

ROBERT JOHN KIEBER

CURRICULUM VITAE

Department of Chemistry and Biochemistry
University of North Carolina at Wilmington
601 S. College Road
Wilmington, North Carolina 28403-3297

Tel. (910) 962-3865
Fax (910) 962-3013
E-mail: kieberr@uncw.edu

Education:

B.S., Chemistry, Rutgers University, New Brunswick, NJ, 1982.
Ph.D., Analytical and Environmental Chemistry, University of Maryland, College Park, MD, 1987.

Appointments:

Teaching Assistant, University of Maryland 1982-1986.
Research Assistant, University of Maryland 1982-1987.
Postdoctoral Research Associate, Rosenstiel School of Marine and Atmospheric Science, University of Miami, Miami, FL 1988-1989.
Assistant Professor of Chemistry, University of North Carolina at Wilmington 1989 - 1994.
Associate Professor of Chemistry, University of North Carolina at Wilmington 1994 - 1999.
Professor of Chemistry, University of North Carolina at Wilmington 1999 - present.
Adjunct Professor UNC Chapel Hill, 2006-present.

Honors and awards:

Five Million Dollar Club UNCW 2012
UNCW faculty scholarship award 2001-2002
Phi Eta Sigma National Honor Society honorary member

Publications

- 2020** Shimizu, M., Summerlin, S.L., Felix, J.D., Halls, J., Avery, G.B., Kieber, R.J., Lane, C.S., Mead, R.N. and Willey, J.D. “Variable Ethanol Concentrations and Stable Carbon Isotopes Reveal Anthropogenic Ethanol Contributions to Rainwater” to *Atmos. Environ.* 234, 117578.
- 2020 (110)** Mead, R.N., Saleeby, B.; Shimizu, M.; Sanchez Garcia, R.; Avery, G.B.; Kieber, R.J.; Skrabal, S.A. “Isomers of Emerging Per- and Polyfluoroalkyl Substances in Water and Sediment from the Cape Fear River, North Carolina, USA” submitted to *Chemosphere*.
- 2020** Willey, J.D., Felix, J.D., Shimizu, S., Cala, J., Summerlin, S., Avery, G.B., Kieber, R.J. and Mead, R.N. “Impact of Biofuel Ethanol on Ethanol Cycling in the Troposphere” submitted to *Atmos. Environ.*
- 2019 Felix, J.D., Roebuck, J.A., Mead, R.N., Willey, J.D., Avery, G.B. and Kieber, R.J. “Methanol and Ethanol Concentrations in a Greenland Ice Core: Implications for Atmospheric Oxidation Chemistry” *Atmos. Environ.* 217, 116948.
- 2019 Willey, J.D., Avery, G.B., Felix, J.D., Kieber, R.J., Mead, R.N. and Shimizu, M.S. “Rapidly increasing Ethanol Concentrations in Rainwater and Air” *NPJ: Climate and Atmospheric Science* <https://doi.org/10.1038/s41612-018-0059-z>.
- 2019 Felix, J.D., Thomas, R., Casas, M., Shimizu, M.S., Avery, G.B., Kieber, R.J., Mead, R.N., Lane, C.S., Willey, J.D., Guy, A. and Campos, M.L. “Compound-Specific Carbon Isotopic Composition of Ethanol in Brazil and US Vehicle Emissions and Wet Deposition.” *Environ. Sci. Technol.* 53(3), 1698-1705.
- 2018 Mullaugh, K.M., Felix, J.D., Kieber, R.J., Willey, J.D., Avery, G.B., Mead, R.N., Payne, C.A. and Shimizu, M. “Variability of ethanol concentration in rainwater driven by origin versus season in coastal and inland North Carolina, USA” *Chemosphere* 195, 793-799.
- 2018 Skrabal, S.A., Wetterauer, A.M., Larson, L.A., Avery, G.B., Kieber, R.J. and Mead, R.N. “Photodissolution of Dissolved Copper from Resuspended Coastal Marine Sediments” *Limnol. Oceanogr.* 63, 773-785.
- 2018 Mead, R.N., Cala, J., Felix, D., Avery, G.B., Kieber, R.J., and Willey, J.D. “A Novel Headspace GC/MS Method for the Determination of Nanomolar Concentrations of Ethanol, iso Butanol and n-Butanol in Aqueous Environmental Samples” *Limnol. Oceanogr.* 15, 1007-1014.
- 2018 Mead, R.N., Luquire, C., Southwell, M., Avery, G.B., Felix, J.D., Kieber, R.J. and Skrabal, S.A. “Photochemical Alteration of Sedimentary Molecular Markers During Resuspension Events in a Shallow Estuary” in revision *Est. Coastal Shelf Sci.*

2017 Kieber, R.J., Powell, J.P., Foley, L., Mead, R.N., Willey, J.D. and Avery, G.B. "Photochemical Variability of Gas Phase and Surface Water Ethanol in Southeastern North Carolina, USA" *Atmos. Environ.* 168, 55-61.

2017 (100) Felix, J.D., Willey, J.D., Thomas, R.K., Mullaugh, K.M., Avery, G.B., Kieber, R.J., Mead, R.N. and Helms, J. "Removal of Atmospheric Ethanol by Wet Deposition" *Global Biogeochem. Cycles* 31 (2) , 348-356.

2017 Kieber, R.J., Hartrey*, L.M., Felix, D.J., Corzine*, C., Avery G.B., Mead, R.N. and Skrabal, S.A. "Photorelease of Microcystin – LR from Resuspended Sediments" *Harm. Algae* 63, 1-6.

2017 G. Brooks Avery Jr., Wesley Mickler*, Ralph N. Mead, Stephen A. Skrabal., Robert J. Kieber, and David J. Felix* Photochemical Release of Sediment Bound Brevetoxin (PbTx-2) From Resuspended Sediments *Mar. Chem.* 189, 25-31.

2017 Willey, J.D., Powell, J.P., Avery, G.B., Kieber, R.J. and Mead, R.N. "Use of an Experimentally Determined Henry's Law Constant for Ethanol in Seawater to Assess the Saturation State of Ethanol in Coastal Waters" *Chemosphere* 182, 426-432.

2016 Felix, J.D., Avery, G.B., Mead, R.N., Kieber, R.J., and Willey, J.D. "Nitrogen Content and Isotopic Composition of Spanish Moss (*Tillandsia usneoides* L.): Reactive Nitrogen Variations and Source Implications Across an Urban Air Shed" *Environ Process.* 3(4) 711-722.

2016 Roebuck, A.J., Avery, G.B., Felix, J.D., Kieber, R.J., Mead, R.N. and Skrabal, S.A. "Biogeochemistry of Ethanol and Acetaldehyde in Freshwater Sediments of Eastern North Carolina, USA" *Aquat. Geochem.* 22, 177-195.

2016 Avery, G.B., Foley, L., Carroll, A.L., Roebuck, J.A., Mead, R.N., Kieber, R.J., Willey, J.D., Skrabal, S.A., Felix, J.D., Mullaugh, K.M., Helms, J.R. "Surface Waters as a Sink for Atmospheric Gas Phase Ethanol" *Chemosphere* 144, 360-365.

2015 Mead, R.N., Felix, J.D., Avery, G.B., Kieber, R.J., Willey, J.D. and Podgorski, D.C. "Characterization of CHOS Compounds in Rainwater From Continental and Coastal Storms by Ultrahigh Resolution Mass Spectrometry" *Atmos. Environ.* 162-168.

2015 Felix, J.D., Elliot, E.M., Avery, G.B., Kieber, R.J., Mead, R.N., Willey, J.D. and Mullaugh, K.M. "Isotopic Composition of Nitrate in Sequential Hurricane Irene Precipitation samples: Implications for Changing NO_x Sources" *Atmos. Environ.* 106, 191-195.

2015 Willey, J.D., Kieber, R.J., Humphreys, J., Rice, B.C., Hopwood, M.J., Avery, G.B. and Mead, R.N. "The Role of Fossil Fuel Combustion on the Stability of Dissolved Iron in Rainwater" *Atmos. Environ.* 187-193.

- 2014** Helms, J.R., Glinski, D.A., Mead, R.N., Southwell, M., Avery, G.B., Kieber, R.J. and Skrabal, S.A. "Photochemical Dissolution of Organic Matter from Resuspended Riverine Sediments: Insights From Molecular Markers" *Organic Geochem.* 73, 83-89.
- 2014 Mead, R.N., Barefoot, S., Helms, J., Morgan, J. and Kieber, R.J. "Photodegradation of the Antihistamine Cetirizine in Natural Waters" *Environ. Toxicol. Chem.* 33, 2240-224.
- 2014 Felix, J.D., Jones, S.B., Avery, G.B., Willey, J.D., Meade, R.N. and Kieber, R.J. "Temporal and Spatial Variations in Rainwater Methanol" *Atmos. Chem. Phys.* 14, 10509-10516.
- 2014 Mead, R.N., Probst, E., Helms, J.R., Avery, G.B., Kieber, R.J. and Skrabal, S.A. "Enhanced Liquid Chromatography Mass Spectrometry Detection of PbTx-2 in Marine Waters" *Rapid Commun. Mass Sp.* 28, 2455-2460.
- 2014 Dixon, J.L., Helms, J.R., Kieber, R.J. and Avery, G.B. "Biogeochemical Alteration of Dissolved Organic Material in the Cape Fear River Estuary as a function of Freshwater Discharge" *Est. Coastal Shelf Sci.* 149, 273-282.
- 2014 Mullaugh, K.M., Byrd, J.N., Avery, G.B., Mead, R.N., Willey, J.D. and Kieber, R.J. "Characterization of Carbohydrates in Rainwater from the Southeastern United States" *Chemosphere.* 107, 51-57.
- 2014 Kieber, R.J., Tatum, S.K., Willey, J.D., Avery, G.B. and Mead, R.N. "Variability of Ethanol and Acetaldehyde Concentrations in Rainwater" *Atmos. Environ.* 84c, 172-177.
- 2013 Kieber, R.J., Guy, A.L., Roebuck, J.A., Carroll, A.L., Mead, R.N., Jones, S.B., Giubbina, F.F., Campos, M.L., Willey, J.D., and Avery, G.B. "Determination of Ambient Ethanol Concentrations in Aqueous Environmental Matrices by Two Independent Analyses" *Anal. Chem.* 85, 6095-6099.
- 2013 Seaton, P.J., Kieber, R.J., Willey, J.D., Avery, G.B., and Dixon, J.L. "Seasonal and Temporal Characterization of Dissolved Organic Matter in Rainwater by Proton Nuclear Magnetic Resonance Spectroscopy" *Atmos. Environ.* 65, 52-60.
- 2013 Mullaugh, K.M., Kieber, R.J., Willey, J.D., Mead, R.N. and Avery, G.B. "Changes in Chemical Composition of Wilmington, NC Rainwater Throughout Hurricane Irene" *Atmos. Chem. Phys.* 13, 2321-2330
- 2013** Mead, R.N., Mullaugh, K.M., Avery, G.B., Kieber, R.J., Willey, J.D. and Podgorski, D.C. "Insights into Dissolved Organic Matter Complexity in Rainwater from Continental and Coastal Storms by Ultrahigh Resolution Fourier Transform Ion Cyclotron Resonance Mass Spectrometry" *Atmos. Chem. Phys.* 13, 4829-4838.

- 2013 Avery, G.B., Farhana, B.K., Mead, R.N., Southwell, M., Willey, J.D. and Kieber, R.J. "Carbon Isotopic Characterization of Hydrophobic Dissolved Organic Carbon In Rainwater" *Atmos. Environ.* 68, 230-234.
- 2012 Willey, J.D., Mullaugh, K.M., Kieber, R.J., Avery, G.B., and Mead, R.N. "Controls on the Redox Potential of Rainwater" *Environ. Sci. Technol.* 46, 13103-13111.
- 2012 Avery, G.B., Kieber, R.J., Taylor, K.J. and Dickson-Brown, J.L. "Dissolved Organic Carbon Release from Surface Sand of a High Energy Beach Along the Southeastern Coast of North Carolina, USA" *Mar. Chem.* 132-133, 23-27.
- 2012 Kieber, R.J., Adams, M.B., Willey, J.D., Whitehead, R.F., Avery, G.B., Mullaugh, K.M. and Mead, R.N. "Short Term Temporal Variability in the Photochemically Mediated Alteration of Chromophoric Dissolved Organic Matter (CDOM) in Rainwater" 50, 112-119.
- 2011 Mullaugh, K.M., Kieber, R.J., Willey, J.D. and Avery, G.B. "Long Term Temporal Variability in Hydrogen Peroxide Concentrations in Wilmington, North Carolina USA Rainwater" *Environ. Sci. Technol.* 45, 9538-9542.
- 2011 Southwell, M., Mead, R.N., Luquire, C.M., Barbera, A., Avery, G.B., Kieber, R.J. and Skrabal, S.A. "Influence of Organic Matter Source and Diagenetic State on Photochemical Fluxes of Dissolved Organic Matter and Nutrients From Resuspended Sediments" *Mar. Chem.* 126, 114-119.
- 2011 Willey, J.D., Glinski, D.A., Southwell, M., Long, M.S., Avery Jr., G.B. and Kieber, R.J. "Decadal variations of rainwater formic and acetic acid concentrations in Wilmington, NC, USA" *Atmos. Environ.* 45, 1010-1014.
- 2010 Kieber, R.J., Smith, J., Mullaugh, K.M., Southwell, M.W., Avery Jr., G.B. and Willey, J.D. "Influence of Dissolved Organic Carbon on Photochemically Mediated Cycling of Hydrogen Peroxide in Rainwater" *J. Atmos.Chem.* 64, 149-158.
- 2010 Southwell, M.W., Smith, J.D., Kieber, R.J. and Willey, J.D. "Photochemical Production of Formaldehyde from Rainwater Dissolved Organic Matter" *Atmos. Environ.* 44, 3638-3643.
- 2010** Kieber, R.J., Pitt, J., Skrabal, S.A. and Wright, J.L.C. "Photodegradation of the Brevetoxin PbTx-2 in Coastal Seawater" *Limnol. Oceanogr.* 55, 2299-2304.
- 2010 Southwell, M.W., Avery, G.B., Kieber, R.J., Mead, R.N. and Skrabal, S.A. "Effects of Sunlight on the Production of Dissolved Organic and Inorganic Nutrients from Resuspended Sediments" *Biogeochem.* 98, 115-126.

- 2009 Willey, J.D., Inscore, M., Kieber, R.J., and Skrabal, S.A. "Manganese in Coastal Rainwater: Speciation, Cycling and Deposition to Seawater" *J. Atmos. Chem.* 62, 31-43.
- 2009 Mead, R.N., Morgan, J.B., Avery, G.B., Kieber, R.J., Kirk, A., Skrabal, S.A., and Willey, J.D. "Occurrence of the Artificial Sweetener Sucralose in Coastal and Marine Waters" *Mar. Chem.* 116, 13-17.
- 2009 Willey, J.D., Kieber, R.J. and Yavari, J.R. "Fe(II) in Coastal Rainwater: Changing Stability and Concentrations" *Aquatic Sci.* 71, 144-150.
- 2009 Miller, C, Gordon, K.G., Kieber, R.J., Willey, J.D. and Seaton, P.J. "Chemical Characteristics of Chromophoric Dissolved Organic Matter in Rainwater" *Atmos. Environ.* 43, 2497-2502.
- 2009 Avery, G.B., Kieber, R.J. and Taylor, K. "Nitrogen Release From Surface Sand of a High Energy Beach Face Along the Southeastern Coast of North Carolina, USA" *Biogeochem.* 89, 357-365.
- 2009 Avery, G.B., Dickson Brown, J.L., Willey, J.D. and Kieber, R.J. "Assessment of Rainwater Volatile Organic Carbon in Southeastern North Carolina, USA" *Atmos. Environ.* 43, 2678-2681.
- 2008 Kieber, R.J., Parler, N.E., Skrabal, S.A. and Willey, J.D. "Speciation and Photochemistry of Mercury in Rainwater" *J. Atmos. Chem.* 60, 153 - 168.
- 2008 Willey, J.D., Kieber, R.J. and Seaton, P.J. "Rainwater as a source of Fe(II) stabilizing ligands to seawater" *Limnol. Oceanogr.* 53: 1678-1684.
- 2008** Bouillon, R.C., Kieber, R.J., Skrabal, S.A. and Wright, J.L.C. "Photochemistry and Identification of Photodegradation products of the Marine Toxin Domoic Acid" *Mar. Chem.* 110: 18-27.
- 2008 Miller, C., Willey, J.D. and Kieber, R.J. "Changes in Rainwater Composition During Tropical Storm Ernesto" *Atmos. Environ.* 42: 846-855.
- 2007 Kieber, R.J., Whitehead, R.F., Reid, S.N. and Willey, J.D. "Photochemistry of Chromophoric Dissolved Organic matter (CDOM) in Rainwater" *J. Atmos. Chem.* 58: 219-235.
- 2007 Witt, M., Skrabal, S.A., Kieber, R.J. and Willey, J.D. "Photochemistry of Cu Complexed with Chromophoric Dissolved Organic Matter: Implications for Cu Speciation in Rainwater" *J. Atmos. Chem.* 58, 89-109.
- 2007 Lail, E.M., Skrabal, S.A., Kieber, R.J., Bouillon, R.C. and Wright, J.C. "The Role of Particles on the Biogeochemical Cycling of Domoic Acid and its Isomers in Natural Water Matrices" *Harmful Algae* 6, 651-657.

- 2007 Witt, M., Skrabal, S.A., Kieber, R.J. and Willey, J.D. "Copper Complexation in Coastal Rainwater in Southeastern USA" *Atmos. Environ.* 41, 3619-3630.
- 2006 Avery, G.B., Willey, J.D. and Kieber, R.J. "Carbon Isotopic Characterization of DOC in Rainwater: Terrestrial and Marine Influences" *Atmos. Environ.* 40, 7539-7545.
- 2006 Willey, J.D., Kieber, R.J. and Avery, G.B. "The Changing Composition of Rainwater in the Continental USA" *Environ. Sci. Technol.* 49, 5675-5680.
- 2006 Kieber, R.J., Whitehead, R.F. and Skrabal, S.A. "Photochemical Production of Dissolved Organic Carbon From Resuspended Sediments" *Limnol. Oceanogr.* 51, 2187-2195.
- 2006 Kieber, R.J., Whitehead, R.F., Reid, S.N., Willey, J.D., and Seaton, P.J. "Chromophoric Dissolved Organic Matter (CDOM) in Rainwater Collected in Southeastern North Carolina, USA" *J. Atmos. Chem.* 54, 21-41".
- 2006** Skrabal, S.A., Lieseke, K.L. and Kieber, R.J. "Dissolved Zinc and Zinc Complexing Ligands in an Organic Rich Estuary: Benthic Fluxes and Comparison with Copper Speciation" *Mar. Chem.*, 100, 108-123.
- 2006 Avery, G.B., Kieber, R.J., Witt, M. and Willey, J.D. "Rainwater Monocarboxylic and Dicarboxylic Acid Concentrations in Southeastern North Carolina, USA as a Function of Air-Mass Back Trajectory" *Atmos. Environ.* 40, 1683-1693.
- 2006 Shank, G.C., Whitehead, R.F., Smith, M.L., Skrabal, S.A. and Kieber, R.J. "Photodegradation of Strong Cu Complexing Ligands in Organic Rich Estuarine Waters" *Limnol. Oceanogr.* 51, 884-892.
- 2006 Bouillon, R.C., Knierin, T.L., Kieber, R.J., Skrabal, S.A. and Wright, J.L. "Photodegradation of the Algal Toxin Domoic Acid in Natural Waters" *Limnol. Oceanogr.* 51, 321-330.
- 2005 Kieber, R.J., Long, M.S. and Willey, J.D. "Factors Influencing Nitrogen Speciation in Coastal Rainwater" *J. Atmos. Chem.* 52, 81-99.
- 2005 Willey, J.D., Whitehead, R.F., Kieber, R.J., and Hardison, D.R. "Oxidation of Fe(II) in Rainwater" *Environ. Sci. Technol.* 39, 2579-2585.
- 2005 Avery, G.B., Cooper, W.J., Kieber, R.J. and Willey, J.D. "Hydrogen Peroxide at the Bermuda Atlantic Time Series Station: Temporal Variability of Seawater Hydrogen Peroxide" *Mar. Chem.* 97, 236-244.

- 2005 Kieber, R.J., Smith, B.J., Willey, J.D. and Skrabal, S.A. "Organic Complexation of Fe(II) and its Impact on the Redox Cycling of Iron in Rain" *Environ. Sci. Technol.*, 39, 1576-1583.
- 2004 Avery, G.B., Kieber, R.J., Willey, J.D., Shank, G.C., and Whitehead, R.F. "The Impact of Hurricanes on the Flux of Rainwater and Cape Fear River Water Dissolved Organic carbon to Long Bay, Southeastern United States, *Global. Biogeochem. Cycles.*, 18, 3015-3021.
- 2004 Shank, G.C., Skrabal, S.A., Whitehead, R.F., Avery, G.B. and Kieber, R.J. "River Discharge of Strong Cu-Complexing ligands to South Atlantic Bight Waters" *Mar. Chem.*, 88, 41-51.
- 2004** Kieber, R.J., Skrabal, S.A., Smith, C. and Willey, J.D. "Redox Speciation of Copper in Rainwater: Temporal Variability and Atmospheric Deposition" *Environ. Sci. Technol.*, 38, 3587-3594.
- 2004 Willey, J.D., Kieber, R.J. and Avery, G.B. "Effects of Rainwater Iron and Hydrogen Peroxide on Iron Concentrations and Phytoplankton Growth in Seawater Near Bermuda" *J. Atmos. Chem.*, 47, 209-222.
- 2004 Shank, G.C., Skrabal, S.A., Whitehead, R.F. and Kieber, R.J. "Strong Copper Complexation in an Organic Rich Estuary: The Importance of Allochthonous Dissolved Organic Matter" *Mar. Chem.*, 88, 21-39.
- 2004 Shank, G.C., Skrabal, S.A., Whitehead, R.F. and Kieber, R.J. "Fluxes of Strong Cu-Complexing Ligands From Sediments of an Organic Rich Estuary" *Est. Coastal Shelf Sci.*, 349-358.
- 2003 Kieber, R.J., Hardison, D.R., Whitehead, R.F. and Willey, J.D. "Photochemical Production of Fe(II) in Rainwater" *Environ. Sci. Technol.*, 37, 4610-4616.
- 2003 Kieber, R.J., Willey, J.D. and Avery, G.B. "Temporal Variability of Rainwater Iron Speciation at the Bermuda Atlantic Time Series Station" *J. Geophys Res.*, 108, 1-7.
- 2003 Avery, G.B., Willey, J.D., Kieber, R.J., Shank*, G.C. and Whitehead, R.F. "The Flux and Bioavailability of Cape Fear River and Rainwater Dissolved Organic Carbon to Long Bay, Southeastern United States" *Global. Biogeochem. Cycles*, 17, 1042-1048.
- 2002 Kieber, R.J., Willey, J.D. and Zvalaren, S.D. "Chromium Speciation in Coastal Rainwater: Temporal Variability and Atmospheric Deposition" *Environ. Sci. Technol.* 36, 5321-5327.
- 2002 Peake, B. M., Collett, S. J., Labadie, P. Mosley, L. M. Kieber, R.J. and Willey, J. D. UV radiation and the production of reactive oxygen species (ROS) in aquatic

environments. p. 70-72 In: UV Radiation and its Effects - An Update 2002, RSNZ Miscellaneous Series 60, Royal Society of New Zealand, Wellington, pp126.

2002 Kieber, R.J., Peake, B., Willey, J.D. and Avery, G.B. "Dissolved Organic Carbon and Organic Acids in Coastal New Zealand Rainwater" 36, 3557-3563, *Atmos. Environ.*

2001 Kieber, R.J., Peake, B., Willey, J.D. and Jacobs, B. "Iron Speciation and Hydrogen Peroxide Concentrations in New Zealand Rainwater" *Atmos. Environ.* 35, 6041-6048.

2001 Avery, G.A., Tang, Y., Kieber, R.J. and Willey, J.D. "Diurnal Variations in Major Rainwater Components at a Coastal Site." *Atmos. Environ.* 35, 3927-3933.

2001 Kieber, R.J., Cooper, W.J., Willey, J.D. and Avery, G.B. "Hydrogen Peroxide at the Bermuda Atlantic Time Series Station. Part 1: Temporal Variability of atmospheric hydrogen peroxide and its influence on seawater concentrations" *J. Atmos. Chem.* 39, 1-13.

2001 Avery, G. B., Tang, Y., Kieber, R.J. and Willey, J.D. "Impact of Recent Urbanization on Formic and Acetic Acid Concentrations in Coastal North Carolina Rainwater" *Atmos. Environ.* 35, 3353-3359

2001 Kieber, R.J., Willey, J.D., Williams, K.H., Skrabal, S.A., and Avery, G.B. "Iron Speciation in Coastal Rainwater: Concentration and Deposition to Seawater" *Mar. Chem.* 73, 83-95.

2000 Willey, J.D., Kieber, R.J., Williams, K.H., Crozier, J.S., Skrabal, S.A. and Avery, G.B. "Temporal Variability of Iron Speciation in Coastal Rainwater" *J. Atmos. Chem.* 37, 185-205.

2000 Willey, J.D., Kieber, R.J., Eyman, M.S. and Avery, G.B. "Rainwater Dissolved Organic Carbon: Concentrations and Global Flux" *Global. Biogeochem. Cycles*, 14, 139-148.

2000 Cooper, W.J., Moegling, J.K., Kieber, R.J. and Kiddle, J.J. "A Chemiluminescence Method for the Analysis of H₂O₂ in Natural Waters" *Mar. Chem.* 70, 191-200.

1999 Kieber, R.J., Li, A.L. and Seaton, P.J. "Production of Nitrite from the Photodegradation of Dissolved Organic Matter in Natural Waters" *Environ. Sci. Technol.* 33(7), 993-998

1999 Kieber, R.J., Rhines, M.F., Willey, J.D. and Avery, G.B. "Rainwater Formaldehyde: Concentration, Deposition and Photochemical Formation" *Atmos. Environ.* 33(22), 3659-3667.

- 1999** Kieber, R.J., Rhines, M.F., Willey, J.D. and Avery, G.B. "Nitrite Variability in Coastal North Carolina Rainwater and its Impact on the Nitrogen Cycle in Rain" *Environ. Sci. Technol.* 33(3), 373-377.
- 1998 Kieber, R.J., Bullard, L. and Seaton, P.J. "Determination of ^{15}N Nitrate and Nitrite in Spiked Natural Waters" *Anal. Chem.* 70(19), 3969-3973.
- 1998 Kieber, R.J., Rudolph, K.A., Burgess, S.K. and Willey, J.D. "Effect of Acid Rain on Alkalinity and Calcium Carbonate Dissolution in the Albemarle Sound of North Carolina, USA" *J. Elisha Mitchell Sci. Soc.* 114(2), 63-71.
- 1998 Hill, J., Kiefer, R. and Kieber, R.J. "Hurricanes and Hypermedia: The use of Satellite Images in the Study of Rain Characteristics" in *Association for the Advancement of Computing in Education (AAACE)* eds. Ottomann and Tomek, vol. 2, p1667-1668.
- 1997 DeForest, C., Kieber, R.J. and Willey, J. "Comparison of Stripping Coil and Condensate Techniques for the Collection of Gas Phase Hydrogen Peroxide, With Applications of Condensate Collection in and off the Coast of North Carolina" *Environ. Sci. Technol.* 31, 3068-3073.
- 1997 Kieber, R.J., Hydro, L.H. and Seaton, P.J. "Photooxidation of Triglycerides and Fatty Acids in Seawater: Implication Toward the Formation of Marine Humic Substances" *Limnol. Ocean.* 42(6), 1454-1462.
- 1996 Willey, J.D., Kieber, R.J. and Lancaster, R. "Coastal Rainwater Hydrogen Peroxide: Concentration and Deposition" *J. Atmos. Chem.* 25, 149-165.
- 1996 Kieber, R.J. "Review of Environmental Organic Chemistry: Illustrative Examples, Problems and Case Studies" *Chem. Intell.* 7 (5/6), 405.
- 1995 Kieber, R.J. and Seaton, P.J. "Determination of Subnanomolar Concentrations of Nitrite in Natural Waters" *Anal. Chem.* 67(18), 3261-3264.
- 1995 Kieber, R.J. and Helz, G.H. "Temporal Variations of Hydrogen Peroxide in Estuarine Waters" *Est. Coastal. Shelf Sci.* 40(5), 495-503.
- 1995** Nuccio, J., Seaton, P.J. and Kieber, R.J. "Biological Production of Formaldehyde in the Marine Environment" *Limnol. Oceanogr.* 40(3), 521-527.
- 1994 Kieber, R.J. and Jones, S.B. "An Undergraduate Laboratory for the Determination of Sodium, Potassium and Chloride Using an Ion Exchange Resin, Ion Chromatography and Atomic Absorption" *J. Chem. Ed.* 71, A218-A222.
- 1994 Kaczynski, S. and Kieber, R.J. "Hydrophobic C_{18} Bound Organic Complexes of Chromium and Their Potential Impact on the Geochemistry of Chromium in Natural Waters" *Environ. Sci. Technol.* 28(5), 799-804.

1993 Kaczynski, S. and Kieber, R.J. "Aqueous Trivalent Chromium Photoproduction in Natural Waters" *Environ. Sci. Technol.*, 27(8), 1572-1576.

1992 Kieber, R.J. and Helz, G. "Indirect Photoreduction of Aqueous Chromium (VI)" *Environ. Sci. Technol.* 26(2), 307-312.

1991 Mopper, K., Xianliang, Z., Kieber, R., Kieber, D., Sikorski, R. and Jones, R. "Photochemical Degradation of Dissolved Organic Carbon and Its Impact on the Ocean Carbon Cycle" *Nature* 353:(5), 60-62.

1990 Kieber, R.J., Xianliang, Z. and Mopper, K. "Formation of Carbonyl Compounds From UV-Induced Photodegradation of Humic Substances in Natural Waters: Fate of Riverine Carbon in the Sea" *Limnol. Oceanogr.* 35(7), 1503-1515.

1990 Kieber, R.J. and Mopper, K. "Determination of Picomolar Concentrations of Carbonyl Compounds in Natural Waters, Including Seawater, by Liquid Chromatography" *Environ. Sci. Technol.* 24(10), 1477-1481.

1986 Kieber, R.J. and Helz, G.R. "Two Method Verification of Hydrogen Peroxide Determinations in Natural Waters" *Anal. Chem.* 58: (11), 2312-2315.

1985 Helz, G.R. and Kieber, R.J. "Hydrogen Peroxide in Estuarine Waters: A Minor but Significant Contributor to Chlorine Demand" *Water Chlorination*, 5, 1033-1040.

Recent Grants Obtained

\$299,942 Mead, R.N., Avery, G.B., Kieber, R.J. and Skrabal, S.A. 2018 -2020 "Per and Polyfluoroalkyl Substance Testing" North Carolina Policy Collaboratory,.

\$313,872 Kieber, R.J., Mead, R.N., Willey, J.D., Avery, G.B. 2015-2019 "RUI: Ramifications of Ethanol Usage as a Biofuel: Quantifying Sources and Impacts on the Light Absorbing Properties of Rainwater" National Science Foundation, Atmospheric Chemistry Division.

\$34,641 Mead, R.N., Avery, G.B., Kieber, R.J. and Skrabal, S.A. 2018-2019 "Analysis of non-Targeted Perfluoroalkyl Substances in Water Treated for Aquifer Storage and Recovery" Cape Fear Public Utility Authority.

\$250,000 Mead, R.N., Avery, G.B., Kieber, R.J. and Skrabal, S.A. 2017-2019 "Analysis of Perfluorinated Organic Compounds in Sediments of Cape Fear River". NC House Bill 56,.

\$64,607 Mead, R.N., Avery, G.B., Kieber, R.J. and Skrabal, S.A. 2018-2019. Analysis of Perfluorinated Organic Compounds in Raw and Finished Drinking Cape Fear Public Utility Authority

\$622, 400 Kieber, R.J., Avery, G.G., Willey, J.D. and Mead, R.N. 2010-2013 “Impact of Changing Fuel Usage on the Atmospheric Cycling of Ethanol, Optically Active Organic Compounds and Iron (Fe) in Rainwater” National Science Foundation, Atmospheric Chemistry Division.

\$678, 515 Mead, R.N., Avery, G.B., Kieber, R.J. and Skrabal, S.A. 2011-2014 “RUI: Photochemical Transformations of Algal Toxins (PbTx-2, PbTx-3 and Microcystin-LR) on Resuspended Sediments in Coastal Ecosystems” National Science Foundation, Marine Chemistry Division.

\$582,468 Skrabal, S.A., Avery, G.B., Kieber, R.J. and Mead, R.N. 2008-2011 “Photobiogeochemistry of Resuspended Sediments in Coastal Environments: Impacts on Organic Matter and Trace Metal Cycling” National Science Foundation, Marine Chemistry Division.

\$532,752 Kieber, R.J., Avery, G.B., Whitehead, R.F. and Willey, J.D. 2007-2010 “Chemical Characterization and Reactivity of Chromophoric Dissolved Organic Matter (CDOM) in Rainwater” National Science Foundation, Atmospheric Chemistry Division.

\$499, 189 Kieber, R.J., Whitehead, R.F. and Willey, J.D. 2004-2008 “Temporal Variability of Chromophoric Dissolved Organic Carbon (CDOM) in Rainwater: Photochemical Effects and Influence on Trace Metal Speciation” National Science Foundation, Atmospheric Chemistry Division.

\$485,083 Wright, J.L., Kieber, R.J. and Skrabal, S.A. 2003- 2007 “Biogeochemical Cycling of Domoic Acid in Natural Waters: The Influence of Bioactive Trace Metal Complexation and Photochemistry” National Science Foundation, Marine Chemistry Division.

\$106,745 Skrabal, S.A., Kieber, R.J. and Willey, J.D. 2004-2006 “Mercury Speciation in the Organic Rich Cape Fear Estuary” North Carolina Sea Grant.

\$111,720 Kieber, R.J., Willey, J.D. and Skrabal, S.A. 2002-2004 “Increasing Ammonium Concentrations in the Cape Fear River Estuary: Where is it Coming From?” North Carolina Sea Grant.

\$414,775 Willey, J.D. Kieber, R.J. and Skrabal, S.A. 2001-2004 “Iron speciation in Rainwater: The Influence of Organic Complexation, Photochemistry and Redox Active Trace Constituents” National Science Foundation, Atmospheric Chemistry Division.

\$503,412 Skrabal, S.A., Kieber, R.J. and Cooper, W.J. 2000-2003 “Speciation, Fluxes and Cycling of Dissolved Copper and Zinc in Estuaries: The Roles of Sediment-Water Exchange and Photochemical Effects” Strategic Environmental Research and Development Program (SERDP).

\$36,388 Skrabal, S. and Kieber, R.J. 2000-2001 "Sediment Water Exchange in the Lower Cape Fear Estuary: Effects of Metal Speciation on Water Quality and Benthic Biota" North Carolina Sea Grant.

\$297,833 Kieber, R.J. and Willey, J.D. 1998-2001 "Temporal Variability of Iron Speciation in Rain" National Science Foundation, Atmospheric Chemistry Division.

\$87,800 Skrabal, S. and Kieber, R.J. 1999-2000 "Sediment Water Exchange in the Lower Cape Fear Estuary: Effects of Metal Speciation on Water Quality and Benthic Biota" North Carolina Sea Grant.

\$236,465 Willey, J.D. and Kieber, R.J. 1996-1999 "Flux of Dissolved Organic Carbon in Coastal rainwater: Impact on Global Carbon Cycling and Hydroperoxide Chemistry in the Atmosphere" National Science Foundation, Atmospheric Chemistry Division.

\$134, 650 Willey, J.D. and Kieber, R.J. 1994-1997 "Hydrogen Peroxide Variability in Coastal Rainwater" National Science Foundation, Atmospheric Chemistry Division.

Presentations

Jen AGU Kates stuff summer/fall 2020

2020 Shimizu, M. S., Mott, R. K., Potter, A., Harfmann, J., Avery, G. B. Jr., Kieber, R. J., Mead, R. N., Skrabal, S., Willey, J. D., Zhou, J., Baumann, K., Turpin, B., Surratt, J. D., Bodnar, W., DeWitt, J., Sun, M., Swarthout, B., Darrow, B., Shank, C., “Per- and Polyfluoroalkyl Substances in Wet and Dry Deposition in North Carolina” Carolina Society of Toxicology and Chemistry 29th Annual Meeting

2019 Mott, R. K., Shimizu, M. S., Avery, G. B. Jr., Kieber, R. J., Mead, R. N., Skrabal, S. “Targeted and Non-Targeted Analysis of Per- and Polyfluoroalkyl substances in Wet Deposition Events” Global Marine Summit, Wilmington, NC.

2019 Tito, K. S., Kieber, R. J., Shimizu, M. S., Avery, G. B. Jr., Mead, R. N., Skrabal, S. “Biodegradation Rates of Perfluoro-2-propoxypropanoic Acid in Sediments of the Cape Fear River Estuary” Wilmington, NC.

- 2019** Sanchez, R., Shimizu, M. S., Avery, G. B. Jr., Kieber, R. J., Mead, R. N., Skrabal, S. “Screening of Novel Per- and Polyfluorinated Alkyl Substances (PFAS) in Surface Sediments of Southeastern North Carolina” Global Marine Summit, Wilmington, NC.
- 2019** Mott, R. K., Shimizu, M. S., Avery, G. B. Jr., Kieber, R. J., Mead, R. N., Skrabal, S. “Targeted and Non-Targeted Analysis of Per- and Polyfluoroalkyl substances in Rainwater” Society of Toxicology and Chemistry; PFAS Risk Assessment, Durham, NC.
- 2019** Sanchez, R., Shimizu, M. S., Avery, G. B. Jr., Kieber, R. J., Mead, R. N., Skrabal, S. “Screening of Novel Per- and Polyfluorinated Alkyl Substances (PFAS) in Surface Sediments of Southeastern North Carolina” Society of Toxicology and Chemistry; PFAS Risk Assessment, Durham, NC.
- 2019** Tito, K. S., Shimizu, M. S., Avery, G. B. Jr., Kieber, R. J., Mead, R. N., Skrabal, S. “Biodegradation Rates of Perfluoro-2-propoxypropanoic Acid in Sediments of the Cape Fear River Estuary” Society of Toxicology and Chemistry; PFAS Risk Assessment, Durham, NC.
- 2019** Summerlin, L. S., Shimizu, M. S., Felix, J. D. Avery, G. B. Jr., Kieber, R. J., Mead, R. N., Lane, C. “Biofuel and Biogenic Contributions of Ethanol in Rainwater in Wilmington determined by compound specific stable carbon isotopes” NC Breathe 2019, Wilmington, NC.
- 2019** Mott, R. K., Shimizu, M. S., Avery, G. B. Jr., Kieber, R. J., Mead, R. N., Skrabal, S. “Targeted and Non-Targeted Analysis of Per- and Polyfluoroalkyl substances in Rainwater” NC Breathe 2019, Wilmington, NC.
- 2019** J.Zhou, K.Baumann, J.D.Surratt, R.Mead, S.Skrabal, R.J.Kieber, G.B.Avery, J.D.Willey, M. Shimizu, W.Bodnar, Z.Zhang, J.C.DeWitt, M.Sun, L.B.Collins, B.J.Turpin “Per- and polyfluoroalkyl substances (PFAS) in fine particles (PM_{2.5}) in North Carolina” NC Breathe Charlotte NC
- 2019** J.Zhou, K.Baumann, J.D.Surratt, R.Mead, S.Skrabal, R.J.Kieber, G.B.Avery, J.D.Willey, M. Shimizu, W.Bodnar, Z.Zhang, J.C.DeWitt, M.Sun, L.B.Collins, B.J.Turpin “Air concentrations of per- and polyfluoroalkyl substances (PFAS) in North Carolina” SETAC.
- 2018** Kieber, R.J., Avery, G.B., Mead, R.N., Willey, J.D. and Shimizu, M.S. “Compound-Specific Stable Isotope Analysis and Flux of Aqueous and Gas Phase Ethanol” NSF-ATC and NCAR Atmospheric Chemistry Workshop, Boulder CO.
- 2018** Shimizu, M.S., Felix, J.D., Summerlin, S.L., Lathrop, T.E., Avery, G.B., Kieber, R.J., Mead, R.N., Willey, J.D. and Lane, C. “Compound-Specific Stable Isotope Analysis of Aqueous and Gas Phase Ethanol Using Solid Phase Microextraction” Joint Ocean Sciences Meeting, Portland Oregon.

2018 Willey, J.D., Powell, J.P., Lathrop, T.E., Avery, G.B., Kieber, R.J., Mead, R.N. and Shimizu, M.S. “Determination of the Saturation State and Flux Direction for Ethanol Between Air and Coastal Waters” Joint Ocean Sciences Meeting, Portland Oregon.

2017 Shimizu, M.S., Felix, J.D., Thomas, R., Casas, M., Avery, G.B., Kieber, R.J., Mead, R.N., Willey, J.D. and Lane C. “High Relative Abundance of Biofuel Sourced Ethanol in Precipitation in the US and Brazil Determined Using Compound Specific Stable Carbon Isotopes” American Geophysical Union, New Orleans Louisiana.

2017 Taylor, M.A., Mead, R.N., Kieber, R.J., Avery, G.B., and Willey, J.D. “Effect of Ethanol on the Production of Chromophoric Dissolved Organic Matter (CDOM) in Rainwater” American Geophysical Union, New Orleans Louisiana.

2017 G. Brooks Avery Jr. R. Mead., S. Skrabal and R. Kieber. Progress on HB56 GenX research. Presented to the Lower Cape Fear River Program November 28 2017.

2017 Avery, G.B., Shimizu, M.S., Willey, J.D., Skrabal, S.A., Felix, J.D., Mead, R.N., Kieber, R.J. and Lathrop, T.E. “Fluxes of Ethanol Between the Atmosphere and Oceanic Surface Waters: Implications for the Fate of Biofuel Ethanol Released into the Environment” American Geophysical Union, New Orleans Louisiana.

2017 G. Brooks Avery Jr. R. Mead., S. Skrabal and R. Kieber. GenX research results from MACRL lab. Presented to the EPA and CFPWA November 30 2017.

2017 Kieber, R.J., Powell, J.P., Foley, L., Mead, R.N., Willey, J.D. and Avery, G.B. “Photochemical Alterations in Gas Phase and Surface Water Ethanol Concentrations” Goldschmidt Conference, Paris, France.

2017 Felix, J.D., Thomas, R., Casas, M., Shimizu, M., Avery, G.B., Kieber, R., Mead, R., Willey, J.D., Lane, C. Increasing ethanol consumption as a renewable fuel: How will vehicle ethanol emissions impact the urban atmosphere? NADP Fall Meeting, October 30 - November 3, San Diego, CA

2016 Casas*, M., Avery, G.B., Kieber, R.J., Mead, R.N., Shimizu*, M., Willey, J.D. Quantifying the Concentrations of Biofuel Emissions and Biogenic Sources of Ethanol Found in Rainwater at Wilmington, NC and Brazil. Southeastern Regional Meeting of the American Chemical Society, Columbia, SC

2016 Mead, R.N., Helms*, J., Avery, G.B., Kieber, R.J., Skrabal, S.A. Photochemical Release of Sediment Bound Brevetoxin (PbTx-2) From Resuspended Sediments. Southeastern Regional Meeting of the American Chemical Society, Columbia, SC

2016 Avery, G.B., *Rainey, D.H., Mead, R.N., Skrabal, S.A., Kieber, R.J., Felix, J.D., and Helms, J.R.. Bioavailability of DOM photochemically released from resuspended sediments. Ocean Sciences Meeting, New Orleans, LA.

2016 Kieber, R.J., *Hartrey, L.M., *Corzine, C., Avery, G.B., Mead, R.N., Felix, J.D., and Skrabal, S.A.. Photorelease of microcystin-LR from resuspended sediments. Ocean Sciences Meeting, New Orleans, LA.

2016 Mead, R.N., *Mickler, W., *Probst, E., Avery, G.B., Felix, J.D., Kieber, R.J., and Skrabal, S.A.. Photorelease and phototransformations of sedimentary bound brevetoxin (PbTx-2) upon resuspension. Ocean Sciences Meeting, New Orleans, LA.

2016 Felix, J.D., Thomas, R., Guy, A., Avery, G.B., Kieber, R.J., Mead, R.N. and Willey, J.D. “Increasing Ethanol Consumption as a Renewable Fuel: How Will Vehicle Ethanol Emissions Impact the Atmosphere?” American Meteorological Society, Salt Lake City Utah.

2015 Kieber, R.J. Willey, J.D., Avery, G.B., Mead, R.N. “Impact of Changing Fuel Usage on the Chemistry of the Atmosphere: Implications for Global Climate Change” Invited presentation at the Universidade de São Paulo, Brazil.

2014 Kieber, R.J., Willey, J.D., Avery, G.B., Mead, R.N. Invited presentation to EPA Region Two Regional Science Council and Climate Change Workgroup, New York, New York.

2014 Avery, G.B., Mead, R.N., Kieber, R.J., Willey, J.D., Skrabal, S.A. “Ethanol Distribution in Aquatic Systems: Potential Impact on Atmospheric Concentrations” American Society of Limnology and Oceanography, American Geophysical Union Ocean Sciences Meeting, Honolulu, Hawaii.

2014 Mead, R.N., Avery, G.B., Helm, J., Kieber, R.J., Mickler, W., Probst, E. and Skrabal, S.A. “Photochemical Transformations of the Algal Toxin PbTX2 on Resuspended Sediments in Coastal Ecosystems” American Society of Limnology and Oceanography, American Geophysical Union Ocean Sciences Meeting, Honolulu, Hawaii.

2013 Kieber, R.J., Willey, J.D., Avery, G.B., Mead, R.N., Giubbina, F. and Campos L. “Ethanol Variability in Rainwater and its Impact on the Chemistry of the Troposphere” presented at the Goldschmidt Conference, Florence, Italy, 25-30 August.

2013 Willey, J.D., Rice, B., Humphreys, J., Kieber, R.J., Helms, J., Avery, G.B. and Mead, R.N. “Temporal Variability of Rainwater Fe(II) Concentrations and Wet Deposition to Surface Seawater” presented at the Goldschmidt Conference, Florence, Italy, 25-30 August.

2013 Skrabal, S.A., *Wetterauer, A.M., *Larson, L.A., Avery, G.B., Kieber, R.J., Mead, R.N., and Helms, J.R., 2013. Photolytic release of dissolved copper and dissolved organic carbon from resuspended coastal marine sediments. American Chemical Society Spring National Meeting, New Orleans, LA.

- 2013** Helms, J. R., *Wetterauer, A. M., *Dingess, E. C., Avery, G. B., Kieber, R. J., Mead, R. N., Skrabal, S. and Mopper, K., 2013. Light induced flocculation and dissolution of chromophoric organic matter in natural waters. American Society of Limnology and Oceanography Ocean Sciences Meeting, New Orleans, LA.
- 2013** Kieber, R. J., Avery, G. B., Helms, J. R., Mead, R. N., *Probst, E. E., and Skrabal, S. A., 2013. Photochemical transformations of the algal toxin PbTx-2 on resuspended sediments in coastal ecosystems. American Society of Limnology and Oceanography Ocean Sciences Meeting, New Orleans, LA.
- 2013** Mead, R. N., *Hartrey, L., Helms, J. R., Avery, G. B.; Kieber, R. J., and Skrabal, S. A., 2013. Photochemical mobilization of sediment bound microcystins from resuspended sediment. American Society of Limnology and Oceanography Ocean Sciences Meeting, New Orleans, LA.
- 2013** Skrabal, S.A., *Glinski, D., *Larson, L., *Wetterauer, A., Avery, G.B., Kieber, R.J., Mead, R.N. 2012. Photochemical fluxes from resuspended sediments as sources of dissolved copper and organic matter in riverine and coastal environments. Ocean Sciences Meeting, Salt Lake City, UT.
- 2013** *Nguyen, J. C., Avery, G. B., Helms, J. R., Mead, R. N., Skrabal, S.A., Kieber, R. J., 2013. Photochemical release of amino acids from resuspended sediments. American Society of Limnology and Oceanography Ocean Sciences Meeting, New Orleans, LA.
- 2012** Probst, E.E., Avery, G.B., Kieber, R.J., Helms, J.R., Mead, R.N., Skrabal, S.A. Improved ionization for liquid chromatography mass spectrometry detection of the marine dinoflagellate-produced toxin PbTx-2 (*Karenia brevis*). Southeastern Regional Meeting of the American Chemical Society, Raleigh, NC.
- 2012** Seaton, P.J., Opanasenko, B., Kieber, R.J., Willey, J.D. and Avery, G.B. “Characterization of Rainwater DOC by 1D and 2D NMR Techniques” presented at 64th Southeastern Regional Meeting of the American Chemical Society, Raleigh, NC 14-17 Nov.
- 2012** Carroll, A.L., Avery, G.B., Kieber, R.J., Willey, J.D., Mead, R.N. and Mullaugh, K.M. “Variations in Gas Phase Concentrations of Formaldehyde, Acetaldehyde, Methanol and Ethanol” presented at 64th Southeastern Regional Meeting of the American Chemical Society, Raleigh, NC 14-17 Nov.
- 2012** Rice, B.C., Willey, J.D., Kieber, R.J., Avery, G.B. and Mead, R.N. “Changes in Fe(II) Concentration and Stability in Rainwater in Wilmington, NC” presented at 64th Southeastern Regional Meeting of the American Chemical Society, Raleigh, NC 14-17 Nov.
- 2012** Byrd, J.N., Mullaugh, K., Avery, G.B., Kieber, R.J., Mead, R.N., Willey, J.D. and Helms, J.R. “Chemical Characterization of Rainwater Carbohydrates from the

Southeastern United States” presented at 64th Southeastern Regional Meeting of the American Chemical Society, Raleigh, NC 14-17 Nov.

2012 Wetterauer, A.M., Skrabal, S.N., Kieber, R.J., Avery, G.B. and Mead, R.N. “Copper Photodissolution from Resuspended Estuarine Sediments” presented at 64th Southeastern Regional Meeting of the American Chemical Society, Raleigh, NC 14-17 Nov.

2012 Nguyen, J.C., Avery, G.B., Kieber, R.J., Skrabal, S.A., Mead, R.N. and Helms, J.R. “Photochemical Release of Free and Combined Amino Acids from Resuspended Sediments” presented at 64th Southeastern Regional Meeting of the American Chemical Society, Raleigh, NC 14-17 Nov.

2012 Barefoot, S.E., Helms, J.R., Kieber, R.J., Mead, R.N. and Morgan J. “Photodegradation of the Antihistamine Cetirizine Dihydrochloride (Zyrtec) in Natural Water Matrices” presented at 64th Southeastern Regional Meeting of the American Chemical Society, Raleigh, NC 14-17 Nov.

2012 Probst, E.E., Avery, G.B., Kieber, R.J., Helms, J.R., Mead, R.N. and Skrabal, S.A. “Improved Ionization for Liquid Chromatography Mass Spectrometry Detection of the Marine Dinoflagellate Produced Toxin PbTx-2” presented at 64th Southeastern Regional Meeting of the American Chemical Society, Raleigh, NC 14-17 Nov.

2012 Willey, J.D., Kinney, S. T., Avery, G.B., Kieber, R.J., Mead, R.N., Campos, L. and Giubbina, F.F. “Rainwater Ethanol in Wilmington, North Carolina and Ribeirão Preto, São Paulo, Brazil” Duke/University of North Carolina Oceanographic Consortium 26th Annual Symposium , Nov. 16, 2012, Beaufort NC.

2011 Willey J.D., Mullaugh, K.M., Kieber, R.F., Avery, G.B., Mead R.N. The Redox Chemistry of Rainwater, presented at 2011 Fall Meeting, AGU, San Francisco, Calif., 5-9 Dec.

2011. Kieber R.J., Avery, G.B., Willey, J.D., Mead R.N., Kinney, S. Ethanol Variability in Coastal North Carolina, USA Rainwater and its Impact on the Atmospheric Carbon Cycle. presented at 2011 Fall Meeting, AGU, San Francisco, Calif., 5-9 Dec.

2011 Mullaugh, K.M., Kieber, R.J., Willey, J.D., Avery G.B., Effect of Reduced Sulfur Dioxide Emissions on Hydrogen Peroxide Concentrations in Wilmington, NC, USA Rainwater. presented at 2011 Fall Meeting, AGU, San Francisco, Calif., 5-9 Dec.

2011. Mead, R.N., Podgorski, D.C., Mullaugh, K.M., Avery, G.B., Kieber, R.J., Willey, J.D., Cooper, W.T. Characterization of Rainwater Dissolved Organic Matter by Ultrahigh Resolution Fourier Transform Ion Cyclotron Resonance Mass Spectrometry. presented at 2011 Fall Meeting, AGU, San Francisco, Calif., 5-9 Dec..

- 2011** Avery, G.B., Farhana, B.K., Southwell, M. Kieber, R.J. Willey, J.D., Mead, R.N., Mullaugh, K. “Carbon Isotopic Composition of Rainwater Chromophoric Dissolved Organic Material” American Geophysical Meeting, San Francisco, CA, USA.
- 2011** Kieber, R.J., Southwell, M., Luquire, C., Thompson, L., Skrabal, S.A., Avery, G.B., Mead, R.N. “Photochemical Production of Dissolved Organic and Inorganic Nutrients from Resuspended Sediments” Goldschmidt Conference, Prague Czech Republic.
- 2011** Opanasenko, B., Hatzakis, E., Seaton, P. J., Kieber, R. J., Willey, J. D., Avery, G. B. and Mead, R. N “Characterization of Rainwater Before and After Photolysis using 1D and 2D NMR and 3D Fluorescence Techniques” SERMACS, Richmond, VA, October 2011.
- 2011** Hatzakis, E., Carter, B.*, Seaton, P. J., Kieber, R. J., Willey, J. D., Avery, G. B. and Mead, R. N. “Characterization of Rain Water by 1D, 2D and Diffusion NMR Spectroscopy” PittCon, Atlanta, GA, March 2011.
- 2011** Skrabal, S.A., Larson, L., Thompson, L., Avery, G.B., Kieber, R.J., Mead, R.N. “Photochemical Release of Dissolved Copper from Resuspended Sediments” American Society of Limnology and Oceanography, San Juan, Puerto Rico.
- 2011** G. Brooks Avery Jr., Lauren Thompson, Ralph N. Mead, Melissa Southwell, Robert J. Kieber and Stephen A. Skrabal “Influence of Sea Level Rise on the Photolytic Release of Dissolved Organic Carbon from Resuspended Estuarine Sediments” American Society of Limnology and Oceanography, San Juan, Puerto Rico.
- 2011** Ralph N. Mead, Catherine Luquire, Amy Barbera, G. Brooks Avery Jr., Robert J. Kieber, Steve Skrabal, Melissa Southwell “Characterization of Sedimentary Organic Matter Upon Exposure of Resuspended Sediments to Simulated Sunlight: A Bulk and Molecular Marker Approach” American Society of Limnology and Oceanography, San Juan, Puerto Rico.
- 2011** Kieber, R.J., Southwell, M., Skrabal, S. A., Avery, G. B., and Mead, R. N. “Photochemical Production of Dissolved Organic and Inorganic Nutrients from Resuspended Sediments” American Society of Limnology and Oceanography, San Juan, Puerto Rico.
- 2010** Whitehead, R.F., Kieber, R.J., Willey, J.D., Avery, G.B. Mead, R.N. Adams, B.; Smith, J.; Mullaugh, K.M. “Photo Mediated Changes in Rainwater Chromophoric Dissolved Organic Matter” Pacifichem, Honolulu, HI.
- 2010** Kieber, R.J., Southwell, M., Luquire, C., Thompson, L., Barbera, A., Skrabal, S.A., Avery, G.B., Mead, R.N. “Photochemical Production of Dissolved Organic and Inorganic Nutrients from Resuspended Sediments” Pacifichem, Honolulu, HI.

2010 Mullaugh, K.M., Kieber, R.J., Willey, J.D., Mead, R.N., Jones, S.B., Avery, G.B., Kinney, S.M. “Ethanol Variability in Coastal North Carolina Rainwater and its Impact on the Atmospheric Carbon Cycle” Pacificchem, Honolulu, HI.

2010 Mead, R.N., Laquire, C., Barbera, A., Southwell, M., Avery, G.B., Kieber, R.J. and Skrabal, S.A. “Characterization of sedimentary organic matter upon exposure of resuspended sediments to simulated sunlight: A bulk and molecular marker approach” Ocean Sciences, Portland, OR.

2010 Kieber, R.J., Willey, J.D., Mullaugh, K.M., Avery, G.B., Mead, R.N. “Ethanol Variability in Coastal North Carolina Rainwater and its Impact on the Atmospheric Carbon Cycle” American Geophysical Union Meeting of the Americas, Brazil.

2010 Skrabal, S.A., Southwell, M., Thompson, L., Larson, L., Avery, G.B., Kieber, R.J., Mead, “Photochemistry of Resuspended Estuarine Sediments: Effects on Dissolved Organic and Inorganic Nutrients, and Trace Metals” American Geophysical Union Meeting of the Americas, Brazil.

2010 Southwell M., Avery G.B., Kieber R.J., Mead R.N., Skrabal S.A. “Spatial variability and organic matter source effects on elemental ratios of nutrient fluxes during photolysis of resuspended sediments.” Ocean Sciences, Portland, OR

2010 Skrabal S.A., Larson L., Avery G.B., Kieber R.J., Mead R.N., Skrabal S.A. “Behavior of Metals After Sunlight Photolysis of Resuspended Estuarine Sediments” Ocean Sciences, Portland, OR

2009 Aleksandra Kirk, Ralph N. Mead*, G. Brooks Avery, Robert J. Kieber, Jeremy B. Morgan, Stephan A. Skrabal, Joan D. Willey “Occurrence of the Artificial Sweetener Sucralose in Marine Waters” 238th National American Chemical Society Meeting, Washington DC.

2009 Kieber, R.J., Southwell, M., Skrabal, S.A., Avery Jr., G.A. and Mead, R. “Photochemical Production of Dissolved Organic and Inorganic Nutrients From Resuspended Sediments” American Society of Limnology and Oceanography Aquatic Sciences Meeting, Nice, France.

2009 Willey, J.D., Kieber, R.J. and Yavari, J.R. “Rainwater: A Dynamic Episodic Source of Fe(II) to Surface Seawater” American Society of Limnology and Oceanography Aquatic Sciences Meeting, Nice, France.

2009 Southwell, M.W., Kieber, R.J., Smith, J.D., Rice, B. C. and Willey, J.D. “Photochemical Alteration of Rainwater Dissolved Organic Matter: Implications for Bioavailability of Nutrients and Organic Matter” American Society of Limnology and Oceanography Aquatic Sciences Meeting, Nice, France.

- 2008** Willey, J.D., Kieber, R.J., Seaton, P.J. and Miller, C. “Rainwater as a Source of Fe(II) Stabilizing Ligands to Seawater,” American Society of Limnology and Oceanography Summer Meeting, St. John’s, Newfoundland, Canada.
- 2008** Skrabal, S.A., Kieber, R.J. and Whitehead, R.F. “Photochemistry of Suspended sediments: Effects on Dissolved Organic Carbon and Copper” American Society of Limnology and Oceanography, Orlando, FL.
- 2008** Zvaleren, S., Willey, J.D. Kieber, R.J. “Distribution of Mercury Species in the Cape Fear River Estuary, North Carolina” American Society of Limnology and Oceanography, Orlando, FL.
- 2007** Miller, C., Kieber, R.J., Willey, J.D. and Gordon, K. “Composition of Chromophoric Dissolved Organic Matter in Rainwater” SOLAS, Corsica, France.
- 2007** Kieber, R.J., Willey, J.D., Whitehead, R.F., Miller, C. and Avery, G.B. “Photodegradation of Chromophoric Dissolved Organic Matter (CDOM) in Atmospheric Waters and Its Influence on the Redox Chemistry of the Troposphere” American Geophysical Union Joint Assembly Meeting, Acapulco Mexico
- 2007** Avery, G.B., Kieber, R.J., Willey, J.D., Miller, C. and Seaton, P.J. “Chemical and Isotopic Characterization of rainwater Dissolved Organic Carbon and Chromophoric Dissolved Organic Matter” American Geophysical Union Joint Assembly Meeting, Acapulco Mexico
- 2007** Willey, J.D., Skrabal, S.A., Parler, N.E. and Kieber, R.J. “Rainwater as Source of Dissolved Gaseous Mercury DGHg(0) to Seawater” American Society of Limnology and Oceanography, Aquatic Sciences Meeting, Santa Fe, NM.
- 2006** Whitehead, R.F., Kieber, R.J., Willey, J.D. and Skrabal, S.A. “Photochemical reactivity of chromophoric dissolved organic matter in rainwater” American Geophysical Union Ocean Research Conference, Honolulu, Hawaii
- 2006** Willey, J.D., Skrabal, S.A. Parler, N., Kieber, R.J. and Avery, G.B. “Redox speciation of mercury in coastal rainwater, Wilmington, NC, USA” American Chemical Society National Meeting, Atlanta, GA.
- 2006** Zvalaren, S.D., Willey, J.D., Skrabal, S.A. and Kieber, R.J. “Distribution of mercury species in the Cape Fear River Estuary, North Carolina” American Chemical Society National Meeting, Atlanta, GA.
- 2005** Kieber, R.J., Willey, J.D., Whitehead, R.F., Skrabal, S.A. and Resetar, L. “Photodegradation of Chromophoric Dissolved Organic Matter (CDOM) in Rainwater and its Influence on the Redox Chemistry of the Troposphere” American Chemical Society Pacificchem meeting, Honolulu, Hawaii.

- 2005** Bouillon, R.C., Knierim, T.L., Kieber, R.J., Skrabal, S.A. and Wright, J.L. "Photodegradation of the Algal Toxin Domoic Acid in Natural Waters" American Chemical Society Pacificchem meeting, Honolulu, Hawaii.
- 2005** Kieber, R.J., Skrabal, S.A., Willey, J.D. and Bradshaw, L. "Nitrogen Inputs into the Cape Fear River Estuary: A System-Wide Approach" 18th Biennial Conference of the Estuarine Research Federation, Norfolk, VA.
- 2005** Avery, G.B., Kieber, R.J., Willey, J.D., Shank, G.C. and Whitehead, R.F. "The Impact of Hurricanes on the flux of rainwater and Cape Fear River Water Dissolved Organic Carbon to Long Bay, Southeastern United States" 18th Biennial Conference of The Estuarine Research Federation, Norfolk, VA
- 2005** Roth, M., Jones, S.B., Magolan, K., Kieber, R.J., and Seaton, P.J "Development of a method to analyze methanol, ethanol, and propanol in aqueous environmental samples" 57th Southeast/61st Southwest ACS Regional Meeting (November 1-4, 2005)
- 2005** Kieber, R.J., Willey, J.D., Whitehead, R.F., Skrabal, S.A. and Resetar, L. "Organic Complexation of Fe by CDOM in Rainwater and its Impact on Iron Speciation in Seawater" American Society of Limnology and Oceanography, Santiago de Compostella, Spain.
- 2005** Zvalaren, S.D., Willey, J.D., Skrabal, S.A. and Kieber, R.J. "Mercury Speciation in the Organic Rich Cape Fear River" 102nd North Carolina Academy of Science Meeting, Raleigh, North Carolina.
- 2005** Resetar, L., Kieber, R.J., Whitehead, R.F, and Willey, J.D. "Organic Complexation of Fe by CDOM in Rainwater and Its Impact on Fe Speciation in Seawater" 102nd North Carolina Academy of Science Meeting, Raleigh, North Carolina.
- 2005** Knierim, T.L., Kieber, R.J., Skrabal, S.A., Wright, J.L. and Bouillon, R. "Photodegradation of Domoic Acid and the Effects of Metal Chelation" 102nd North Carolina Academy of Science Meeting, Raleigh, North Carolina.
- 2005** Lail, E.M., Kieber, R.J., Skrabal, S.A., and Wright, J.L. "Biogeochemical Cycling of Domoic Acid in the Oceans: The Role of Particles" Mercury Speciation in the Organic Rich Cape Fear River" 102nd North Carolina Academy of Science Meeting, Raleigh, North Carolina.
- 2005** Bradshaw, L.C., Skrabal, S.A., Kieber, R.J., Willey, J.D. and Cahoon, L.B. "Sources and Sinks of Nitrogen in the Cape Fear River Estuary, Southeastern North Carolina" Mercury Speciation in the Organic Rich Cape Fear River" 102nd North Carolina Academy of Science Meeting, Raleigh, North Carolina.

2004 Witt, M., Jickells, T. D., Kieber, R. J., Skrabal, S., and Willey, J., 'Organic Complexation of Copper in Rain,' American Society of Limnology and Oceanography, Savannah, GA.

2004 Jones, S.B., Magolan, K., Kieber, R.J., and Seaton, P.J. "Analysis of Low Molecular Weight Saturated Straight Chain Alcohols in Aqueous Environmental Matrices", American Chemical Society Southeast Regional Meeting, Raleigh NC.

2004 Bradshaw, L.C.*, Skrabal, S.A., Kieber, R.J., Willey, J.D., and Cahoon, L.B., 'Ammonium in the Cape Fear River Estuary; The Role of Particle-Water Interactions,' American Society of Limnology and Oceanography, Savannah, GA.

2004 Zvalaren, S. D.*, Willey, J.D., Skrabal, S.A., and Kieber, R.J., 'Mercury Speciation in the Organic Rich Cape Fear River, North Carolina, USA,' American Society of Limnology and Oceanography, Savannah, GA.

2004 Kieber, R.J., Bradshaw, L.C., Long, M.S., Skrabal, S.A. and Willey, J.D. Increasing Ammonium Concentrations in the Cape Fear Estuary: Where is it Coming From? American Society of Limnology and Oceanography Ocean research Conference, Honolulu, Hawaii.

2004 Whitehead, R.F., Reid, S., Kieber, R.J., and Willey, J.D. Rainwater Chromophoric Dissolved Organic Matter: Characteristics and Photochemistry, American Society of Limnology and Oceanography Ocean research Conference, Honolulu, Hawaii.

2004 Skrabal, S.A., Smith, M.L., Kieber, R.J., Shank, G.C., Whitehead, R.F. Dissolved Copper in Organic Rich Estuarine Waters: Interactions of Light and Suspended Sediments in Altering Speciation, American Society of Limnology and Oceanography Ocean research Conference, Honolulu, Hawaii.

2004 Avery, G.B., Kieber, R.J., Shank, G.C., and Whitehead, R.F. The Impact of Hurricanes on the Dissolved Organic Carbon to Long Bay, Southeastern United States, American Society of Limnology and Oceanography Ocean research Conference, Honolulu, Hawaii.

2004 Zvalaren, S.D., Skrabal, S.A., Kieber, R.J. and Willey, J.D. Mercury Speciation in the Organic Rich Cape Fear River, 6th UNCW Symposium on Chemistry and Biochemistry, Wilmington North Carolina.

2004 Bradshaw, L., Skrabal, S.A., Kieber, R.J., and Willey, J.D. Ammonium in the Cape Fear River Estuary: The Role of Particle water Interactions, 6th UNCW Symposium on Chemistry and Biochemistry, Wilmington North Carolina.

2004 Arslan, R., Seaton, P. and Kieber, R.J. Synthesis and HPLC Analysis of Oxo-Acids in Natural Waters, 6th UNCW Symposium on Chemistry and Biochemistry, Wilmington North Carolina.

- 2003** Kieber, R.J., Hardison, D.R., Whitehead, R.F. and Willey, J.D. Photochemical Production of Fe(II) in Rainwater, American Chemical Society National Meeting, New Orleans LA.
- 2003** Skrabal, S.A., Shank, G.C., Whitehead, R.F., Kieber, R.J., MacGillivray, K.A., Lieseke, K.L. Copper and Zinc Complexing Ligands in Estuarine Waters: The Role of Sediment Water Exchange, American Chemical Society National Meeting, New Orleans LA.
- 2003** Whitehead, R.F., Smith, M.L., Kieber, R.J., Skrabal, S.A. and Shank, G.C. Photochemically Initiated Changes of DOC and Copper Speciation During Sediment Resuspension Events, American Chemical Society National Meeting, New Orleans LA.
- 2003** Zvalaren, S.D., Willey, J. D. and Kieber, R. J. Chromium Speciation in Coastal Rainwater, North Carolina Academy of Science 100th Annual Meeting, Wilmington, NC.
- 2003** Smith, M.L. and Kieber, R.J. Photochemically Initiated Changes in Cu Speciation During Sediment Resuspension Events, North Carolina Academy of Science 100th Annual Meeting, Wilmington, NC.
- 2003** Bradshaw, L.C., Skrabal, S.A., and Kieber, R.J. Ammonium in the Cape Fear River Estuary: The Role of Sediment Water Column Interactions, North Carolina Academy of Science 100th Annual Meeting, Wilmington, NC.
- 2003** Long, M.S., Willey, J.D. and Kieber, R.J. Ammonium in the Cape Fear River Estuary: The Role of Atmospheric Water Column Interactions, North Carolina Academy of Science 100th Annual Meeting, Wilmington, NC.
- 2002** Willey, J. D. and Kieber, R.J. Decrease in Iron Availability to Phytoplankton in Oligotrophic Seawater Caused by Rainwater Hydrogen Peroxide, American Society of Limnology and Oceanography meeting, Victoria, British Columbia.
- 2002** Zvalaren, S.D.*, Willey, J. D. and Kieber, R. J. Chromium Speciation in Coastal Rainwater, American Society of Limnology and Oceanography meeting, Victoria, British Columbia.
- 2002** Cooper, W.J., Avery, G.B., Durako, M.J., Kieber, R.J., Kowalczyk, P., Skrabal, S.A., Whitehead, R.F. and Willey, J.D. Characterization of CDOM in and Organic Rich River and Surrounding Ocean, American Society of Limnology and Oceanography meeting, Victoria, British Columbia.
- 2002** Kieber, R.J., Whitehead, R.F., Skrabal, S.A. and Shank, C.G. The Influence of Copper Speciation on the Photobleaching of CDOM in the Cape Fear Estuary, American Society of Limnology and Oceanography American Geophysical Union Ocean Sciences Meeting, Honolulu, Hawaii.

- 2002** Shank, G.C., Skrabal, S.A., Whitehead, R.F. and Kieber, R.J. Mechanisms Controlling Strong Copper Complexing Ligands in the Cape Fear Estuary, North Carolina. American Society of Limnology and Oceanography American Geophysical Union Ocean Sciences Meetng, Honolulu, Hawaii.
- 2002** Avery, G.B., Kieber, R.J. and Willey, J.D. Rainwater Flux of Fossil Fuel Derived DOC Determined Via 14C Analysis. American Society of Limnology and Oceanography American Geophysical Union Ocean Sciences Meetng, Honolulu, Hawaii.
- 2002** Willey, J.D. , Skrabal, S.A., Smith, C., Sutton, A. and Kieber, R.J. Copper (I) and Copper (II) Speciation in Coastal Rain , 6th UNCW Symposium on Chemistry and Biochemistry, Wilmington North Carolina.
- 2002** Avery, G.A., Kieber, R.J., and Willey, J.D. Rainwater as a Removal Mechanism for Fossil Fuel Derived Atmospheric Organic Carbon, 6th UNCW Symposium on Chemistry and Biochemistry, Wilmington North Carolina.
- 2002** Smith, M.L., Kieber, R.J., Skrabal, S.A., and Whitehead, R.F. Photochemically Initiated Changes in Copper Speciation During Sediment Resuspension Events, 6th UNCW Symposium on Chemistry and Biochemistry, Wilmington North Carolina.
- 2002** Whitehead, R.F., Skrabal, S.A., Shank, G.C. and Kieber, R.J. The Influence of Copper Speciation on the Photobleaching of CDOM in the Cape Fear Estuary. 6th UNCW Symposium on Chemistry and Biochemistry, Wilmington North Carolina.
- 2001** Willey, J.D. , Skrabal, S.A., Smith, C., Sutton, A. and Kieber, R.J. Copper (I) and Copper (II) Speciation in Coastal Rain. Gordon Conference on Chemical Oceanography, Tilton, New Hampshire.
- 2001** Kieber, R.J., Willey, J.D., and Cooper, W.J. Temporal Variability of Iron Speciation and Hydrogen Peroxide Concentrations at BATS: Atmospheric Influences on Seawater Concentrations. Invited presentation, American Society of Limnology and Oceanography meeting, Albuquerque, New Mexico.
- 2001** Willey, J.D., Kieber, R.J. and Avery, G.B. Effects of Rainwater Fe(II), Fe(III) and Hydrogen Peroxide on Chlorophyll a in Bermuda Area Time Series Station Bioassays: A Delicate Balance. Invited presentation, American Society of Limnology and Oceanography meeting, Albuquerque, New Mexico.
- 2001** Whitehead, R.F., Shank, G.C., Skrabal, S.A., Kieber, R.J. and Cooper, W.J. Photochemical Interactions with Copper Complexing DOM in the Cape Fear Estuary, N.C. Invited presentation, American Society of Limnology and Oceanography meeting, Albuquerque, New Mexico.

2001 Najjar, R.G., Zafiriou, O., Cutter, G., Kieber, R.J. and Nelson, N.A. Model of Diurnal and Seasonal Variations of Carbon Monoxide, Carbonyl Sulfide and Hydrogen Peroxide in Sargasso Sea Surface Waters. Invited presentation, American Society of Limnology and Oceanography meeting, Albuquerque, New Mexico.

2001 Kieber, R.J., Willey, J.D. and Skrabal, S. The Effect of Photochemical Reactions on the Lifetime of Atmospherically Deposited Iron in Seawater. 5th UNCW Symposium on Chemistry and Biochemistry, Wilmington North Carolina.

2001 Skrabal, S., Kieber, R.J., Willey, J.D. Redox Active Trace Metals in Rain and Surface Waters: Speciation and Photochemical Effects, 5th UNCW Symposium on Chemistry and Biochemistry, Wilmington North Carolina.

2001 Willey, Joan D., Kieber, Robert J., Cooper, W. and Avery, G. Brooks. Photochemical production and atmospheric deposition of hydrogen peroxide at the Bermuda Atlantic Time Series Station, 5th UNCW Symposium on Chemistry and Biochemistry, Wilmington North Carolina

2000 Kieber, R.J, Willey, J.D. and Skrabal, S.A.. The effect of photochemical reactions on the lifetime of atmospherically deposited iron in seawater. Invited presentation. American Chemical Society Pacificchem meeting, Honolulu, Hawaii.

2000 Willey, Joan D., Kieber, Robert J., Cooper, W. and Avery, G. Brooks. Photochemical production and atmospheric deposition of hydrogen peroxide at the Bermuda Atlantic Time Series Station. Invited presentation. American Chemical Society Pacificchem meeting, Honolulu, Hawaii.

2000 Skrabal, S., Kieber, R.J., Willey, J.D. Redox Active Trace Metals in Rain and Surface Waters: Speciation and Photochemical Effects. Invited presentation. American Chemical Society Pacificchem meeting, Honolulu, Hawaii.

2000 Peake, B., Labadie, P., Mosley, L. and Kieber, R.J. Hydrogen Peroxide Levels in Southern New Zealand Aquatic Environments. Invited presentation. American Chemical Society Pacificchem meeting, Honolulu, Hawaii

2000 Zafiriou, O., Kieber, R.J., Najjar, R., Nelson, N., Taylor, C., Von Hobe, M. Project Diel: Overview and Initial Physical/Chemical/Biological Modeling Results for CO, OCS and HOOH. Invited presentation. American Chemical Society Pacificchem meeting, Honolulu, Hawaii

2000 Kieber, R.J. Temporal and seasonal variations of iron speciation in atmospheric and natural waters. Invited presentation at Louisiana Universities Marine Consortium, Chauvin, LA

2000 Kieber, R.J. Flux of Rainwater Dissolved Organic Carbon and Its Impact on the Oceanic Carbon Cycle. Meteorology department, Penn State University, State College Penn.

1999 Willey, Joan D., Kieber, Robert J., Avery, G. Brooks., and Eyman, Mary S.. Rainwater dissolved organic carbon as a part of the global carbon cycle. The American Society of Limnology and Oceanography National Meeting, February 2, 1999, Santa Fe, New Mexico.

1999 Cooper, W.J., Moegling, J.K., Kiddle, J.J. and Kieber, R.J. A Chemiluminescent Method for the Determination of H₂O₂ in Waters with High Dissolved Organic Matter. The American Chemical Society National Meeting, March 21-25, 1999, Anaheim, CA.

1999 Willey, J.D., Kieber, R.J., Eyman, M. and Avery, G.B. "Rainwater dissolved organic carbon: Concentrations and flux" Gordon Conference on Atmospheric Chemistry, Newport, RI, June 13-18.

1999 Kieber, R.J. Flux of Rainwater Dissolved Organic Carbon and Its Impact on the Oceanic Carbon Cycle. 14th Annual Duke/UNC Oceanographic Consortium Symposium, November 19-20, Beaufort, NC.

1999 Willey, J. D., and Kieber, Robert J. Cycling of dissolved organic carbon and inorganic nitrogen compounds in atmospheric and surface waters, Marine Science Department, University of Otago, Dunedin, New Zealand, March 17, 1999.

1999 Kieber, R.J. Cycling of dissolved organic carbon and inorganic nitrogen compounds in atmospheric and surface waters. Chemistry department, Invited presentation, University of Otago, Dunedin, New Zealand

1998 Kieber, R.J., Li, A., Seaton, P.J. and Willey, J.D. Invited Presentation Society of Environmental Toxicology and Chemistry National Meeting (SETAC) held in Charlotte, North Carolina "Production of Nitrite from the Photodegradation of Humic Substances in Natural Waters and Rainwater"

1998 Hill, J., Kiefer, R. and Kieber, R.J. 10th World Conference on Educational Multimedia and Hypermedia & World Conference on Educational Telecommunications held in Freiburg, Germany "Hurricanes and Hypermedia: The use of Satellite Images in the Study of Rain Characteristics"

1998 Reeves, J.H., Ward, C.R., Kieber, R.J. and Jones, R. American Chemical Society 15th Biennial Conference on Chemical Education held in Waterloo, Ontario, Canada "The Lab/Recitation Model for Introducing Cooperative Learning in Large General Chemistry Sections"

1998 Kieber, R.J., Li, A.L. and Seaton, P.J. 2nd UNCW Symposium on Chemistry and Biochemistry held at UNCW "Dissolved Inorganic Nitrogen Production from the Photodegradation of Humic Substances in Natural Waters"

1998 Kieber, R.J., Thirteenth Duke/UNC Oceanographic Consortium Symposium held in Beaufort, North Carolina "Temporal Variability of Iron Speciation in Rain"

1997 Kieber, R.J., Hydro, L.H. and Seaton, P.J. American Society of Limnology and Oceanography Aquatic Sciences Meeting held in Santa Fe, New Mexico, "Photooxidation of Fatty Acids and Triglycerides in Seawater: Implication Towards the Formation of Marine Humic Substances"

1997 Willey, J.D., Kieber, R.J., Lancaster, R.D., Paerl, H.W. and Go, M. American Society of Limnology and Oceanography Aquatic Sciences Meeting held in Santa Fe, New Mexico "Rainwater Deposition of Hydrogen Peroxide to Coastal North Carolina Waters: Effect on the Bioavailability of Iron in Seawater"

1997 Willey, J., Eyman, M.W., Rhines, M.F., Hostetler, K.J. and Kieber, R.J. Atmospheric Chemistry Gordon Conference held in Newport, Rhode Island "Dissolved Organic Carbon in Hurricane Rain in Wilmington, North Carolina, during the Summer of 1996."

1997 Willey, J., Eyman, M.W., Rhines, M.F., Hostetler, K.J. and Kieber, R.J. Chemical Oceanography Gordon Conference held in Meridan, New Hampshire "Dissolved Organic Carbon in Hurricane Rain in Wilmington, North Carolina, during the Summer of 1996."

1997 Kieber, R.J., Li, A.L. and Seaton, P.J. Chemical Oceanography Gordon Conference held in Meridan, New Hampshire "Dissolved Inorganic Nitrogen Production from the Photodegradation of Humic Substances in Natural Waters"

1997 Kieber, R.J., Twelfth Duke/UNC Oceanographic Consortium Symposium held in Beaufort, North Carolina "Dissolved Inorganic Nitrogen Production from the Photodegradation of Humic Substances in Natural Waters"

1997 Bingham, F. and Kieber, R.J. Twelfth Duke/UNC Oceanographic Consortium Symposium held in Beaufort, North Carolina "A Hydrographic Section Across the Gulf Stream"

1997 Kieber, R.J. UNC-CH, Marine Science Program, "Nitrogen Cycling in Natural Waters"

1996 Rudolph, K., Kieber, R.J., Burgess, S.K, and Willey, J.D. National American Chemical Society Meeting held in New Orleans, LA "Effect of Acid Rain on Alkalinity and Calcium Carbonate Solubility in the Albemarle Sound of North Carolina"

1996 Willey, J.D., Kieber, R.J., Lancaster, R.D. and DeForest, C.L. Joint ASLO/AGU National Ocean Sciences Meeting "Flux of Rainwater and Gas Phase Hydrogen Peroxide to Lakes, Coastal Waters, the Gulf Stream and the Sargasso Sea off Eastern North Carolina, USA"

1996 Kieber, R.J. Eleventh Duke/UNC Oceanographic Consortium Symposium held in Beaufort, North Carolina "Photooxidation of Triglycerides and Fatty Acids in Seawater: Implication Toward the Formation of Humic Substances"

1996 Kieber, R.J. Davidson College Charlotte, North Carolina "Environmental Analytical Chemistry"

1995 Kieber, R.J. and Seaton, P.J. Gordon Conference on Chemical Oceanography held in Meridan, New Hampshire "Determination of subnanomolar concentrations of nitrite in natural waters"

1995 Kieber, R.J. Tenth Duke/UNC Oceanographic Consortium Symposium held in Beaufort, North Carolina "Determination of subnanomolar concentrations of nitrite in natural waters"

1995 Kieber, R.J., Lancaster, R. and Willey, J.D. 210th American Chemical Society National Meeting held in Chicago, IL "Variations of Hydrogen Peroxide Concentrations in Coastal North Carolina Rainwater"

1994 Kieber, R.J., Nuccio, J. and Seaton, P.J. 208th American Chemical Society National meeting held in Washington DC "Biological Production of Formaldehyde in the Marine Environment"

1994 Kieber, R.J. Ninth Duke/UNC Oceanographic Consortium Symposium held in Beaufort, North Carolina "Biological Production of Formaldehyde in the Marine Environment"

1993 Willey, J.D., Kieber, R.J., Lancaster, R.D. and Paerl, H.W. Gordon Conference on Chemical Oceanography "Hydrogen Peroxide in Coastal North Carolina Rainwater: Impact on Surface Seawater."

1993 Lancaster, R., Willey, J.D. and Kieber, R.J. 90th Annual Meeting of the North Carolina Academy of Science in Wilmington, NC, "Hydrogen Peroxide in Coastal North Carolina Rainwater".

1993 Nuccio, J. Seaton, P. and Kieber, R.J. 90th Annual Meeting of the North Carolina Academy of Science in Wilmington, NC "Biological Production of Low Molecular Weight Carbonyls by the Marine Diatom *Cylindrotheca*".

1993 Kieber, R.J. Eighth Annual Duke/UNC Oceanographic Symposium held in Beaufort, North Carolina "Biological Production of Low Molecular Weight Carbonyls by the Marine Diatom *Cylindrotheca*"

1992 Kieber, R.J. and Kaczynski, S. 44th Southeastern Regional, 26th Middle Atlantic Regional Joint Meeting of the American Chemical Society held in Arlington VA "Organic Chromium in Natural Waters and Its Impact on Cr Geochemistry".

1992 Kieber, R.J. Seventh Annual Duke/UNC Oceanographic Symposium held in Beaufort, North Carolina "Organic Chromium in Natural Waters and Its Impact on Cr Geochemistry".

1992 Mopper, K. and Kieber, R.J. 203rd American Chemical Society National meeting held in San Francisco CA, "Photodegradation and Geochemical Fate of River Carbon in the Sea"

1991 Kieber, R.J. Sixth Annual Duke/UNC Oceanographic Symposium held in Beaufort, North Carolina "Organic Chromium Chemistry in Natural Waters".

1991 Kieber, R.J. and Kaczynski S. 43rd Southeastern Regional Meeting of the American Chemical Society held in Richmond, Virginia "Organic Chromium Chemistry in Natural Waters"

1990 Kieber, R.J. Fifth Annual Duke/UNC Oceanographic Symposium, Beaufort NC "Chromium Photochemistry in Natural Waters".

1990 Mopper, K. and Kieber, R.J. Effects of Solar Ultraviolet Radiation on Biological Dynamics in Aquatic Environments conference held at Woods Hole Oceanographic Institution "Abiotic Formation of Formaldehyde, Acetaldehyde and Glyoxylate from UV-B Induced Photodegradation of Humic Substances in Natural Waters"

1990 Helz, G.H. and Kieber, R.J. Effects of Solar Ultraviolet Radiation on Biological Dynamics in Aquatic Environments conference held at Woods Hole Oceanographic Institution entitled "Photoreduction of Chromium in Natural Waters"

1989 Kieber, R.J. Fourth Annual Duke/UNC Oceanographic Symposium held in Beaufort, North Carolina "Photochemical Transformations of Trace Species in Natural Waters".

1989 Kieber, R.J. and Mopper, K. 198th National Meeting of the American Chemical Society held in Miami Beach Florida, "Abiotic Formation of Formaldehyde, Acetaldehyde and Glyoxylate From Sunlight Induced Photodegradation of Humic Substances in Natural Waters".

- Oversee all recruiting activities. Respond to inquiries and schedule visits for potential students.
- Review all applications, accept new students, reject inappropriate applicants.
- Interact with scientists at companies to recruit and train them to serve as thesis mentors for distance students.
- Coordinate fundraising activities for the graduate program
- Allocate TAs and tuition money to individual students from the Graduate School
- Advise all first year students (between 10 and 20 per year).
- Teach the required course, Introduction to Research (CHM 501), to satisfy a degree requirement.
- Administer the required comprehensive exam each year.
- Serve on thesis committees (typically about 20 at any time).
- Write letters of recommendation for graduates each year.
- Advise distance coordinator to ensure standardization of policies and requirements.