, X., Heffernan, J.B. (2019) Mass balance implies Holocene development of a low-relief karst patterned landscape. *Chemical Geology*. 527 (20), 118782. <https://doi.org/10.1016/j.chemgeo.2018.05.029>
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2. U.S. DOE (2024) Artificial Intelligence for the Methane Cycle. DOE/SC-0213. U.S. Department of Energy Office of Science. <https://doi.org/10.2172/2204972>
1. Pacific Northwest National Laboratory (2019) STAR Workshop: Terrestrial-Aquatic Research in Coastal Systems. PNNL-28635. Pacific Northwest National Laboratory, Richland, Washington. Workshop Chairs: Megonigal, P. and Ward, N.D. <https://www.pnnl.gov/publications/star-workshop-terrestrial-aquatic-research-coastal-systems>

### Other Publications

2. Sengupta, A., Ward, N.D., Stegen, J. (2022, preprint) Discoverability of open data is critical to Earth system science. *EarthArXiv*. <https://doi.org/10.31223/X5FM0N>
1. Ward, N.D., Bianchi, T.S., Medeiros, P.M., Seidel, M., Keil, R.G., Robinson, C. (2017) E-Book: Integrative research on organic matter cycling across aquatic gradients. *Frontiers in Marine Science*. <http://doi.org/10.3389/978-2-88945-212-5>

### Datasets

11. Adebayo, M., Bailey, V., Chen, X., Hopple, A., Jiang, P., Li, B., Li, Z., Martin-Hayden, J., Megonigal, J.P., Regier, P., Rich, R., Stegen, J., Smith, R., Ward, N.D., Woodard, S., Doro, K. (2024) Data and scripts associated with the manuscript "A Hydrogeophysical Framework to Assess Infiltration During a Simulated Ecosystem-Scale Flooding Experiment". COMPASS-FME, ESS-DIVE repository. Dataset. <https://doi.org/10.15485/2298998>
10. Adebayo, M., Bailey, V., Ehosioko, S., Efemena, E., Hopple, A., Regier, P., Rod, K., Megonigal, J.P., Chen, X., Ward, N., Doro, K. (2024) Data and scripts associated with the manuscript "Estimating soil moisture and salinity response to simulated coastal flooding using time-lapse electrical resistivity and induced polarization monitoring". COMPASS-FME, ESS-DIVE repository. Dataset. <https://doi.org/10.15485/2298997>
9. Pennington, S.C., Bond-Lamberty, B., Rich, R.; Cheng, S., Bittencourt Peixoto, R., LaGorga L., Machado-Silva, F., Maier, K., Megonigal, P., Peresta, D., Phillips, E., Regier, P., Sandoval, L., Stearns, A., Ward, N.D., Weintraub, M., Wilson, S.J., Bailey, V. (2024) COMPASS-FME Synoptic Sites Level 1 Sensor Data v1-1. COMPASS-FME, ESS-DIVE repository. Dataset. <https://doi.org/10.15485/2439400>
8. Li, B., Pennington, S., Regier, P., James, H., Zheng, J., Ward, N., Myers-Pigg, A., Rich, R. (2023) Data, figures, animations, and scripts associated with the manuscript "Integrated Effects of Site Hydrology and Vegetation on Exchange Fluxes and Carbon Cycling at the Coastal Terrestrial Aquatic Interface". COMPASS-FME, ESS-DIVE repository. Dataset. <https://doi.org/10.15485/1986338>
7. Regier, P., Ward, N.D., Izquierdo, A., Baldwin, A., Day, D., McElhinney, J., Patel, K., Vargas, R., Zheng, J., Myers-Pigg, A. (2024) Greenhouse gas and dissolved oxygen production and consumption rates associated with Regier et al. (2023). COMPASS-FME, ESS-DIVE repository. Dataset. <https://doi.org/10.15485/2222680>
6. Ward, N.D. (2024) Data for: A Synoptic System for Capturing Ecosystem Control Points Across Terrestrial-Aquatic Interfaces. COMPASS-FME, ESS-DIVE repository. <https://doi.org/10.15485/2466152>

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3. Pennington., S. et al. (2023) EXCHANGE Campaign 1: A Community-Driven Baseline Characterization of Soils, Sediments, and Water Across Coastal Gradients. COMPASS-FME, ESS-DIVE repository. *ESS-DIVE*. <https://doi.org/10.15485/1960313>
2. Regier, P., Duggan, M., Myers-Pigg, A., Ward, N. (2022) Data and code used in: "Effects of Random Forest modeling decisions on biogeochemical time series predictions". COMPASS-FME, ESS-DIVE repository. Dataset. <https://doi.org/10.5281/ZENODO.7306086>
1. Indivero, J., Ward, N., Myers-Pigg, A. (2021) Data and code used in: "Seasonal Changes in the Drivers of Water Physico-Chemistry Variability of a Small Freshwater Tidal River". COMPASS-FME, ESS-DIVE repository. Dataset. <https://doi.org/10.6084/M9.FIGSHARE.C.4610651.V4>

### Manuscripts in Review/Revision

13. Adebayo, M.B., Megonigal, P., Bailey, V., Ehosioko, S., Emmanuel, E.D., Hopple, A., Regier, P., Rod, K., Chen, X., Ward, N.D., Doro, K. (in review) Estimating soil moisture and salinity response to simulated coastal flooding using time-lapse electrical resistivity and induced polarization monitoring. Submitted to *Geophysics*
12. Araújo, M.G., Neu, V., Guedes, V., Moreira, M., Ward, N.D., Krusche, A.V. (in review) Carbon dynamics and flow from Tocantins River. Submitted to *Journal of Geophysical Research: Biogeosciences*.
11. Ding, J.Y., McDowell, N., Bailey, V., Conroy, N., Day, D., Fang, Y., Kemner, K., Kirwan, M., Koven, C., Kovach, M., Megonigal, P., Morris, K., O'Meara, T., Pennington, S., Peixoto, R., Thornton, P., Weintraub, M., Regier, P., Sandoval, L., ; da Silva, F., Stearns, A., Ward, N.D., Wilson, S. (in review) Modeling the mechanisms of coastal vegetation dynamics and ecosystem responses to changing water levels. Submitted to *Biogeosciences*. <https://doi.org/10.5194/egusphere-2025-1544>
10. Dutta, M., Sreelash, K., Padmalal, D., Ward, N.D., Bianchi, T.S. (in revision) Reviews and Syntheses: Carbon biogeochemistry of Indian estuaries. Submitted to *Biogeosciences*
9. Helton, A., Dennedy-Frank, P.J., Emanuel, R.E., Neubauer, S.C., Adams, K.H., Ardon, M., Band, L., Befus, K., Borstlap, H., Duberstein, J.A., Gold, A.C., Kominoski, J.S., Manda, A., Michael, H.A., Moysey, S.M.J., Myers-Pigg, A.N., Neville, J.A., Noe, G., Panthi, J., Pezeshki, E., Sirianni, M.J., Ward, N.D. (in review) Over, under, and through: hydrological connectivity and the future of coastal salinization. Submitted to *Water Resources Research*
8. McDowell, N.G., Wang, W., Ward, N.D., Kirwan, M.L., Norwood, M., Messerschmidt, T., Conroy, N., Ding, J., Bailey, V. (in review) Constraints on growth, gas exchange, and survival in *Pinus taeda* ghost forests under sea level rise. Submitted to *Global Change Biology*
7. Montanari, J., Valerio, A., Ward, N.D., Richey, J., Kampel, M., Cunha, A. (in review) Seasonal dynamics of chlorophyll-a in the lower Amazon River supporting the ocean colour instrument

from the Plankton, Aerosol, Cloud, Ocean Ecosystem mission. Submitted to *Limnology & Oceanography*

6. Mu, L., Page, B.P., Ward, N.D., Krusche, A.V., Montebelo, A., Rezende, C.E., Medeiros, P.M., Richey, J.E., Yager, P.L. (in review) Carbonate and nutrient contributions from the Amazon River to the western tropical North Atlantic Ocean. Submitted to *Global Biogeochemical Cycles*
5. Padilla A., Pardis, W., Kapit, J., Bjorklund, T., Ward, N.D., Hautala, S., Waite, W.F., Johnson, P., Michel, A. (in review) Spatial mapping of dissolved methane using an in-situ sensor in Puget Sound. Submitted to *Limnology and Oceanography*
4. Pennington, S.C., Bond-Lamberty, B., Cheng, S.L., Ward, N.D., Chen, X., Maier, K., Megonigal, J.P., Bittencourt-Peixoto, R., Phillips, E., Regier, P., Machado-Silva, F., Stearns, A., Weintraub, M.N., Wilson, S.J., Bailey, V., Rich, R. (in review) A scalable processing pipeline for high-quality and FAIR environmental sensor data. Submitted to *Journal of Geophysical Research: Biogeosciences*
3. Telfeyan, K., Piliouras, A., Myers-Pigg, A., Newman, B., Ward, N.D., Moran, J.J., Rowland, J. (in review). Resolving spatiotemporal variations of tidal hydrodynamics in a macrotidal marsh-forest setting using geochemical and stable isotope methods. Submitted to *Hydrological Processes*
2. Ward, N.D., Megonigal, J.P., Weintraub, M.N., Regier, P., Pennington, S.P., Bittencourt Peixoto, R., Bond-Lamberty, B., Chen, X., Doro, K.O., Kemner, K.M., Machado da Silva, F., McDowell, N.G., Myers-Pigg, A.N., Sandoval, L., Patel, K.F., Thornton, P.E., Wilson, S.J., Bailey, V.L., Rich, R. (in review) A synoptic system for capturing ecosystem control points across terrestrial-aquatic interfaces. Submitted to *Journal of Geophysical Research: Biogeosciences*
1. Ward, N.D., Hinson, K., Pagès, R., Cross, J., Friedrichs, M.A.M., Hauri, C., MacCready, P., Subban, C., Xiong, J., St-Laurent, P., Yang, Z. (in review, invited) Modeling challenges for predicting the effectiveness and biogeochemical impact of marine carbon dioxide removal. *One Earth*

### External Advisory Boards

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- Bailey, V. (PI), Bond-Lamberty, B. (Co-PI), Weintraub (Co-PI), Thornton, P. (Co-PI), Megonigal, J.-P. (Chief Scientist), Ward, N.D. (Theme 1 Lead), Kemner, K. (Theme 1 Co-Lead), O'Meara, T. (Theme 2 Lead), Chen, X. (Theme 2 Co-Lead). *Coastal observations, mechanisms, and predictions across systems and scales: field measurements and experiments (COMPASS-FME) Phase 1*. DOE-BER. 10/1/2023-9/30/2026. \$18,000,000
- Carter, B.R., Khangaonkar, T., Eisaman, M., Feely, R.A., Ward, N.D., Subban, C., Premathilake, L., Pilcher, D. *Electrochemical Acid Sequestration to Ease Ocean Acidification (EASE-OA)*. NOAA, Climate Works, and DOE-WPTO. 08/1/2022-07/31/2024. \$1,050,000
- Dwivedi, D. (PI), Tartakovsky, T., (Co-I), Yabusaki, S. (Co-I), Doughty, C. (Co-I), Arora, B. (Co-I), Patterson, C. (Co-I), Lee, S. (Co-I), Farthing, M. (Co-I), Gutenson, J. (Co-I), Nico, P. (Co-I), Ward, N.D. (PM) *Automated Scenario Assessment of Groundwater Table & Salinity Response to Sea-Level Rise*. SERDP. 9/30/2022-9/30/2025. \$150,000
- Hood, G. (PI-social track), Smith, D. (Co-PI-social track), Ward, N.D. (PI-technical track). *Sea Level Rise-Driven Groundwater Flooding and Salinity Intrusion in the Skagit Delta: Agricultural Challenges and Habitat Restoration Opportunities*. Pew Charitable Trusts. 6/1/2022-12/31/2023. \$150,000

- Cohen, M. (PI), Subalusky, A. (Co-PI), Gerber, S. (Co-PI), Jawitz, J. (Co-PI), Lewis, D. (Co-PI), McLaughlin, D. (Co-PI), Ward, N.D. (Co-PI) Water and carbon dynamics of coastal plain wetlandscapes. DOE-BER. 9/1/2023-8/31/2026. \$1,000,000
- Hornstein, B. (PI), Bramall, N. (Co-PI), Ward, N.D. (Co-PI), Myers-Pigg, A.N. (Co-PI). *Autonomous monitoring of low phosphate concentrations at terrestrial aquatic interfaces*. DOE-BER Small Business Innovation Research. 4/1/2023-3/31/2025. \$1,650,000
- Johnson, P. (PI), Ward, N.D. (Co-PI), Abadi, S. (Co-PI) *Methane Venting from Forearc Faults in the Puget Sound Estuary*. NSF-OCE: Marine Geology and Geophysics. 9/1/2022-7/31/2025. \$544,624
- Richey, J.E. (PI), Ward, N.D. (Co-PI), Keil, R.G. (Co-PI). *Biogeochemical Blindspots along the Lower Amazon River Continuum*. NSF-DEB: Ecosystems Studies. #1754317. 06/2018-11/2024. \$795,339
- Simard, M. (PI), Ward, N.D. (Co-PI). *Quantifying Lateral Export of Carbon across the World's Major River Deltas*. NASA Carbon Monitoring System Continuing Prototype Development. 23-CMS23-0074. 10/2024-9/30/2027. \$1,013,814
- Yang, Z. (PI), Subban, C. (Co-PI), Ward, N.D. (Co-PI), Hinson, K. (Co-PI), Hetland, R. (Co-PI), Friedrichs, M. (Co-PI), MacCready, P. (Co-PI), Hauri, C. (Co-PI), Pages R. (Co-PI). *Modeling Assessment of Ocean Alkalinity Enhancement for Reliable Monitoring and Reporting of Marine Carbon Dioxide Removal*. 03/2024-03/2027. \$2,080,000

### Pending Grant Proposals

- Hood, G. (PI), Smith, D. (Co-PI), Ward, N.D. (Co-PI). *Sea Level Rise-Driven Groundwater Flooding and Salinity Intrusion in the Skagit Delta: Agricultural Challenges and Habitat Restoration Opportunities*. EPA Habitat Initiative Lead. 7/1/2025-6/30/2027. Grant # 25-26491. \$339,166
- Cross, J. (PI), Subban, C. (Co-I), Myers, T. (Co-I), Haxel, J. (Co-I), Myers-Pigg, A. (Co-I), Khangaonkar, T. (Co-I), Ward, N.D. (Co-I), Regier, P. (Co-I). *Founding an actionable marine carbon information pipeline in Sequim Bay*. PNNL Laboratory Directed Research & Development. 1/1/2024-12/31/2024. \$150,000

### Previous Research Funding (\$34,506,159 total; \$583,362 in kind support)

- Bailey, V. (PI), Chen, X. (Co-PI), Weintraub (Co-PI), Thornton, P. (Co-PI), Megonigal, J.-P. (Chief Scientist), Ward, N.D. (Task 1 Lead), Kemner, K. (Task 1 Co-Lead), Bond-Lamberty, B. (Task 2 Lead), Wainwright, H. (Task 2 Co-Lead). *Coastal observations, mechanisms, and predictions across systems and scales: field measurements and experiments (COMPASS-FME) Pilot Project*. DOE-BER. 10/1/2020-9/30/2023. \$30,515,000
- Kukkadapu, R. (PI), Ward, N.D. (Co-PI), Regier, P. (Co-I), China, S. (Co-I), Engelhard, M. (Co-I), Zhao, Q. (Co-I), Huggett, N. (Co-I), Chu, R. (Co-I), Kovarik, L. (Co-I), Bowden, M. (Co-I). *Integration of mineral-associated organic matter (MAOM) colloid characteristics into DOM stability models*. EMSL Intramural S&T Program. 10/1/2021-6/30/2023. \$390,529
- Zheng, J. (PI), Bailey, V. (Co-PI), Pennington, S. (Co-I), Ward, N.D. (Co-I), Myers-Pigg, A. (Co-I), Bond-Lamberty, B. (Co-I), Hopple, A. (Co-I), Weisenhorn, P. (Co-I), Spanbauer, T. (Co-I), Megonigal, P. (Co-I) *Illuminating soil biogeochemical responses to press and pulse disturbances in a coastal ecosystem*. EMSL and DOE JGI Facilities Integrating Collaborations for User Science, Project #60036. 8/1/2021-9/30/2023. 1,060 hours of instrument use and 500,000 hours computing time (\$114,629 in kind support)
- Cotter, E. (PI), Cavagnaro, R. (Co-I), Ward, N.D. (Co-I), Walters, E. (Co-I), Regier, P. (Co-I), *Autonomous mapping of carbon dioxide removal in coastal environments*. EED Laboratory Directed Research and Development. 10/1/2021-9/30/2022. \$125,000

- Subban, C. (PI), Ward, N.D. (Co-I), Edmundson, S. (Co-I), Myers, C. (Co-I), Regier, P. (Co-I), Huesseman, M. (Co-I) *Optimizing biological carbon uptake by regulating carbonate-bicarbonate equilibrium*. EED Laboratory Directed Research and Development. 12/1/2021-9/30/2022. \$125,000
- Hornstein, B. (PI), Bramall, N. (Co-PI), Ward, N.D. (Co-PI) *Autonomous monitoring of low phosphate concentrations at terrestrial aquatic interfaces*. DOE-BER Small Business Innovation Research. 2/14/2022-2/13/2023. \$200,000
- Ward, N.D. (PI), Myers-Pigg, A. (Co-I) *Identifying dynamic sources and transformations of dissolved organic matter in coastal watersheds exposed to extreme flooding*. DOE-EMSL Large-Scale Research: Environmental Sciences, Project #51347. 10/1/20-9/30/22. 4,080 hours of instrument use (\$150,071 in kind support)
- Ward, N.D. (PI). *Quantum Kinetics Water Treatment Characterization*. Quantum Kinetics, LLC. 12/1/20-12/1/22. \$45,000
- Cavagnaro, R. (PI), Ward, N.D. (Co-I), Alam, J. (Co-I), Matzner, S. (Co-I), Williams, N. (Co-I) *Autonomous energy harvesting for an autonomous surface vehicle*. DOE Water Power Technologies Office, Marine Energy Lab Seedling Program. \$100,000. 10/1/2019-9/30/2020
- Gill, G. (PI), Grate, J. (Co-I), Kuo, L.J.(Co-I), Ward, N.D. (Co-I, project manager) *Persistent monitoring of dissolved oxygen for investigations of biogeochemical cycles across the terrestrial/aquatic ecosystem interface*. DOE-BER Small Business Innovation Research. 02/21/17-3/20/22. \$335,000
- Hou, Z. (PI), Ward, N.D. (Co-I), Yabusaki, S. (Co-I) *Assessing uncertainty and parameter sensitivity in the representation of methane processes in coastal floodplain ecosystems*. PNNL Laboratory Directed Research & Development. 1/2020-9/30/2020. \$120,000
- Kreisel, J. (PI), Moran, J. (Co-PI), Ward, N.D. (Co-PI). *Terrestrial-aquatic isotope sensor for in-situ field measurements*. DOE-BER Small Business Innovation Research. 2/16/21-11/22/21. \$250,000
- Stegen, J. (PI), Ward, N.D. (Co-PI), Bailey, V. (Co-PI). *Process-based understanding of perturbation impacts in tidally-influenced nearshore terrestrial-aquatic interfaces*. PNNL Laboratory Directed Research & Development. 8/1/2017-8/30/20. \$906,313
- Ward, N.D. (PI), Bailey, V. (Co-PI), Stegen, J., Yabusaki, S., Sengupta, A. *Hydrologic imprinting across terrestrial-aquatic gradients: unraveling the spectrum of ecosystem responses to freshwater limitation and salt exposure*. DOE-EMSL Science Theme Research, Project #50234. 10/1/18-3/31/21. 580 hours of instrument use (\$75,359 in-kind support)
- Ward, N.D. (PI), McDowell, N. (Co-PI). *A critical gap in our ability to quantify and model earth system interactions—Development of a global, mechanistic understanding of methane emissions from trees*. PNNL LDRD Open Call FY19-20. 10/01/18-9/30/20. \$302,000
- Ward, N.D. (PI), Borde, A. (Co-PI), Bailey, V. (Co-PI). *Hydrologic imprinting across terrestrial-aquatic gradients: unraveling the spectrum of ecosystem responses to freshwater availability*. PNNL Laboratory Directed Research & Development. 11/2017-9/30/20. \$772,317
- Zimmerman, R. (PI), Ward, N.D. (Co-PI). *Experimental Impacts of Climate Warming and Ocean Acidification on Blue Carbon Accumulation by Eelgrass*. EMSL and DOE JGI Facilities Integrating Collaborations for User Science, Project #50358. 10/1/18-3/31/21. 2,144 hours of instrument use (\$123,303 in-kind support)
- Bianchi, T.S. (PI), Butman, D. (Co-PI), Ward, N.D. (Co-PI) *The Influence of Microbial Priming Effects on the Carbon Balance of Large River Reservoirs*. DOE-BER. 10/2018-9/2019. \$200,000

- Bianchi, T.S. (PI), Ward, N.D. (Co-PI), Ogram, A. (Co-PI). *The role of priming effects on the conversion of blue carbon to CO<sub>2</sub> in the coastal zone*. EMSL and DOE JGI Facilities Integrating Collaborations for User Science, Project #49505. 10/1/2016-9/31/2018. 932 hours of instrument use. Roughly \$120,000 in-kind support
- Ward, N.D. (PI), Cailene Gunn (Co-PI), Julia Indivero (Co-PI) *ECO-Citizens: Empowering local citizen scientists to monitor water quality using a mobile app*. PNNL Quickstarter. 4/1/18-9/30/18. \$4,000
- Ward, N.D. (PI), Rivas-Ubach, A. (Co-PI), Liu, Y. (Co-PI), Kuo, L.J. (Co-PI) *Metabolic responses of eelgrass to environmental stressors*. PNNL Energy & Environment Directorate, Laboratory Directed Research and Development. 10/1/2017-9/30/2018. \$76,000
- Ward, N.D. (PI). *Development and deployment of a novel approach for studying tree gas exchange*. PNNL Energy & Environment Directorate LDRD. 10/01/18-9/30/19. \$30,000
- Ward, N.D. (PI). *Open access publication fee grant for special issue in Frontiers in Marine Science*. Gordon and Betty Moore Foundation. 10/1/2016-9/30/2017. \$10,000

### Past Analytical Service Contracts (\$1,603,304 total)

- Alcoa/Lavaca Bay Superfund: Analysis of mercury in water and fish tissue samples to understand the degree of contamination and recovery throughout the site. 3/1/17-12/31/23. \$336,650
- City of Eugene: The speciation of mercury in wastewater is evaluated on a quarterly basis to satisfy requirements of the State of Oregon for municipal treatment. 12/16-4/30/19. \$28,291
- Environ/US Steel: Total mercury levels are measured in the outfalls of steel mills in an effort to understand the sources of Hg in the steel production process and help guide the plant modifications, planned by US Steel to improve waste treatment practices in order to meet stringent Great Lakes regional Hg outfall requirements. 1/1/17-12/31/20. \$274,678
- Gulf of Maine Department of Environmental Protection: As part of the state of Maine Surface Water Ambient Toxics (SWAT) Monitoring Program mercury and trace metal levels are monitored in fish and shellfish tissues. 10/10/16-12/31/20. \$142,905
- Hecla Mining Company-Greens Creek: Mercury, trace metals, total recoverable metals, and physical chemistry are evaluated in fresh (monthly) and seawater (quarterly) samples near the Hecla Mining Company operations in Juneau, Alaska. 3/1/2017-2/28/2023. \$820,780

### External Service and Leadership

**Review Editor:** 2<sup>nd</sup> State of the Carbon Cycle Report (SOCCR-2), Chapter 14: Inland Waters

**Guest Associate Editor (2015-2019):**

*Frontiers in Marine Science:* [Integrative Research on OM Cycling Across Aquatic Gradients](#)

*Frontiers in Earth Science:* [The Role of Priming in Terrestrial and Aquatic Ecosystems](#)

**Manuscript Reviewer:** *Acta Amazonica; Biogeochemistry; Biogeosciences; Biogeosciences: Discussions; Cell Press: One Earth; Chemical Geology; Environmental Pollution; Environmental Science and Pollution Research; Environmental Science: Water Research & Technology; Estuaries and Coasts; Estuarine, Coastal and Shelf Science; Frontiers in Marine Science; Geochimica et Cosmochimica Acta; Geophysical Research Letters; Global Biogeochemical Cycles; Global Change Biology; Hydrology and Earth System Science; International Journal of Analytical Chemistry; Journal of Geophysical Research: Atmospheres; Journal of Geophysical Research: Biogeosciences; Journal of Hydrology; Journal of Limnology; Journal of Marine Geology; Limnology and Oceanography; Limnology and Oceanography: Letters; Limnology and*

*Oceanography: Methods; Marine Ecology Progress Series; Nature Communications; Nature: Communications Earth & Environment; Nature Geoscience; New Phytologist; Organic Geochemistry; PLOS One; Reviews of Geophysics; Science Advances; Science of the Total Environment; Scientific Reports; Soil Biology & Biochemistry; Water Resources Research; Wetlands*

**Panel Reviewer:** US Department of Energy Environmental System Science, 2018

**Proposal Reviewer:** American Chemical Society Petroleum Research Fund; British Ecological Society; European Research Council Consolidator Grants; NSF Chemical Oceanography; NSF Ecosystem Science; NSF Low Temperature Geochemistry; NSF Ocean Sciences Postdoctoral Research Fellowships; US Department of Energy Laboratory Directed Research & Development; US Department of Energy Subsurface Biogeochemical Research Small Business Innovation Research; US Department of Energy Office of Science Graduate Student Research Program

**Workshop Co-Chair:** System for Terrestrial-Aquatic Research Workshop. Richland, WA, 2018

**Town Hall Convener:**

- 2020 American Geophysical Union Fall Meeting, San Francisco, CA. *New and expanding community-driven research programs to understand watershed and coastal processes*

**Session Convener:**

- 2025 DOE-BER Earth System Science PI Meeting. Reston, VA. *Lateral connectivity across coastal ecosystems*
- 2025 ASLO Aquatic Sciences Meeting. Charleston, North Carolina. *Biogeochemical Connections and Ecosystem Adaptation Across the Land-Ocean Continuum*
- 2024 DOE-BER Earth System Science PI Meeting. Reston, VA. *Participatory Science Without the Parachute: Enhancing Mutual Benefit Within and Beyond ESS via Shared Learning Across Participatory Networks*
- 2024 AGU Fall Meeting. Washington, DC. *Where Land Meets Water: Biogeochemical Cycling at the Terrestrial-Aquatic Interface*
- 2024 ASLO Ocean Sciences Meeting. New Orleans, LA. *Advancing our knowledge of land-sea connections in the global carbon cycle*
- 2023 ASLO Aquatic Sciences Meeting. Palma de Mallorca, Spain. *Biogeochemical Cycling Across the Land-Ocean-Continuum*
- 2022 ASLO Ocean Sciences Meeting. Honolulu, HI. *Transformation and fate of terrestrial organic matter at the Land-Ocean Interface and Beyond*
- 2022 ASLO Ocean Sciences Meeting. Honolulu, HI. *Biogeochemical dynamics at the terrestrial-aquatic interface*
- 2022 DOE-BER Earth System Science PI Meeting. Online Conference. *Observing, quantifying, and modeling responses to environmental change at the coastal terrestrial-aquatic interface*
- 2021 AGU Fall Meeting. New Orleans, LA. *Integrating and advancing understanding of coastal ecosystem structure, function and dynamics*
- 2021 ASLO Aquatic Science Meeting. Mallorca, Spain. *Biogeochemical cycling from catchments to coastal waters: processes, models and budgets*
- 2020 ASLO Ocean Sciences Meeting, San Diego, CA. *The transformation and fate of carbon at the land-ocean interface*

- 2019 American Geophysical Union Fall Meeting, San Francisco, CA. *Hydrological and biogeochemical connectivity across coastal watersheds and estuaries: linking terrestrial and aquatic processes*
- 2019 ASLO Aquatic Science Meeting. San Juan, PR. *Carbon Cycling Across Gradients in the Land-Ocean-Continuum*
- 2018 ASLO Ocean Sciences Meeting, Portland, OR. *Land-Sea Connections in the Global Carbon Cycle*
- 2018 Goldschmidt Conference, Boston, MA. *Critical Zone Dynamics Through Space and Time: Linkages with Weathering and Global Biogeochemical Cycles*
- 2018 American Geophysical Union Fall Meeting, Washington, D.C. *Comparative organic geochemistry of soils and aquatic sediments: A new view in the 21<sup>st</sup> century*
- 2018 ASLO Summer Meeting, Victoria, BC. *The Biogeochemistry of Organic Matter: Cutting across Ecosystem Boundaries and Aquatic Gradients*
- 2017 ASLO Aquatic Science Meeting. Honolulu, HI. *Organic Matter Cycling Across Aquatic Boundaries*

#### Professional Affiliations

- American Association for the Advancement of Science (2018-2019)
- American Geophysical Union (2011-present)
- Association for the Sciences of Limnology and Oceanography (2012-present)
- Geochemical Society (2018-2019)
- National Science Teachers Association (2012-2016)

#### Honors and Awards – Institutional Recognition

- 2023 PNNL Earth and Biological Sciences Director Bringing Excellence in S&T (BESTie) Award
- 2022 PNNL Outstanding Performance Award for Tour Logistical Support
- 2021 PNNL Outstanding Performance Award for Onsite Supervisor Role during Pandemic
- 2020 PNNL Earth and Biological Sciences Director Bringing Excellence in S&T (BESTie) Award
- 2020 PNNL Coastal Sciences Division Publication of the Year
- 2018 PNNL STEM Ambassador Fellow
- 2018 PNNL Outstanding Performance Award—ISO 14001 Audit Team
- 2017 PNNL Energy and Environment Directorate Publication of the Year
- 2008 UCSD Sports Clubs Male Athlete of the Year
- 2007 UCSD Dean of Physical Sciences Undergraduate Award for Excellence
- 2007 National Science Foundation REU Summer Student Fellowship
- 2004 Antone Ara Bia Scholarship

#### PNNL Service and Leadership

##### Search Committee Member:

- 2021 Berkeley Lab, Coastal Research Community Engagement Manager
- 2020-2021 Atmospheric Sciences and Global Change Division, Division Director
- 2021 Environmental & Biological Sciences Directorate, Sr. Coastal Computational Scientist

- 2020 Environmental & Biological Sciences Directorate, Sr. Coastal Ecosystem Scientist
- 2020 Energy & Environment Directorate, Chief Marine Chemist
- 2019 Energy & Environment Directorate, Principal Biogeochemist
- 2018-2019 Environmental & Biological Sciences Directorate, Chief Ecosystem Scientist

#### Strategy Development Team Member

- 2022-2023 Predictive Phenomics Lab Objective Leadership Group
- 2020-2021 Sensors Strategy Working Group
- 2020-2021 Marine Carbon Dioxide Removal Working Group
- 2020 Biosciences Strategic Plan
- 2020 Coastal and Marine Sciences Strategic Plan
- 2019-2020 Marine and Coastal Research Laboratory Research Council

### Teaching Experience

- 2016 **Guest Speaker**, Girls Get It STEM Club, Indian Trails Middle School, Palm Coast, FL
- 2014-2016 **Guest Lecturer**, University of Florida, Gainesville, FL. Courses: (i) Estuarine Biogeochemistry (grad) and (ii) Organic Biomarkers (grad). Instructor: Thomas Bianchi
- 2012-2013 **NSF GK-12 Teaching Fellow**, Garfield High School, Seattle, WA. Courses: (i) Sophomore Ecology and (ii) AP Environmental Science. Instructor: Rachel J. Petrik-Finley
- 2009-2010 **Teaching Assistant**, University of Washington, Seattle, WA. Course: Puget Sound Ecosystem (undergrad). Instructors: John Lombard and Jeffrey Richey
- 2009 **Guest Instructor**, Montlake Elementary School, Seattle, WA. Course: Weekly K-1 Science Lessons. Instructor: Rachel Yorde
- 2006 **Teaching Assistant**, University of California, San Diego, La Jolla, CA. Course: Introductory Geology (undergrad). Instructor: Jill Weinberger
- 2005-2008 **Head Sailing Coach**, La Jolla High School and Torrey Pines High, La Jolla, CA

### Students Mentored as Graduate Student and Postdoc (2008-2016):

**Undergraduates:** Allison Myers-Pigg (UW), Ariel Townsend (UW), Kesley Price (UW), Rebekka Gould (UW), Jordan Clear (UF), Miranda Craghead (UF), Robert Schmitz (UF), Eldo Santos (Universidade Federal do Amapá-UNIFAP)

**Masters:** William Gagne Maynard (UW), Rory Kates (UF), Genswesley Dias de Jesus (Universidade Federal do Espírito Santo-UFES), Luciano Firme de Almeida (UFES)

**PhD:** Diani Fernandes da Silva (UNIFAP), Joel Estevão Melo Diniz (UNIFAP)

### Students/Postdocs Mentored as Research Scientist (2017-present):

**DOE-SULI Interns at PNNL:** Julia Indivero (2017-2018), Stephanie Cando (2018), Tyler Cook (2018), Krystal Krygowski (2019), Katherine Landoni (2019, 2020), Mulika Musyimi (2020-2021), Macy Schmidt (2020), Cora Weise Moore (2020), Matt Duggan (2021), Alex Izquierdo (2021), Madison Bowe (2021), Alex Izquierdo (2021), Aaliyah Hameed (2022), Finn Roach (2023)

**Post-bachelors at PNNL:** Cailene Gunn (2017-2018), Julia Indivero (2018-2020), Madison Bowe (2022-2023)

**Postdocs at PNNL:** Aditi Sengupta (2018-2020), Allison Myers-Pigg (2019-2020), Matt Norwood (2019-present), Peter Regier (2020-2022)

**Graduate Student Committee:** Kleiton Rabelo de Araújo (2018, M.S., Universidade Federal do Pará,

Altamira), Faith Hale (2024, M.S., University of South Florida)

**DOE Graduate Fellow:** Megan Duffy (2021, Ph.D., University of Washington), Alex Smith (2022-2023, Ph.D., Virginia Institute of Marine Science)

**Invited Presentations (not fully up to date as of 2023)**

32. Ward, N.D. (2024, invited). TEMPEST: A coastal flooding manipulation to understand drivers and impact of ecosystem state change. DOE-BER, Research Priorities for the U.S. South Atlantic and Gulf of Mexico Workshop.
31. Ward, N.D. (2024, invited). Novel environmental conditions stimulate organic carbon reactivity along the terrestrial-aquatic continuum. Goldschmidt. Chicago, IL. 8/18/2024
30. Ward, N.D. (2022, invited). COMPASS-FME: A new network of field sites, experiments, and models for elucidating the impact of episodic and chronic disturbances on coastal ecosystem structure and function. OCB Workshop: C-saw—Time domain controls on carbon storage, release, and transformation in coastal and estuarine waters following extreme events. Raleigh, NC. 10/24/22
29. Ward, N.D. (2022, invited) Modeling impacts of inundation disturbances on coastal groundwater and ecosystem dynamics. DOE-BER Earth System Science PI Meeting. Virtual conference. 5/26/22
28. Coppola, A., Santin, C., Wagner, A., Ward, N.D., Seidel, M., Dittmar, T., Jones, M. (2021, invited) Global synthesis on the interconnectivity of black carbon through the land-river-ocean continuum. ASLO Aquatic Sciences Meeting. Virtual Meeting. 6/24/21
27. Ward, N.D., Yabusaki, S., Myers-Pigg, A., McDowell, N., Wang, W., Norwood, M., Regier, P., Bond-Lamberty, B., Sengupta, A., Pennington, S., Bailey, V., Megonigal, J.P. (2021, invited) Ecological, hydrological, and biogeochemical interactions in coastal floodplains. SWS Annual Meeting. Spokane, WA. 6/4/21
26. Ward, N.D. (2021, invited plenary) ESS Community Updates: A Community Driven Exploration of Coastal Hydrobiogeochemistry Across a Network of Gradients and Experiments (EXCHANGE). DOE-BER Earth System Science PI Meeting. Virtual conference. 8/18/21
25. Bailey, V., Sengupta, A., Myers-Pigg, A., Pennington, S., Bond-Lamberty, B., McDowell, N., Megonigal, P., Stegen, J., Tan, Z., Ward, N.D., Yabusaki, S., Zheng, J. (2020, invited) Salinity and inundation alter biogeochemistry and carbon fluxes in two coastal forests. Goldschmidt Conference. Honolulu, HI. 6/21/20
24. Morrison, E., Liu, Y., Rivas-Ubach, A., Ward, N.D., Y., Osborne, T.Z., Bianchi, T.S., (2020, invited) The role of microbial communities in the turnover of blue carbon-derived dissolved organic matter. ESA Annual Meeting. Salt Lake City, UT. 8/3/20
23. Sengupta, A., Bond-Lamberty, B., Rivas-Ubach, A., Zheng, J., Handakumbura, P., Yabusaki, S., Bailey, V., Stegen, J., Ward, N.D. (2020, invited) Linking molecular properties of soil organic carbon to emergent ecosystem functions in a tidally influenced landscape of the Pacific Northwest. EGU General Assembly. Vienna, Austria. 5/3/20
22. Sengupta, A., Kaufman, M.H., Renteria, L., Torgeson, J., Garcia, M.R., Chen, H., Garyburu-Carasco, V.A., Rivas-Ubach, A., Chu, R.K., Toyoda, J., Ward, N.D., Zheng, J., Stegen, J.C. (2020, invited) Biogeochemical impacts of salinity in coastal river corridors: From molecular processes to emergent function. AGU Fall Meeting. Virtual conference. 12/14/20
21. Ward, N.D. (2020, invited) Plant, soil, and water interactions across the coastal interface. Texas A&M University Oceanography Department. College Station, TX. 4/27/20

20. Ward, N.D. (2020, invited) Dynamic interactions between plants, soil, and water at the coastal interface. University of Washington, School of Oceanography. Seattle, WA. 5/15/20
19. Ward, N.D. and Norwood, M. (2020, invited) Mechanistic understanding of methane emissions from trees. PNNL Lab Fellows Science and Technology Symposium. Richland, WA 2/19/20
18. Ward, N.D. (2019, invited) Progress and priorities for understanding terrestrial-aquatic interfaces: An Aquatic Biogeochemical Perspective. DOE-BER Earth System Science PI Meeting. Potomac, MD. 4/30/19
17. Yabusaki, S., Ward, N.D., Waichler, S.R., Myers-Pigg, A.N., Sengupta, A., Zheng, J., Chen, X., Fang, Y., Duan, Z., Serkowski, J., Indivero, J., Gunn, C., Bailey, V. (2019, invited) Insights on inundation and hydrobiogeochemistry in a first-order tidal stream floodplain. Geological Society of America Annual Meeting. Phoenix, AZ. 9/22/19
16. Bianchi, T.S., Morrison, E.M., Shields, M., Ward, N.D. (2018, invited plenary) Re-plumbing the Earth's surface: New corridors for organismal and biogeochemical change. AGU Fall Meeting. 12/13/18
15. Kuhn, C., Valerio, A., Ward, N.D., Loken, L., Sawakuchi, H.O., Kampel, M., Richey, J.E., Stadler, P., Crawford, J., Striegl, R.G., Vermote, E., Pahlevan, N. Butman, D. (2018, invited) Assessment of atmospheric correction methods for Landsat-8 and Sentinel-2 over large rivers. AGU Fall Meeting. Washington, D.C. 12/13/18
14. Ward, N.D. (2018, invited) Hydrologic and biogeochemical linkages along the coastal interface. Washington State University Science Seminar Series. Vancouver, WA. 10/29/18
13. Ward, N.D. (2018, invited) Linked hydrologic and biogeochemical cycling dynamics across coastal terrestrial-aquatic interfaces. International Workshop on Organic Carbon Cycling in Marine Environments. Qingdao, China. 10/14/18
12. Ward, N.D., Indivero, J., Gunn, C., Wang, W., McDowell, N.G. (2018, invited) Exploring Western Washington watersheds: Insights on terrestrial and aquatic linkages. Hood Canal Salmon Enhancement Group Annual Membership Meeting Keynote Speech. Belfair, WA. 3/29/18
11. Ward, N.D. (2017, invited) Tidal rivers: A major gap in earth systems science. Old Dominion University. Norfolk, Virginia. 9/12/17
10. Ward, N.D. (2017, invited) Biogeochemistry of the Columbia River. University of Washington ESRM429 Seminar Series. Seattle, WA. 5/23/17
9. Ward, N.D. (2016, invited) Net ecosystem exchange of carbon in the lower Amazon River. Howard T. Odum Center for Wetlands: Water, Wetlands & Watersheds seminar series. Gainesville, FL. 8/31/16
8. Ward, N.D. and Bianchi, T.S. (2016, invited) The fate of terrestrial DOM: priming in aquatic ecosystems. Gordon Research Conference: Organic Geochemistry. Holderness, NH. 7/25/16
7. Ward, N.D. Sawakuchi, H.O., Bianchi, T.S., Gagne-Maynard, W., Cunha, A.C., Brito, D.C., Neu, V., da Silva, D.F., Diniz, J.E.M. Valerio, A.M., da Silva, R., Krusche, A.V., Richey, J.E., Keil, R.G. (2016, invited). Hydrodynamic controls on respiration in the Amazon River and the importance of particle interactions on organic matter decomposition. AGU Fall Meeting. San Francisco, CA. 12/13/16
6. Richey, J.E., Ward, N.D., et al (2015, invited) The "Pulse" of the Amazon River System: How pCO<sub>2</sub> Evolves, from Small Streams to the Atlantic Ocean. AGU Fall Meeting. San Francisco, CA
5. Ward, N.D., et al. (2014, invited). The reactivity of plant-derived organic matter in the Amazon River. AGU Fall Meeting. San Francisco, CA. 12/15/14

4. Crump, B.C., Doherty, M., Fortunato, C.S., Simon, H.M., Smith, M.W., Krusche, A.V., Brito, D., Cunha, A.C., Fernandes, M., Zielinski, B., Paul, J.H., Ward, N.D., Richey, J.E., Satinsky, B.M., Sharma, S., Smith, C.B., Moran, M.A., Yager, P.L. (2013, invited) Microbial community composition and metagenomes across the river-to-ocean continuum of the Columbia and Amazon Rivers. AGU Fall Meeting. San Francisco, CA. 12/13/13
3. Yager, P.L., Richey, J.E., Page, B.P., Ward, N.D., Krusche, A.V., Weber, S., Montoya, J.P., Rezende, C.E. (2013, invited) Contributions from the Amazon River mouth to the carbonate and nutrient dynamics of the tropical Atlantic Ocean. AGU Fall Meeting. San Francisco, CA. 12/11/13
2. Ward, N.D. (2012, invited) The hydrologic and geochemical evolution of the lower Amazon River. UW Water Center Symposium. Seattle, WA. 4/18/12
1. Ward, N.D., Keil, R.G., Richey, J.E. (2010, invited) Impacts of storm events on nutrient loading to the lower Hood Canal region. UW Water Center Symposium. Seattle, WA. 2/17/10

### Conference Proceedings (does not include complete 2022/2023/24 abstracts)

161. Bond-Lamberty, B., Doro, K., Hopple, A., McDowell, N., Morris, K.A., Myers-Pigg, A.N., Pennington, S.C., Phillips, E., Regier, P., Srinivasan, R.V., Stearns, A., Ward, N.D., Bailey, V.L., Megonigal, J.P. (2025) An ecosystem-scale flooding experiment to disentangle mechanisms of coastal forest resilience and vulnerability to extreme flooding events. EGU General Assembly. Vienna, Austria. 4/27/2025
160. Bond-Lamberty, B., Doro, K., Hopple, A., McDowell, N., Morris, K.A., Myers-Pigg, A.N., Pennington, S.C., Phillips, E., Regier, P., Srinivasan, R.V., Stearns, A., Ward, N.D., Bailey, V.L., Megonigal, J.P. (2025) TEMPEST: an ecosystem-scale flooding experiment to disentangle mechanisms of coastal forest resilience and vulnerability to extreme flooding events. Richmond, VA. 11/9/2025
159. Hinson, K. et al (2025) Improving Connections Between Ocean Alkalinity Enhancement and Carbon Cycling in Coastal Domains. Coastal & Estuarine Research Federation. Richmond, VA. 11/9/2025
158. Lønborg, C., Santos, I.F. Carreira, C., 35 other authors including Ward, N.D. (2025) Dissolved organic carbon in coastal waters: global patterns, stocks and environmental physical controls. Xiamen Symposium on Marine Environmental Sciences. Xiamen, China. 1/14/2025
157. Valerio, A., Kappel, M., Vantrepotte, V., Ward, N.D., Richey, J.E. (2025) Retrieving colored dissolved organic matter using S3-OLCI in the Amazon River Continuum. Brazilian Symposium on Remote Sensing. Salvador, Brazil. 4/13/2025
156. Khangaonkar, T.P., Ni, W., Yun, S., Premathilake, M., Carter, B.R., Ward, N.D., Venkata Subban, C., et al. (2024) Modeling the Effects of Alkalinity Enhancement Technology on Sequim Bay and Salish Sea, Marine Water Quality. ASLO Ocean Sciences Meeting. New Orleans, LA. 2/19/2024
155. Patel, K., Rod, K., Zheng, J., Regier, P., Machado-Silva, F., Bond-Lamberty, B., Chen, X., Day, D., Doro, K., Kaufman, M., Kovach, M., McDowell, N., McKeever, S., Megonigal, J.P., Norris, C., O'Meara, T., Rich, R., Thornton, P., Kemner, K., Ward, N.D., Weintraub, M., Bailey, V. (2024) Time to Anoxia: Oxygen Consumption in Soils Varies Across a Coastal Gradient. European Geophysical Union General Assembly. Vienna, Austria. 4/14/2024
154. Adebayo, M.B., Ehosioke, S., Emmanuel, E.D., Hopple, A., Regier, P., Megonigal, P., Ward, N.D., Bailey, V., Doro, K. (2023) Time-lapse electrical resistivity and induced polarization monitoring of a simulated ecosystem-scale coastal flooding experiment. International Meeting for Applied Geosciences and Energy (IMAGE). Houston, TX. 8/28/2023
153. Doro, K., Adebayo, M.B., Bailey, V., Chen, X., Hopple, A., Jiang, P., Li, B., Li, Z., Megonigal, P., Ward, N.D., (2023, invited) A hydrogeophysical imaging and modeling approach for predicting

- soil water saturation during a simulated coastal flooding experiment. International Meeting for Applied Geosciences and Energy (IMAGE). Houston, TX. 8/28/2023
152. Li, B., Li, Z., Jiang, P., Zheng, J., Regier, P., Hammond, G., Ward, N.D., Pennington, S., Chen, X. (2023) Investigating the integrated effects of hydrology and vegetation on carbon cycling at the coastal terrestrial-aquatic interface. Society of Wetland Scientists Annual Meeting. Spokane, WA. 6/27/2023
151. Patel, K., Rod, K., Zheng, J., Regier, P., Machado-Silva, F., Bond-Lamberty, B., Chen, X., Day, D., Doro, K., Kaufman, M., Kovach, M., McDowell, N., McKeever, S., Megonigal, J.P., Norris, C., O'Meara, T., Rich, R., Thornton, P., Kemner, K., Ward, N.D., Weintraub, M., Bailey, V. (2023) Time to anoxia: Observations and predictions of oxygen drawdown following coastal flood events. ESA Annual Meeting. Portland, OR. 8/10/2023
150. Ringham, M., Eisaman, M., Carter, B.R., Ward, N.D., Khangaonkar, T.P., Hemery, L.G., Subban, C., Pilcher, D., Premathilake, M., Feely, R. (2023). MRV protocol development for Ebb Carbon's electrochemical ocean alkalinity enhancement approach to CDR. AGU Fall Meeting. San Francisco, California. 12/11/2023
149. Stetten, L., Boyanov, M., O'Loughlin, E., Bailey, V., Day, D., Homolka, K., Hopple, A., Kovach, M., Bittencourt-Peixoto, R., Machado-Silva, F., McDowell, N., Megonigal, P., Wilson, S., Myers-Pigg, A., Otenburg, O., Ward, N.D., Weintraub, M., Kemner, K. (2023) Probing Biogeochemical Reactions of Metals and Nutrients within the Critical Zone: Bridging Molecular to Global Scales. Goldschmidt. Lyon, France. 7/9/2023
148. Bond-Lamberty, B., Morris, K., Ward, N.D., Patel, K.F., Pennington, S.C. (2022) An R package for easily calculating CH<sub>4</sub> production and consumption from dynamics in isotope concentrations. AGU Fall Meeting. Chicago, IL. 12/12/2022
147. Ghosh, R., Loloee, R., Freeman, M., Ball, T., Williams, K., Regier, P., Ward, N.D. (2022) Multi-year Temporally Resolved Oxygen Dynamics at the Terrestrial-Aquatic-Interface of an Estuarine Floodplain and an Alpine Hillslope-Floodplain Continuum: Implications for Biogeochemical Processes Across Seasons. ASLO Ocean Sciences Meeting. Honolulu, HI. 2/27/2022
146. Ghosh, R., Freeman, M., Ball, T., Regier, P., Ward, N.D. (2022) Inter-annual Variations of Hot Moments in a Coastal Flood Plain: Insights from a Three-year Time-series. AGU Fall Meeting. Honolulu, HI. 12/15/2022
145. Ghosh, R., Freeman, M., Ball, T., Regier, P., Ward, N.D. (2022) Seasonal and Tidally Driven Oxygen Dynamics in a Coastal Floodplain: Insights from Multi-year High Frequency Observations. ASLO Aquatic Sciences Meeting. Grand Rapids, MI. 5/14/2022
144. Ghosh, R., Loloee, R., Freeman, M., Ball, T., Williams, K., Regier, P., Ward, N.D. (2022) Multi-year Temporally Resolved Oxygen Dynamics at the Terrestrial-Aquatic-Interface of an Estuarine Floodplain and an Alpine Hillslope-Floodplain Continuum: Implications for Biogeochemical Processes Across Seasons. ASLO Ocean Sciences Meeting. Honolulu, HI. 2/27/2022
143. Regier, P., Izquierdo, A., Myers-Pigg, A., Ward, N.D., EXCHANGE Consortium (2022) Impacts of inundation on greenhouse gases at the coastal terrestrial-aquatic interface. Joint Aquatic Sciences Meeting. Grand Rapids, MI. 5/14/2022
142. Regier, P., Ward, N.D., Myers-Pigg, A. (2022) Spatiotemporal dynamics and drivers of dissolved oxygen across a coastal floodplain: improving coastal biogeochemistry representations in Earth system models. ASLO Ocean Sciences Meeting. Honolulu, HI. 2/27/2022
141. Bailey, V.L., Megonigal, J.P., Chen, X., Weintraub, M., Thornton, P., Bond-Lamberty, B., Kemner, K., Ward, N.D., Bridgeman, T., Brown, B., Johnson, L., McDowell, N. (2021) Coastal observations, mechanisms, and predictions across systems and scales – field measurements and experiments. DOE-BER Earth System Science PI Meeting. Virtual conference. 8/18/21

140. Bianchi, T.S., Shields, M., Butman, D., Ward, N.D., Rivas-Ubach, A., Chu, R. (2021) Dissolved organic matter transformations along the Columbia River and its tributaries. AGU Fall Meeting. New Orleans, LA. 12/13/21
139. Dong, X., Cohen, M.J., Martin, J.B., McLaughlin, D.L., Murray, A.B., Ward, N.D., Flint, M.K., Heffernan, J.B. (2021) Ecohydrologic processes and soil thickness feedbacks control limestone-weathering rates in a karst landscape. Geological Society of America Connects. Portland, OR. 10/10/21
138. Hopple, A., Megonigal, P., Pennington, S., Bond-Lamberty, B., McDowell, N., Myers-Pigg, A., Ward, N.D., Rich, R., Stegen, J., Kemner, K., Doro, K., Bailey, V. (2021) Gaining a predictive understanding of coastal ecosystem responses to pulse salinity and inundation disturbance. AGU Fall Meeting. New Orleans, LA. 12/13/21
137. Hopple, A., Megonigal, P., Pennington, S., Bond-Lamberty, B., McDowell, N., Myers-Pigg, A., Ward, N.D., Rich, R., Stegen, J., Kemner, K., Doro, K., Thornton, P., O'Meara, T., Bailey, V. (2021) Gaining a predictive understanding of coastal ecosystem responses to press and pulse hydrologic disturbance. DOE-BER Earth System Science PI Meeting. Virtual conference. 8/18/21
136. Kreisel, J., Fahrland, A., Moran, J., Ward, N.D. (2021) In-situ methane isotope analyzer for coastal and deep-ocean environments. AGU Fall Meeting. New Orleans, LA. 12/13/21
135. Myers-Pigg, A., Johsens, L., Patel, K.F., Hopple, A., Regier, P., Norwood, M.J., Ward, N.D., Kemner, K., Megonigal, P., Bailey, V. (2021) Changes in quality and quantity of solubilized soil organic matter at the upland-coastal interface due to seawater exposure. AGU Fall Meeting. New Orleans, LA. 12/13/21
134. Regier, P., Ward, N.D., Myers-Pigg, A., Indivero, J., Wiese Moore, C. (2021, oral) Groundwater oxygen dynamics. 7<sup>th</sup> Annual Global Change Research Wetland (GCRew) Symposium. Virtual conference. 4/24/21
133. Telfeyan, K., Piliouras, A., Newman, B., Myers-Pigg, A., Ward, N.D., Rowland, J. (2021). Field methods and geochemical analyses for interpreting high resolution hydrogeochemical changes in a macrotidal marsh. Goldschmidt Conference. Lyon, France. 7/5/21
132. Thornton, P., Bond-Lamberty, B., Brown, B., Enguehard, L., Holmquist, J., McDowell, N., Myers-Pigg, A., Pennington, S., O'Meara, T., Regier, P., Wainwright, H., Ward, N.D. (2021) COMPASS-FME: Early Successes in Data Synthesis and Modeling Analysis. DOE-BER Earth System Science PI Meeting. Virtual conference. 8/18/21
131. Ward, N.D., Myers-Pigg, A., Norwood, M., Regier, P., Weintraub, M., Megonigal, J.P., Bailey, V. (2021) A Community Driven Exploration of Coastal Hydrobiogeochemistry Across a Network of Gradients and Experiments (EXCHANGE). ASLO Aquatic Sciences Meeting. Virtual conference. 6/22/21
130. Bianchi, T.S., Butman, D., Ward, N.D., Shields, M., Arntzen, E., Stegen, J., Indivero, J., Farris, Y., Rivas-Ubach, A., Tolic, N., Chu, R. (2020, poster) The hydro-bio-geochemistry of the Columbia River tributary confluences. DOE Earth System Science PI Meeting. Bethesda, MD. 5/19/20
129. Ghosh, R., Ball, T., Freeman, M., Loloee, R., McIntire, C., Shooltz, D., Gill, G., Myers-Pigg, A., Ward, N.D. (2020, oral) Rapid Variability in Subsurface Dissolved Oxygen along the Terrestrial-Aquatic-Interface Driven by Tidal Inundation. Ocean Sciences Meeting. San Diego, CA. 2/18/20
128. Hopple, A.M., Bond-Lamberty, B., Pennington, S., Megonigal, J.P., Raczka, N.C., Brzostek, E.R., Ward, N.D., Bailey, V.L. (2020) Understanding the response of coastal forest carbon cycling to changing salinity and moisture content: a soil transplant experiment. AGU Fall Meeting. Virtual conference. 12/14/20

127. Hopple, A.M., Bond-Lamberty, B., Pennington, S., Megonigal, J.P., Raczka, N.C., Brzostek, E.R., Ward, N.D., Bailey, V.L. (2020) Understanding the response of coastal forest carbon cycling to changing salinity and moisture content: a soil transplant experiment. International Symposium of Physiological Processes in Roots of Woody Plants. University Park, PA. 6/22/20
126. Hou, Z., Ward, N.D., Yabusaki, S.B., Waichler, S.R., Norwood, M.J., Myers-Pigg, A.N., Indivero, J.L. (2020) Quantifying drivers of methane hydrobiogeochemistry in a tidal river floodplain. Goldschmidt Conference. Honolulu, HI. 6/21/20
125. Indivero, J.L., Borde, A.B., Myers-Pigg, A.N., Sengupta, A., Yabusaki, S.B., Bailey, V.L., Wang, W., McDowell, N.G., Ward, N.D. (2020) Time scales of coastal floodplain vegetation response to restored tidal exchange and sea level rise. ESA Annual Meeting. Salt Lake City, UT. 8/3/20
124. Myers-Pigg, A., Ward, N.D., Tagestad, J.D., Stegen, J.C., Butman, D., Bailey, V.L., Geffen, C.A. (2020, oral) Networking solutions to data-model coupling at the land-sea interface. Ocean Sciences Meeting. San Diego, CA. 2/18/20
123. Myers-Pigg, A., Ward, N.D., Indivero, J., Bailey, V.L. (2020) Seawater infiltration transforms porewater dissolved organic matter composition. AGU Fall Meeting. Virtual conference. 12/14/20
122. Norwood, M.J., Ward, N.D., Myers-Pigg, A., McDowell, N.G. (2020) Seawater exposure increases tree methane emissions. AGU Fall Meeting. Virtual conference. 12/14/20
121. Regier, P., Myers-Pigg, A., Norwood, M., Indivero, J., Wiese Moore, C., Ward, N.D. (2020) Oxygen dynamics shift with changes in lateral connectivity between a tidal creek and its floodplain. AGU Fall Meeting. Virtual conference. 12/14/20
120. Richey, J.E., Ward, N.D., Martinelli, L.A. (2020) Has there been a detectable trend in the biogeochemical signals of the lower Amazon River over the last 40 years? AGU Fall Meeting. Virtual conference. 12/14/20
119. Ward, N.D., Norwood, M., Myers-Pigg, A., Indivero, J., Wang, W., Pennington, S., Yabusaki, S., Bond-Lamberty, B., McDowell, N., Bailey, V. (2020, poster) Pathways for methane transport and atmospheric exchange in a coastal floodplain system. Ocean Sciences Meeting. San Diego, CA. 2/18/20
118. Ward, N.D., Norwood, M., Wang, W., Bond-Lamberty, B., McDowell, N., Musyimi, M., Regier, P. (2020, poster) A new approach for estimating and modeling tree methane emissions. AGU Fall Meeting. Virtual conference. 12/11/20
117. Bailey, V., Sengupta, A., Bond-Lamberty, B., McDowell, N., Megonigal, P., Stegen, J., Tan, Z., Ward, N.D., Yabusaki, S., Zheng, J. (2019, oral) Salinity and Inundation are Compounding Disturbances to Biogeochemical Fluxes in Coastal Forests. Biennial Meeting of the Soil Ecology Society. Toledo, OH. 5/28/19
116. Bond-Lamberty, B., Bailey, V., McDowell, N., Pennington, S., Sengupta, A., Stegen, J., Wang, W., Ward, N.D., Yabusaki, S. (2019, oral) Coastal forests and soils under stress: PREMIS at SERC. 6th Global Change Research Wetland (GCRew) Symposium. Edgewater, MD. 3/28/19
115. Bond-Lamberty, B., Pennington, S., Megonigal, P., Ward, N.D., Raczka, N., Brzostek, E., Bailey, V. (2019, poster) How will salinity and soil moisture changes affect coastal forests? A soil transplant experiment. AGU Fall Meeting. San Francisco, CA. 12/13/19
114. Borde, A., Gaeckle, J., Thom, R., Vavrinec, J., Buenau, K., Southard, S., Aston, L., Hall, K., Diefenderfer, H., Ward, N.D. (2019, oral) Eelgrass in the Salish Sea: Status, Restoration, and Research. Environmental Protection Agency facility tour. Sequim, WA. 4/29/19
113. Bianchi, T.S., Butman, D., Ward, N.D., Shields, M., Arntzen, E., Stegen, J., Indivero, J., Farris, Y., Rivas-Ubach, A., Tolic, N., Chu, R. (2019, poster) The Influence of Microbial Priming Effects on

- the Hydro-bio-geochemistry in the Columbia River and its Tributary Confluences. DOE Earth System Science PI Meeting. Potomac, MD. 4/30/19
112. Brewer, P., Taylor, B., Ward, N.D., Sengupta, A., Chen, H., Zheng, J., Megonigal, J.P. (2019, poster) Microbial processes in the stem wood of living trees affects greenhouse gas production and nutrient cycling. AGU Fall Meeting. San Francisco, CA. 12/12/19
  111. Coppola, A., Viviroli, D., Seidel, M., Haghipour, N., Nascimento, G.S., Jones, M., Ward, N.D., Richey, J.E., Schmidt, M.W.I., Eglinton, T.I., Dittmar, T., Abiven, S. (2019, oral) Dynamic behavior of dissolved black carbon in the Amazon River. EGU General Assembly. Vienna, Austria. 4/9/19
  110. Coppola, A., Seidel, M., Ward, N.D., Viviroli, D., Haghipour, N., Nascimento, G.S., Abiven, S., Jones, M., Richey, J.E., Eglinton, T.I., Dittmar, T., Schmidt, M.W.I. (2019, poster) Marked isotopic variability within and between the Amazon River and marine dissolved black carbon pools. AGU Fall Meeting. San Francisco, CA. 12/12/19
  109. Ghosh, R., Ball, T., Freeman, M., Shooltz, D., Fackerus, N., Gill, G., Kuo, L.J., Indivero, J., Ward, N.D. (2019, poster) Probing Biogeochemical Processes in Coastal Ecosystems with High-Resolution/Long-term Dissolved Oxygen Measurements. DOE Earth System Science PI Meeting. Potomac, MD. 4/30/19
  108. Ghosh, R., Ball, T., Freeman, M., Loloee, R., McIntire, C., Shooltz, D., Gill, G., Kuo, Myers-Pigg, A., Ward, N.D. (2019, poster) Groundwater Oxygen Pulses within a Coastal Watershed: A Potential Driver of Hot Moments in the Carbon Cycle. AGU Fall Meeting. San Francisco, CA. 12/13/19
  107. Krygowski, K., Norwood, M., Ward, N.D. (2019, oral) Preliminary look at CO<sub>2</sub> and CH<sub>4</sub> biogeochemical cycling in a Pacific Northwest upland temperate forest. Department of Energy Science Undergraduate Laboratory Internships (SULI) Symposium. Sequim, WA. 5/3/19
  106. Landoni, K., Myers-Pigg, A., Ward, N.D. (2019, oral) Characterizing colored dissolved organic matter to understand quality and sources of carbon at Beaver Creek, WA.. Department of Energy Science Undergraduate Laboratory Internships (SULI) Symposium. Sequim, WA. 8/22/19
  105. Morrison, E., Bianchi, T.S., Liu, Y., Rivas-Ubach, A., Ward, N.D., Y., Osborne, T.Z. (2019, poster) Do priming effects influence microbial turnover of blue carbon in the coastal zone? Gordon Research Conference: Chemical Oceanography. Holderness, N.H. 7/15/19
  104. Morrison, E., Bianchi, T.S., Liu, Y., Rivas-Ubach, A., Ward, N.D., Y., Osborne, T.Z. (2019, oral) A multi-omics approach to understand the molecular and microbial transformations associated with dissolved organic matter turnover in coastal waters. AGU Fall Meeting. San Francisco, CA. 12/12/19
  103. Myers-Pigg, A., Ward, N.D., Yabusaki, S., Sengupta, A., Indivero, J., Telfeyan, K., Rowland, J., Piliouras, A., Newman, B., Bailey, V. (2019, oral) Connectivity goes both ways: Implications for the effects of seawater infiltration on terrestrial-aquatic linkages and biogeochemical cycling. AGU Fall Meeting. San Francisco, CA. 12/12/19
  102. Sengupta, A., Bond-Lamberty, B., Rivas-Ubach, A., Handakumbura, P., Yabusaki, S., Bailey, V., Stegen, J., Ward, N.D. (2019, oral) Short-term periodic seawater inundations impact carbon chemistry, metabolic profile, and gas flux signatures of soil cores from a coastal forested floodplain. AGU Fall Meeting. San Francisco, CA. 12/12/19
  101. Shields, M., Bianchi, T.S., Butman, D., Ward, N.D., Arntzen, E., Stegen, J., Indivero, J., Farris, Y., Rivas-Ubach, A., Tolic, N., Chu, R. (2019, poster) The Hydro-bio-geochemistry of the Columbia River and its Tributary Confluences. AGU Fall Meeting. San Francisco, CA. 12/9/19

100. Stegen, J.C., Ward, N.D., Butman, D., Tagestad, J., (2019, poster) Small streams dominate US tidal reaches and will be disproportionately impacted by sea-level rise. AGU Fall Meeting. San Francisco, CA. 12/13/19
99. Valerio, A.M., Kampel, M., Vantrepotte, V., Ward, N.D., Sawakuchi, H.O., Less, D.F., Neu, V., Cunha, A., Richey, J.E. (2019, poster) Algoritmo regional para estimative do material particulado suspensão no baixo Amazonas. Brazilian Symposium on Remote Sensing XIX. Santos, SP. 4/14/19
98. Ward, N.D. (2019, poster) Integrative Earth System Science Across the Terrestrial-Aquatic Interface: A Grand Challenge for the 21st Century. Scientist & Engineer Development Program Graduation Ceremony. Richland, WA. 6/18/19
97. Ward, N.D., Indivero, J., Yabusaki, S., McDowell, N., Wang, W., Stegen, J., Bond-Lamberty, B., Sengupta, A., Pennington, S., Zhang, P., Gunn, C., Myers-Pigg, A., Norwood, M., Bailey, V. (2019, oral) Above and belowground biogeochemical linkages along a salt-impacted coastal terrestrial-aquatic interface in the Pacific Northwest, USA. ASLO Aquatic Sciences Meeting. San Juan, PR. 2/28/19
96. Ward, N.D., Myers-Pigg, A., Norwood, M., Indivero, J., Wang, W., Yabusaki, S., McDowell, N., Bailey, V. (2019, poster) "Short-circuits" in the methane balance of a coastal floodplain and tidal river—flood events and tree stems. Gordon Research Conference: Chemical Oceanography. Holderness, N.H. 7/15/19
95. Ward, N.D., Norwood, M., Myers-Pigg, A., Indivero, J., Wang, W., Pennington, S., Yabusaki, S., Bond-Lamberty, B., McDowell, N., Bailey, V. (2019, poster) Coastal flooding events and belowground transport tip the methane balance of a first-order watershed in the Pacific Northwest. AGU Fall Meeting. San Francisco, CA. 12/12/19
94. Yabusaki, S.B., Ward, N.D., Waichler, S.R., Myers-Pigg, A., Sengupta, A., Norwood, M., Zheng, J., Fang, Y., Chen, X., Duan, Z., Serkowski, J., Bailey, V. (2019, poster) Modeling methane transport and transformation in a first-order tidal river floodplain. AGU Fall Meeting. San Francisco, CA. 12/9/19
93. Zayas-Santiago, C., Rivas-Ubach, Ward, N.D., Kuo, L.J., Zimmerman, R. (2019, oral) Metabolomics reveal biochemical pathways responsible for eelgrass response to climate change. ASLO Aquatic Sciences Meeting. San Juan, P.R. 2/27/19
92. Zhang, H., McDowell, N.G., Wang, W., Zhang, P., Pivovarov, A., Ward, N.D., Guan, D., Wang, A., Leff, R., Abend, J., Bailey, V. (2019, poster) Seawater exposure impacts plant hydraulics and gas exchange and increases mortality of *Picea sitchensis* trees in the Pacific Northwest, USA. Ecological Society of America Annual Meeting. Louisville, KY. 8/12/19
91. Zhang, P., McDowell, N.G., Wang, W., Pivovarov, A., Leff, R., Zhang, H., Chow, S., Ward, N.D., Indivero, J., Zhou, X., Bailey, V. (2019, poster) Declining carbohydrate contents of Sitka-spruce trees exposed to seawater. Ecological Society of America Annual Meeting. Louisville, KY. 8/12/19
90. Arellano, A.R., Bianchi, T.S., Osburn, C.L., D'Sa, E.J., Oviedo-Vargas, D., Ward, N.D., Joshi, I., Ko, D., Shields, M.R., Kurian, G., Green, J. (2018, poster) Mechanisms of blue carbon export in blackwater river-dominated and particle-dominated estuaries. AGU Fall Meeting. Washington, D.C. 12/13/18
89. Bailey, V., Bond-Lamberty, B., McDowell, N., Megonigal, P., Stegen, J., Ward, N.D., Yabusaki, S. (2018, oral) Soil, water, and plants: Salinity and inundation influence biogeochemical fluxes through coastal forests. AGU Fall Meeting. Washington, D.C. 12/11/18
88. Bond-Lamberty, B., Pennington, S., Ward, N.D. (2018, poster) Understanding soil moisture and salinity effects on greenhouse gas fluxes from coastal soils. AGU Fall Meeting. Washington, D.C.

87. Cook, T.B., Ward, N.D., Indivero, J., Gunn, C.M. (2018, oral) Soil respiration rates along fresh-to-saline porewater gradients in six Pacific Northwest coastal watersheds. Department of Energy Science Undergraduate Laboratory Internships (SULI) Symposium. Sequim, WA. 8/16/18
86. Cando, S., Ward, N.D., Borde, A., Vavrinec, J., Pelly, A. (2018, oral) Temperature's effect on primary productivity of regional eelgrass (*Zostera marina* L.) populations in the Salish Sea. Department of Energy Science Undergraduate Laboratory Internships (SULI) Symposium. Sequim, WA. 8/16/18
85. Indivero, J., Ward, N.D., Gunn, C., Wang, W., McDowell, N.G. (2018, poster) Elevated greenhouse gas concentrations in coastal forest tree stems in the Pacific Northwest. Feiro Marine Life Center Celebration of Science & Technology. Sequim, WA. 4/28/18
84. Indivero, J., Ward, N.D., Gunn, C., Wang, W., McDowell, N.G. (2018, poster) Elevated greenhouse gas concentrations in coastal forest tree stems in the Pacific Northwest. Department of Energy Science Undergraduate Laboratory Internships (SULI) Symposium. Sequim, WA. 5/1/18
83. Kuhn, C., Valerio, A., Ward, N.D., Loken, L., Sawakuchi, H.O., Kampel, M., Richey, J.E., Stadler, P., Crawford, J., Striegl, R.G., Vermote, E., Pahlevan, N. Butman, D. (2018, poster) Assessment of atmospheric correction methods for Landsat-8 and Sentinel-2 over large rivers. Ocean Optics XXIV. Dubrovnik, Croatia. 10/10/18
82. Morrison, E., Bianchi, T.S., Ward, N.D., Rivas-Ubach, A., Liu, Y., Osborne, T.Z. (2018, poster) Does microbial priming influence the turnover of blue carbon in aquatic systems? AGU Fall Meeting Meeting. Washington, D.C. 12/10/18
81. Osburn, C.L., Joshi, I., Oveido-Vargas, D., Bianchi, T.S., D'Sa, E.J., Ko, D., Arellano, A., Shields, M.R., Ward, N.D. (2018) Higher rates of sea level rise result in higher lateral flux of dissolved organic carbon (DOC) from tidal wetlands to coastal waters of the northern Gulf of Mexico. AGU Fall Meeting. Washington, D.C. 12/14/18
80. Sawakuchi, H.O., Ward, N.D., Bastviken, D., Moreira, M.Z., Camargo, P.B., Neu, V., Valerio, A.M., Cunha, A.C., Less, D.F.S., Diniz, J.E.M., Brito, D., Richey, J.E. (2018, oral) The role of methane oxidation in the carbon cycle of the lower Amazon River. EGU General Assembly. Vienna, Austria. 4/11/2018
79. Schafer, T., Ward, N.D., Julian, P., Reddy, K.R., Osborne, T.Z. (2018, poster) Effects of Hurricane Irma on water quality and dissolved organic carbon concentrations across Pellicer Creek. Guana Tolomato Matanzas National Estuarine Research Reserve State of the Reserve Symposium. St. Augustine, FL. 2/23/18
78. Schafer, T., Ward, N.D., Reddy, K.R., Osborne, T.Z. (2018, poster) Hurricane Irma: Effects on dissolved organic carbon concentrations and water quality parameters. North Florida Marine Science Symposium. St. Augustine, FL. 1/25/18
77. Schafer, T., Ward, N.D., Reddy, K.R., Osborne, T.Z. (2018) Effects of seasonality and hurricane events on Water Quality and DOM cycling along a salinity gradient in Florida. Society of Wetland Scientists Annual Meeting. Denver, CO. 5/30/18
76. Schafer, T., Ward, N.D., Julian, P., Reddy, K.R., Osborne, T.Z. (2018, oral) Effects of Hurricane Irma on water quality and DOM cycling along a salinity gradient in North Florida. ASLO Summer Meeting. Victoria, BC. 6/14/18
75. Sengupta, A., Gunn, C., Indivero, J., Toyoda, J., Tfaily, M., Chu, R., Stegen, J., Bailey, V., Ward, N.D. (2018, poster) Subsurface carbon signatures in a coastal watershed experiencing tidal inundation. AGU Fall Meeting. Washington, D.C. 12/11/18

74. Valerio, A.M., Kampel, M., Vantrepotte, V., Ward, N.D., Sawakuchi, H.O., Neu, V., Less, D., Cunha, A.C., Richey, J.E. (2018) Assessment of absorption coefficients at the lower Amazon River region. International Society for Optics and Photonics (SPIE) Asia-Pacific Remote Sensing. Honolulu, HI. 9/24/18
73. Ward, N.D. and Indivero, J. (2018, poster) High-resolution biogeochemical monitoring along three types of coastal interface ecosystems in the Pacific Northwest. Goldschmidt Conference. Boston, MA. 8/15/18
72. Ward, N.D., Joshi, I., Valerio, A.M., D'Sa, E.J., Osburn, C.L., Bianchi, T.S., Ko, D., Oviedo-Vargas, D., Arellano, A.R., Sawakuchi, H.O., Cunha, A.C., Richey, J.E., Yager, P.L., Kampel, M. (2018, oral) Remote sensing of carbon dioxide fluxes in coastal ecosystems across scales. ASLO Ocean Sciences Meeting. Portland, OR. 2/15/18
71. Ward, N.D., Rivas-Ubach, A., Kuo, L.-J., Liu, Y., Hill, V.J., Zayaz-Santiago, C., Zimmerman, R. (2018, oral) Evaluating the impacts of ocean carbonation on the metabolic function of eelgrass *Zostera marina* using a metabolomics-based approach. ASLO Summer Meeting. Victoria, BC. 6/12/18
70. Ward, N.D., Indivero, J., Gunn, C., Cook, T., Wang, W., McDowell, N.G. (2018, poster) Coastal forest greenhouse gas levels in tree stems and porewaters around the Pacific Northwest. AGU Fall Meeting. Washington, D.C. 12/10/18
69. Ward, N.D., Gunn, C., Indivero, J. (2018, poster) ECO-Citizens: Improving Aquatic Datasets while Inspiring Citizen Scientists. AGU Fall Meeting. Washington, D.C. 12/14/18
68. Yabusaki, S.B., Ward, N.D., Fang, Y., Waichler, S.R., Duan, Z., Sengupta, A., Indivero, J. (2018, poster) Salinity enhancement in a tidal river floodplain. AGU Fall Meeting. Washington, D.C. 12/11/18
67. Arellano, A.R., Bianchi, T.S., Osburn, C.L., Ward, N.D., D'Sa, E.J., Joshi, I., Oviedo-Vargas, D., Ko, D. (2017, poster) Physical factors controlling carbon cycling dynamics in blackwater river-dominated and particle-dominated estuaries. AGU Fall Meeting. New Orleans, LA. 12/14/15
66. Indivero, J.L., Ward, N.D. (2017, oral) Ecosystem metabolism dynamics across the terrestrial-aquatic interface in Sequim Bay, WA. Department of Energy Science Undergraduate Laboratory Internships (SULI) Symposium. Richland, WA. 12/14/17
65. Kuhn, C., Richey, J.E., Striegl, R.G., Ward, N.D., Sawakuchi, H.O., Crawford, J., Loken, L., Stadler, P., Dornblaser, M., Butman, D. (2017, poster) Optical remote sensing algorithm validation using high-frequency underway biogeochemical measurements in three large global river systems. AGU Fall Meeting. New Orleans, LA. 12/13/17
64. Less, D.F.S., Neu, V., Valerio, A.M., Ward, N.D., Cunha, A.C., Sawakuchi, H.O., Brito, D.C., Richey, J.E. (2017) Rainfall and temperature influence on pCO<sub>2</sub> at the Amazon River mouth. XVI Congresso Brasileiro de Limnologia. Rio de Janeiro, BR. 7/25/17
63. Liu, Y., Bianchi, T.S., Arellano, A.R., Ward, N.D., Tolic, N., Pasa-Tolic, L., Kuo, L.J. (2017, oral) Molecular signature of organic carbon along a salinity gradient in the Suwannee River plume. ASLO Aquatic Sciences Meeting. Honolulu, HI. 3/2/17
62. Morrison, E., Ward, N.D., Bianchi, T.S., Liu, Y., Arellano, A., Ogram, A., Osborne, T.Z. (2017, poster). The role of priming effects on the conversion of blue carbon to CO<sub>2</sub> in the coastal zone. DOE Joint Genome Institute Genomics of Energy & Environment Meeting. Walnut Creek, CA. 3/20/17
61. Morrison, E., Ward, N.D., Arellano, A., Ogram, A., Osborne, T.Z., Vaughn, D., Liu, Y., Rivas-Ubach, A., Bianchi, T.S. (2017). The role of priming effects on the conversion of blue carbon to CO<sub>2</sub> in the coastal zone. AGU Fall Meeting. New Orleans, LA. 12/14/17

60. Osborne, T.Z., Simpson, L., Schafer, T., Julian, P., Ward, N.D. (2017, oral). Climate induced acceleration of carbon and nutrient cycling in a saltmarsh-mangrove ecotone. Society of Wetland Scientists Annual Meeting. San Juan, Puerto Rico. 6/7/17
59. Osburn, C.L., Joshi, I., Lebrasse, C., Oveido-Vargas, D., Bianchi, T.S., Bohnenstiehl, D.R., D'Sa, E.J., He, R., Ko, D., Arellano, A., Ward, N.D. (2017) Small and large scale exchanges of dissolved organic carbon (DOC) between tidal wetlands and their adjacent coastal waters. AGU Fall Meeting. New Orleans, LA. 12/15/17
58. Osburn, C.L., Bianchi, T.S., D'Sa, E.J., Ko, D., Oveido-Vargas, D., Arellano, A., Joshi, I., Ward, N.D. (2017) Linking carbon exchange between coastal wetland and shelf environments. Joint NACP and Ameriflux Principal Investigators Meeting. North Bethesda, MD. 3/27/17
57. Osburn, C.L., Joshi, I., Lebrasse, C., Oveido-Vargas, D., Bianchi, T.S., Bohnenstiehl, D.R., D'Sa, E.J., He, R., Ko, D., Arellano, A., Ward, N.D. (2017) Quantifying dissolved organic carbon exchanges between coastal wetland and shelf environments. Coastal & Estuarine Research Federation. Providence, RI. 11/5/2017
56. Valerio, A.M., Kampel, M., Vantrepotte, Ward, N.D., V., Sawakuchi, H.O., Silva, D.F., Diniz, J.E.M., Neu, V., Gagne-Maynard, W., Cunha, A.C., Krusche, A.V., Richey, J.E. (2017) Assessment if remote sensing empirical algorithms to retrieve colored dissolved organic matter in the lower Amazon River. Brazilian Symposium on Remote Sensing. Santos, BR.
55. Ward, N.D., Bianchi, T.S., Liu, Y., Arellano, A., Vaughn, D., Morrison, E., Osborne, T.Z., Ogram, A. (2017, oral) The role of priming effects on the conversion of blue carbon to CO<sub>2</sub> in the coastal zone. Society of Wetland Scientists Annual Meeting. San Juan, Puerto Rico. 6/7/17
54. Ward, N.D., Bianchi, T.S., Liu, Y., Rivas-Ubach, A., Arellano, A., Vaughn, D., Morrison, E., Osborne, T.Z., Ogram, A. (2017, poster) The role of priming effects on the conversion of blue carbon to CO<sub>2</sub> in the coastal zone. PNNL Earth and Biological Sciences Directorate Advisory Committee Review. Richland, WA. 6/14/17
53. Ward, N.D., Sawakuchi, H.O., Gagne-Maynard, W., Cunha, A.C., Brito, D.C., Neu, V., da Silva, D.F., Diniz, J.E.M. Valerio, A.M., da Silva, R., Bianchi, T.S., Krusche, A.V., Richey, J.E., Keil, R.G. (2017, oral) A revised perspective on the contribution of microbial respiration to carbon dioxide outgassing in the Amazon River based on new incubation methods. ASLO Aquatic Sciences Meeting. Honolulu, HI. 3/1/17
52. Ward, N.D., Sawakuchi, H.O., Neu, V., Valerio, A., Less, D., Guedes, V., Wood, J., Brito, D., Cunha, A., Kampel, M., Richey, J.E. (2017, oral) The influence of tides on biogeochemical dynamics at the mouth of the Amazon River. AGU Fall Meeting. New Orleans, LA. 12/15/17
51. Ward, N.D., Osborne, T.Z., Dye, T., Julian, P. (2017, oral and poster) Examining the effects of hurricanes Matthew and Irma on water quality in the intracoastal waterway, St. Augustine, FL. AGU Fall Meeting. New Orleans, LA. 12/12/17
50. Arellano, A.R., Bianchi, T.S., Osburn, C.L., Ward, N.D., D'Sa, E.J., Joshi, I., Oveido-Vargas, D., Ko, D. (2016, poster) Assessing bulk carbon and biomarkers in two contrasting bays: blackwater river dominated and particle dominated. Ocean Sciences Meeting. New Orleans, LA. 2/26/16
49. Arellano, A.R., Bianchi, T.S., Osburn, C.L., Ward, N.D., D'Sa, E.J., Joshi, I., Oveido-Vargas, D., Ko, D. (2016, poster) Assessing bulk carbon and biomarkers in two contrasting bays: blackwater river dominated and particle dominated. N. Florida Marine Science Symposium. Cedar Key, FL. 1/28/16
48. Arellano, A.R., Bianchi, T.S., Osburn, C.L., Ward, N.D., D'Sa, E.J., Joshi, I., Oveido-Vargas, D., Ko, D. (2016, poster) Differences in the temporal variability of particulate and dissolved organic carbon (POC and DOC) in blackwater river-dominated and particle-dominated estuaries. AGU Fall Meeting. San Francisco, CA. 12/12/16

47. Bianchi, T.S., Raymond, P., Butman, D., Kates, R., Flessa, K.W., Zamora, H., Ward, N.D. (2016, oral) Flooding of a Major Dry Waterway: Impacts of Flow Restoration on River-Carbon Composition and Fluxes in the Colorado River. Ocean Sciences Meeting. New Orleans, LA. 2/25/16
46. Bianchi, T.S., Raymond, P., Butman, D., Kates, R., Flessa, K.W., Zamora, H., Ward, N.D. (2016, oral) Flooding of a Major Dry Waterway: Impacts of Flow Restoration on River-Carbon Composition and Fluxes in the Colorado River. Goldschmidt Conference. Yokohama, JP. 6/26/16
45. D'Sa, E.J., Joshi, I., Osburn, C.L., Bianchi, T.S., Ko, D., Oviedo-Vargas, D., Kinsey, Arellano, A., Ward, N.D. (2016, poster) Contrasting optical properties of suspended particulate matter in the Northern Gulf of Mexico bays. NASA Ocean Color Research Team Meeting. Silver Springs, MD. 4/18/16
44. Joshi, I., D'Sa, E.J., Osburn, C.L., Bianchi, T.S., Ko, D., Oviedo-Vargas, D., Kinsey, J.D., Arellano, A., Ward, N.D. (2016, poster) Assessing CDOM from VIIRS satellite ocean color data in an estuarine environment – initial results from Apalachicola Bay. Ocean Sciences Meeting. New Orleans, LA. 2/26/16
43. Joshi, I., D'Sa, E.J., Osburn, C.L., Bianchi, T.S., Ko, D., Oviedo-Vargas, D., Kinsey, J.D., Arellano, A., Ward, N.D. (2016, poster) Seasonal estimates of DOC standing stocks in the semi-enclosed Apalachicola Bay estuary: Towards a better understanding using field, ocean color, and model data. AGU Fall Meeting. San Francisco, CA. 12/12/16
42. Kates, R., Bianchi, T.S., Raymond, P., Butman, D., Ward, N.D., Flessa, K.W., Zamora, H. (2016, poster) Flooding of a Major Dry Waterway: Impacts of Flow Restoration on River-Carbon Composition and Fluxes in the Colorado River. N. Florida Marine Science Symposium. Cedar Key, FL. 1/28/16
41. Ko, D., Bianchi, T.S., Osburn, C.L., D'Sa, E.J., Ward, N.D., Joshi, I., Arellano, A., Oviedo-Vargas, D. (2016, poster) Study of circulation in the Apalachicola Bay and the surrounding wetland applying triple-nested models downscaling from global ocean to estuary. Ocean Sciences Meeting. New Orleans, LA. 2/25/16
40. Liu, Y., Bianchi, T.S., Arellano, A.R., Ward, N.D., Tolic, N., Kuo, L.J. (2016, oral) Molecular signature of organic carbon along a salinity gradient in the Suwannee River plume. AGU Fall Meeting. San Francisco, CA. 12/13/16
39. Osborne, T.Z., Simpson, L.T., Schafer, T.B., Camacho, M., Lane, F., Julian, P., Ward, N.D. (2016, oral) Carbon biogeochemical processes along a mangrove-saltmarsh ecotone. Mangrove and Macrobenthos Meeting. St. Augustine, FL. 7/20/16
38. Oviedo-Vargas, D., Osburn, C.L., Bianchi, T.S., D'Sa, E. J., Ko, D., Ward, N.D., Arellano, A., Joshi, I., Kinsey, J.D. (2016, poster) Examining the relative contribution of 'blue carbon' to coastal shelf environments via optical properties of dissolved and base-extracted particulate organic matter. Ocean Sciences Meeting. New Orleans, LA. 2/26/16
37. Sawakuchi, H.O., Bertassoli, D., Silveira, Á., Bozi, B., Jesus, J.D., Sawakuchi, A.O., Ward, N.D., Bastviken, D., Krusche, A.V., Richey, J.E. (2016, poster) Methane and carbon dioxide production in soils flooded by the Belo Monte hydropower reservoir in the Amazon Basin, Brazil. AGU Fall Meeting. San Francisco, CA. 12/13/16
36. Seidel, M., Dittmar, T., Ward, N.D., Krusche, A.V., Richey, J.E., Yager, P.L., Medeiros, P.M. (2016, oral) Molecular transformations of dissolved organic matter in the Lower Amazon River. Ocean Sciences Meeting. New Orleans, LA. 2/25/16
35. Ward, N.D. (2016, oral) Net ecosystem exchange of the Amazon River-to-ocean continuum. Whitney Laboratory for Marine Bioscience. St. Augustine, FL. 8/15/16

34. Ward, N.D., Sawakuchi, H.O., Gagne-Maynard, W., Cunha, A.C., Brito, D.C., Neu, V., da Silva, D.F., Diniz, J.E.M. Valerio, A.M., da Silva, R., Bianchi, T.S., Krusche, A.V., Richey, J.E., Keil, R.G. (2016, poster) Hydrodynamic and biogeochemical controls and CO<sub>2</sub> production along the lower Amazon River. Gordon Research Conference: Organic Geochemistry. Holderness, NH. 7/27/16
33. Ward, N.D., Bianchi, T.S., Osburn, C., D'Sa, E.J., Ko, D, Joshi, I., Arellano, A., Kinsey, J., Oveido-Vargas, D. (2016, poster) Methane and carbon dioxide exchange in two Gulf of Mexico coastal wetland environments. Ocean Sciences Meeting. New Orleans, LA. 2/21/16.
32. Ward, N.D., Bianchi, T.S., Cohen, M., Martin, J.B., Quintero, C.J., Osborne, T.Z., Sawakuchi, H.O. (2016, poster) Methane evasion and oxidation in the Big Cypress National Preserve—a low relief carbonate wetland. AGU Fall Meeting. San Francisco, CA. 12/13/16
31. Ward, N.D., Bianchi, T.S., Sawakuchi, H.O., Gagne-Maynard, W., Cunha, A.C., Brito, D.C., Neu, V., Valerio, A.M., da Silva, R., Krusche, A.V., Richey, J.E., Keil, R.G. (2016, poster) The reactivity of plant-derived organic matter and the potential importance of priming effects in the lower Amazon River. N. Florida Marine Science Symposium. Cedar Key, FL. 1/28/16
30. Ward, N.D., Firme de Almeida, L., de Jesus, G.D., Gould, R., Tan, A., Bianchi, T.S., Krusche, A.V., Keil, R.G., Richey, J.E. (2016, poster) The response of sediments and dissolved organic matter to rapid rainfall in the Santa Maria da Vitoria Watershed, Espirito Santo. 17th Annual Soil and Water Sciences Research Forum. Gainesville, FL. 9/15/16
29. Bianchi, T.S., Ward, N.D., Thornton, D., Yvon-Lewis, S., King, G., Eglinton, T., Shields, M., Curtis, J. (2015, oral) Priming of terrestrially-derived dissolved organic carbon: a laboratory and field based “Proof of Concept.” Goldschmidt Conference. Prague, CZ. 8/18/15
28. Bianchi, T.S., Ward, N.D., Thornton, D., Yvon-Lewis, S., King, G., Eglinton, T., Shields, M., Curtis, J. (2015, poster) Priming of terrestrially-derived dissolved organic carbon: Implications for coastal carbon cycling. AGU Joint Assembly. Montreal, CAN. 5/5/15
27. Cohen, M., Quintero, C.J., Ward, N.D., Raines, E., Brown, A.L., Martin, J.B., Bianchi, T.S., McLaughlin, D., Osborne, T.Z. (2015, oral) An Ecological Drill: Biogeomorphic Pattern Evolution in a Low-Relief Carbonate Landscape. AGU Fall Meeting. San Francisco, CA. 12/16/16
26. Gagne-Maynard, W., Ward, N.D., Sawakuchi, H.O., Neu, V., Cunha, A.C., da Silva, R., Brito, D.C., de Matos, A., Keil, R.G., Krusche, A.V., Richey, J.E. (2015, abstract) Spatial and Temporal Variability of pCO<sub>2</sub>, 13C-CO<sub>2</sub>, and O<sub>2</sub> in the tidal Amazon River. AGU Fall Meeting. San Francisco, CA. 12/14/15
25. Osburn, C.L., Bianchi, T.S., D'Sa, E.J., Ko, D., Ward, N.D., Tait, Z.S., and Joshi, I. (2015, poster) Linking carbon exchange between coastal wetland and shelf environments. NASA Carbon Cycle & Ecosystems Joint Science Workshop. Hyattsville, MD. 4/20/15
24. Ward, N.D. and Petrik-Finley, R.J. (2015, poster) Integrating local environmental research into K-12 science classrooms and the value of graduate student-educator partnerships. AGU Fall Meeting. San Francisco, CA. 12/18/15
23. Ward, N.D., Firme de Almeida, L., de Jesus, G.D., Gould, R., Tan, A., Bianchi, T.S., Krusche, A.V., Keil, R.G., Richey, J.E. (2015, poster) The response of sediments and dissolved organic matter to rapid rainfall in the Santa Maria da Vitoria Watershed, Espirito Santo. AGU Fall Meeting. San Francisco, CA. 12/14/15
22. Ward, N.D. (2015, oral) Biogeochemical dynamics across environmental gradients. UF Geological Sciences Seminar. Gainesville, FL. 9/10/15
21. Gagne-Maynard, W., Ward, N.D., Sawakuchi, H.O., Neu, V., Cunha, A.C., da Silva, R., Brito, D.C., de Matos, A., Keil, R.G., Krusche, A.V., Richey, J.E. (2014, poster) Spatial Patterns of In-

- Situ Production and Respiration within a Turbid Tropical River: Implications for Amazonian Carbon Cycling. AGU Fall Meeting. San Francisco, CA. 12/15/16
20. Sawakuchi, H.O., Bastviken, D., Sawakuchi, A.O., Borges, C., Tsai, S.M., Ward, N.D., Richey, J.E., Ballester, M.V.R., Krusche, A.V. (2014, poster) Methane dynamics in large Amazonian rivers. AGU Fall Meeting. San Francisco, CA. 12/15/16
  19. Seidel, M., Ward, N.D., Yager, P.L., Carpenter, E.J., Gomes, H.R., Krusche, A.V., Richey, J.E., Dittmar, T., Medeiros, P.M. (2014, oral) Biogeochemistry of dissolved organic matter in the river to ocean continuum of the Amazon. Ocean Sciences Meeting. Honolulu, HI. 2/24/14
  18. Seidel, M., Ward, N.D., Yager, P.L., Krusche, A.V., Richey, J., Dittmar, T., Medeiros, P.M. (2014, oral) The influence of the Amazon River on the biogeochemistry of dissolved organic matter in the tropical North Atlantic Ocean. 1st Southeastern Biogeochemistry Symposium. Atlanta, GA. 4/5/16
  17. Ward, N.D. (2014, oral) Biogeochemical dynamics across the land-ocean-atmosphere continuum. UF Geological Sciences Seminar. Gainesville, FL. 9/18/14
  16. Ward, N.D. (2014, oral) Ecosystem dynamics of the land-ocean-atmosphere continuum. UW Chemical Oceanography Seminar. Seattle, WA. 3/7/14
  15. Ward, N.D. (2014, oral) A multi-scale assessment of aquatic ecosystem processes across the land-ocean-atmosphere continuum. UW Oceanography PhD Defense. Seattle, WA. 5/16/14
  14. Ward, N.D., Keil, R.G., Medeiros, P.M., Brito, D.C., Cunha, A.C., Moura, J.M.S., Sawakuchi, H.O., Yager, P.L., Krusche, A.V., Richey, J.E. (2014, oral) The evolution of organic matter along the lower Amazon River continuum-Óbidos to the ocean. Ocean Sciences Meeting. Honolulu, HI. 2/24/14
  13. Ward, N.D., Keil, R.G., Moura, J.M.S., Brito, D.C., Cunha, A.C., Medeiros, P.M., Crump, B., Yager, P.L., Krusche, A.V., Richey, J.E. (2014, abstract) Material fluxes from the mouth of the Amazon River and the dynamics of organic matter degradation from Óbidos to the ocean. Big Rivers Conference. Manaus, BR. 7/21/14
  12. Ward, N.D., Keil, R.G., Medeiros, P.M., Brito, D.C., Cunha, A.C., Moura, J.M.S., Sawakuchi, H.O., Yager, P.L., Krusche, A.V., Richey, J.E. (2013, poster) The evolution of organic matter along the lower Amazon River continuum. AGU Fall Meeting. San Francisco, CA. 12/13/13
  11. Crump, B.C., Doherty, M., Fortunato, C.S., Simon, H.M., Smith, M.W., Krusche, A.V., Brito, D., Cunha, A.C., Fernandes, M., Zielinski, B., Paul, J.H., Ward, N.D., Richey, J.E., Satinsky, B.M., Sharma, S., Smith, C.B., Moran, M.A., Yager, P.L. (2012, poster) Microbial community composition and metagenomes across the river-to-ocean continuum of the Columbia and Amazon Rivers. ISME Symposium. Copenhagen, DK. 8/19/12
  10. Medeiros, P.M., Ward, N.D., Niggeman, J., Yager, P.L., Krusche, A.V., Dittmar, T. (2012, poster) Tracking the fate of dissolved organic matter in the Amazon River to ocean continuum. Ocean Sciences Meeting. Salt Lake City, UT. 2/19/12
  9. Ward, N.D., Keil, R.G., Medeiros, P.M., Brito, D.C., Krusche, A.V., Richey, J.E. (2012, oral) Compositional dynamics of dissolved lignin in watersheds. AGU Fall Meeting. San Francisco, CA. 12/4/12
  8. Richey, J.E., Ward, N.D., Brito, D., daSilva, M., de Melo, D., Sousa Moura, J.M., Crump, B., Yager, P.L., Moran, M. (2011, poster) What happens in the last 900km of the Amazon (a first look)? AGU Fall Meeting. San Francisco, CA. 12/4/12
  7. Ward, N.D., Keil, R.G., Medeiros, P.M., Richey, J.E. (2011, oral) Organic fuels for respiration in tropical river systems. AGU Fall Meeting. San Francisco, CA. 12/6/11

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6. Ward, N.D. (2010, oral) Temporal variation in river nutrient and dissolved lignin phenol concentrations and the impact of storm events on nutrient loading to Hood Canal, WA. UW Oceanography Masters Defense. Seattle, WA. 5/20/10
  5. Ward, N.D., Keil, R.G., Richey, J.E. (2010, conference paper) Temporal variation in river nutrient and dissolved lignin phenol concentrations and the impact of storm events on nutrient loading to Hood Canal, WA. CUAHSI 2nd Joint Federal Interagency conference. Las Vegas, NV. 2/16/10
  4. Ward, N.D., Keil, R.G., Richey, J.E. (2009, poster) Impacts of storm events on nutrient loading to the lower Hood Canal region. UW Water Center Symposium. Seattle, WA. 2/12/19
  3. Ward, N.D. and Aluwihare, L. (2008, oral) Gene expression under variable nutrient conditions in the diatom *T. pseudonana*. UCSD Undergraduate Research Conference. La Jolla, CA. 5/16/08
  2. Ward, N.D. (2007, oral) Composition and fate of dissolved organic carbon in Arctic river runoff. WHOI NSF Summer Student Fellowship Symposium. Woods Hole, MA. 8/21/07
  1. Ward, N.D. and Aluwihare, L. (2007, oral) Gene expression under variable nutrient conditions in the diatom *T. pseudonana*. UCSD Undergraduate Research Conference. La Jolla, CA. 5/18/07