

Curriculum Vitae

Jay A. Brandes

Department of Marine Sciences and
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Professional Preparation:

Ph.D. University of Washington, Oceanography [Chemistry], 1996.

Dissertation Title: Isotopic effects of denitrification in the marine environment

M.Sc. University of Washington, 1994.

B.S. Humboldt State University, Arcata, Ca. 1988, Oceanography, *magna cum laude*

B.S. Humboldt State University, Arcata, Ca. 1988, Chemistry, *cum laude*

Appointments:

2013-Present Professor, The University of Georgia, Athens
2017-2022, 2024-present Adjunct Professor, College of Charleston
2011-2013 Professor, Skidaway Institute of Oceanography
2005-2011 Associate Professor, Skidaway Institute of Oceanography
1999-2005 Assistant Professor, University of Texas at Austin
1999-2008 Visiting Investigator, Carnegie Institution of Washington
1996-1998 Postdoctoral Fellow, Carnegie Institution of Washington
1994-1996 Research Assistant, University of Washington
1991-1994 National Defense, Science and Engineering Graduate Fellow
1989-1991 Research Assistant, University of Washington

Honors and Awards:

2018 One Hundred Miles 100 Honoree
2001 University of Texas at Austin, Graduate Recruitment Fellowship
1996 Postdoctoral Fellowship, Carnegie Institution of Washington
1996 NSF Dissertations in Chemical Oceanography Award
1991-1994 National Defense, Science and Engineering Graduate Fellowship
1986 Fred Telonicher Marine Laboratory Research Fellowship.

Service to the Scientific Community

Panelist NASA 2013, 2022, NSF 2013, 2020, 2021,2022

Reviewer for NSF, NASA, NOAA/Sea Grant (Georgia, Florida, New York) Programs

Reviewer for Nature, Science, Limnology and Oceanography, L and O methods, Marine Chemistry, Geochimica Et Cosmochimica Acta, Marine Geology

Publications:

- Barber, A., Mirzaei, Y., Brandes, J., Joshani, A., Gobeil, C., Gélinas, Y., (2024) Redox conditions influence the chemical composition of iron-associated organic carbon in boreal lake sediments: A synchrotron-based NEXAFS study, *Geochimica et Cosmochimica Acta* (2024), doi: <https://doi.org/10.1016/j.gca.2024.08.018>
- Spivak, A.C., Pinsonneault, A. J, Hintz, C., J. Brandes, & J.P. Megonigal. (2023). Ephemeral microbial responses to pulses of bioavailable carbon in oxic and anoxic salt marsh soils. *Soil Biology and Biochemistry*. <https://doi.org/10.1016/j.soilbio.2023.109157>
- Beckingham, B., Apintiloaiei, A., Moore, C. and J. Brandes. (2023). Hot or not: systematic review and laboratory evaluation of the hot needle test for microplastic identification. *Micropl.&Nanopl.* **3**, 8. <https://doi.org/10.1186/s43591-023-00056-4>
- Ma, K., Powers, L., Seppala, J., Norkko, J., & Brandes, J. (2022). Effects of Added Humic Substances and Nutrients on Photochemical Degradation of Dissolved Organic Matter in A Mesocosm Amendment Experiment in the Gulf of Finland, Baltic Sea. *Photochemistry and Photobiology*. DOI: 10.1111/php.13597
- Frischer, M. E., Lamboley, L. M., Walters, T. L., Brandes, J. A., Arneson, E., Lacy, L. E., . . . Gibson, D. M. (2021). Selective feeding and linkages to the microbial food web by the doliolid *Dolioletta gegenbauri*. *Limnol. and Ocean.*, 66(5), 1993-2010. doi:[10.1002/lno.11740](https://doi.org/10.1002/lno.11740)
- Fripiat, F., Marconi, D., Rafter, P., Sigman, D. M., Atlabet, M. A., Bourbonnais, A., Brandes, J., Casciotti, K. K., Deman, F., Dehairs, F., Emeis, K.-C., Fawcett, S. E., Galbraith, E. D., Gaye, B., Granger, J., Harms, N., Haug, G. H., Kemeny, P., Kienast, M., Knapp, A., Kopf, S., Lehmann, M. M., Luu, V. H., Martin, T., Martínez-García, A., Pantoja, S., Peng, X., Peters, B., Smart, S., Trull, T. W., Van Oostende, N., Voss, M., Yoshikawa, C., Zhang, R., & Dähnke, K. (2021). Compilation of nitrate $\delta^{15}\text{N}$ in the ocean. doi:<https://doi.org/10.1594/PANGAEA.936484>
- Sanders, D., & Brandes, J. (2020). Helping the Public Understand the Microplastics Issue: Integrating Citizen Science Techniques and Hands-On Education Experiences with Ongoing Microplastics Research. *Current: The Journal of Marine Education*, 34(3), 1–8. DOI: <http://doi.org/10.5334/cjme.53>
- Fernandez, JM, A. Townsend-Small, A. Zastepa, S. B. Watson, and J. A. Brandes. (2020) Methane and nitrous oxide measured throughout Lake Erie over all seasons indicate highest emissions from the eutrophic Western Basin. *Journal of Great Lakes Research* 46 (2020) 1604–1614. <https://doi.org/10.1016/j.jglr.2020.09.011>

- Wagner, S., Brandes, J., Spencer, R. G. M, Ma, K., Rosengard, S. Z., Moura, J. M. S., and A. Stubbins. (2019). Isotopic composition of oceanic dissolved black carbon reveals non-riverine source. *Nature Comm.* <https://doi.org/10.1038/s41467-019-13111-7>
- Wang, H. J., Hu, X. P., Rabalais, N. N., & Brandes, J. (2018). Drivers of Oxygen Consumption in the Northern Gulf of Mexico Hypoxic Waters-A Stable Carbon Isotope Perspective. *Geophysical Research Letters*, *45*, 10528-10538. doi:[10.1029/2018GL078571](https://doi.org/10.1029/2018GL078571)
- Fassbender, A. J., Palevsky, H.I., Martz, T. R., Ingalls, A. I., Gledhill, M., Fawcett, S. E., Brandes, J.A. , Aluwihare, L. I., the participants of COME ABOARD, DISCO XXV. (2017). Perspectives on Chemical Oceanography in the 21st century: Participants of the COME ABOARD Meeting examine aspects of the field in the context of 40 years of DISCO. *Mar. Chem.* *196*, 181-190. doi.org/10.1016/j.marchem.2017.09.002.
- Wagner, S., Brandes, J., Goranov, A., Drake, T. W., Spencer, R. G. M, and A. Stubbins. (2017). Online quantification and compound-specific stable isotopic analysis of black carbon in environmental matrices via liquid chromatography-isotope ratio mass spectrometry. *Limnol. And Ocean. Methods.* DOI: 10.1002/lom3.10219
- Szeinbaum, N., Lin, H., Brandes, J. A., Taillefert, M. ,Glass ,J. B., and T. J. DiChristina. (2017). Microbial Manganese(III) Reduction Fueled by Anaerobic Acetate Oxidation. *Env. Microbiol.* DOI: 10.1111/1462-2920.13829
- Barber, A., Brandes, J., Leri, A., Lalonde, K., Balind, K., Wirick, S., Wang, J., and Y. Gelinas. (2017). Inner-sphere interactions are responsible for the preservation of iron associated organic matter in marine sediments. *Scientific Reports.* DOI: 10.1038/srep45431
- Alexander C., J. Hodgson, and J. Brandes (2017). Stratigraphic Development of Georgia Salt Marsh Sequences on Modern and Late Holocene Timescales. *Geo-Marine Letters.* DOI 10.1007/s00367-017-0499-1
- Bray M. S., Wu J., B. C. Reed, C. B. Kretz, K. M. Belli, R. L. Simister, C. Henny, F. J. Stewart, T. J. DiChristina, J. A. Brandes, D. A. Fowle, S. A. Crowe, and J. B. Glass. (2017) Shifting microbial communities sustain multiyear iron reduction and methanogenesis in ferruginous sediment incubations. *Geobiology.* <https://doi.org/10.1111/gbi.12239>
- Brandes, J.A. (2017). Nutrients , *Encyclopedia of Geochemistry.* Springer.
- Powers, L. C., J. A. Brandes, A. Stubbins and W. L. Miller (2017). MoDIE: Moderate Dissolved Inorganic Carbon ($\delta^{13}\text{C}$) Isotope Enrichment for improved evaluation of DIC photochemical production in seawater. *Marine Chemistry*, *194*, 1-9. doi:[10.1016/j.marchem.2017.03.007](https://doi.org/10.1016/j.marchem.2017.03.007)
- Winder, M. J-M Bouquet, R. Bermudez, S. Berger, T. Hansen, J. Brandes, A. Sazhin, J. Nejstgaard, U. Båmstedt, H. Jakobsen, M. Frischer, C. Troedsson, and E. Thompson

- (2017). Increased appendicularian zooplankton alter carbon cycling under warmer more acidified ocean conditions. *Limnol. And Oceanog.* doi: 10.1002/lno.10516
- Powers, L. C., J. A. Brandes, W. L. Miller, and A. Stubbins. (2017). Using liquid chromatography-isotope ratio mass spectrometry to measure the $\delta^{13}\text{C}$ of dissolved inorganic carbon photochemically produced from dissolved organic carbon. *Limnol. And Ocean. Methods.* 15(1). pp. 103-115. doi: 10.1002/lom3.10146.
- Chambers, L. R., E. D. Ingall, E. M. Saad, A. F. Longo, M. Takeuchi, Y. Tang, C. Benitez-Nelson, S. T. Haley, S. T. Dyrman, J. Brandes, and A. Stubbins. (2016). Enhanced Dissolved Organic Matter Recovery from Saltwater Samples with Electrodialysis. *Aq. Geochem.* DOI 10.1007/s10498-016-9306-2.
- Bittar, T. B., S. A. Berger, L. M. Birsa, T. L. Walters, M. E. Thompson, R. G. M. Spencer, E. L. Mann, A. Stubbins, M. E. Frischer, and J. A. Brandes (2016). Seasonal dynamics of dissolved, particulate and microbial components of a tidal saltmarsh-dominated estuary under contrasting levels of freshwater discharge. *Est. Coast. & Shelf Sci.* [Volume 182, Part A](#), Pages 72–85. dx.doi.org/10.1016/j.ecss.2016.08.046.
- Huang W-J, Cai W-J, Wang Y, Hu X, Chen B, Lohrenz SE, Chakraborty S, He R, **Brandes J**, Hopkinson CS. (2015) The response of inorganic carbon distributions and dynamics to upwelling-favorable winds on the northern Gulf of Mexico during summer. *Cont. Shelf Res.* Vol 111, Part B, p. 211—222.
- Leal, M. C., S. A. Berger, C. Ferrier-Pagès, R. Calado, **J. Brandes**, Marc E. Frischer, Jens C. Nejstgaard (2014) Temporal changes in the trophic ecology of the asymbiotic gorgonian *Leptogorgia virgulata*. *Marine Biology* DOI 10.1007/s00227-014-2496-5
- Amelia F. Longo, Ellery D. Ingall, Julia M. Diaz, Michelle Oakes, Laura E. King, Athanasios Nenes, Nikolaos Mihalopoulos, Kaliopi Violaki, Anna Avila, Claudia R. Benitez-Nelson, **Jay Brandes**, Ian McNulty and David J. Vine. (2014) P-NEXFS analysis of aerosol phosphorus delivered to the Mediterranean Sea. *Geophys. Res. Lett.* DOI: 10.1002/2014GL060555
- Shiffman, David S., Frazier, B. S., Kucklick, J. R., Abel, D., **Brandes, J.** and G. Sancho. (2014) Feeding ecology of the sandbar shark (*Carcharhinus plumbeus*) in South Carolina estuaries revealed through $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ stable isotope analysis. *Marine and Coastal Fisheries: Dynamics, Management, and Ecosystem Science.* **6(1)** pp. 156-169. DOI: 10.1080/19425120.2014.920742
- Leal, M. C., Ferrier-Pagès, C., Calado, Ricardo, **Brandes, J. A.**, Frischer, M. E. and J. C. Nejstgaard. (2014). Trophic ecology of the facultative symbiotic coral *Oculina arbuscula*. *Mar. Ecol. Prog. Ser.* Vol 504. Pp. 171-179.
- S. A. Carr, S. W. Vogel, R. B. Dunbar, **J. Brandes**, J.R. Spear, R. Levy, T. R. Naish, R. D. Powell, S. G. Wakeham, K. W. Mandernack. (2013) Bacterial Abundance and Composition Marine

- Sediments Beneath the Ross Ice Shelf, Antarctica. *Geobiology*. 11(4). Pp.377-395. DOI: 10.1111/gbi.12042.
- Ingall, E.D., Diaz, J. M., Longo, A. F., Oakes, M., Finney, L. , Vogt, S., Lai, B., Yager, P. L., and **J. A. Brandes**. (2013) Role of biogenic silica in the removal of iron from Antarctic Seas. *Nat. Comm.* Vol. 4, DOI: 10.1038/ncomms2981.
- S. R. Shah¹, S. B. Joye, **J. A. Brandes**, and A. P. McNichol (2013). Carbon isotopic evidence for microbial control of carbon supply to Orca Basin at the brine-seawater interface. *Biogeochemistry*. 10(5) 3175-3183.
- Windom H. L.; Niencheski L. F.; Wells D., Brandes J. (2012) The use of oxygen isotopic ratios to identify natural and anthropogenic mercury concentrations in the Lower Brazilian Pantanal *Environmental Earth Sciences* 65: 2 pp. 547-553 DOI: 10.1007/s12665-011-1369-1
- Diaz, J., E. D. Ingall, S. D. Snow, C. Benitez-Nelson, M. Tallifert, and J. A. Brandes (2012). Inorganic polyphosphate cycling as a mechanism for the enhanced regeneration of phosphorus in the hypoxic water column of Effingham Inlet, British Columbia. *Glob. Biogeochem. Cycles*. **26**. DOI:10.1029/2011GB004226.
- William F. Wood, Jay A. Brandes, Brian D. Foy, Christopher G. Morgan, Thierry D. Mann, and Darwin A. DeShazer. (2012). The maple syrup odour of the “candy cap” mushroom, *Lactarius fragilis* var. *rubidus*. *Biochemical Systematics and Ecology* **43**. pp. 51–53.
- Ingall, E.D., Brandes, J.A., Diaz, J.M., de Jonge, M.D., Paterson, D., McNulty, I., Elliott, W.C. and Northrup P. (2011). Phosphorus K-edge XANES spectroscopy of mineral standards. *Journal of Synchrotron Radiation*. **18** pp.189-197. doi:10.1107/S0909049510045322.
- De Jonge, M. D., D. Paterson, I. McNulty, C. Rau, J. A. Brandes and E. D. Ingall. (2010). Energy or intensity monitor for x-ray absorption near-edge structure measurements. *Nuclear Instruments and Methods in Physics Research*. A619:154–156.
- Brandes, J. A., Wirick, S. , and C. Jacobsen. 2010. Carbon K-edge spectra of carbonate minerals. *Journal of Synchrotron Radiation*. 17 (5): 676-682.
- Brandes, J. A. (2009) Rapid and precise $\delta^{13}\text{C}$ measurement of dissolved inorganic carbon in natural waters using liquid chromatography coupled to an isotope-ratio mass spectrometer. *Limnology and Oceanography: Methods*. 7:730-739.
- Veilleux, M-H, A. F. Dickens, J. A. Brandes and Y. Gelin. (2009) Density separation of combustion-derived soot and petrogenic graphitic black carbon: Quantification and isotopic characterization. *In: From Deep-sea to Coastal Zones: Methods and Techniques for Studying Paleoenvironments. IOP Conf. Series: Earth and Environmental Science* 5 doi:10.1088/1755-1307/5/1/012010.

- Savidge, W. B. and J. A. Brandes (2009) Addressing Challenges for Chemical Oceanography. *EOS*. **90**(20):176.
- Cody, G. D., J. Brandes, C. Jacobsen, S. Wirick. (2009) Soft X-ray induced chemical modification of polysaccharides in vascular plant cell walls. *Journal of Electron Spectroscopy and Related Phenomena*. 170:57-64.
- Diaz, J. E. Ingall, S. Vogt, D. Paterson, M. D. de Jonge, C. Rau, and J. A. Brandes (2009) Characterization of phosphorus in organisms at sub-micron resolution using X-ray fluorescence spectromicroscopy. *Limnology and Oceanography: Methods*. 7:42-51.
- Lehmann, J., Brandes J., Fleckenstein H., Jacobson C., Solomon D., and Thieme J. (2009) Synchrotron-based near-edge X-ray Spectroscopy of NOM in soils and sediments. in: *Biophysico-Chemical Processes in Environmental Systems*. P. M. Huang and N. Senesi, eds. Wiley.729-782.
- Abramson, L., Wirick S., Jacobsen C. , Brandes JA, and C. Lee. (2009). The Use of Soft X-ray Spectromicroscopy to Investigate the Distribution and Composition of Organic Matter in a Diatom Frustule and a Biomimetic Analog. *Deep-Sea Research II*. S0967-0645(08)00413-X, doi:10.1016/j.dsr2.2008.11.031
- Brandes J.A.; G. D. Cody; D. Rumble; P. Haberstroh; S. Wirick and Y. Gelinas (2008). Carbon K-edge XANES spectromicroscopy of natural graphite. *Carbon*, doi:10.1016/j.carbon.2008.06.020.
- Brandes, JA, Hazen RM, and HS Yoder, Jr, (2008). Inorganic nitrogen reduction and stability under simulated hydrothermal conditions. *Astrobiology* 8(6): 1113-1126.
- Diaz, J., E. Ingall, C. Benitez-Nelson, D. Paterson, M. D. de Jonge, I. McNulty, and J. A. Brandes (2008) Marine Polyphosphate: A Key Player in Geologic Phosphorus Sequestration. *Science*. 320 (5876) pp. 652-655.
- Townsend-Small, A, M.E. McClain, B. Hall, C. Llerena, J. L. Noruera, and J. A. Brandes. (2008). Contributions of suspended organic matter from mountain headwaters to the Amazon River: A one-year time series study in the central Peruvian Andes *Geochimica et Cosmochimica Acta*. **72/3** 732-740 doi:10.1016/j.gca.2007.11.020
- Brandes, J. A., Devol, A. H., and Deutsch, C., 2007a. New Developments in the Marine Nitrogen Cycle. *Chemical Reviews* **107**, 577-589.
- Brandes, J. A., Ingall, E., and Paterson, D., 2007b. Characterization of minerals and organic phosphorus species in marine sediments using soft X-ray fluorescence spectromicroscopy. *Marine Chemistry* **103** (3-4), 250-265.

- Townsend-Small, A., J. L. Noguera, M. E. McClain, and J. A. Brandes (2007), Radiocarbon and stable isotope geochemistry of organic matter in the Amazon headwaters, Peruvian Andes, *Global Biogeochem. Cycles*, **21**, GB2029, doi:10.1029/2006GB002835.
- Townsend-Small, A. , M. J. McCarthy, J. A. Brandes, L. Yang, L. Zhang, and W.S. Gardner (2007) Seasonal stable isotopic composition of nitrate in Taihu Lake and major inflow rivers *Hydrobiologia* **581**: 135-140.
- Devol, A. H., Uhlenhopp, A. G., Naqvi, S. W. A., Brandes, J. A., Jayakumar, D. A., Naik, H., Gaurin, S., Codispoti, L. A., and Yoshinari, T., 2006. Denitrification rates and excess nitrogen gas concentrations in the Arabian Sea oxygen deficient zone. *Deep Sea Research Part I: Oceanographic Research Papers* **53**, 1533-1547.
- Haberstroh, PA, J. A Brandes, Y. Gélinas, A. F. Dickens, S. Wirick, and G. D Cody (2006) Chemical composition of the graphitic black carbon fraction in riverine and marine sediments at sub-micron scales using Carbon X-ray Spectromicroscopy *Geochimica et Cosmochimica Acta*, **70**, 1483-1494
- Townsend-Small, A., J. A. Brandes and M. E. McClain. 2005. Chemical and stable isotopic tracers of carbon and nitrogen sources and transport in the Peruvian Andean Amazon *Limnology and Oceanography* **50**(3) 672-685
- Cody, G. D., N. Z. Boctor, J. A. Brandes, T. R. Filley, R. M. Hazen and H. S. Yoder Jr. 2004. Assaying the Catalytic Potential of Transition Metal Sulfides for Prebiotic Carbon Fixation. *Geochimica et Cosmochimica Acta*. **68**(10): 2185–2196.
- Brandes , J. A., S. Wirick, C. Lee, S. Wakeham, M. Peterson & G. D. Cody. 2004. Examining marine particulate organic matter at sub-micron scales using scanning transmission x-ray microscopy (STXM) and carbon X-ray adsorption near edge structure (C-XANES) *Marine Chemistry* **92** (1-4) 107-121.
- Haberer, J.L. and J. A. Brandes 2003 A high sensitivity, low volume HPLC based method to determine soluble reactive phosphate (SRP) in freshwater and saltwater. *Mar. Chem.* **82** (3):185-196.
- Sigman, D.M., R. Robinson, A. N. Knapp, A. van Geen, D. C. McCorkle, J. A. Brandes and R. C. Thunell, R.C. (2003) Distinguishing between water column and sedimentary denitrification in the Santa Barbara Basin using the nitrogen isotopes of nitrate. *Geochem. Geophys. Geosys.* **4**(5) 1040, doi:10.1029/2002GC000384
- Brandes JA & Devol AH. 2002. A marine fixed nitrogen isotopic budget: Implications for Holocene nitrogen cycling. *Global Biogeochemical Cycles* **16**(4) 10.1029/2001GB00185.
- Hazen, R.M., N. Boctor, J.A. Brandes, G.D. Cody, R.J. Hemley, A. Sharma, and H.S. Yoder. 2002. High pressure and the origin of life. *J. Phys. Cond. Matter.* **14**(44):11489-94

- Cody, G.D., R.M. Hazen, J.A. Brandes, H. Morowitz, and H.S. Yoder, Jr. 2001. The Geochemical Roots of Archeic autotrophic carbon fixation: hydrothermal experiments in the system Citric-H₂O +/-FeS +/-NiS. *Geochimica et Cosmochimica Acta* 65(20):3557-3576.
- Codispoti, L.A., J.A. Brandes, J.P. Christensen, A.H. Devol, S.W.A. Naqvi, H.W. Paerl, and T. Yoshinari, 2001 The oceanic fixed nitrogen and nitrous oxide budgets: Moving targets as we enter the anthropocene?, *Scientia Marina*, 65, 85-105.
- Brandes, JA, Boctor, NZ, Hazen RM, HS Yoder, Jr, and G. D. Cody. 2000. Prebiotic Amino Acid Synthesis Pathways via α -keto Acids: An Alternative to the Strecker Synthesis. Perspectives in Amino Acid and Protein Geochemistry (G. A. Goodfriend, M.J. Collins, M. L. Fogel, S. A. Macko, and J. F. Wehmler, eds.). Oxford University Press, NY.
- Brandes, JA, Cody, GD, Cooper, BA, Hazen, RM, and HS Yoder, Jr. 1998. Abiotic nitrogen reduction in the early Earth. *Nature*, 395 365-367.
- Naqvi, S.W.A., T. Yoshinari, D.A. Jayakumar, M.A. Altabet, P.V. Narvekar, A.H. Devol, J.A. Brandes, and L.A. Codispoti. 1998. Budgetary and biogeochemical implications of N₂O isotope signatures in the Arabian Sea. *Nature* 394:462-464.
- Naqvi, S.W.A., T. Yoshinari, J.A. Brandes, A.H. Devol, D.A. Jayakumar, P.V. Narvekar, M.A. Altabet, and L.A. Codispoti. 1998. Nitrogen isotopic studies in the suboxic Arabian Sea. *Proc. Indian Acad. Sci.* 107:367-378.
- Brandes, J. A., Devol, A. H., Yoshinari, T., Jayakumar, D. A., and Naqvi, S. W. A., 1998. Isotopic composition of nitrate in the central Arabian Sea and eastern tropical North Pacific: A tracer for mixing and nitrogen cycles. *Limnol. Oceanogr.* **43**, 1680-1689.
- Brandes JA & Devol AH. 1997. Isotopic fractionation of nitrogen and oxygen in coastal marine sediments. *Geochimica et Cosmochimica Acta*, **61**(9) 1793-1801.
- McClain ME, Richey JE, Brandes JA & TP Pimentel. 1997. Dissolved organic matter and terrestrial-lotic linkages in the Central Amazonian Basin, Brazil. *Global Biogeochemical Cycles*, **11**(3) 295-312.
- Brandes J.A., McClain M.E. & T.P. Pimentel. 1996. ¹⁵N evidence for the origin and cycling of inorganic nitrogen in a small Amazonian catchment. *Biogeochemistry* **34**(1) 45-56.
- Brandes, J.A. and A.H. Devol. 1995. Simultaneous NO₃ and O₂ respiration in coastal sediments: Evidence for Discrete Diagenesis. *J. Mar. Res.* 53:771-797.

Non-Peer Reviewed

Brandes, J. A., and D. Sanders. (2019) Microplastic pollution: how bad is it and what can we do to solve it? *Futurum*. 3: 4-7. <https://doi.org/10.33424/FUTURUM25>.

Thesis advisor: Allan Devol **Postdoctoral advisors:** Marilyn Fogel & George Cody

Students Graduated: J. L. Haberer (M. Sc. 2003), A. Townsend-Small (Ph. D. 2006), Kun Ma (Ph. D. 2022), Abigail McCormick (M.Sc. 2022). Adriana Webb (M. Sc. non thesis 2023) Ashley OHall (M.Sc. 2025, co-advisor, UGA)

Students Advised currently as Committee Chair: Gabrielle Tutelo, Ph. D track UGA, Emily Gipson (Ph. D candidate, co-chair, UGA)

Postdoctoral Fellows advised: D. Sobolev, P. Haberstroh, LC Powers

PROFESSIONAL SOCIETIES

ASLO

GRANTS AND CONTRACTS (Funded since Merger)

National Science Foundation, Title “Acquisition of an Isotope Ratio Mass Spectrometer with liquid chromatography and elemental analyzer interfaces at the Skidaway Institute of Oceanography”, *September 01, 2023*, \$404,297 (US), Role: PI (70% credit).

National Science Foundation, Title “Excellence in Research: The Fate of Microplastics Within the Georgia Bight”, *November 7th, 2023*, \$187,774 subcontract from Savannah State University (US), Role: Co-investigator (100% credit for UGA subcontract).

National Science Foundation, Title “Do fine-scale water column structure and particle aggregations favor gelatinous-dominated food webs in subtropical continental shelf environments?”, *August 16, 2023*, \$1,444,177 (US), Role: Co-investigator (33% credit).

National Science Foundation, Title “The significance of doliolid microbial interactions: Do doliolids fundamentally alter the trophic structure and productivity of sub-tropical continental shelf food webs?”, *September 1, 2020–August 31, 2023*, \$1,080,019 (US), Role: Co-investigator.

National Science Foundation, Title “FSML: Acquisition of a Raman Microscope at the Skidaway Institute of Oceanography” 11/01/19 to 10/31/21. \$207,500. Principal Investigator.

National Science Foundation, Title “Collaborative Research: Constraining the source of oceanic dissolved black carbon using compound-specific stable carbon isotopes” 2/01/18 to 1/31/22. \$120,125. Co-Principal Investigator.

National Science Foundation, Title “Transforming our understanding of DIC Photoproduction in Oceanic Waters” 9/01/16 to 8/31/21. \$527,050. Principal Investigator.

Georgia Sea Grant. Title “ASSESSING PREVALENCE AND COMPOSITION OF INGESTED PLASTIC CONTAMINANTS BY GEORGIA’S ESTUARINE ORGANISMS” 2/2016 to 1 2018, \$88,312 Principal Investigator.

Georgia EPD. Title “Estimating the ability of Georgia's estuaries to assimilate nutrients delivered to the coastal zone I: Water column sampling.” 7/01/2015 to 5/31/2016. \$45,000. Co-investigator.

National Science Foundation, Title “FSML: Acquisition of an ICP-MS to Expand/Update Trace Element Analytical Capacity for the Skidaway Institute of Oceanography” 9/15/13 to 9/14/15. Co-Principal Investigator.

National Science Foundation, Title “Development of a Tender-Energy Microspectroscopy and Imaging User Facility for Earth Sciences at NSLS and NSLS-II”. 9/01/2013 – 3/30/2016. \$1,000 to UGA. Co-Principal Investigator.

PRESENTATIONS AND PUBLIC LECTURES (Since Merger)

Brandes, JA (2025) Microplastics and our coast. Public talk to Skidaway Audubon Society, Oct 16th 2025.

Brandes, JA. (2025) Microplastics, Macro Problems: How Tiny Plastics Impact Our Health. *Evening at Skidaway public lecture series*. Skidaway Institute of Oceanography, May 20, 2025

Brandes, JA, (2025) They are legion: Microplastics in the marine environment. Invited Plenary talk. *2025 ASLO Aquatic Sciences Meeting*. Charlotte NC, March 31, 2024.

Brandes, J. (2024). Microplastic contamination in Georgia coastal waters: what does the data tell us? *Georgia Environmental Conference*. Jekyll Island Georgia Aug 25th 2024

Brandes, J., McCormick, A., & Kovalanchik, L. (2024). Microplastic contamination in a small coastal Aquarium: comparing closed and post-COVID open patterns. South Carolina Seagrass spring meeting. *Microplastics in the Coastal Region*. College of Charleston April 1, 2024

Brandes, J. (2023). 22,000 Pieces of Plastic in the Ocean for Every Person on Earth: How Did We Get Here?. *Evening at Skidaway public lecture series*. Skidaway Institute of Oceanography, Dec 12 2023

Brandes JA. Microplastics in our local coastal Georgia environment. Invited seminar, Savannah State University dept of Marine Science. Sept 23, 2022.

Brandes, JA. Microplastics, a local problem with a local solution. 2022 Tedx Savannah. June24 2022.

Brandes, JA. The Ocean’s plastic problem: a most 21st century pollutant. Seminar at Skidaway Public Lecture Series, Nov. 9, 2021.

Brandes, J.A. and D. Sanders. (2020) Variability of microplastics in estuarine systems and consequences for organism studies. February 19, 2020. 2020 Ocean Science Meeting, San Diego, California, USA.

Brandes, J. A., and D. Sanders. (2019) Distributions and dynamics of microplastics in Georgia estuarine waters. December 12, 2019. Fall meeting of the American Geophysical Union, San Francisco, California, USA.

Brandes, J. A. (2019) Water- The most complicated simple substance. Oct 14, 2019. SkIO public Lecture Series, Savannah Georgia.

Brandes, J. A., and D. Sanders. (2019) Patterns of Microplastic abundances in Georgia Estuarine Waters. Oct 21 2019. 2019 Southeastern Regional Meeting of the American Chemical Society (SERMACS), Savannah, GA

Ma, K. and J. A. Brandes (2019) Photochemical degradation of microplastics under aquatic conditions Oct 21 2019. 2019 Southeastern Regional Meeting of the American Chemical Society (SERMACS), Savannah, GA

D. Sanders and J. A. Brandes. (2019) “Building capacity for microplastics research and education using the “tried and true” citizen science model Oct 21 2019. 2019 Southeastern Regional Meeting of the American Chemical Society (SERMACS), Savannah, GA

Ma, K., Brandes, J. A., Powers, L., and W. Miller. (2019). Determining the reproducibility and sensitivity of the Moderate Dissolved Inorganic Carbon (DI¹³C) Isotope Enrichment (MoDIE) method for DIC photoproduction. *August 20, 2019*. 2019 Goldschmidt Conference, Barcelona, Spain

Brandes, JA and D. Sanders. (2018) Plastic Pollution in the Ocean – An Emerging Threat, October 9, 2018, Skidaway Public Lecture Series, Savannah Georgia.

Brandes, JA and D. Sanders. (2018) Microplastics in Georgia’s estuaries, *September 13, 2018* Georgia Coastal Research Council biannual meeting Georgia Coastal Research Council, Chatham County

Brandes, JA and D. Sanders. (2018) Mapping Microplastics in Georgia’s Estuaries: Engaging the Citizen Scientist, *August 13, 2018*. 2018 Goldschmidt Conference, Boston Mass USA., United States

Brandes, J., Ryan, K., Stubbins, A., & Powers, L. (2017). What can Carbon Isotopes Tell us About the Nature of Photo-Labile Dissolved Organic Carbon?. In *Goldschmidt Conference*. Paris, France. <https://goldschmidt.info/2017/abstracts/abstractView?id=2017002795>
International, Invited

Powers, L., Ryan, K., Brandes, J., Stubbins, A., & Miller, W. (2017). Moderate Dissolved Inorganic Carbon (DI¹³C) Isotope Enrichment (MoDIE) for Improved Evaluation of DIC Photochemical Production in Seawater. In *Goldschmidt*. Paris France. International, Invited

Microplastics in Georgia's estuaries: Distributions and interactions with life, *November 3, 2017* Third Annual Coastal Ecology Symposium, Brunswick, GA.

Microplastics in Georgia's estuaries: a preliminary assessment, *September 29, 2017*
SOUTHEASTERN REGION OF THE SOCIETY OF ENVIRONMENTAL TOXICOLOGY
AND CHEMISTRY, Brunswick, GA

“What can carbon isotopes tell us about the nature of photochemically labile DOC?” – Poster at 2017 Goldschmidt meeting, Aug. 13th, 2017 Paris, France,

“The Salt Marsh Oxygen Battery- A mass spectrometry story” – Talk at ASLO 2016 summer meeting, June 9th, 2016 Santa Fe, NM, USA

“Microplastics” – Talk as part of Panel. Science Boot Camp for Librarians, July 8 2016 Athens, Georgia .

“Plastics and Marine Debris”- Talk, Savannah Learning Center, July 30th, 2014, Savannah Georgia USA

“Carbon cycling in a well-constrained southeastern US Salt Marsh”- Talk, Goldschmidt Conference, June 9th 2014, Sacramento, CA, USA.

“Walking on Water”- Talk- SKIO public seminar series, May 19th, 2014, Savannah Georgia, USA

ASLO 2014 spring meeting, Honolulu, HI. Carbon cycling in a well-constrained southeastern US Salt Marsh. Poster. Feb. 24th 2014

Congressional Briefing:

Congressional Oceans Caucus, June 12, 2018

United States House of Representatives, Sam Rayburn Building, Washington D.C., United States
The Consortium for Ocean Leadership, in conjunction with the House Oceans Caucus (chaired by Representatives Suzanne Bonamici (OR-1) and Don Young (AK-At-Large)), sponsored a congressional briefing titled, “The Ocean Plastic Pollution Problem: Solvable with Science, Innovation, and Education.” Brandes was member of 3-person panel in this briefing and gave a 5 minute presentation as well as participated in a 30 minute Q and A session afterwards.

COURSES TAUGHT

Undergraduate

Marine Ecology - The University of Texas at Austin,
Marine Ecology Lab - The University of Texas at Austin

Graduate

Marsci 8020 – *Marine Chemistry* - UGA

Capstone Course for Oceanographic Engineering- Georgia Tech and Skidaway Institute for Oceanography

Coastal Oceanography for Engineers- Georgia Tech and Skidaway Institute for Oceanography

Coastal Oceanography- Savannah State University & Skidaway Institute of Oceanography

Marine Biogeochemistry - The University of Texas at Austin

Seminar in Marine Science - The University of Texas at Austin

Environmental Modeling - The University of Texas at Austin

UNIVERSITY & DEPARTMENTAL COMMITTEES

2021	Member Marine Science Department Curriculum Committee
2021	Member, Skio Campus Space Committee.
2019-2020	Chair, Marine Science Department Curriculum Committee
2017-2018	Chair, Faculty Search committee
2018-2019	Chemical Safety representative, Skidaway Campus
2017	Member, Skidaway Director Search committee
2016-2017	Chair, Skidaway website redesign committee
2013-present	Member, Marine Sciences department Graduate Affairs committee
2008-2010	UNOLS Representative, Skidaway.
2006-2009	Seminar Chair, SkIO.
2000-2004	MSI Space Committee, Chair
2000-2005	MSI Awards Committee (2004-2005, Chair)
1999-2005	DMS Graduate Studies Committee
1999-2005	DMS Course and Curriculum Committee

MSI - Marine Science Institute, The University of Texas at Austin

DMS - Department of Marine Science, The University of Texas at Austin

STUDENT COMMITTEES

Chair, Ph. D. Committee, Gabrielle Tutelo, UGA Marine Sciences.

Member and co-advisor, Ph. D. committee. Emily Gipson UGA Marine Sciences

Member, Masters committee, Mary Stirling, College of Charleston.

Member, Masters committee, Sierra Meyers. Savannah State University (Graduated 2025).

Chair, Ph. D. Committee, Kun Ma, UGA Marine Sciences. (Graduated 2022)

Member and co-chair, Masters Committee, Ashley OHall UGA Marine Sciences (Graduated 2025)

Chair, Masters Committee, Abigail McCormick (Graduated 2022)

Member, Graduate advisory committee, Charlotte Kohlman UGA Marine Sciences.(Graduated 2025)

Member, Graduate advisory committee, Mariah Ricci UGA Marine Sciences.

Member, Graduate advisory committee, Justin Manley UGA Marine Sciences.(Graduated 2025)

Member, Graduate advisory committee, Devon Ryan, UGA Marine Sciences. (Graduated 2021)
Member, Graduate advisory committee, Lisa Olenderski, UGA Marine Sciences. (Graduated 2021)
Member, Graduate advisory committee, Elizabeth Pfeiler, UGA Marine Sciences. (Graduated 2020)
Member, Graduate advisory committee, Nicholas Strait, College of Charleston. (Graduated 2021)
Member, Graduate advisory committee, Amanda Cavalos, Georgia Tech. (Graduated 2020)
Member, Ph. D. Committee, Julia Diaz, Georgia Tech (Graduated 2011)
Member, Ph. D. Committee, Karl Kaiser, U. of South Carolina. (Graduated 2010)
Member, Ph. D. Committee, Sylvia Schaeffer, UGA (Graduated 2014)
Member, Ph. D. Committee, Marshall Bowles, UGA (Graduated 2010)
Chair, Ph. D. Committee, Amy Townsend-Small, U. of Texas, Austin (Graduated 2006)

UNDERGRADUATE SUMMER INTERNS SUPERVISED

2025 Gretchen Gray, UGA
2024 Sara Jane Schulze. Duke University
2023 Sahana Mya Parker, UGA
2022 Daniel Calderon, UGA
2019 Elizabeth Farmer and Emily Monroe, UGA
2018 Lulu Elizabeth Lacy, UGA
2017 Jacob Mabry, UGA

INSTITUTE MEMBERSHIP

New Materials Institute UGA

PARTICIPATION IN FIELD RESEARCH PROJECTS

2019 Participation in Mesocosm experiment as part of UN Transnational Access Program- Aquacosm. Tvärminne Zoological Station, Finland
2018-2020 Field sampling for NSF photochemistry project, SAB region
2014-2020 NSLS-II, Brookhaven National Laboratory, USA
2012-2016 Groves Creek Carbon Cycling study.
2008-2010 Chief Scientist, Coastal engineering cornerstone course research cruises.
2007. Chief Scientist, 2 Scientific Cruises to Clayoquot Sound, British Columbia.
2000- 2005 Oxapampa, Peru, FIU/Andes Field Station
1999-2009 NSLS, Brookhaven National Laboratory, NY USA
2003,2004 Co-chief Scientist, GOMEX I & II cruises, R/V Seward Johnson
2003-2011 Advanced Photon Source, Argonne National Laboratory IL USA