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## WILLIAM L. MILLER JR.

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**CITIZENSHIP:** United States of America

**EDUCATION:**

Wake Forest University	Winston-Salem, NC	Biology	B.A. (cum laude), 1979
University of South Florida	St. Petersburg, FL	Marine Science	M.Sc., 1985
University of Rhode Island	Narragansett, RI	Chemical Oceanography	Ph.D., 1990

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**PROFESSIONAL EXPERIENCE:**

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*University of Georgia, Department of Marine Science, Athens GA 30602 (2004-present)*

2008 – present Full Professor

2004 – 2008 Associate Professor (tenured)

*University Level Service & Activities*

- 2013 - 2015, Member, University Graduate Council; involved in graduate school policy decisions, Appeals Committee and Administrative Committee Member
- 2011 - 2012, Member, Provost's Marine Task Force; evaluate and recommend University Level actions for marine programs at UGA.
- 2008 - 2010, Member, Franklin College Tenure and Promotion Review Panel

*Department Level Service & Activities*

- Performed funded research, classroom instruction, and student mentoring as detailed in "Scholarly Activities," "Classes Developed and Delivered," and "Supervision and Advising" below. Member of Undergraduate Curriculum Committee, Space Committee, Chaired and participated in 3-Year evaluation committees, Chaired Committee to establish policy for Research Scientist position; Member of Faculty Search Committees; Mentor for pre-tenured faculty; duties regarding tenure and promotion evaluations, participate in Departmental seminars, student recruitment, and other functions where needed.

*Program Director, Chemical Oceanography, IPA, National Science Foundation (2015 – 2017)*

*Typical Activities related to Programmatic Planning & Management*

- Programmatic participation and oversight for proposal review, evaluation, and funding recommendations; ad hoc reviewer and panel selection, conflict evaluation, review analysis, write-up, and funding justification
- Programmatic planning/evaluation and funding of U.S. GEOTRACES; CO representative for internal NSF/OCE committees (e.g. Scholarships, Data - evaluate & update the Data Management Plan, and the Ocean Observing Initiative (OOI) - advise, evaluate, and establish community interactions).

*Typical Activities related to Programmatic Coordination & Liaison*

- Observer/NSF Advisor at annual Ocean Carbon Biogeochemistry (OCB) and U.S. GEOTRACES Scientific Steering Committee meetings, etc.

- Represent the Chemical Oceanography Program in planning NSF's participation in developing the NASA EXPORTS program, support development of Dear Colleague Letter for cross agency coordination

*Typical Activities related to National Community Communication & Outreach*

- Frequent one-on-one consultation (phone, email, on and off-site) with PIs for proposal planning and advice on framing research ideas, compliance, and revisions.
- Represent NSF/CO at national and international meetings/workshops (ex. SOLAS Science Meeting, GEOMAR, Kiel, Germany; Biological Pump Workshop, AGU/ASLO Ocean Science, New Orleans, LA; Early career/postdoc meeting with funding agencies, WHOI; U.S. GEOTRACES workshop, Palisades, NY; Science & Engineering Festival, Convention Center, Washington D.C; OSP/Line P 60<sup>th</sup> Anniversary Science Exchange, Sidney, BC Canada; ASLO meeting/new investigator breakfast, Honolulu, HI; OOI Community Workshops Washington, D.C. & Portland, OR)

*Director, Marine Institute; Associate Director, Marine Programs (2004 – 2013)*

*Responsible for all Marine Institute operations (brief description below):*

- maintained and facilitated professional relations between Marine Institute (MI) and island stakeholders (GA Dept. Natural Resources, NOAA National Estuarine Research Reserve, NSF Long Term Ecological Research site, local Hog Hammock community) as the primary representative of MI and UGA
- maintained and improved facilities (coordinated work teams, secured funding)
- supervised MI personnel (assigned duties, completed performance reviews)
- supervised, reviewed, and supported the MI resident and visiting researcher/educational program (~ 2000 visitors each year, summer intern program, etc.)
- allocated all funds, including payroll and benefits for staff of 26 full time UGA employees, in support of research, educational programs, repair and maintenance (boats, vehicles, housing, laboratory and administrative space), environmental compliance testing, facility fees (power, phone, internet, etc.), and all other misc. expenses.

Required reporting and planning were coordinated with UGA, the State Board of Regents, and the Governor's Office of Planning and Budget. A great deal of time was spent planning for development of facilities and operations, and exploring increased private support for UGA MI. The precipitous drop in State allocations beginning in 2002 (from \$1.2M to \$0.6M) required creative and difficult approaches to administration, including major 'no-cost' reorganizations of staff duties and job classifications. Despite this development, we increased research and educational programs while identifying external income streams and completing major facilities upgrades. Specific projects included construction of a new dormitory, renovation of existing meeting, presentation, and instructional space, and repurposing the old Power Station for classroom and dining space.

2010 – Nov. *Visiting Professor, University of Tokyo*, Atmosphere Ocean Research Institute, Kashiwa, Japan; Research collaboration with Dr. Mits Uematsu on air-sea interactions

2004 – June *Visiting Professor, Aix-Marseille Université*, Centre national de la recherche scientifique (CNRS), Luminy, France; Research collaboration with Dr. Richard Semperé on chemical, optical, and photochemical oceanography

**Dalhousie University, Department of Oceanography, Halifax NS Canada (1995-2004)**

1998 - 2004 Associate Professor (tenured)  
1995 - 1998 Assistant Professor

**Departmental and University Level Service & Activities**

*Departmental committee work at Dalhousie was the main governing mechanism, making final decisions and faculty recommendations for vote on most aspects of operations.*

- 1995-2003; Dept. Space Committee member
- 1995-2003; Dept. Safety Committee member
- Dept. Graduate Affairs Committee member (all years: departmental admission decisions)
- 1995-2003; Dept. Curriculum Committee member (grading policy, educational oversight, programmatic decisions, student handbook, etc.); assigned as Chair for reestablishing the Comprehensive Exam for PhD candidates in Oceanography, oversaw exam development, yearly vetting and grading (1999-2003).
- 2002; University Chair of the "Chair Selection Committee" for the Biology Department, assigned by the Dean of Sciences, Dalhousie
- 1995-96; Coordinator, Departmental Seminar Series. Scheduled 24 talks including international speakers, Canadian government scientists, talks by faculty, students, and staff from Dalhousie, and speakers from local industry

**U.S. Environmental Protection Agency, Athens, GA 30605 (1991-1995)**

1993 - 1995 National Research Council Associate, National Academy of Sciences, "Photochemical Carbon Transformations and Trace Gas Production in Natural Systems," US EPA, Athens, GA, Advisor: Dr. Richard G. Zepp  
1991 - 1992 Environmental Chemist, AScl, Corp., EPA Global Climate Change Program, Environmental Research Lab., Athens, Georgia

**University of Rhode Island, Grad. School Oceanography, Narragansett, RI 02882 (1991)**

1991 (Jan-July) Postdoctoral Fellow, Atmospheric Chemistry, Dr. Brian Heikes, NASA PEM-West investigation of atmospheric oxidants in the North Pacific

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**CURRENT RESEARCH INTERESTS:**

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Aquatic Photochemistry: Significance to redox chemistry, carbon cycles, trace gases, alteration of aquatic humic substances, and relations to optics and biological processes

Trace element & trace metal redox chemistry, processes controlling chemical distributions and biological productivity

Ocean Optics and Remote Sensing algorithm development to integrate photochemical and photobiological processes over regional and global scales

Development of novel analytical methods and sensing technologies for the evaluation of photochemical and redox reactions at environmental concentrations

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**SCHOLARLY ACTIVITIES:**


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**Publications** *Google Citations as of January 2020 – (GC:5169, total) (GC:1545, since 2015)*

 Peer-reviewed Research Papers: (*supervised students, techs, and postdocs underlined*)

1. Byrne, R.H., R.W. Young, and W.L. **Miller**. (1981) Lead chloride complexation using ultraviolet molar absorptivity characteristics. *Journal of Solution Chemistry*, **10**(4):243-251. [\(GC:22\)](#)
2. Byrne, R.H., and W.L. **Miller**. (1984) Medium composition dependence of lead (II) complexation by chloride ion. *American Journal of Science*, **284**:79-94. [\(GC:18\)](#)
3. Byrne, R.H., and W.L. **Miller**. (1985) Copper (II) carbonate complexation in seawater. *Geochimica et Cosmochimica Acta*, **49**(8):1837-1844. [\(GC:80\)](#)
4. **Miller**, W.L., N.J. Blake, and R.H. Byrne. (1985) Uptake of Mn<sup>54</sup> by the beach clam, *Donax variabilis* (Say, 1822) from a resin buffered seawater system. *Marine Environmental Research*, **17**(2-4):163-166. [\(GC:1\)](#)
5. **Miller**, W.L., N.J. Blake, and R.H. Byrne. (1985) Uptake of Zn<sup>65</sup> and Mn<sup>54</sup> into body tissues and renal concretions by the southern quahog, *Mercenaria campechiensis* (Gmelin): Effects of elevated phosphate and metal concentrations. *Marine Environ. Res.*, **17**(2-4):167-171. [\(GC:9\)](#)
6. Byrne, R.H., and W.L. **Miller**. (1986) Chemical speciation in high-complexation intensity systems. *In Org. Mar. Geochem.*, ACS Symposium Series 305, ed. Mary L. Sohn, 358-368. [\(GC:6\)](#)
7. **Miller**, W.L., and D.R. Kester. (1988) Hydrogen peroxide measurement in seawater by p-hydroxyphenylacetic acid dimerization. *Analytical Chemistry*, **60**:2711-2715. [\(GC:172\)](#)
8. Heikes, B.G., W.L. **Miller**, and M. Lee. (1991) Hydrogen peroxide and organic peroxides in the marine environment. *Proceedings SPIE-Society of Photo-Optical Instrumentation Engineers*, **1433**:253-262. [\(GC:0\)](#)
9. O'Sullivan, D.W., A.K. Hanson, W.L. **Miller**, and D.R. Kester. (1991) Measurement of Fe(II) in surface water of the equatorial Pacific. *Limnology and Oceanography*, **36**(8):1727-1741. [\(GC:85\)](#)
10. **Miller**, W.L. (1994) Recent advances in the photochemistry of natural dissolved organic matter. *In Aquatic and Surface Photochemistry*, ACS Symposium Series, eds. D. Crosby, G.R. Helz, and R.G. Zepp, Lewis Publishers, pp. 111-127. [\(GC:68\)](#)
11. **Miller**, W.L., and D.R. Kester. (1994a) Peroxide variations in the Sargasso Sea. *Marine Chemistry*, **48**:17-29. [\(GC:72\)](#)
12. **Miller**, W.L., and D.R. Kester. (1994b) Photochemical iron reduction and iron bioavailability in seawater. *Journal of Marine Research*, **52**(2):325-343. [\(GC:54\)](#)
13. **Miller**, W.L., and R.G. Zepp. (1995) Photochemical production of dissolved inorganic carbon from terrestrial input: Significance to the oceanic organic carbon cycle. *Geophysical Research Letters*, **22**(4):417-420. [\(GC:468\)](#)
14. **Miller**, W.L., D.W. King, J. Lin, and D.R. Kester. (1995) Photochemical redox cycling of iron in coastal seawater. *Marine Chemistry*, **50**(1-4):63-77. [\(GC:173\)](#)
15. Tarr, M.A, W.L. **Miller**, and R.G. Zepp. (1995) Direct carbon monoxide photoproduction from plant matter. *Journal of Geophysical Research*, **100**(D6): 11,403-11,413. [\(GC:102\)](#)
16. Bushaw, K.L., R.G. Zepp, M.A. Tarr, D. Schulz-Jander, R.A. Bourbonniere, R.E. Hodson, W.L. **Miller**, D.A. Bronk, and M.A. Moran. (1996) Photochemical release of biologically labile nitrogen from dissolved organic matter. *Nature*, **381**:404-407. [\(GC:453\)](#)
17. Zepp, R.G., W.L. **Miller**, R.A. Burke, D.A.B. Parsons, and M.C. Scholes. (1996) Effects of moisture and burning on soil-atmosphere exchange of trace carbon gases in a southern african savanna. *Journal of Geophysical Research*, **101**(D19):232,699-23,706. [\(GC:69\)](#)
18. Zepp, R. G., W.L. **Miller**, M.A. Tarr, R.A. Burke, D.A.B. Parsons, and M.C. Scholes. (1996) Dynamics of Carbon Monoxide Emissions from Soil and Vegetation in a Southern African

- Savanna. **In** *Biomass Burning and Global Change, Volume 1*, ed. J. S. Levine, The MIT Press, Cambridge, MA, pp. 381-388. (GC:0)
19. Levine, J.S., D.A.B. Parsons, R.G. Zepp, R.A. Burke, D.R. Cahoon, Jr., W.R. Cofer, III, W.L. **Miller**, M.R. Scholes, R.J. Scholes, D.I. Sebacher, S. Sebacher, and E.L. Winstead. (1997) Southern African Savannas as a Source of Atmospheric Gases. **In** *Fire in Southern African Savannas: Ecological and Atmospheric Perspectives*, eds. B.W. van Wilgen, M.O. Andreae, J.G. Goldammer, & J.A. Lindesay, Wits Univ. Press, Johannesburg, South Africa, pp. 135-160. (GC:7)
  20. Zepp, R.G., W.L. **Miller**, M.A. Tarr, R.A. Burke, and B.J. Stocks. (1997) Soil-atmosphere fluxes of carbon monoxide during early stages of post-fire succession in upland Canadian boreal forests. *Journal of Geophysical Research* **102**(D24):29,301-29,311. (GC:29)
  21. Burke, R.A., R.G. Zepp, M.A. Tarr, and W.L. **Miller**, and B.J. Stocks. (1997) Effect of fire on the soil-atmosphere exchange of methane and carbon dioxide in a Canadian boreal forest. *Journal of Geophysical Research* **102**(D24):29,289-29,300. (GC:119)
  22. Bourbonniere, R.A., W.L. **Miller**, and R.G. Zepp. (1997) Distribution, flux and photochemical production of carbon monoxide in a boreal beaver impoundment. *Journal of Geophysical Research* **102**(D4):29,321-29,329. (GC:17)
  23. **Miller**, W.L., and M.A. Moran. (1997) Interaction of photochemical microbial processes in the degradation of dissolved organic matter from a coastal marsh. *Limnology and Oceanography* **42**(6):1317-1324. (GC:336)
  24. Xie, H., R. Moore, and W.L. **Miller**. (1998) Photochemical production of carbon disulphide in seawater. *Journal of Geophysical Research* **103**(3):5,635-5,645. (GC:55)
  25. **Miller**, W.L. (1998) Effects of UV radiation on aquatic humus: photochemical principles and experimental considerations. **In** *Aquatic Humic Substances: Ecology and Biogeochemistry*, Ecological Studies, Vol. 133, eds. D. Hessen and L. Tanvik, Springer-Verlag Berlin Heidelberg, pp. 125-143. (GC:121)
  26. Kuhlbusch, T.A.J., R. Burke, W.L. **Miller**, and R.G. Zepp. (1998) Carbon monoxide fluxes of different soil layers in upland Canadian boreal forests. *Tellus - Series B - Chemical and Physical Meteorology* **50**(B):353-366. (GC:15)
  27. Zepp, R.G., M.M. Gumz, and W.L. **Miller**. (1998) Use of valerophenone as an ultraviolet-B actinometer for environmental studies. *J. Physical Chemistry* **102**(28): 5716-5723. (GC:68)
  28. **Miller**, W.L. (2000) An Overview of Aquatic Photochemistry as it relates to microbial production. **In** *Microbial Biosystems: New Frontiers, Proc. 8th International Symposium on Microbial Ecology*, eds. C.R. Bell, M. Brylinsky, & P. Johnson-Green, pp.201-207. (GC:17)
  29. Belzile C., S.C. Johannessen, M. Gosselin, S. Demers and W.L. **Miller**. (2000) Penetration of UV irradiance through first-year ice during late spring in the North Water Polynya (76-79° N). *Limnology and Oceanography*, **45**(6):1265-1273. (GC:112)
  30. Scully, N.M., and W.L. **Miller**. (2000) Spatial and temporal dynamics of coloured dissolved matter in the North Water polynya, *Geophysical Research Letters*, **27**(7), 1009-1011. (GC:28)
  31. **Miller**, W.L. (2000) Introduction and Overview (invited). **In** *Issues in Environmental Technology No. 13, Chemistry in the Marine Environment*, eds. R.E. Hester and R.M. Harrison, The Royal Chemistry Society, pp. 1-12.
  32. Johannessen, S.C., and W.L. **Miller**. (2001) Quantum Yield for the photochemical production of dissolved inorganic carbon in the ocean. *Marine Chemistry*, **76**, 271-283. (GC:139)
  33. Bissett, W. Paul, Oscar Schofield, Scott Glenn, John J. Cullen, William L. **Miller**, Albert J. Plueddemann, and Curtis D. Mobley. (2001) Resolving the impacts and feedbacks of ocean optics on upper ocean ecology. *Oceanography*, **14**(3):30-53. (GC:66)

34. **Miller**, W.L., M.A. Moran, W. M. Sheldon, R.G. Zepp, and S. Opsahl. (2002) Determination of quantum yield spectra for formation of biologically labile photoproducts. *Limnology and Oceanography*, **47**:343-352 ([GC:143](#))
35. Miller, Lisa A., Patricia L. Yager, Kenneth A. Erickson, Julie Bâcle, J. Kirk Cochran, Michel Gosselin, David J. Hirschberg, Erica Key, Bert Klein, Bernard LeBlanc, Zhi-Ping Mei, William L. **Miller**, and Peter J. Minnett (2002) Carbon distributions and fluxes in the North Water Polynya, 1998 and 1999. *Deep-Sea Research II.*, **49**:5151-5170. ([GC:68](#))
36. Kjeldstad, B; O. Frette, S.R. Erga, H.I. Browman, P. Kuhn, R. Davis, W. **Miller**, and J.J. Stamnes. (2003) UV (280 to 400 nm) optical properties in a Norwegian fjord system and an intercomparison of underwater radiometers. *Marine Ecology - Progress Series*, **256**:1-11. ([GC:22](#))
37. Johannessen, S.C., W.L **Miller**, and J.J. Cullen. (2003) Calculation of CDOM absorbance spectra and UV attenuation from satellite ocean colour data. *Journal of Geophysical Research*, **108**(C9):3301. ([GC:77](#))
38. Bouillon, Rene, and William L. **Miller** (2004) Determination of apparent quantum yield spectra of DMS photo-degradation in an in situ iron-induced Northeast Pacific Ocean bloom, *Geophysical Research Letters*. **31**(6):6310-6310. ([GC:42](#))
39. P.W. Boyd, C.S. Law, C.S. Wong, Y. Nojiri, A. Tsuda, M. Levasseur, S. Takeda, R. Rivkin, P. J. Harrison, R. Strzepek, J. Gower, R.M. McKay, E. Abraham, M. Arychuk, J. Barwell-Clarke, W. Crawford, D. Crawford, M. Hale, K. Harada, K. Johnson, H. Kiyosawa, I. Kudo, A. Marchetti, W. **Miller**, J. Needoba, J. Nishioka, H. Ogawa, J. Page, M. Robert, H. Saito, A. Sastri, N. Sherry, T. Soutar, N. Sutherland, Y. Taira, F. Whitney, S-K.E. Wong & T. Yoshimura, (2004) The decline and fate of an iron-induced subarctic phytoplankton bloom, *Nature*. **428**(6982): 449-553. ([GC:484](#))
40. Clark, Catherine D., William T. Hiscock, Frank J. Millero, Gary Hitchcock, Larry Brand, William L. **Miller**, Lori Ziolkowski, Robert F. Chen, and Rod G. Zika (2004) CDOM Distribution and CO<sub>2</sub> Production on the Southwest Florida Shelf, *Marine Chemistry*, **89**(1-4):145-167. ([GC:50](#))
41. Bouillon, R-C., and W.L. **Miller** (2005) Photo-oxidation of DMS in natural waters: Laboratory assessment of the nitrate-photolysis induced DMS oxidation. *Environmental Science and Technology*, **39**:9471-9477. ([GC:82](#))
42. Le Clainche, Yvonnick, Maurice Levasseur, Alain Vézina, Anissa Merzouk, Sonia Michaud, Michael Scarratt, Chi Shing Wong, René-Christian Bouillon, Richard B. Rivkin, Philip W. Boyd, Paul J. Harrison, William L. **Miller**, François J. Saucier (2006) Modeling analysis of the effect of iron enrichment on DMS dynamics in the N.E. Pacific (SERIES experiment). *Journal of Geophysical Research, Oceans*, **111**:C01011, doi:10.1029/2005JC002947 ([GC:25](#))
43. Bouillon, R-C., W.L. **Miller**, M. Levasseur, M. Scarratt, A. Merzouk, S. Michaud, L. Ziolkowski (2006) The effect of mesoscale iron enrichment on the marine photochemistry of dimethylsulfide in the NE subarctic Pacific. *Deep Sea Research II (Special SERIES Issue)*, **53**:2384-2397. ([GC:12](#))
44. Ziolkowski, L.A., and W.L. **Miller** (2007) Variability of the quantum efficiency of CO photoproduction in the Gulf of Maine. *Marine Chemistry*, **105**:258-270. ([GC:39](#))
45. Moran, M.A., and W.L. **Miller** (2007) Microbial carbon biogeochemistry in the coastal ocean: resourceful heterotrophs make the most of light, *Nature Rev. Microbiology*, **5**:792-800. ([GC:152](#))
46. Tedetti, M., R. Sempéré, A. Vasilkov, B. Charrière, D. Nérini, W. **Miller**, K. Kawamura, and P. Raimbault, (2007) High penetration of ultraviolet radiation in South Pacific waters, *Geophysical Research Letters*, **34**:L12610, doi:10.1029/2007GL029823 ([GC:60](#))
47. Fichot C. G., S. Sathyendranath, and W. L. **Miller** (2008) SeaUV and SeaUVC: Algorithms for the retrieval of UV/Visible diffuse attenuation coefficients from ocean color, *Remote Sensing of Environment*, **112**:1584–1602. ([GC:63](#))

48. White, Emily M., David J. Kieber, Jane Sherrard, William L. **Miller**, and Kenneth Mopper (2010) Carbon dioxide and carbon monoxide photoproduction quantum yields in the Delaware Estuary, *Marine Chemistry*, **118**:11–21. (GC:72)
49. Fichot C. G., and W. L. Miller (2010) An approach to quantify depth-resolved marine photochemical fluxes using remote sensing: Application to carbon monoxide (CO) photoproduction. *Remote Sensing of Environment*, **114**:1363–1377. (GC:63)
50. Sempéré R., Babin, M., Chami, M., Charrière, B., Conan P., Doxaran D., Fernandez C., Jeffrey W., Joux F., Mallet M., Melin F., **Miller** W.L., Mostajir B., Fouillan E., Para J., Pujo-Pay M., Rontani J.-F., Tedetti M., Vantrepotte V., Brunet C. (2011) Influence of Solar Radiations. In Special Issue, *Progress in Oceanography*, "Marine Ecosystems Responses to climatic and anthropogenic forcings in the Mediterranean." (GC:216)
51. Reader, H. E., and W. L. **Miller** (2011) Effect of estimations of ultraviolet absorption spectra of chromophoric dissolved organic matter on the uncertainty of photochemical production calculations. *J. Geophysical Research*, **116**:C08002. doi:10.1029/2010JC006823 (GC:19)
52. Burns, Justina M., William J. Cooper, John L. Ferry, D. Whitney King, Brian P. DiMento, Kristopher McNeill, Christopher J. Miller, William L. **Miller**, Barrie M. Peake, Steven A. Rusak, Andrew L. Rose, and T. David Waite (2012) Methods for reactive oxygen species (ROS) detection in aqueous environments. *Aquatic Sciences*, Vol. **74**(4):683-734. (GC:198)
53. Reader, H. E., and W. L. **Miller** (2012) Variability of carbon monoxide and carbon dioxide apparent quantum yield spectra in three coastal estuaries of the South Atlantic Bight, *Biogeosciences*, **9**:4279-4294, doi:10.5194/bg-9-4279-2012. (GC:24)
54. Para, J., B. Charriere, A. Matsuoka, W. L. **Miller**, J.F.R. Rontani and R. Sempere (2013) UV/PAR radiation and DOM properties in surface coastal waters of the Canadian shelf of the Beaufort Sea during summer 2009. *Biogeosciences*, **10**:2761-2774. doi: 10.5194/b-10-2761-2013 (GC:2)
55. Reader, H. E., and W. L. **Miller** (2014) The efficiency and spectral photon dose dependence of photochemically induced changes to the microbial lability of dissolved organic carbon. *Limnology and Oceanography*, **59**(1):182-194 (GC:14)
56. Cao, F., C.G. Fichot, S. Hooker, W.L. **Miller** (2014) Improved algorithms for accurate retrieval of UV/Visible diffuse attenuation coefficients in optically complex, inshore waters. *Remote Sensing Environment* **144**C: 11-27. doi:10.1016/j.rse.2014.01.003 (GC:8)
57. Reader, H.E., and W.L. **Miller** (2014) Application of hyperspectral remote sensing reflectance data to photochemical rate calculations in the Duplin River, a tidal river on the coast of GA, USA. *GIScience & Rem. Sens.*, **51**:199-21. doi:10.1080/15481603.2014. 895583 (GC:1)
58. Powers, Leanne C., and W. L. **Miller** (2014) Blending remote sensing data products to estimate photochemical production of hydrogen peroxide and superoxide in the surface ocean. *Environmental Science: Processes & Impacts (Special Aquatic Photochemistry Issue)* **16**: 792-806. doi:10.1039/C3EM00617D (GC:22)
59. Cao, F., and W. L. **Miller** (2015) A new algorithm to retrieve chromophoric dissolved organic matter absorption spectra in the UV from ocean color. *Journal of Geophysical Research: Oceans*, **120**: 496-516. doi:10.1002/2014JC010241 (GC:10)
60. Powers, Leanne C., and W. L. **Miller** (2015) Photochemical production of CO and CO<sub>2</sub> in the Northern Gulf of Mexico: Estimates and challenges for quantifying the impact of photochemistry on carbon cycles. *Marine Chemistry*, **171**(20): 21–35. doi:10.1016/j.marchem.2015.02.004 (GC:28)
61. Medeiros, P. M., M. Seidel, L. C. Powers, T. Dittmar, D. A. Hansell, and W. L. **Miller** (2015), Dissolved organic matter composition and photochemical transformations in the northern North Pacific Ocean, *Geophysical Research Letters*, **42**:863–870. doi:10.1002/2014GL062663 (GC:45)

62. Powers, Leanne C., L. C. Babcock-Adams, J. K. Enright and W. L. Miller (2015) Probing the photochemical reactivity of deep ocean refractory carbon (DORC): lessons from hydrogen peroxide and superoxide kinetics, *Marine Chemistry*, **177**(2): 306-317. doi:10.1016/j.marchem.2015.06.005 ([GC:8](#))
63. Powers, Leanne C., and W. L. Miller (2015) Hydrogen peroxide and superoxide photoproduction in diverse marine waters: A simple proxy for estimating direct CO<sub>2</sub> photochemical fluxes. *Geophys. Res. Lett.*, 42: 7696-7704. doi:10.1002/2015GL065669 ([GC:12](#))
64. Medeiros, Patricia M., Michael Seidel, Jutta Niggemann, Robert G. M. Spencer, Peter J. Hernes, Patricia L. Yager, William L. **Miller**, Thorsten Dittmar, and Dennis A. Hansell (2016). A Novel molecular approach for tracing terrigenous dissolved organic matter into the deep ocean. *Global Biogeochemical Cycles*. 30, 689–699, doi:10.1002/2015GB005320 ([GC:22](#))
65. Cao, F., Medeiros, P. M., and W. L. Miller (2016) Optical characterization of dissolved organic matter in the Amazon River plume and the adjacent ocean. *Marine Chemistry*, **186**: 178-188. doi:10.1016/j.marchem.2016.09.007. ([GC:17](#))
66. Powers, Leanne C., Jay A. Brandes, William L. Miller, and Aron Stubbins (2016) Using liquid chromatography-isotope ratio mass spectrometry to measure the d13C of dissolved inorganic carbon photochemically produced from dissolved organic carbon. *Limnology & Oceanography: Methods*, doi:10.1002/lom3.10146 ([GC:4](#))
67. Powers, Leanne C., and W. L. Miller (2016) Apparent quantum efficiency spectra for superoxide photoproduction and its formation of hydrogen peroxide in natural waters. *Frontiers in Marine Science*, 3:235. doi:10.3389/fmars.2016.00235 ([GC:3](#))
68. Tolar, B.B., Powers, L.C., Miller, W.L., Wallsgrove, N., Popp, B.N., Hollibaugh, J.T. (2016). Ammonia oxidation in the ocean can be inhibited by nanomolar concentrations of hydrogen peroxide. *Frontiers in Marine Science*, **3**:237. doi:10.3389/fmars.2016.00237 ([GC:24](#))
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105. Cao, F., Y. Zhu, D. Kieber, & W. **Miller** (2014) Optical characterization of deep ocean refractory carbon in the Gulf of Alaska. Abstract ID: 16314, AGU/ASLO Ocean Sciences, Honolulu, HI, Feb. 23-28.
106. Powers, L.C., W.L. **Miller**, J.K. Enright, & L.C. Babcock-Adams (2014) Probing the photochemical reactivity of deep ocean refractory carbon: a lesson from superoxide and hydrogen peroxide kinetics. Southeastern Biogeochemistry Symposium, Atlanta, GA, Apr. 5-6.
107. Powers, L.C. & W.L. **Miller** (2014) Estimating Reactive Oxygen Species (ROS) from Ocean Color. NASA Ocean Color Research Team Workshop. Washington, D.C., May 5-7.
108. Cao, F., & W.L. **Miller** (2014) Algorithms for Retrieving CDOM spectra & UV Attenuation in Marine Waters. NASA Ocean Color Research Team Workshop. Washington, D.C., May 5-7.
109. **Miller, W.L.** & L.C. Powers, (2015) Determining Photochemical Efficiency Spectra. Workshop on Organic Matter Spectroscopy, Sopot, Poland, Sep. 22-25. Oral presentation.
110. Powers, L.C., & W.L. **Miller** (2015) What do we really know about global ocean CO<sub>2</sub> photoproduction? Workshop on Organic Matter Spectroscopy, Sopot, Poland, Sep. 22-25.
111. Koehler, B., R.M. Cory, K. Einarsdottir, Y. Gu, W.L. **Miller**, L.C. Powers, A. Vahatalo, C.P. Ward, & L. Tranvik (2015) An inter-calibration of apparent quantum yield spectra for photochemical mineralization of dissolved organic matter in lakes. Workshop on Organic Matter Spectroscopy, Sopot, Poland, Sep. 22-25.
112. Stubbins, A., L. Powers, J. Brandes, & W. **Miller** (2016) Photo-oxidation of dissolved organic carbon in natural waters: insights from isotopic fractionation of DIC during initial stages of irradiation. American Chemical Society, 16 Mar.
113. Cao, F., & W.L. **Miller** (2016) Optical Characterization of Dissolved Organic Carbon in the Gulf of Alaska. Station Papa 60th Anniversary Symposium, Sidney, BC, Canada Nov. 28-30.
114. **Miller, W.L.**, & L.C. Powers (2017) Is Photochemistry a Significant Sink for Dissolved Organic Carbon in the Global Ocean? Abstract 29798, ASLO Aquatic Sciences Meeting, Honolulu, HI, 26 Feb – 3 Mar.

115. **Miller**, W.L., & **L.C. Powers** (2017) Invited: Superoxide dynamics in seawater. Goldschmidt® Paris, France 13-18 Aug.
116. **Powers**, **L.C.**, K. Ryan, J. Brandes, A. Stubbins & W.L. **Miller** (2017) Carbon (DI13C) isotope enrichment (MoDIE) for improved evaluation of DIC photochemical production in seawater. Goldschmidt® Paris, France 13-18 Aug.
117. **Miller**, W.L., **L. C. Powers**, & **F. Cao** (2018) Examining Photochemical Assumptions: From Lab to Shining Sea. ASLO Summer Meeting, Victoria, B.C., Canada, June 10-15.
118. Hudson, W., T. Burdette, J. Harris, M. Serratos, K. Zimmermann, W.L. **Miller**, A.A. Frossard. (2018) Contribution of surface-active organics to surface tension depression in seawater and their changes due to photochemical processing. (Fall AGU Meeting, Washington, D.C.).
119. **Miller**, W.L., & **L. C. Powers** (2019) Probing the role of CDOM/DOC source in photochemical redox reactions. (ASLO Aquatic Sciences Meeting, San Juan, Puerto Rico, 23 Feb – 2 Mar, 2019).
120. **Miller**, W.L., L.C. Powers, F. Cao, K. Ma, & J.A. Brandes (2019) Re-examining photochemical oxidation of DOC to DIC/CO<sub>2</sub>: Methods, proxies, and models. (SOLAS International Science Meeting, Sapporo, Japan, April 21-25 2019).
121. Ma, K., J.A. Brandes, L.C. Powers, and W.L. **Miller** (2019) Determining the reproducibility and sensitivity of the Moderate Dissolved Inorganic Carbon (DI<sup>13</sup>C) Isotope Enrichment (MoDIE) method for DIC photoproduction, Goldschmidt® Barcelona, Spain.
122. Zhu, X., W.L. **Miller**, and C.G. Ficht (2020) Photobleaching of CDOM: A new approach to quantify apparent quantum yield matrices applicable to spectral photochemical models, AGU/ASLO Ocean Sciences Meeting, San Diego, CA, Feb. 2020.
123. **Miller**, W.L. (2020) Considering the role of photochemistry in controlling the effective redox state in the surface ocean. AGU/ASLO Ocean Sciences Meeting, San Diego, CA, Feb. 2020.
124. Ma, K., J.A. Brandes, L.C. Powers, and W.L. **Miller** (2020) Constraining photochemical production rates of dissolved inorganic carbon in the open ocean using the moderate dissolved inorganic carbon (DI 13 C) isotope enrichment (MoDIE) method. AGU/ASLO Ocean Sciences Meeting, San Diego, CA, Feb. 2020.
125. **Miller**, W.L. (2020) Photochemical production of dissolved inorganic carbon from terrestrial organic matter: Significance to the oceanic organic carbon cycle - then and now. ACS Spring 2020 National Meeting, Philadelphia, PA, Mar. 2020.

#### Invited Lectures at Universities, Institutes, and Workshops (since 1995)

1. Bedford Institute for Oceanography, Dartmouth, NS, "Photochemistry and DOM Cycles," 1995
2. International Ocean Institute, Dalhousie University, Lecturer (18hrs) for Introductory Oceanography, as part of the training programme titled "The United Nations Convention on the Law of the Sea, Its Implementation and Agenda 21," June, 1996, 1997, 1998, 1999
3. ONR Workshop, HyCODE Research Development Meeting, Invited Speaker, February, 1996
4. Dalhousie University, Department of Chemistry, Halifax, NS, "Photochemical transformations of organic matter in natural waters," 1996
5. ONR Workshop, "Electro-Optical Propagation in the Ocean: A Focused Review," Stennis Space Center, Mississippi, USA, December, 1996
6. Old Dominion, Dept. Oceanography, "Sunshine and DOC: Shedding Some Light on Marine Photochemistry," November, 1997
7. ONR Workshop on CDOM, Belmont Manor, Baltimore, MD, USA "Relating CDOM photochemistry to optical measurements," November, 1997, April 1999



8. State University of New York (SUNY), Syracuse, "Photochemical Fading of Aquatic CDOM (Coloured Dissolved Organic Matter)," June, 1999
9. Univ. Maryland, Dept. Chemistry, "Aspects of Marine Photochemistry," November, 2000
10. University of Georgia, Athens, GA, "Marine Photochemistry," May 2003.
11. Laboratoire de Microbiologie Geochimie et Ecologie Marines (LMGEM), CNRS, Campus de Luminy, University of Marseille, France, "Marine Photochemistry from Space: A Tale of Two Reactions" June 2004
12. Laboratoire d'Océanographie de Villefranche (LOV), CNRS, "Marine Photochemistry from Space: A Tale of Two Reactions" July 2004, Villefranche-sur-Mer, France.
13. Savannah State University, "The UGA Marine Institute at Sapelo Island and Organic Carbon Cycles from Space," 2005, Savannah, GA.
14. Biology Department, Wake Forest University, "Marine Biological Feedbacks to Climate Change," March 2007, Winston-Salem, NC.
15. Office of Naval Research, Progress Review, Southeast Region, Invited presentation, "Examining CDOM and UV Optical Dynamics with the SeaUV Model," May 2007, Tallahassee, FL.
16. State University of New York (SUNY), "Photochemical Calculations from Ocean Color Data: Problems and Progress," May 2009, Syracuse, NY.
17. SOLAS Mid-term strategy meeting: "Air-sea gas fluxes in eastern boundary upwelling systems and oxygen minimum zones." "Marine Photobiochemistry in Upwelling Systems." Invited Speaker, 8-11 November 2010, Lima, Peru.
18. Joint 5th Workshop on Asian Dust and Ocean EcoSystem (ADOES) with Asian SOLAS/WESTPAC/METMOP/SALSA: Invited Speaker: "Driving Photochemical Models with Ocean Optics." 29 November-2 Dec. 2010, Nagasaki, Japan.
19. Atmosphere and Ocean Research Institute, University of Tokyo, Kashiwa Campus: "The Coast of Georgia, USA: A tour and discussion of the photochemical reactions impacting organic carbon cycles in coastal ecosystems." Invited Talk, December 2010, Kashiwa, Japan.
20. Marine, Earth, and Atmospheric Sciences Department, North Carolina State University, "Using Ocean Optics to Estimate Trace Gas Photochemistry in the Surface Ocean." Invited Speaker, June, 2011, Raleigh NC.
21. Northeast Georgia American Chemical Society, "Chemistry at Sea." Invited Speaker, September 2013, Athens, GA.
22. Chemistry Department, University of the South, "Taking Chemistry to Sea: photochemistry in the Gulf of Alaska." Invited Speaker, October 2013, Sewanee, TN.
23. Goldschmidt®, "Superoxide dynamics in seawater." 13-18 August 2017, Paris, France
24. State University of New York (SUNY), "PIE a la MoDIE: A novel isotopic method for measuring CO<sub>2</sub> photoproduction in the ocean," Dec 2018, Syracuse, NY.

#### Theses:

- Miller, W.L. (1985) Uptake of Zn<sup>65</sup> and Mn<sup>54</sup> into Body Tissues and Renal Granules by the Southern Quahog, *Mercenaria campechiensis*, M.S. Thesis, University of South Florida, Tampa, FL. 121 pp.
- Miller, W.L. (1990) An Investigation of Peroxide, Iron, and Iron Bioavailability in Irradiated Marine Waters, Ph.D. Thesis, University of Rhode Island, Kingston, RI. 445 pp.

#### Technical Reports and Non-refereed Publications:

- Kester, D.R., D.W. King, W.L. Miller, D.L. Cullen, and C.D. Hunt. (1987) Compilation of trace metal concentrations in Narragansett Bay waters, Technical Report No. 87-9, Graduate School of Oceanography, University of Rhode Island, 33 pp.

- Miller, W.L. (1995) Oceanography in the Dirt, *At the Bay Campus*, 14(1):3.
- Miller, W.L. (1999) Of Ice and Men, *At the Bay Campus*, 18(2):3.
- Surface Ocean-Lower Atmosphere Study (SOLAS), Science Plan and Implementation Strategy, (2004) *IGBP Report 50*, Stockholm, Sweden, 88 pp.
- Integrated Marine Biogeochemistry and Ecosystem Research (IMBER) Science Plan and Implementation Strategy, (2005) *IGBP Report 52*, Stockholm, Sweden, 71 pp.
- Miller, W.L., and A. Johansen (2005) Photochemistry in the air and ocean: What do we need to know and where are the links? *SOLAS News*, issue 1, January 2005, pg. 15.
- Miller, W.L., and C. Fichot (2006) Estimating ultraviolet radiation in the surface ocean with SeaUV, *SOLAS News*, issue 1, Spring 2006, pg. 3.
- Miller, W.L. (2011) Joint 5th workshop on Asian Dust and Ocean Ecosystem (ADOES) with Asian SOLAS / WESTPAC / METMOP / SALSA, *SOLAS News*, Issue 12, Winter 2011, pg. 28.

### **Recognitions, Awards, & Certifications**

- Paper by Miller & Zepp (GRL, 1995) Selected for 40<sup>th</sup> anniversary collection of GRL's most influential papers over the past 4 decades 2014
- Selected with L.C. Babcock-Adams for Posters on the Hill; Undergraduate Research Showcase, Capitol Hill, Washington, D.C., USA 2014
- CURO Summer Undergraduate Research Award w/L.C. Babcock-Adams 2013
- High Impact Leadership, Course Completion Certificate, UGA, USA 2011
- Faculty Ambassador Award, Franklin College, UGA, USA 2011
- Invited Speaker, the Japan Society of Atmospheric Chemistry Annual Meeting, Metropolitan University, Tokyo, Japan 2010
- Invited Public Lecturer, Laura Randall Schweppe Endowed Lecturer Series in Marine Science, Univ. Texas Marine Laboratory, Corpus Christie, TX, USA 2008
- Distinguished Alumni Presentation, Department of Biology Wake Forest University, Winston-Salem, NC, USA 2007
- Project Leader, Canadian SOLAS Network, Chair Scientific Advisory Committee, Member Canadian SOLAS Board of Directors 2001-2004
- Invited Speaker, Harold Schiff Honorary Lecture in Atmospheric Sciences November, York University, ON Canada 2001
- Invited Plenary Speaker, Ocean Optics XV, Musée Océanographique, Monaco 2000
- Invited Working Group Chair, IGBP Open Science Meeting, "Surface Ocean Lower Atmosphere Study (SOLAS)", Damp, Germany 2000
- Invited Speaker, SETAC Annual Meeting, Charlotte, NC, USA 1998
- Invited Speaker / Session Chair, International Symposium on Microbial Ecology, Halifax, N.S., "Photochemical v Microbial breakdown of DOC." 1998
- Invited Speaker, ONR Workshop, "Electro-Optical Propagation in the Ocean: A Focused Review," Stennis Space Center, Mississippi, USA 1998
- Co-recipient with Angela Kennedy, Laing Summer Undergraduate Research Award, Dalhousie University 1997
- Invited Speaker, ASLO 1997 Aquatic Sciences Meeting, Sante Fe, NM, "Role of Photochemical Processes in the Dynamics of DOM" 1997
- Invited Plenary Speaker, International Humic Substances Society Symposium, "Humic Substances in the Environment, New Challenges and Approaches," Atlanta, GA, "Photochemical Transformations of Organic Matter in Natural Waters," 1995

- Invited Session Chair, Working Group Leader on Biogenic Emissions IGBP START/IGAC/GCTE/DIS/GAIM Workshop on African Savannas and Global Change, Victoria Falls, Zimbabwe, Africa 1993
- Invited Participant, DOE Workshop on UV-B Critical Issues 1993
- Selected National Research Council Associate, USEPA, Athens, GA 1992

### **Service to the Profession**

- Member, Ocean Carbon Biogeochemistry Air-Sea Interactions Sub-Committee 2018-present
- Session Co-Organizer/Co-Chair, CT009-“Significance of Photochemistry in Marine Biogeochemical Cycles.” AGU/Ocean Science (2020, San Diego) 2020
- Organizer, OCB Ocean-Atmosphere Interactions: Scoping directions for U.S. research October 1-3 (Sterling, Virginia, USA) 2019
- NSF Proposal Review Panel, Arctic, May 2019
- NASA Proposal Review Panels (2), July 2018
- NSF Program Director, IPA Rotator, Chemical Oceanography 2015-2017
- Session Co-Organizer/Co-Chair, 9594- “Sources and Sinks of Reactive Oxygen Species in the Ocean: Is seawater a radical solution? (Zafiriou 1987) Revisited.” AGU/Ocean Science 2016
- NSF Proposal Review Panel, GEO/OCE, November, Wash. D.C. 2014
- NASA Proposal Review Panel, PACE Science Team, May, Wash. D.C. 2014
- Session Co-organizer/Chair, Surface Ocean Lower Atmosphere Study (SOLAS): Advances and Impacts of Ocean Derived Aerosols and Atmospheric Nutrient Inputs, AGU Ocean Science Meeting, Honolulu, HI 2014
- Co-Chair (NSERC) for the Expert Panel Review of the Vanier Canada Graduate Scholarships Program 2013-2014
- U.S. National Representative; Surface Ocean-Lower Atmosphere Study (SOLAS) 2012-2015
- Session Co-organizer/Chair, Linkages in Biogeochemical Cycles Between the Surface Ocean and Lower Atmosphere Over the Pacific Ocean, AGU Fall Meeting, CA 2010
- Judge, Best Student Poster, "Linkages in Biogeochemical Cycles Between the Surface Ocean and Lower Atmosphere Over the Pacific Ocean, AGU Fall Meeting, CA 2010
- NASA Proposal Review Panel, "Earth Science for Decision Making - Gulf of Mexico" May, Greenbelt, Maryland 2009
- NSERC Site Visit Review Panel, Evaluation for funding of the Canadian Icebreaker *Amundsen*, Laval, Quebec, Canada 2009
- NSERC Selection Panel for the Vanier Scholarships (NSERC's most prestigious international graduate scholarship award) Ottawa, ON chair, 2010 & 2011 2009-2011
- Member, Advisory Committee, Sapelo Island National Estuarine Research Reserve, NOAA & GA Dept. Natural Resources 2004-2013
- Member United States SOLAS Advisory Group 2004- 2012
- Co-Chair (w/ Mitsua Uematsu, University of Tokyo) SOLAS Implementation Group #1 (SOLAS Focus 1: Biogeochemistry) 2005- 2007
- NSERC Selection Panel for the Hertzberg Science Award (Canada's highest National Award for Science and Engineering), Ottawa, Canada 2007
- NSERC Selection Panel for the Brockhouse Award for Interdisciplinary Studies, Ottawa 2007
- Member, Canadian NSERC Discovery Grant Selection Committee for Environmental Earth Sciences (GSC 09) 2007
- Member NSERC Grant Selection Committee - Major Resources and Supplies (GSC 08-09)2007
- Member, IGBP Scientific Steering Committee, Surface Ocean-Lower Atmosphere 2001-2006

- Study (SOLAS), Coauthor of SOLAS Science and Implementation Plan
- Member Canadian SOLAS Board of Directors 2001-2006
  - Arbitrator for Discovery Grant Appeals, NSERC Canada (GSC 09) 2004-05
  - Conference Chair, Local Organizer, "SOLAS Science 2004" International Open Science Conference, Halifax. NS 2004
  - Member, IGBP Ocean Futures Transition Team, Coauthor of Science and Implementation Plan for IMBER (Integrating Marine Biogeochemistry and Ecosystem Research) 2001-2004
  - *ex officio* Member, Canadian Scientific Committee for Ocean Research (SCOR) 2002-2004
  - Chair, Selection Committee, A.G. Huntsman Award for Excellence in Ocean Sciences, Bedford Institute for Oceanography, Dartmouth, Nova Scotia, Canada 2001
  - Chair, Canadian NSERC Discovery Grant Selection Committee for Environmental Earth Sciences (GSC 09) 2000-01
  - Observer to NSERC Earth Science Liaison Committee 2000-01
  - Session Co-Organizer / Session Chair, Pacificchem Dec. 2000, American Chemical Society, Honolulu, HI, U.S.A. 2000
  - Member of NSERC Discovery Grant Selection Committee for Environmental Earth Sciences (GSC 09) 1999-01
  - Member of NSERC Grant Selection Committee for Major Equipment and Major Installation (GSC 08-09) 1999-00
  - Member, Selection Committee, A.G. Huntsman Award for Excellence in Ocean Sciences, Bedford Institute for Oceanography, Dartmouth, Nova Scotia, Canada 1997-2001
  - Session Chair, AGU/ASLO 1996 Ocean Sciences, San Diego, CA, 1996

Acronyms: SOLAS - Surface Ocean-Lower Atmosphere Study; NSERC - National Science and Engineering Council, Canada; IGBP - International Geosphere-Biosphere Programme; NASA - National Aeronautics and Space Association, USA; ONR - Office of Naval Research, USA; NOAA - National Ocean and Atmosphere Administration, USA; DOE - Department of Energy, USA; AGU - American Geophysical Union; ASLO - Assoc. Sciences of Limnol. & Oceanography;

#### Editorial Contributions

- Associate Editor, *Marine Chemistry*, Elsevier Publishing Group 2007-2018
- Co-Editor, *Frontiers*, Special Research Topic: Reactive Oxygen Species (ROS) in Aquatic Systems: Sources, Sinks and Biogeochemical Impacts 2015-2017
- Invited Guest Editor, *Biogeosciences*, Special Edition on MALINA Arctic project 2011-2013
- Invited Reviewer for United Nations Environment Program, 2006 Assessment of environmental effects of ozone depletion and its interactions with climate change, Published in *Photochem. Photobiol. Sci.*, 6, 208-330, 2007. 2007
- Guest Editor, Deep Sea Research Special Issue of SERIES (Subarctic Ecosystem Response to Iron Enrichment Study) 2006

Peer Reviewer for Research Literature: Regular reviewer for Marine Chemistry, Limnology and Oceanography, Environmental Science and Technology, and Aquatic Sciences; Periodic review for *Geochimica et Cosmochimica Acta*, *Deep Sea Research*, *Journal of Geophysical Research (Oceans & Atmospheres)*, *Global Biogeochem. Cycles*, *Chemosphere*, *Limnol. Oceanogr. Methods*, *J. Atmospheric Chemistry*, *Remote Sensing Environment*, and others.

Proposal Review for Funding Agencies: NSERC (National Science and Engineering Council, Canada); U.S. National Science Foundation; National Research Council (UK); NASA; Hudson River

Foundation, NY; Research Corporation, AZ; Maine Science and Technology Foundation, ME; and Federal Agencies from Norway, France, Austria and Sweden.

### **Professional Societies**

Member of the American Geophysical Union, the Association for the Science of Limnology and Oceanography, and The Oceanography Society

### **Personal Field Experience**

- 2018(3) *R/V Savannah*, South Atlantic Bight, Sample collection and photochemistry  
2018(2) *R/V Atlantic Explorer*, BATS-1822, 1830, Sample collection and photochemistry  
2018 *R/V Kilo Mauna*, HOT-300, Station ALOHA, Sample collection for photochemistry  
2013 *R/V Melville*, Gulf of Alaska, co-chief scientist w/ D. Hansell (U.Miami), photochemistry of Deep Refractory Carbon; w/3 grad. & 2 undergraduate students.  
2008-11 Numerous day cruises to measure UV optics, CDOM, and DOC in dark coastal waters, Georgia Coast, ONR & NASA funded  
2006 Ground support for hyperspectral imaging of dark coastal waters, Georgia Coast, J. Schalles (Creighton), PI, UV optics, remote sensing support  
2004 UV / photochemistry collaboration, UVECO, Banyuls, France, R. Semperé (PI)  
2003 *CGCS Hudson*, N. Atlantic, Canadian SOLAS Spring Cruise, Chief Scientist, CO<sub>2</sub> and DMS photochemistry, UV/VIS optics  
2001 *R/V Pelican*, Gulf of Mexico, Sea Water Iron Speciation Study (SWISS), w/ R. Powell and W. Landing, UV/VIS optics.  
2000 *RV Walton Smith*, ONR, CDOM Cruise, Florida Bay, Optics, photochemistry  
1999 Field Research at Sapelo Island, Univ. Georgia Marine Science, U.S.A., w/ M.A. Moran, R.G. Zepp, and S. Opshal, Photochemical impact on coastal carbon and CO photoproduction  
1999 *R/V Endeavor*, Gulf of Maine, D. Kieber & K. Mopper, PIs, UV/VIS Optics, CO photochemistry  
1999 *F/F Hans Brattström*, Bergen, Norway, UV intercalibration cruise.  
1998 Canadian Coast Guard Icebreaker *Pierre Radisson*, NOW Polynya Project, one of 60 PIs, Photochemistry and CDOM optics in Arctic waters, PI for Carbon Program  
1996-1998 *R/V Cape Henlopen*, ONR / NSERC funded, Coast of Delaware, w/ N.V. Blough, Photochemistry and UV/VIS optics (4 cruises).  
1996 *R/V Seward Johnson*, DOE Ocean Margins Cruise, Atlantic Bight, w/ D.J. Repeta, Photochemistry and UV/VIS optics from coastal waters.  
1993-1994 Boreal Ecosystem-Atmosphere Study (BOREAS), Thompson, Manitoba, Canada, "The role of fire in carbon gas fluxes from soils in boreal ecosystems."  
1993 *R/V Pelican*, Gulf of Mexico, w/ L.R. Pomeroy and W.J. Wiebe, CO Photochemistry, photochemical influence on microbial respiration.  
1992 South African Fire-Atmosphere Research Initiative (SAFARI), Kruger National Park, Skukuza, Republic of South Africa, EPA participation with NASA, Measured trace carbon gas fluxes from burned and unburned African savannah soils.  
1987 *R/V Endeavor*, North Atlantic, Biowatt Cruise EN-164, w/ E. Swift and M.J. Perry, Vertical profiling & continuous HOOH analysis, *in situ* analysis of reduced metals.  
1982, 1984 *R/V Bellows*, Gulf of Mexico, Respiration of Midwater Fishes: w/ J.J. Torres, Oxygen electrode studies, zooplankton sample collection, and data logging.  
1980, 1981 *R/V Bellows*, Gulf of Mexico, Vertical Migration of Deep and Midwater Organisms: T.L. Hopkins, P.I. Wenck operation, Tucker trawl deployment

**Additional Supported Field Activities** (*participation by my technicians, PostDocs and/or students*)

2012	<i>RV Pelican</i> , Northern Gulf of Mexico, HOOH sampling, water collection for photochemistry (Student, Leanne Powers)
2011, 2012	<i>RV Melville &amp; RV Atlantis</i> , ANACONDAS program Amazon River Plume, w/ T. Yager (UGA) photochemistry and microbial productivity (Student, Joanna Green)
2010	<i>RV Walton Smith</i> , Cruise to collect samples from deep oil plume from Deep Horizon blowout (Student, Joanna Green).
2009-10	4 Cruises, Northern Gulf of Mexico, Funded NSF Project, Co PI, Photochemistry & optics (Students; Leanne Powers 4X, Heather Reader 1X, Fang Cao 1X) NSF Funded
2007	<i>RV Ron Brown</i> , Gulf of Mexico East Coast Carbon (GOMECC) Cruise, transects from Texas to Gulf of Maine, NACP Project, Optics, CDOM (Student, H. Reader)
2004-5	3 Cruises, South Atlantic Bight, Wei Jun Cai (UGA), PI, NACP Project, DIC, CO <sub>2</sub> , optics (Tech., Cedric Fichot, Student Adair Johnson)
2003	<i>R/V Endeavor</i> , Eastern N. Atlantic, Kieber and Mopper, PIs, DIC photochemistry (PDF, Jane Sherrard)
2003	<i>CGCS Martha Black</i> (2 cruises), Canadian SOLAS, N.E. Atlantic, UV/VIS optics (Tech. Lori Ziolkowski, student Cedric Fichot)
2002	<i>R/V El Puma</i> , Canadian SOLAS Fe Addition Experiment, Ocean Station PAPA, Subarctic Pacific, CO <sub>2</sub> and DMS photochemistry, UV/VIS Optics, (Tech., Lori Research Ziolkowski, PDF, Jane Sherrard, Student, Rene Boullion)
2002	<i>R/V Endeavor</i> , Gulf of Maine, Kieber and Mopper, PIs, UV/VIS Optics, DIC photochemistry (PDF Jane Sherrard, student Cedric Fichot)
2001, 2002	<i>R/V Pelican</i> , 2 cruises, Gulf of Mexico, Sea Water Iron Speciation Study (SWISS), w/ R. Powell and W. Landing, UV Optics, Ocean colour (Tech. Lori Ziolkowski, PDF Jane Sherrard, Student Cedric Fichot)
1997	<i>R/V Wecoma</i> , June, Bering Sea, UV/VIS Optical profiling, J.J. Cullen, PI (student Sophia Johannesson)

**GRANT SUPPORT** (*Since Appointment at Dalhousie, 1995*)

NSERC: National Science and Engineering Research Council, Canada (Canadian Dollars)

DFO: Department of Fisheries and Oceans, Canada (Canadian Dollars)

CFCAS: Canadian Foundation for Climate and Atmospheric Research (Canadian Dollars)

ONR: Office of Naval Research, USA (US Dollars); NSF: National Science Foundation, USA (US Dollars)

**Funding Summary:**

CAN Canadian Research/Equipment:	\$1,031,152.00 CAN
CAN Canadian Support Activities:	\$ 822,065.00 CAN
Total CAN Funding = \$1,853,217	~\$1.7M USD; <i>no overhead or indirect included with CAN funding; does not include \$8.9M total award to SOLAS Network, Miller PI</i>
USD Funding while in Canada:	\$ 770,493.00
USD Funding at UGA since 2004:	\$2,346,534.00
Total USD Funding = \$3,117,027	(1996 - 2019)

- NSERC: Equipment, "An Irradiation System for Marine Photochemistry," 1995, \$25,344 CAN, W.L. Miller.
- Dalhousie: Research Development Grant, "Trace Element Photochemistry in Marine Systems," 1995, \$10,000 CAN, W.L. Miller.
- NSERC: Ships, "Shiptime Award for 1996 Field Season," 1996, \$34,200, W.L. Miller
- EC: Research Grant, "Interactions Among UV Radiation, Biology, Chemistry, and Optical Properties in Organic Waters in Kejimikujik Park," 1996-97, \$20,000 CAN, W.L. Miller (50%) & J.J. Cullen
- ONR: Environmental Optics, "Relating Ocean Optics to Photochemical Sinks for Dissolved Organic Carbon in Coastal Waters," 1996-2001, \$502,326 USD, W.L. Miller.
- NSERC: Ships, "Shiptime Award for 1997 Field Season," 1997, \$25,900 USD (paid directly for UNOLS ship use), W.L. Miller.
- NSERC: Equipment, "A Precision Radiometer for Marine Optical Research," 1997, \$75,131 CAN, W.L. Miller (33%), J.J. Cullen, & M. Lewis
- NSERC: Networks, "Carbon Cycling: Direct Measurement Approach; subsection of the International North Water (NOW) Polynya Study," 1997-2000, \$193,304 CAN, W.L. Miller (45%), J. Grant, & B.T. Hargrave
- NSERC: International Opportunities Fund, "Canadian Participation in the 1st International SOLAS Conference, Damp, Germany," 1999, \$14,850, R.M. Moore & W.L. Miller.
- ONR: Environmental Optics, "Relating Ocean Optics to Photochemical Transformations of Dissolved Organic Carbon," 2001 (8 month bridging funds), \$33,557 USD, W.L. Miller.
- NSERC: International Opportunities Fund, "Support for a Canadian SOLAS Workshop," 2000, \$31,565, W.L. Miller & R.M. Moore.
- NSERC: Equipment, "A Total Organic Carbon Analyzer for Carbon Cycle Studies," 2000, \$43,029 CAN, W.L. Miller.
- NSERC: Equipment, "A High-Performance Liquid Chromatography System (HPLC)," 2001, \$81,582 CAN, R.M. Moore, J.J. Cullen, W.L. Miller (25%), & J.J. Grant.
- NSERC: Operating Grant, "Marine Photochemistry: Significance to Organic Carbon and Metal Cycles," 1995-2002, \$223,608 CAN, W.L. Miller.
- ONR: Ocean Optics & Biology, "Relating Ocean Optics to Photochemical Transformations of Chromophoric Dissolved Organic Matter," 2001-2003, \$224,610 USD, W.L. Miller.
- NSERC/CFCAS: Networks, "A Research Network for the Canadian Surface Ocean Lower Atmosphere Study (Canadian SOLAS)," 2001-05, \$8.9 Million CAN, W. L. Miller (PI) & 42 co-applicants.
  - o SOLAS Research Project Grant, \$374,350 CAN, W.L. Miller.
  - o SOLAS Grant for Secretariat / Network Office, \$749,750 CAN, W.L. Miller (sole responsibility for administration of funding for three salaries & network support).
- NSERC: Operating Grant, "Marine Photochemistry," 2002-06, \$197,395 CAN, W.L. Miller
- DFO: Student Support Grant, "Photochemical fate of Organic Carbon in Nova Scotian Coastal Waters," 2003, \$15,000 CAN, W.L. Miller.
- NASA: to Woods Hole Oceanographic Institute, "Assessing the Role of Photochemical Oxidation of DOC in the Upper Ocean Based on Characterization of Optical Water Type from Satellites," 2002-2004, \$476,432 USD (\$10,000 USD for Miller for shipping/travel only as per international collaboration), L.V.M Martin, W.L. Miller, & H.M. Sosik.

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**Since January 2004: Relocation to US and the US Funding System**

*Past Support*

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**Title:** Exploring the temporal and spatial dynamics of UV attenuation and CDOM in the surface ocean using new algorithms

Sole PI: William L. Miller

Source of Support: ONR Ocean Optics (Code 322)

Total Award Amount: \$97,474

Total Award Period Covered: 2005-2007

Location of Project: University of Georgia

**Title:** Exploring the temporal and spatial dynamics of UV attenuation and CDOM in the surface ocean using new algorithms

Sole PI: William L. Miller

Source of Support: ONR Ocean Optics (Code 322)

Total Award Amount: \$197,800

Total Award Period Covered: 2008- Sept. 2011

Location of Project: University of Georgia

**Title:** Using ocean color to quantify the significance of marine photochemistry to CO and carbon cycling in the south Atlantic Bight

Sole PI: William L. Miller

Source of Support: NASA North American Carbon Project

Total Award Amount: \$409,458

Total Award Period Covered: 11/01/06-10/31/11

Location of Project: University of Georgia

**Title:** Development of high-resolution optical methods for the study of water quality in a tidal marsh setting

Sole PI: William L. Miller

Source of Support: Georgia Sea Grant / NOAA

Total Award Amount: \$90,219

Total Award Period Covered: 02/01/08-01/31/11

Location of Project: University of Georgia

**Title:** Collaborative research: Photodegradation of dissolved organic matter and its contribution to surface water CO<sub>2</sub> fluxes and the carbon cycle in a river dominated ocean margin

Co-PI: William L. Miller (w/ R. Benner, University of South Carolina)

Source of Support: NSF OCE – Chemical Oceanography

Total Award Amount: \$188,413 to Miller

Total Award Period Covered: 01/01/09 – 6/30/11 (no cost extension to 7/31/12)

Location of Project: University of Georgia

**Title:** FSML: Improving research and education infrastructure at the University of Georgia Marine Institute on Sapelo Island, GA

Co-PI: William L. Miller (w/ M. Booth)

Source of Support: NSF Field Stations and Marine Laboratories

Total Award Amount: \$118,377



Total Award Period Covered: 8/15/10 – 7/31/11 (no cost extension to 7/31/12)

Location of Project: University of Georgia Marine Institute

**Title:** Quantifying the Photochemical Reactivity of Deep Ocean Water

PI: William L. Miller

Source of Support: NSF OCE – Chemical Oceanography

Total Award Amount: \$398,874

Total Award Period Covered: 07/01/12 – 6/31/18 (NCE while at NSF)

Location of Project: University of Georgia

*Current Support*

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**Title:** Transforming our understanding of DIC Photoproduction in Oceanic Waters

Co-PI: William L. Miller (w/ J. Brandes, L.C. Powers, A. Stubbins)

Source of Support: NSF OCE – Chemical Oceanography

Total Award Amount: \$527,050

Total Award Period Covered: 10/01/16 – 9/30/19 (added as PI after leaving NSF)

Location of Project: University of Georgia / Skidaway Institute of Oceanography

**Title:** Superoxide Dynamics in Irradiated Seawater

PI: William L. Miller

Source of Support: NSF OCE – Chemical Oceanography

Total Award Amount: \$318,869

Total Award Period Covered: 09/01/19 – 08/31/22

Location of Project: University of Georgia

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**CLASSES DEVELOPED AND DELIVERED** (1996 - PRESENT)

*NOTE ON INSTRUCTION: During my first faculty appointment in the Oceanography Dept. at Dalhousie University (June 1995 - January 2004), the graduate program provided limited opportunities for undergraduate advising and most teaching supported graduate education. Research and graduate student supervision was my primary job responsibility. My initial appointment period at UGA, 2004-2013, was 50% administrative (Director Marine Institute & Assoc. Director Marine Programs) and 50% research with "limited teaching."*

DALHOUSIE UNIVERSITY

Physics and Chemistry of the Ocean (each fall 1996-2003)

(upper division undergraduate course: joint with Physical Oceanographer, basic chemical distributions, biogeochemical processes related to ocean circulation)

Advanced Seawater Analysis (twice between 1995-1999)

(graduate course: joint with Robert Moore, special topics, hands-on laboratories)

Marine Photochemistry (every other year 1998-2003)

(graduate course: fundamentals of radiation, photochemical mechanisms and consequences, calculations, current literature)

Chemical Oceanography (2000)

(graduate core course: replaced R. Moore while on sabbatical)

Marine Geochemical Processes (every other year 1995 - 2002)

(graduate course: advanced calculations, fundamental chemical speciation, acid/base chemistry, chemical models, quantitative approaches to chemical distributions)

Oceanography short course (yearly 1999-2002)

(public access, 3 day, 18 hours: taught for the International Ocean Institute on a volunteer basis, general physical, chemical, geological, and biological oceanography)

#### UNIVERSITY OF GEORGIA

The Marine Environment (yearly 2010 – 2014; 2017-pres)

(large introductory undergraduate course, co-teach 50%)

First Year Odyssey: "The Marine Science of SpongeBob SquarePants" (2012 – 2014; 2017-present)

Chemical Oceanography (yearly 2004 - 2014)

(graduate core course, responsible faculty, co-teach ~50%)

Organic Geochemistry (occasional guest lecture on photochemistry) (graduate course)

Freshman Seminar: "An Ironclad Solution to Global Warming (and other planetary feedback stories)" (yearly 2005-2009) (Iron and HNLC regions, CLAW and DMS feedbacks, etc.)

Freshman Seminar: "The Marine Science of SpongeBob SquarePants" (spring 2011) (invertebrate biology and ocean concepts as gleaned from the popular children's cartoon)

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#### **SUPERVISION AND ADVISING (1996 – 2004 DALHOUSIE; 2004 – PRES. UGA)**

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##### Current Students (Major Professor):

*Kandis Arlinghaus, M.Sc.*, arrived fall 2019

Thesis Area: Reactive Oxygen Species in Irradiated Seawater

##### Current Students (Committee Member; (1 Ph.D.):

*Kun Ma, Ph.D.*, Marine Science, UGA. 2016-pres.

Major Professor: Jay Brandes, Skidaway Institute, UGA

Thesis Topic: Photochemical production of CO<sub>2</sub> using new GC-MS methodology

##### Students Graduated (Major Professor; (5 Ph.D., 8 M.Sc.):

1. *Rebecca Moore, M.Sc.*, Graduated: September 1999  
Thesis Title: Photochemical Degradation of Coloured Dissolved Organic Matter in Two Nova Scotia Lakes.  
Next Position: Research Tech., University of Wisconsin, Hg Research Group (5 yrs.)  
Current Position: Lawyer; Environmental Law, Canada.
2. *Sophia Johannessen, Ph.D.*, Graduated: May 2000  
(NSERC Scholarship Holder)  
Thesis Title: A Photochemical Sink for Dissolved Organic Carbon in the Ocean  
Current Position: Research Scientist, DFO Institute of Ocean Sciences, Sidney, B.C., Canada.
3. *Lori Ziolkowski, M.Sc.*, Graduated: July, 2000  
Thesis Title: Marine Photochemical Production of Carbon Monoxide  
Next position: Research Technician, Dalhousie Univ.; Ph.D., UC Irvine, CA w/ E. Druffel,  
Current Position: Associate Professor, Marine Sciences, University of South Carolina
4. *Annick Pinnette, M.Sc.*, Graduated, August 2003  
Thesis Title: The effect of solar radiation on the consumption of dissolved organic matter by bacterioplankton in the North Water Polynya.  
Current Position: Consultante en évaluation/Assessment Coordinator; CSAP (Conseil Scolaire Acadien Provincial), Dartmouth, Nova Scotia, Canada.

5. *René-Christian Boullion*, Ph.D., Graduated, August, 2004. (NSERC Scholarship Holder)  
Thesis Title: An investigation on the photochemistry of dimethylsulfide in marine waters.  
Current Position: French Immersion High School Science Teacher, Nova Scotia, Canada.
6. *Cedric Fichot*, M.Sc., Graduated, October 2004.  
Thesis Title: Marine photochemistry from space: Algorithms for the retrieval of diffuse attenuation and CDOM absorption coefficients (320-490nm) from ocean color and estimation of depth-resolved photoproduction rates of carbon monoxide (CO) at global scales using SeaWiFS imagery.  
Current Position: Assistant Professor, Boston University.
7. *Monica Skalski*, M.Sc., Graduated, July 2006.  
Thesis Title: Seasonal estimates of photochemical production of dissolved inorganic carbon from terrestrial organic matter in an Atlantic Canada Coastal Zone estuary.  
Current Position: Research Technician, Halifax, NS.
8. *Cheryl Rafuse*, M.Sc., Graduated, Oct., 2004.  
Co-supervised with Dr. Allan Cembella, National Research Council of Canada, Halifax.  
Thesis Title: Effects of Physiological and Environmental Conditions on rRNA Probes for Two Species of Microalgae, *Alexandrium ostenfeldii* and *A. tamarense*.  
Current Position: unknown
9. *Elizabeth Adair Johnson*, MSc, Graduated, 2007  
Thesis Title :Investigating Carbon Monoxide (CO) Consumption in the Marine Bacterium *Silicibacter pomeroyi* (DSS3) with COXL Gene Expression  
Current Position: Water Quality Consultant, Long Beach, CA
10. *Heather Erin Reader*, Ph.D., Graduated, May 2011  
Thesis Title: Smouldering Oceans: On the Photochemically Mediated Oxidation of Dissolved Organic Carbon in Coastal Waters  
Current Position: Assistant Professor, Chemistry, Memorial University, St. John's, NF, Canada
11. *Joanna Green*, M.Sc, Graduated, May, 2013.  
Thesis Title: Linking Photochemical Carbon Transformations and Microbial Responses in the Amazon River Plume.  
Next Positions: Technician, University of Alaska, Fairbanks, AK.  
Current Position: Ph.D. student, University of Canterbury, Australia
12. *Leanne Powers*, Ph.D., Graduated, December, 2014.  
Thesis Title: Probing the Photochemical Reactivity of Oceanic Dissolved Organic Carbon  
Current Position: Research Scientist, Chesapeake Biological Laboratory, Solomons, MD
13. *Fang Cao*, Ph.D., Graduated, May 2015.  
Thesis Title: Linking UV Optical Properties and Photochemical Rates Using Remotely Sensed Ocean Color  
Current Position: Assist. Professor, East China Normal University, Shanghai, China
14. *Lydia Babcock-Adams*, B.Sc., UGA MarSci IDS/Chemistry (Senior Thesis Advisor)  
Current Position: PhD Student, Woods Hole Oceanographic Institute, Woods Hole, MA

Students Graduated while at Dalhousie (Committee Member start to finish; 5 Ph.D., 7 M.Sc.):

*Jean-Paul Parkhill*, Ph.D., Graduated: 2003

Major Professor: J. Cullen

Thesis Topic: Fluorescence as a diagnostic for nutrient limitation

*Trevor Dykstra*, M.Sc. Graduated: Department of Civil Engineering, 2002

Major Professor: Dr. Gagnon, Dal Tech.

Thesis Title: Impact of ultraviolet disinfection on biological stability.

*Claire Hughes*, M.Sc., Graduated: Spring 2001

Major Professor: R. Moore

Thesis Title: Studies on the oceanic source of methyl iodide.

*Aurea Ciotti*, Ph.D., Graduated: Fall 1999

Major Professor: John Cullen / Marlon Lewis

Thesis Title: Influence of Phytoplankton Communities on Relationships Between Optical Properties of Coastal Surface Waters.

*Yannick Hout*, M.Sc., Graduated: Spring 1999

Major Professor: John Cullen

Thesis Title: Damage to DNA in Bacterioplankton: A Model of Damage by Ultraviolet Radiation and its Repair as Influenced by Vertical Mixing.

*Wayne Grosko*, Ph.D., Graduated: Spring 1999

Major Professor: Robert Moore

Thesis Title: An Estimate of the Global Air-Sea Flux of Methyl Chloride, Methyl Bromide, and Methyl Iodide.

*Janice Lawrence*, Ph.D., Graduated: Spring 1999

Major Professor: Marlon Lewis / Allen Cembella

Thesis Title: Population Dynamics and Toxicity of the Epiphytic Dinoflagellate *Prorocentrum lima* in a Shallow Coastal Embayment: Implications for Shellfish Aquaculture

*Faisal S. Boudala*, M.Sc., Graduated: Fall 1998

Major Professor: Ian Folkins

Thesis Title: Mercury Flux Measurements Across Air/Water and Air/Soil Interfaces at Kejimikujik National Park.

*Huixiang Xie*, Ph.D., Graduated: Fall 1998

Major Professor: Robert Moore

Thesis Title: A Study of the Ocean Source of Carbon Disulfide.

*Estelle Couture*, M.Sc., Graduated: 1997

Major Professor: Marlon Lewis / Bruce Johnson

Thesis Title: Analysis of Chlorate in Seawater and its Toxicity to Phytoplankton.

*Geoff MacIntyre*, M.Sc., Graduated: Spring 1996

Major Professor: John Cullen

Thesis Title: Vertical Migration and Toxicity in *Alexandrium excavatum*.

*Jacquelyn Witte*, M.Sc., Graduated: Spring 1996

Major Professor: Ian Folkins

Thesis Title: Analysis of the Response of Lower Stratospheric NO<sub>x</sub> to Perturbations from Subsonic Aircraft at DC-8 Altitudes.

Students Graduated after move to UGA (Committee Member until 1/2004; 4 Ph.D., 2 M.Sc.):

*Steve Pushon*, Ph.D., Graduated: 2004

Major Professor: R. Moore

Thesis Title: Nitrous oxide production and consumption in seawater.

*Yannick Hout*, Ph.D., Graduated: December, 2004

Major Professor: J. Cullen

Thesis Title: Sun-Induced Fluorescence of Phytoplankton in the Ocean: Linking Physiology and Remote Sensing

*Kitty Brown*, Ph.D., withdrawn, 2004

Major Professor: M. Lewis / J. Cullen

Thesis Topic: Interpreting bio-optical variability in the visible and near-ultraviolet in coastal and open ocean surface waters in terms of phytoplankton and colored dissolved organic matter absorption, phytoplankton taxonomy and trophic status

*Gudmundur Oskarsson*, Ph.D., Graduated: March, 2005.

Major Professor: C. Taggart,

Thesis Title: Can pre-spawning factors help explain recruitment variation in Atlantic herring (Clupeidae: *Clupea harengus*, L.): A comparative approach.

*Audrey Barnett*, M.Sc., Graduated: November, 2005

Major Professor: M. Lewis / J. Cullen,

Thesis Title: Nonphotochemical quenching of fluorescence as a diagnostic of light history and nutrient stress in the diatom *Thalassiosira pseudonana*.

*Natasha Bernier*, Ph.D., Graduated: December, 2005

Major Professor: K. Thompson

Thesis Title: Annual and Seasonal Extreme Sea Levels in the Northwest Atlantic: Hindcasts Over the Last 40 Years and Projections for the Next Century.

*Lu Wang*, M.Sc., Graduated: 2006

Major Professor: R. Moore

Thesis Topic: Oceanic cycles of halogenated compounds

Students graduated at UGA (Committee Member; 2 M.Sc., 4 Ph.D.):

*Elizabeth Wandzell*, M.Sc., Graduated: 2006

Major Professor: J. Hollibaugh

Thesis Topic: DOM and microbial processes in a southern California water system.

*Eric Porter*, M.Sc., Graduated: 2006

Major Professor: B. Binder

Thesis Topic: Effects of UV on an open ocean phytoplankton

*Hai Pan*, Ph.D., Graduated: 2012

Major Professor: Ming-Yi Sun

Thesis Title: Impacts of biochemical processes on chemical and isotopic signals of algae-derived lipid biomarkers Implications for studies of organic carbon cycle and paleoceanography.

*Baoshan Chen*, Ph.D., Graduated: 2015.

Major Professor: Wei-Jun Cai

Thesis Title: The dynamics of carbonate system and air-sea CO<sub>2</sub> fluxes responding to rapid sea ice retreat in the western Arctic Ocean.

*Miriam Perryman*, Ph.D., UGA Engineering, Graduated: 2015.

Major Professor: Jenna Jambeck

Thesis Title: Microplastic generation in the marine environment through fragmentation and degradation.

*Sabrina Phillips*, Ph.D., UGA Chemistry; Graduated: Spring 2017

Major Professor: Geoff Smith

Thesis Topic: Origin of optical absorptivity in brown carbon aerosols.

Students Outside Dalhousie (Invited External Examiner, Ph.D. Defense):

*Joseph Jankowski*, Ph.D., Graduated: Spring 1999 (attended defense)

Department of Chemistry, SUNY, Syracuse, NY, USA.

Major Professor: David Kieber

Thesis Title: The Development of UV Actinometers.

*Robert Whitehead*, Ph.D., Graduated: Mars 2000 (attended defense)

Université du Québec à Rimouski, PQ, Canada

Major Professor: Stephan DeMora

Thesis Title: Effets du Rayonnement Ultraviolet-B sur les Processus Photochimiques dans l'Estuaire du Saint-Laurent.

*Anthony James Kettle*, Ph.D., Graduated: Fall 2000 (attended defense)

Department of Chemistry, York University, ON, Canada

Major Professor: Geoff Harris

Thesis Title: Extrapolation of the Flux of Dimethylsulfide, Carbon Monoxide, and Carbonyl Sulfide from the Oceans.

*Marc Tedetti*, Ph.D., Graduated: Octobre 2006 (attended defense)

Centre d'Océanologie de Marseille, Université de la Méditerranée, Luminy, France

Major Professor: Richard Semperé

Thesis Title: Impact du rayonnement ultraviolet (UVR) sur la phototransformation de la matière organique dissoute (DOM) en milieu marin.

*Suzanne McDonald*, Ph.D., Graduated: Spring 2007 (invited written report only)

Department of Chemistry, Charles Sturt University, Bathurst, Australia

Thesis Title: Characterisation, photo-transformations, and bacterial utilisation of DOC and fulvic acid from an Australian floodplain river and billabong.

*Na Sai*, Ph.D., Fall 2018 (invited written report only), Andrew Rose, major professor

Department of Geoscience, Southern Cross University, Lismore, Australia

Thesis Title: Understanding the Photochemistry of Coastal Hypoxic Blackwater.

*Yuting Zhu*, Ph.D., Department of Chemistry, SUNY College of Environ. Sci. and Forestry;  
Graduated: Spring 2019 (attended committee meetings, comprehensives, and defense)  
Major Professor: David Kieber  
Thesis Topic: Photochemical production of low molecular weight compounds from seawater

Postdoctoral Fellowships (Advisor):

*Norman Scully*, 1998-99.

Project Title: CDOM and photochemical carbon cycling in the NOW polynya.  
Current Position: Research Scientist, University of Washington.

*Jane Sherrard*, 2001 - 2004

Project Title: Canadian SOLAS Network, Marine Photochemistry  
Current Position: Hill Laboratories, Hamilton, New Zealand

*Rebecca Effler*, 2006-2008

Project Title: Ecology of coastal forests; role of forest insects in nutrient cycling; plant-insect interactions; and plant and insect responses to multiple environmental stressors.

*Leanne Powers*, 2015-2016 (co-supervised with Aron Stubbins)

Project Title: Photochemical Investigations of Aquatic Systems related to Organic Carbon and Reactive Oxygen Species.

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**PUBLIC OUTREACH AND OTHER ACTIVITIES**

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- Represented NSF/Ocean Sciences Division at National Science & Engineering Festival, Convention Center, Washington D.C; 2016
- Invited Guest Speaker, Meeting of the Northeast Georgia Chapter, American Chemical Society, Athens, GA, September, 2013
- Maintained webpage, both science and kids' blogs from aboard the *RV Melville* on Gulf of Alaska cruise, NSF outreach, August 2013
- Visited Chase Elementary 4th grade; Discussed Gulf of Alaska cruise, NSF outreach, May 2013; return visit May 2014.
- Invited Guest Speaker, Savannah Rotary Club, Savannah, GA, Nov. 2011
- Visited Social Circle Middle School, Social Circle, GA; 1 hour presentation to entire sixth grade about Marine Sciences, Sept. 2011
- Visited J.J. Harris Elementary School, Athens, GA; work with students on Ocean Science projects, Feb. 2011
- Delivered lecture to UGA Parent's and Families Council, "UGA's Role in the Deep Horizon Disaster," Fall meeting, at the invitation of Franklin College, Sept. 2010.
- Talked to media regularly about UGA's response to the Deep Horizon oil spill, appeared on TV and in radio broadcasts, 2010
- State Science Fair Judge, Athens, GA 2006, 2010-12
- Class lecture Oceanography, Oconee High School, 2006; helped with training session for Marine Science Bowl team, Oconee High School to ready them for the National Competition
- Regional Science Fair Judge, Athens, GA 1994, 2004
- CBC Radio Interview for Canadian SOLAS Project, 2002, Halifax, NS
- Research Services Office (Dalhousie) recommended radio interview for CBC in Regina as an expert for a special "Listener's Questions" show, asking "Why are the oceans so salty and what keeps them that way?" 1997.

- Career Day, Basinview Elementary & Bedford Junior High School, Nova Scotia (1997-2003)
- Selected to represent Dalhousie as a member of its 4-member faculty team in academic trivia competition with University of Manitoba, filmed 4 episodes for "@discovery.ca," a nationally broadcast, weekly television show on the Discovery Channel, 1995.