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EDUCATION:

Ph.D.	Chemical Oceanography, University of Rhode Island	1990
M.S.	Marine Science, University of South Florida	1985
B.A.	Biology, Wake Forest University (cum laude)	1979

PROFESSIONAL EXPERIENCE:

2008 – present	Professor, Marine Sciences; University of Georgia
2015 – 2017	Program Director, Chem. Oceanography, National Science Foundation
2004 – 2013	Director, Marine Institute; Associate Director, Marine Programs;
2010 – Nov.	Visiting Professor, University of Tokyo, AORI, Kashiwa, Japan
2004 – 2008	Associate Professor (tenured), Marine Sciences; University of Georgia
2004 – June	Visiting Professor, University of Marseille, CNRS Luminy, France
1998 - 2004	Associate Professor (tenured), Department of Oceanography, Dalhousie University, Halifax, Nova Scotia, Canada
1995 - 1998	Assistant Professor, Department of Oceanography, Dalhousie University, Halifax, Nova Scotia, Canada
1993 - 1995	National Research Council Associate, "Photochemical Carbon Transformations and Trace Gas Production in Natural Systems," National Academy of Sciences, US EPA, Athens, GA, Advisor: Dr. Richard G. Zepp
1991 - 1992	Environmental Chemist, AScI, Corp., EPA Global Climate Change Program, Environmental Research Lab., Athens, Georgia
1991 (Jan-July)	Postdoctoral Fellow, Atmospheric Chemistry, Dr. Brian Heikes, NASA PEM-West investigation of atmospheric oxidants in the North Pacific, Graduate School of Oceanography, University of Rhode Island, Narragansett, RI

CURRENT RESEARCH INTERESTS:

Photochemistry: Significance to aquatic carbon cycles; distribution of trace carbon gases, alteration of aquatic humic substances, and relation to optics and biological processes

Integrating photochemistry, ocean optics, and remote sensing for regional and global calculations of photochemical and photobiological processes

Trace gases fluxes; Significance to global warming, biogeochemical feedbacks & climate change

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

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

SCHOLARLY ACTIVITIES:

Publications

Reviewed Research Papers: *(students, techs, and postdocs under my supervision 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.
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.
3. Byrne, R.H., and W.L. **Miller**. (1985) Copper(II) carbonate complexation in seawater. *Geochimica et Cosmoschimica Acta*, **49**(8):1837-1844.
4. **Miller**, W.L., N.J. Blake, and R.H. Byrne. (1985) Uptake of Mn^{54} by the beach clam, Donax variabilus (Say, 1822) from a resin buffered seawater system. *Marine Environmental Research*, **17**(2-4):163-166.
5. **Miller**, W.L., N.J. Blake, and R.H. Byrne. (1985) Uptake of Zn^{65} and Mn^{54} into body tissues and renal concretions by the southern quahog, *Mercenaria campechiensis (Gmelin)*: Effects of elevated phosphate and metal concentrations. *Marine Environmental Research*, **17**(2-4):167-171.
6. Byrne, R.H., and W.L. **Miller**. (1986) Chemical speciation in high-complexation intensity systems. **In** *Organic Marine Geochemistry*, ACS Symposium Series no. 305, ed. Mary L. Sohn, 358-368.
7. **Miller**, W.L., and D.R. Kester. (1988) Hydrogen peroxide measurement in seawater by p-hydroxyphenylacetic acid dimerization. *Analytical Chemistry*, **60**:2711-2715.
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.
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.
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.
11. **Miller**, W.L., and D.R. Kester. (1994a) Peroxide variations in the Sargasso Sea. *Marine Chemistry*, **48**:17-29.
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.
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.
14. **Miller**, W.L., D.W. King, J. Lin, and D.R. Kester. (1995) Photochemical cycling of iron in coastal seawater. *Marine Chemistry,* **50**(1-4):63-77.
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.
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.
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.

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.
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, and J.A. Lindesay, Wits University Press, Johannesburg, South Africa, pp. 135-160.
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.
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.
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.
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.
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.
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.
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.
27. Zepp, R.G., M.M. Gumz, and W.L. **Miller**. (1998) Use of valerophenone as an ultraviolet-B actinometer for environmental studies. *Journal of Physical Chemistry* **102**(28): 5716-5723.
28. **Miller**, W.L. (2000) An Overview of Aquatic Photochemistry as it relates to microbial production. **In** *Microbial Biosystems: New Frontiers, Proceedings of the 8th International Symposium on Microbial Ecology*, eds. C.R. Bell, M. Brylinsky, and P. Johnson-Green, pp. 201-207.
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.
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.
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.

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.
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.
35. Lisa A. Miller, 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.
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.
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.
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.
39. Philip W. Boyd, Cliff S. Law, C.S. Wong, Yukihiro Nojiri, Atsushi Tsuda, Maurice Levasseur, Shigenobu Takeda, Richard Rivkin, Paul J. Harrison, Robert Strzepek, Jim Gower, R. Mike Mckay, Edward Abraham, Mike Arychuk, Janet Barwell-Clarke, William Crawford, David Crawford, Michelle Hale, Koh Harada, Keith Johnson, Hiroshi Kiyosawa, Isao Kudo, Adrian Marchetti, William **Miller**, Joe Needoba, Jun Nishioka, Hiroshi Ogawa, John Page, Marie Robert, Hiroaki Saito, Akash Sastri, Nelson Sherry, Tim Soutar, Nes Sutherland, Yosuke Taira, Frank Whitney, Shau-King Emmy Wong & Takeshi Yoshimura, (2004) The decline and fate of an iron-induced subarctic phytoplankton bloom, *Nature*. **428**(6982): 449-553.
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_2 Production on the Southwest Florida Shelf, *Marine Chemistry,* **89**(1-4):145-167.
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.
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.
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.
44. Ziolkowski, L.A., and W.L. **Miller** (2007) Variability of the quantum efficiency of CO photoproducton in the Gulf of Maine. *Marine Chemistry,* **105**:258-270.
45. Moran, M.A., and W.L. **Miller** (2007) Microbial carbon biogeochemistry in the coastal ocean: resourceful heterotrophs make the most of light, *Nature Reviews Microbiology,* **5**:792-800.

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
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.
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.
49. Fichot C. G., and W. L. **Miller** (2010) Quantifying marine photochemical fluxes using remote sensing: a monthly, global, depth-resolved climatology of carbon monoxide (CO) photoproduction. *Remote Sensing of Environment*, **114**:1363–1377.
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."
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. *Journal of Geophysical Research*, **116**:C08002, doi:10.1029/2010JC006823.
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.
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
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
55. Reader, H. E., and W. L. **Miller** (2014) The efficiency and photon dose dependence of photochemically induced changes to the microbial lability of dissolved organic carbon. *Limnology and Oceanography,* **59**(1):182-194.
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* 144C: 11-27, doi:10.1016/j.rse.2014.01.003
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 Georgia, USA. *GIScience & Remote Sensing,* **51(2):**199-21, doi:10.1080/15481603.2014.895583
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
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.

60. Powers, Leanne C., and W. L. **Miller** (2015) Photochemical production of CO and CO_2 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.
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,** doi:10.1002/2014GL062663.
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*, doi:10.1016/j.marchem.2015.06.005.
63. Powers, Leanne C., and W. L. **Miller** (2015) Hydrogen peroxide and superoxide photoproduction in diverse marine waters: A simple proxy for estimating direct CO2 photochemical fluxes. *Geophys. Res. Letters*. 42: 7696-7704. doi:10.1002/2015GL065669
64. Patricia M. Medeiros, 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.
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.
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
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
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
69. Powers, Leanne C., Jay A. Brandes, Aron Stubbins, and William L. **Miller** (2017) MoDIE: Moderate Dissolved Inorganic Carbon (DI13C) Isotope Enrichment for improved evaluation of DIC photochemical production in seawater. (accepted, *Marine Chemistry*, Mar. 2017)
70. Green, Joanna L., P. L. Yager, W. L **Miller** and M. A. Moran (2017) Linking Photochemical Carbon Transformations and Microbial Responses in the Amazon River Plume. (in review, Frontiers in Microbiology).
71. Cao, F., D. R. Mishra, J. F. Schalles and W. L. **Miller** (2017) Evaluating ultraviolet (UV) based photochemistry in optically complex coastal waters using the Hyperspectral Imager for the Coastal Ocean (HICO) (submitted *Geophysical Research Letters*)
72. Cao, F., and W. L. **Miller** (2017) Distribution of chromophoric and fluorescent dissolved organic matter components in the northeastern North Pacific Ocean. (in prep. for *Deep Sea Research*).

Published Abstracts / Presentations: *(students, techs, and postdocs under my supervision underlined)*

1. **Miller**, W.L., & D.R. Kester. (1987) Temporal variations of hydrogen peroxide in the Sargasso Sea. *EOS, Transactions, American Geophysical Union*, 68(50): Abstract No. 41F-09, 1752.

2. **Miller**, W.L., & D.R. Kester. (1990) Variations of peroxide in the Sargasso Sea. In *Effects of solar ultraviolet radiation on biogeochemical dynamics in aquatic environments*, Woods Hole Oceanog. Inst. Tech. Rept., WHOI-90-09, eds. N. V. Blough and R. G. Zepp, 167-168.
3. Zepp, R.G., R.L. Valentine, & W.L. **Miller**. (1991) Formation of carbon monoxide and carbon dioxide from photoreactions of natural organic matter. IGBP Workshop "Trace-Gas Fluxes in Mid-Latitude Ecosystems," Sept. 23-25, 1991, National Center for Atmospheric Research, Boulder, CO.
4. **Miller**, W.L., J. Lin, & D.R. Kester. (1992) Photochemical redox cycling of iron in coastal seawater. In *Proceedings from the AGU 1992 Ocean Science Meeting*, New Orleans, January 27-31, 1992.
5. **Miller**, W.L. & R.G. Zepp. (1992) Photochemical carbon cycling in aquatic environments: formation of atmospheric carbon dioxide and carbon monoxide. In *Preprints of Papers Presented at the 203rd ACS National Meeting*, 32(1), 158-160.
6. Zepp, R.G., D.J. Bertino, & W.L. **Miller**. (1992) Use of valerophenone as an ultraviolet-B actinometer for environmental studies. In *Preprints of Papers Presented at the 203rd ACS National Meeting*, 32(1), 282-285.
7. **Miller**, W.L., R.G. Zepp, & M.A. Tarr. (1993) Carbon monoxide dynamics in an african savanna: potential for tropospheric gas exchange. *American Geophysical Union 1993 Fall Meeting*, San Francisco, CA.
8. Zepp, R.G., W.L. **Miller**, & R.A. Burke. (1993) Effects of moisture and burning on soil-air exchange of trace carbon gases in a southern African savanna. *American Geophysical Union 1993 Fall Meeting*, San Francisco, CA.
9. Tarr, M.A, W.L. **Miller**, & R.G. Zepp. (1993) Carbon monoxide photoproduction from plant matter: implications for global climate change. *American Geophysical Union 1993 Fall Meeting*, San Francisco, CA.
10. Zepp, R.G., W.L. **Miller**, & R.A. Burke. (1993) Effects of moisture and burning on soil-air exchange of trace carbon gases in a southern African savanna. *Eos, Transactions of the American Geophysical Union, 1993 Fall Meeting*, 74(43), 128.
11. Tarr, M.A, W.L. **Miller**, & R.G. Zepp. (1993) Carbon monoxide photoproduction from plant matter: implications for global climate change. *Eos, Transactions of the American Geophysical Union, 1993 Fall Meeting*, 74(43), 162.
12. **Miller**, W.L., R.G. Zepp, M.A. Moran, E.S. Sheppard, & R.E. Hodson. (1994) Organic carbon cycling in water from a Georgia salt marsh: Photochemical and biological transformations. *Eos, Transactions of the American Geophysical Union, 1994 Fall Meeting*, 75(44), 327.
13. **Miller**, W.L. (1995) Photochemical transformations of organic matter in natural waters. *International Humic Substances Society Symposium: Humic Substances in the Environment, New Challenges and Approaches,* Aug. 27 -Sept. 1, 1995, Atlanta, GA, USA.
14. Bushaw, K.L., R.E. Hodson, R.A. Bourbonniere, D.A. Bronk, W.L. **Miller**, R.G. Zepp, M.A. Tarr, D. Schulz-Jander, & M.A. Moran. (1995) The photochemical release of labile nitrogen from aquatic fulvic acids. *International Humic Substances Society Symposium: Humic Substances in the Environment, New Challenges and Approaches,* Aug. 27 -Sept. 1, 1995, Atlanta, GA, USA
15. Tarr, M.A., D. Schulz-Jander, R.A. Bourbonniere, W.L. **Miller**, R.G. Zepp, K.L.Bushaw, D.A. Bronk, R.E. Hodson, & M.A. Moran. (1995) Photo-ammonification: Effects of solar ultraviolet radiation on the release of ammonium from aquatic humic substances. *International Humic Substances Society Symposium: Humic Substances in the Environment, New Challenges and Approaches,* Aug. 27 -Sept. 1, 1995, Atlanta, GA, USA.
16. Bourbonniere, R.A., L.A. Ziolkowski, S.L. Telford, M.A. Moran, K.L. Bushaw, W.L. **Miller**, M.A. Tarr, & R.G. Zepp. (1995) Character and biogeochemistry of dissolved organic matter in a

boreal forest beaver pond near Thompson, Manitoba, Canada. **In** *Proceedings of the 17th International Meeting on Organic Geochemistry,* Sept. 1995, Donostia-San Sebastian, Spain.

17. Zepp, R.G., W.L. **Miller**, R.A. Bourbonniere, & M.A. Tarr. (1995) Interactions of changing solar ultraviolet radiation and organic matter photooxidation in northern peatlands. **In** *Papers Presented at the 210th ACS National Meeting*, Chicago, Illinois, 35(2), 394-397.
18. Burke, R.A., M.A. Tarr, W.L. **Miller**, & R.G. Zepp. (1995) Effect of fire on soil-atmosphere exchange of methane and carbon dioxide in a Canadian boreal forest during BOREAS '94. *Eos, Transactions of the American Geophysical Union, 1995 Spring Meeting*, 76(17), S126.
19. Tarr, M.A., W.L. **Miller**, Burke, R.A., & R.G. Zepp. (1995) Effect of fire on soil-atmosphere carbon monoxide exchange in a Canadian boreal forest during BOREAS '94. *Eos, Transactions of the American Geophysical Union, 1995 Spring Meeting*, 76(17), S126.
20. **Miller**, W.L., R.A. Bourbonniere, & R.G. Zepp. (1996) Photochemical CO production in a boreal beaver pond. *Eos, Transactions of the American Geophysical Union, 1996 Ocean Sciences Meeting*, 76(3), OS31.
21. **Miller**, W.L. (1996) Aquatic Photochemistry and biological carbon utilization. In *Science and Policy Implications of Atmospheric Issues in Atlantic Canada: Workshop Proceedings*, R.W. Shaw, ed., Rept. 6, Environment Canada, Atlantic Region, Sackville, NB, 143 pp.
22. Cullen, J.J., R.F Davis, J.S. Bartlett, & W.L. **Miller**. (1997) Toward remote sensing of UV attenuation, photochemical fluxes and biological effects of UV in surface waters. **In** *Program and Abstracts, Current and Emerging Issues in Aquatic Science, ASLO Aquatic Sciences Meeting*, Santa Fe, NM, pp. 137.
23. Kieber, D.J., D. Lean, R. Jones, & W. **Miller**. (1997) Photochemical remineralization of DOC and photosynthesis in an alkaline Canadian lake. **In** *Program and Abstracts, Current and Emerging Issues in Aquatic Science, ASLO Aquatic Sciences Meeting,* Santa Fe, NM, pp. 209.
24. **Miller**, W.L., R.A. Bourbonniere, & R.G. Zepp. (1997) Examining the direct photochemical mineralization of dissolved organic carbon in natural waters. **In** *Program and Abstracts, Current and Emerging Issues in Aquatic Science, ASLO Aquatic Sciences Meeting,* Santa Fe, NM, pp. 240.
25. **Miller**, W.L., R.F. Davis, & J.J. Cullen. (1997) Measuring irradiance profiles and upwelling radiance of ultraviolet radiation in coastal waters. **In** *Program and Abstracts, Current and Emerging Issues in Aquatic Science, ASLO Aquatic Sciences Meeting,* Santa Fe, NM, pp. 240.
26. Zepp, R., W. **Miller**, M. Tarr, R. Bourbonniere, M. Moran, & K. Bushaw. (1997) Effects of changing solar ultraviolet radiation on the bioavailability and mineralization of organic carbon and nitrogen. SETAC Meeting.
27. Burke, R.A., R.G. Zepp, M.Tarr, W. **Miller**, & B. Stocks. (1997) Influence of fire on soil-atmosphere exchange of methane and carbon dioxide in Canadian boreal forest sites, SETAC Meeting.
28. Tarr, M., R. Zepp, R. Burke, W. Drexler, W. **Miller**, & M. Keller. (1997) Influence of photochemistry on earth-atmosphere carbon monoxide exchange in boreal, temperate, and tropical ecosystems, SETAC Meeting.
29. Moran, M.A., W.L. **Miller**, K.L. Bushaw, & R.G. Zepp. (1997) Role of photoreactions in controlling rates of biodegradation of estuarine dissolved organic matter, Special Symposium of the Geochemical Society of America at the Geological Society's annual meeting in Salt Lake City, October, 1997 (organizers: John Hedges, Cindy Lee, and Stuart Wakeham)
30. **Miller**, W.L., S.C. Johannessen, R.F. Davis, J.J. Cullen, & N.V. Blough. (1998) Relating field measurements of UV radiation to CDOM optics in coastal waters, *Eos, Transactions of the American Geophysical Union, 1997 Ocean Sciences Meeting*, 79(1), OS29.

31. Xie, H., R.M. Moore, W.L. **Miller**, & M.G. Scarratt. (1998) A study of thee ocean sources of carbon disulphide, *Eos, Transactions of the American Geophysical Union, 1997 Ocean Sciences Meeting*, 79(1), OS97.
32. **Miller**, W.L., S.C. Johannessen, R.J. Moore, & N.M. Scully. (1998) Comparing the photo-oxidation of DOM from diverse environments. SETAC Charlotte, NC, USA.
33. Belzile, C., S. Johannessen, M. Gosselin, S. Demers, & W. **Miller**. (1999) Transmission of ultraviolet irradiance through first-year sea ice in the North Water polynya. **In** *Program and Abstracts, Navigating into the Next Century, ASLO Aquatic Sciences Meeting,* Santa Fe, NM, pp. 22.
34. Johannessen, S., W.L. **Miller**, & J.J. Cullen. (1999) Photochemistry from space: Integrating field data with theory. **In** *Program and Abstracts, Navigating into the Next Century, ASLO Aquatic Sciences Meeting,* Santa Fe, NM, pp. 94
35. Scully, N.M., & W.L. **Miller** (1999) Spatial and temporal properties of couloured dissolved organic matter in the North Water polynya. **In** *Program and Abstracts, Navigating into the Next Century, ASLO Aquatic Sciences Meeting,* Santa Fe, NM, pp. 160
36. Cullen,, J.J., R.F. Davis, B. Nieke, S. Johannessen & W.L. **Miller**. (1999) Estimating UV attenuation and photochemical reaction rates from remote sensing of ocean color,
37. Johannessen, S. C., W. L. **Miller**, & J. J. Cullen (1999) An estimate of the marine photochemical source of dissolved inorganic carbon from SeaWiFS ocean colour, *Eos, Transactions of the American Geophysical Union, 2000 Ocean Sciences Meeting*, 80(49), OS12M-02, OS63.
38. **Miller**, W. L., & S. C. Johannessen. (1999) Examining the Efficiency for Photochemical Loss of Dissolved Organic Carbon, *Eos, Transactions of the American Geophysical Union, 2000 Ocean Sciences Meeting*, 80(49),OS21K-09, OS93.
39. Kuhn, P.S., & W.L **Miller** (1999) A Quantitative model for Photochemical Fading of Aquatic CDOM (Chromophoric Dissolved Organic Matter), *Eos, Transactions of the American Geophysical Union, 2000 Ocean Sciences Meeting*, 80(49), OS22B-05, OS112.
40. Ziolkowski, L.A., W.L. **Miller**, D.J. Kieber, & K. Mopper (2000) Rapid shipboard determination of the efficiency spectrum for photochemical carbon monoxide production, *Eos, Transactions of the American Geophysical Union, 2000 Ocean Sciences Meeting*, 80(49), OS22J-04, OS128.
41. Johannessen, S., L. Ziolkowski, & W. **Miller** (2000) Comparison of photochemical production rates of carbon monoxide and dissolved inorganic carbon in the ocean, *ACS Pacifichem 2000*, Honolulu, HI, U.S.A.
42. **Miller**, W. & P. Kuhn (2000) A quantitative model for photochemical fading of aquatic chromatic dissolved organic matter, *ACS Pacifichem 2000,* Honolulu, HI, U.S.A.
43. Miller, L.A., Yager, P.L., Erickson, K.A., Bâcle, J., Cochran, J.K., Garneau, M.-E., Gosselin, M., Hirschberg, D.J., Key, E., Klein, B., LeBlanc, B., **Miller**, W.L., & Minnett, P.J. (2001) Carbon distributions and fluxes in the north water, northern Baffin Bay, 1998 and 1999, *ASLO,* Albuquerque, NM, U.S.A.
44. Ziolkowski, L.A., W.L. **Miller**, H. Xie, & O.C. Zafiriou (2001) Marine photochemical production of carbon monoxide: A new spectral quantum yield data set, *ASLO*, Albuquerque, NM, U.S.A.
45. Bouillon, R-C., W.L. **Miller**, & M. Levasseur (2001) The spectral efficiency of dimethylsulphide (DMS) photolysis in estuarine waters, *ASLO*, Albuquerque, NM, U.S.A.
46. **Miller**, W.L., & L.A. Ziolkowski. (2002) Photochemical fading of CDOM in Florida Bay: Measurements and Models, *Eos, Transactions of the American Geophysical Union, 2000 Ocean Sciences Meeting*, Honolulu, HI, OS32R-12.

47. Ziolkowski, L.A., & W.L. **Miller** (2002) Spatial and temporal variation of CDOM fading efficiency, *Eos, Transactions of the American Geophysical Union, 2000 Ocean Sciences Meeting*, Honolulu, HI, OS32R-11.
48. Turk, D., & W.L. **Miller**, (2003) Canadian SOLAS: Two basins one challenge, *EGS - AGU - EUG Joint Assembly*, 6 - 11 April 2003, Nice, France, #11002.
49. Ziolkowski, L.A., & W.L. **Miller** (2004) *In situ* UV optical properties during the evolution of an Fe-stimulated phytoplankton bloom, *ASLO/TOS Ocean Research Conference, Feb. 15-20,* Honolulu, Hawaii, Abstract Book, p. 180.
50. Sherrard, J.C., W.L. **Miller**, E.M. White, & D.J. Kieber (2004) The photochemical transformation of dissolved organic carbon to dissolved inorganic carbon in the estuarine environment, *ASLO/TOS Ocean Research Conference, Feb. 15-20,* Honolulu, Hawaii, Abstract Book, p. 145.
51. **Miller**, W.L. (2004) The role of photochemistry in a mesoscale Fe addition experiment, *ASLO/TOS Ocean Research Conference, Feb. 15-20,* Honolulu, Hawaii, Abstract Book, p. 106.
52. Fichot, C.G., & W.L. **Miller** (2004) Remote sensing of UV diffuse attenuation and gelbstoff (CDOM) absorption for use in photochemistry, *ASLO/TOS Ocean Research Conference, Feb. 15-20,* Honolulu, Hawaii, Abstract Book, p. 48.
53. Bouillon, R-C, & W.L. **Miller** (2004) Photochemistry of DMS in an in situ iron-induced northeast Pacific ocean bloom, *ASLO/TOS Ocean Research Conference, Feb. 15-20,* Honolulu, Hawaii, Abstract Book, p. 19.
54. Kieber, D.J., E.M. White, K. Mopper, J.C. Sherrard, W.L. **Miller**, O.C. Zafiriou, & H. Xie (2004) Photochemical formation of carbon monoxide and dissolved inorganic carbon in the Delaware estuary and northwest Atlantic ocean, *ASLO/TOS Ocean Research Conference, Feb. 15-20,* Honolulu, Hawaii, Abstract Book, p.79.
55. Ziolkowski, L.A., C.S. Law, & W.L. **Miller** (2004) Investigation of the Marine Photochemical Production of Carbon Monoxide in the Waters South East of New Zealand, *8th Scientific Conference of the IGAC Project*, 4-9 September 2004, Christchurch, New Zealand
56. Tedetti, Marc, M., Richard Sempere, R., Fabien Joux, Maher Abboudi, Bruno Charriere, Estelle Wagner, Kimitaka Kawamura, William **Miller** & Kenneth Mopper (2004) "SOLAS Science 2004" International Open Science Conference, October 2004, Halifax. NS
57. Fichot, C.G., & W.L. **Miller** (2004) CDOM on the global scale: Implementation of an improved algorithm (SEAUV) to 7 years if SeaWiFS data, *Ocean Optics XVII, Oct. 25-29* Fremantle, Western Australia, printed abstract p. 39, extended abstract on CD.
58. **Miller**, W.L., & C.G. Fichot (2004) Estimation of depth-resolved photoproduction rates for carbon monoxide (CO) using SeaWiFS imagery: Spatial and seasonal variability at global scales, *Ocean Optics XVII, Oct. 25-29* Fremantle, Western Australia, printed abstract p. 54, extended abstract on CD.
59. **Miller**, W. L., C.G. Fichot, L. A. Ziolkowski, & S. C. Johannessen, (2005) Calculating the total impact of photochemistry on dissolved organic carbon cycling in the Georgia Bight using ocean color, *ASLO Aquatic Sciences Meeting,* Salt Lake City, Utah.
60. Skalski, M., W.L. **Miller**, & P. Kepkay (2005) Seasonal estimates of photochemical production of dissolved inorganic carbon from terrestrial organic matter in an Atlantic Canada coastal zone (ACCZ) estuary, *ASLO Aquatic Sciences Meeting,* Salt Lake City, Utah
61. Charrière, B., Tedetti, M., Sempéré, R., Joux, F., Abboudi, M., Wagner, E., Kawamura, K., **Miller**, & W., Mopper, K. (2005) Impact of ultraviolet radiation on dissolved organic matter cycling by bacteria in coastal Mediterranean Sea. ASLO Summer Meeting, , June, Saint Jacques de Compostelle, Spain.

62. **Miller**, W. L. & C. G. Fichot (2006) Using Remote Sensing to Calculate Photochemical Carbon Oxidation in the Coastal Ocean. *AGU/ASLO Ocean Sciences Meeting,* Honolulu, HI.
63. Fichot, C.G., & W.L. **Miller** (2006) Remote sensing of UV diffuse attenuation coefficients and CDOM absorption coefficients: Algorithms and applications in marine photochemistry. *AGU/ASLO Ocean Sciences Meeting,* Honolulu, Hawaii.
64. **Miller**, W. L. (2006) Canadian SOLAS: Marine photochemistry, ocean optics and air-sea exchange, *40th CMOS Congress, Weather, Oceans & Climate: Exploring the Connections, Toronto, ON*.
65. Johnson, E.A., M.A. Moran, & W.L. **Miller** (2006) Designing Primers for the Study of Carbon Monoxide (CO) Oxidation by Marine Bacterium *Silicibacter pomeroyi*. UGA Academy of the Environment Symposium, Oct. 23-24, Athens, GA.
66. Fichot, C.G., & W.L. **Miller** (2006) Classification of the world's ocean based on its surface CDOM dynamics and their regulating processes. Ocean Optics XVIII Conference, Montreal, Quebec, 9-13 October, printed abstract pg. 56, extended abstract on conference CD.
67. **Miller**, W.L., & C.G. Fichot (2006) Variability and depth resolved photochemistry from nine years of SeaWiFS data, AGU Fall Meeting, Dec. 11-15, 2006, San Francisco, CA.
68. **Miller**, W.L., & C.G. Fichot (2007) Using ocean color to quantify the significance of marine photochemistry to CO and carbon cycling in the South Atlantic Bight. US NACP/ Joint NACP Meetings, January 22-26, Colorado Springs, CO.
69. **Miller**, W.L., & C.G. Fichot (2007) Ocean color estimates for marine photochemistry and related carbon cycling in the South Atlantic Bight. NASA Ocean Color Research Team Meeting, April 11-13, Seattle, WA.
70. **Miller**, W.L., & C.G. Fichot (2007) Examining the 10-year variability in DOM photochemistry from SeaWiFS data. Geophysical Research Abstracts, Vol. 9, EGU General Assembly, April 15-20, Vienna, Austria.
71. Johnson, E.A., M.A. Moran, & W.L. **Miller** (2007) Investigating carbon monoxide (CO) consumption in the marine bacteria Silicibacter pomeroyi with coxL gene expression. Geophysical Research Abstracts, Vol. 9, EGU General Assembly, April 15-20, Vienna, Austria.
72. Sempéré, R., M. Tedetti, B. Charrière, M. Abboudi, F. Joux, D. Nerini, W. **Miller**, K. Mopper, & C. Panagiotopoulos (2007) UV impact on dissolved organic matter availability in marine waters: subsequent effects for bacterial cycling. Geophysical Research Abstracts, Vol. 9, EGU General Assembly, April 15-20, Vienna, Austria.
73. **Miller**, W.L. (2007) Examining CDOM and UV optical dynamics with the SeaUV model. US Office of Naval Research Progress Review, Southeast Region, Tallahassee, FL.
74. **Miller**, W. L., Moran, M. A., Fichot, C. G., & Johnson, E. A. (2008) Photobiogeochemistry of carbon monoxide (CO) in the coastal ocean: from genes to space. Abstracts, p. 273, 2008 Ocean Sciences Meeting, 2-7 March, Orlando, Florida, USA
75. Reader, H. E., **Miller**, W. L., Salisbury, J., St.Louis, & J., Plagge, A., (2008) Distributions of chromophoric dissolved organic matter during the Gulf of Mexico East Coast Carbon (GOMECC) cruise summer 2007. Abstracts, p. 333, AGU Ocean Sciences Meeting, 2-7 March, Orlando, Florida, USA
76. Fichot, C. G., & **Miller**, W. L. (2008) CDOM dynamics in the global ocean: What we learn from decadal time-series of satellite-derived CDOM absorption coefficients. Abstracts, p. 111, AGU Ocean Sciences Meeting, 2-7 March, Orlando, FL.
77. Reader, H., **Miller**, W. L., Salisbury, J., St.Louis, and J., Plagge, A., (2008) CDOM during the Gulf of Mexico - East Coast Carbon (GOMECC) Cruise: Using spectra for remote photochemical estimates. NASA Carbon Cycle and Ecosystems Joint Science Workshop April 28 – May 2, Adelphi, MD.

78. Reader, H.E., W.L. **Miller**, & C.G. Fichot (2009) Modeling photochemical production of carbon dioxide and biologically labile carbon using remotely sensed ocean colour. ASLO Aquatic Sciences Meeting 2009, 25-30 January, Nice, France.
79. **Miller**, W.L., & C.G. Fichot (2009) Training the SeaUV/SeaUVc algorithms for improved inshore estimates of UV optics and photochemical and photobiological rate calculations. ASLO Aquatic Sciences Meeting 2009, 25-30 January, Nice, France.
80. **Miller**, William L., Heather Reader, & Cedric G. Fichot (2009) Estimating Photochemical 12Contributions to Coastal Carbon Cycles from Remote Sensing, 2nd NACP All-Investigators Meeting, Feb. 17-20, 2009, San Diego, CA.
81. **Miller**, W.L., H.E. Reader, & C.G. Fichot (2009) The role of photochemistry in coastal carbon cycles. 2009 NASA Ocean Color Research Team Meeting, 4-6 May, 2009, New York, NY.
82. **Miller**, W.L. (2009) Estimating photochemical and photobiological rates from space: Progress and problems. SOLAS Open Science Conference, 16-19 Nov., 2009, Barcelona, Spain.
83. **Miller**, William L., & Heather Reader (2010) Examining the relative efficiency of CO and CO2 photoproduction in the coastal ocean, *Eos Trans. AGU*, 91(26), Ocean Sci. Meet. Suppl., Abstract CO54A-05.
84. Reader, H.E., & W.L. **Miller** (2010) Variability of coastal carbon dioxide photoproduction in coastal waters. *EOS Trans. AGU*, 91(26), Ocean Sci. Meet. Suppl., Abstract CO45A-14.
85. Fichot, C.G., W.L. **Miller,** S. Lohrenz, L.C. Powers, & R. Benner (2010) Photodegradation of dissolved organic carbon in a river-dominated ocean margin. *Eos Trans. AGU*, 91(26), Ocean Sci. Meet. Suppl., Abstract CO45A-19.
86. **Miller**, W.L. (2010) Quantifying Photochemical Reactions in the Surface Ocean with Optical Models: Potential Problems to Ponder. Ocean Optics XX, 27 Sept.-1 Oct. 1, Anchorage, AK.
87. Powers, L.C., C.G. Fichot, and W.L. **Miller** (2010) Depth resolved rates of photochemical carbon monoxide production in the Gulf of Mexico, a river-dominated coastal margin. Ocean Optics XX, 27 Sept.-1 Oct. 1, Anchorage, AK.
88. Cao, F., H.E. Reader, & W.L. **Miller** (2010) Retraining the SeaUV/SeaUVc model for improved algorithm of dark, inshore waters from the Georgia Coast, USA. Ocean Optics XX, 27 Sept.-1 Oct. 1, Anchorage, AK.
89. Fichot, C.G., S. Lohrenz, W.L. **Miller,** & R. Benner (2010) Dynamics of DOM optical properties and chemical composition in a river-dominated ocean margin (northern Gulf of Mexico) Ocean Optics XX, 27 Sept.-1 Oct. 1, Anchorage, AK.
90. **Miller**, W.L. (2010) Marine Photochemistry in Upwelling Systems., SOLAS Mid-term strategy meeting: Air-sea gas fluxes in eastern boundary upwelling systems and oxygen minimum zones. 8-11 November, Lima, Peru.
91. **Miller**, W.L. (2010) Using ocean optics to estimate trace gas photochemistry in the surface ocean. *Japan Society of Atmospheric Chemistry Annual Meeting,*
92. Reader, H.E., & W.L. **Miller** (2010) A novel method for predicting carbon monoxide apparent quantum yields in dark water using remote sensing reflectance data, Abstract OS31A-1407 presented at 2010 Fall Meeting, AGU, San Francisco, Calif., 13-17 Dec.
93. **Miller**, W.L., L.C. Powers & H.E. Reader (2010) Photochemical control of organic carbon availability to coastal microbial communities. Abstract B51E-0402 presented at 2010 Fall Meeting, AGU, San Francisco, Calif., 13-17 Dec.
94. Green, J.L., P.L. Yager, & W.L. **Miller**, J. Goes, P.M. Medeiros (2012) Effects of sunlight on the Amazon River plume: Exploring the dynamic relationship between photochemistry and the microbial response. Abstract 12076, AGU/ASLO Ocean Science Meeting, Salt Lake City, UT, 20-24 Feb.
95. Powers, L.C., & W.L. **Miller** (2012) Spatiotemporal variability of the photochemical efficiency

of CO2 and CO production in the northern Gulf of Mexico: Estimating the impact of carbon cycles. Abstract 12672, AGU/ASLO Ocean Science Meeting, Salt Lake City, UT, 20-24 Feb.

96. Reader, H.E., L.C. Powers & W.L. **Miller** (2012) Variability of CO and CO2 Apparent Quantum Yield (AQY) Spectra in the Coastal South Atlantic Bight and the Northern Gulf of Mexico, SOLAS Open Science Conference, 7-10 May 2012, Cle Elum, WA, USA.
97. Cao, F., P.M. Medeiros, & W.L. **Miller** (2012) Optical characterization of dissolved organic matter in the Amazon River Plume and the adjacent deep ocean. Abstract B21E-0416: presented at 2012 Fall Meeting, AGU, San Francisco, Calif.,13-17 Dec.
98. Powers, L.C., & W.L. **Miller** (2013) Estimating Reactive Oxygen Species in the Surface Ocean from Remote Sensing Data with Possible Implications for Fe Deposited from Atmospheric Dust. American Meteorological Society meeting, Austin, TX, 6-10 Jan.
99. Powers, L.C., & W.L. **Miller** (2013) Estimating the magnitude of direct photochemical carbon oxidation in the northern Gulf of Mexico using ocean color. Abstract 11715, ASLO Aquatic Sciences Meeting, New Orleans, LA, 17-22 Jan.
100. **Miller**, W. L., & L.C. Powers, (2013) Preliminary work on the photochemical reactivity of deep ocean refractory carbon: DORC photochemistry. Abstract 11978, ASLO Aquatic Sciences Meeting, New Orleans, LA, 17-22 Jan.
101. Cao, F., & W.L. **Miller** (2013) A new algorithm to retrieve colored dissolved organic dissolved organic matter (CDOM) absorbance spectra in the UV from ocean color. Abstract 11650, ASLO Aquatic Sciences Meeting, New Orleans, LA, 17-22 Jan.
102. Tolar, B. B., L.C. Powers, W. L. **Miller**; B.N. Popp, J.T. Hollibaugh (2013) Response of marine *Thaumarchaeota* to reactive oxygen species. Abstract 11630, ASLO Aquatic Sciences Meeting, New Orleans, LA, 17-22 Jan.
103. Powers, L.C., W.L. **Miller**, J.K. Enright, and L.C. Babcock-Adams (2014) Probing the photochemical reactivity of deep ocean refractory carbon: a lesson from superoxide and hydrogen peroxide kinetics. Abstract ID: 16460, AGU/ASLO Ocean Sciences, Honolulu, HI, Feb. 23-28.
104. **Miller**, W. L., L.C. Powers, F. Cao, L. Babcock-Adams, and J. Enright (2014) Photochemical reactivity of the oceanic refractory organic carbon pool: insights from the Gulf of Alaska. Abstract ID: 14931, AGU/ASLO Ocean Sciences, Honolulu, HI, Feb. 23-28.
105. Cao, F., Y. Zhu, D. Kieber, and 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, and 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, and 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., and 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. and L.C. Powers, (2015) Determining Photochemical Efficiency Spectra. Workshop on Organic Matter Spectroscopy, Sopot, Poland, Sep. 22-25. Oral presentation.
110. Powers, L.C., and W.L. **Miller** (2015) What do we really know about global ocean CO2 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, and 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., and 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., and 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., and 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 and W.L. Miller (2017) Carbon (DI13C) isotope enrichment (MoDIE) for improved evaluation of DIC photochemical production in seawater. Goldschmidt® Paris, France 13-18 Aug.

Invited Lectures at Universities, Institutes, and Workshops *(since 1995, 6 prior)*

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'Oceanographie 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

Theses:

- Miller, W.L. (1985) Uptake of Zn^{65} and Mn^{54} 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

- Selected with L.C. Babcock-Adams for Posters on the Hill; Undergrad Research Showcase, Capital 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
- Invited Speaker, Asian SOLAS Workshop, Tokyo, Japan 2005
- 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, Museé Océanographic, 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

- NSF Program Director, IPA Rotator, Chemical Oceanography 2015-2017
- Session Co-Organizer/Co-Chair, AGU/Ocean Science Meeting, Sources and Sinks of Reactive Oxygen Species in the Ocean: "Is seawater a radical solution?" (Zafiriou 1987) Revisited." Session ID 9594 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, February, Honolulu, HI 2014
- Co-Chair (NSERC) for the Expert Panel Review of the Vanier Canada Graduate Scholarships Program 2013-2014
- United States 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 2009-2011 chair, 2010 & 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 of NSERC Grant Selection Committee for Major Resources and Supplies (GSC 08-09) 2007
- Member, IGBP Scientific Steering Committee, Surface Ocean-Lower Atmosphere Study (SOLAS), Coauthor of SOLAS Science and Implementation Plan 2001- 2006
- 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, Pacifichem 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-present
- 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

2013	Photochemistry of Deep Refractory Carbon, Gulf of Alaska, *RV Melville*, co-PI with D. Hansell (U.Miami), NSF Funded; w/3 graduate and 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_2 and DMS photochemistry, UV/VIS optics
2001	*R/V Pelican*, April, 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, Kieber and 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
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), 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. Wench operation, Tucker trawl deployment

Funded Field Activities *(support for technicians, PDFs and/or students)*

2012	*RV Pelican,* Northern Gulf of Mexico, HOOH sampling, water collection for photochemistry (Student, Leanne Powers)
2011, 2012	*RV Melville & RV Atlantis,* ANACONDAS program Amazon River Plume, w/ T. Yager (UGA) photochemistry and microbial productivity (Student, Joanna Green)
2010	*RV Walton Smith*, 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	*RV Ron Brown*, 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, CO2, optics (Tech., Cedric Fichot, Student Adair Johnson)
2003	*R/V Endeavor*, Eastern N. Atlantic, Kieber and Mopper, PIs, DIC photochemistry (PDF, Jane Sherrard)
2003	*CGCS Martha Black* (2 cruises), Canadian SOLAS, N.E. Atlantic, UV/VIS optics (Tech. Lori Ziolkowski, student Cedric Fichot)
2002	*R/V El Puma*, Canadian SOLAS Fe Addition Experiment, Ocean Station PAPA, Subarctic Pacific, CO_2 and DMS photochemistry, UV/VIS Optics, (Tech., Lori Research Ziolkowski, PDF, Jane Sherrard, Student, Rene Boullion)
2002	*R/V Endeavor*, Gulf of Maine, Kieber and Mopper, PIs, UV/VIS Optics, DIC photochemistry (PDF Jane Sherrard, student Cedric Fichot)
2001, 2002	*R/V Pelican*, 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	*R/V Wecoma*, 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	(~$1,649,363.00 USD *w/ no overhead or indirect*)
(does not include $8.9M total award to SOLAS Network, Miller PI)	
USD Funding while in Canada:	$ 770,493.00
USD Funding at UGA since 2004:	$1,500,615.00
Total USD Funding = $2,271,1108	(continuous since 1996)

- 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 Kejimkujik 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.
    - SOLAS Research Project Grant, $374,350 CAN, W.L. Miller.
    - 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.

January 2004: Relocation to US and the US Funding System

Past Support

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_2 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

Current Support

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 – 6/31/17 (NCE while at NSF)
Location of Project: University of Georgia

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), this 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 appointment at UGA, begun in January 2004, is 50% administrative (Director Marine Institute, Assoc. Director Marine Programs).

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
Chemical Oceanography (yearly 2004 - 2014)
(graduate core course, responsible faculty, co-teach ~50%)
The Marine Environment (yearly 2010 - 2014)
(introductory undergraduate course, 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 Sponge Bob Squarepants" (spring 2011) (invertebrate biology and ocean concepts as gleaned from the popular children's cartoon)
First Year Odyssey: "The Marine Science of Sponge Bob Squarepants" (spring 2012 - 2014)

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

Current Students (Major Professor):

No Graduate Students at present; while serving as NSF Program Director, Arlington, VA

Current Students (Committee Member; (2 Ph.D):

Sabrina Phillips, Ph.D., UGA Chemistry; Expected graduation: 2017
Major Professor: Geoff Smith
Thesis Topic: Origin of optical absorptivity in brown carbon aerosols.

Yuting Zhu, Ph.D., Department of Chemistry, SUNY College of Environ. Sci. and Forestry
Major Professor: David Kieber
Thesis Topic: Photochemical production of low molecular weight compounds from seawater

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: Res. 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 University, Marine Photochemistry, Ph.D., UC Irvine, CA with E. Druffel,
   Current Position: Assistant 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: French Immersion Science Teacher, 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 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: Instructor, University of Calgary, Calgary, Alberta, Canada

11. *Joanna Green,* M.Sc, Graduated, May, 2013.
    Thesis Title: Linking Photochemical Carbon Transformations and Microbial Responses in the Amazon River Plume.
    Next Position: Education Coordinator, Smithsonian Institute, Washington, DC
    Current Position: Technician, University of Alaska, Fairbanks, AK.

12. *Leanne Powers,* Ph.D., Graduated, December, 2014.
    Thesis Title: Probing the Photochemical Reactivity of Oceanic Dissolved Organic Carbon
    Current Position: Postdoctoral 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: Postdoctoral Scientist, City University of New York, New York City, NY

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 Aquacultre

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 Kejimkujik National Park.

Huixang 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 NOx to Perturbations from Subsonic Aircraft at DC-8 Altitudes.

Students Graduated after move (Served as 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 comparitive 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., 3 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, PhD., Graduated: 2015.
Major Professor: Wei-Jun Cai
Thesis Title: The dynamics of carbonate system and air-sea CO2 fluxes responding to rapid sea ice retreat in the western Arctic Ocean.

Miriam Perryman, PhD., Graduated: 2015.
Major Professor: Jenna Jambeck
Thesis Title: Microplastic generation in the marine environment through fragmentation and degradation.

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 Precessus Photochimiques dans l'Estuare 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'Oceanologie 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
Thesis Title: Characterisation, photo-transformations, and bacterial utilisation of DOC and fulvic acid from an Australian floodplain river and billabong.

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.

ADMINISTRATIVE ACTIVITIES (BRIEF NARRATIVE)

NATIONAL SCIENCE FOUNDATION (2015-2017)

Program Director, Chemical Oceanography (CO)

Critical Element: Program Planning & Management
- CO 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 on the Data (evaluate & update the Data Management Plan) and Ocean Observing Initiative (OOI; advise, evaluate, and establish community interactions).

Critical Element: Coordination & Liaison
- Observer/NSF Advisor at annual Ocean Carbon Biogeochemistry (OCB) and U.S. GEOTRACES Scientific Steering Committee meetings
- 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

Critical Element: 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 60th Anniversary Science Exchange, Sidney, BC Canada; ASLO meeting/new investigator breakfast, Honolulu, HI; OOI Community Workshops Washington, D.C. & Portland, OR)

UNIVERSITY OF GEORGIA (ATHENS): 2004-PRESENT

Director of the UGA Marine Institute (50% appointment) (2004 - 2013)

Responsible for all Marine Institute operations as described very briefly below:

(1) maintained and facilitated professional relations between UGAMI 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 UGAMI and UGA
(2) maintained and improved facilities (coordinated work teams, secured funding)
(3) supervised UGAMI personnel (assigned duties, completed performance reviews)
(4) supervised, reviewed, and supported the UGAMI resident and visiting researcher/educational program (~ 2000 visitors each year, summer intern program, etc.)
(5) 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.

Reporting and planning was required coordinated with UGA, the 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 UGAMI. 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 improving external income streams and completed major facilities upgrades. 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.

Department of Marine Science

Member of Undergraduate Curriculum Committee, Space Committee, Chaired and participated in 3-Year evaluation committees, Chaired Committee to establish policy for Research Scientist postion; Member of Faculty Search Committees; Mentor for pre-tenured faculty; duties regarding tenure and promotion evaluations, participate in Departmental seminars (meet with speakers), student recruitment, and other functions when possible.

University Level

2013 - 2015, Member, University Graduate Council
2013 - 2015, University Graduate Council 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

DALHOUSIE UNIVERSITY (NOVA SCOTIA): 1995-2004

Department of Oceanography and University (1995-2004)

(note: Committee work was the main governing mechanism in the Dept. of Oceanography, with balanced disciplinary representation, making final decisions on most aspects of operations, and recommending options directly for full faculty approval when required)

- Dept. Space Committee member (1995-2003)
- Dept. Safety Committee member (1995-2003)
- Dept. Graduate Affairs Committee member (all years: departmental admission decisions)
- Dept. Curriculum Committee member (grading policy, educational oversight, programmatic decisions, student handbook, etc.) (1995-2003); assigned as Chair for reestablishing the Comprehensive Exam for PhD candidates in Oceanography, oversaw exam development, yearly vetting and grading (1999-2003).

- University Chair of the "Chair Selection Committee" for the Biology Department, assigned by the Dean of Sciences, Dalhousie
- Coordinator, Departmental Seminar Series, 1995-96. Scheduled 24 talks including international speakers, Canadian government scientists, talks by faculty, students, and staff from Dalhousie, and speakers from local industry.

National and International

- Principal Investigator for the Canadian Surface Ocean-Lower Atmosphere (SOLAS) Network, the largest Canadian ocean science research initiative funded at the time (2001-2005). Coordinated organization and writing of the proposal, and managed distribution of funds and research activities for 42 PhD Co-PI's from British Columbia to Newfoundland. Hired, operated, and led the C-SOLAS Secretariat office at Dalhousie University, responsible for public relations, network review, reporting, and budgetary operations. Oversaw oceanographic and aircraft operations in the North Pacific and the North Atlantic in two field seasons, involving Canadian, Japanese, and Mexican research vessels as well as flight operations by Environment Canada.
- Represented Canada on the International Geosphere-Biosphere Programme's (IGBP) Scientific Steering Council for SOLAS, responsible for promoting and coordinating international research activities in air-sea interaction, and promoting cooperation with national and other international science programs.

PUBLIC OUTREACH AND OTHER ACTIVITIES

- 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.