

Lydia Babcock-Adams

June 2016

Woods Hole Oceanographic Institution
266 Woods Hole Rd.
Watson Building (MS# 51)
Woods Hole, MA 02543-1050

Office Phone: (508) 289-2835
Email: lbabcockadams@whoi.edu

Education

2016 - present	Ph.D. Chemical Oceanography, MIT/WHOI Joint Program
2016	M.S. Marine Sciences, University of Georgia
2016	B.S. Marine Sciences, emphasis in Marine Chemistry, University of Georgia
2016	B.S. Chemistry, University of Georgia

Assistantships/Training

2016 - present	MIT/WHOI Joint Program Ph.D. Student with Dr. Daniel Repeta
2014-2016	Graduate Assistantship with Dr. Patricia Medeiros (UGA Marine Sciences)
Summer 2015	Participated in the Institute for Chemistry and Biology of the Marine Environment Summer School entitled "Water Column Processes from Coast to Ocean" at the University of Oldenburg in Oldenburg, Germany.
2013-2014	Student research assistant in Dr. William Miller's UGA Marine Science laboratory
2013	CURO Summer Fellowship, funded by UGA Honors Program
2012-2013	Student researcher in Dr. Patricia Medeiros' UGA Marine Science laboratory

Research Interests

My research interests include the investigation of the inputs, transport, and transformations of organic compounds in the marine environment. Specifically, molecular characterization of marine organic carbon, petroleum geochemistry, photochemical transformations of marine organic compounds, dissolved organic matter dynamics.

Research Experience

2012-2016	With Dr. Patricia Medeiros, UGA Marine Sciences; gas chromatography/mass spectroscopy (GC/MS) analysis of petroleum biomarker compounds in sediment samples from the Gulf of Mexico, coral tissues, and fossils; total organic carbon and total organic nitrogen analyses of seawater; UV-Visible spectroscopic analysis of chromophoric dissolved organic matter (CDOM).
-----------	---

2012-2014 With Dr. William Miller, UGA Marine Sciences; chemiluminescence flow injection analysis of H_2O_2 and O_2^- in seawater; gas chromatography analysis of CO in seawater.

2012 With Dr. Daniela Di Iorio, UGA Marine Sciences; manipulate data from Sapelo Island to assess ground water flux in the Duplin River; build a model using Matlab of the Georgia Coastal Ecosystems Long Term Ecological Research (GCE LTER) domain that is now being used for simulations.

Honors and Awards

2016 Received NSF Graduate Research Fellowship

2015 Received UGA Presidential Award of Excellence, awarded to less than 1% of the graduating class for each college

Front cover feature article in UGA Honors Program Magazine

Nominated and selected for Leadership UGA (1 of 25, campus-wide)

Selected as a Peer Assisted Leadership (PAL) mentor in the UGA Honors Program to mentor a freshman chemistry major

Featured on UGA Department of Marine Sciences webpage in "Student Spotlight"

Nominated for and was featured as a UGA Amazing Student on UGA website homepage

Named as a Gulf of Mexico Research Initiative Scholar

Selection to participate in a focus group for Dr. Fritjof Capra's online "Capra Course 16.0"

Nominated to submit an idea for the TEDxUGA student ideas competition

2014 Selection to be student speaker at UGA Groundbreaking Ceremony for the Science Learning Center

Selection to participate in Council on Undergraduate Research (CUR) Posters on the Hill event in Washington D.C. (1 of 60, nationwide competition)

UGA Alumni Association Center for Undergraduate Research Opportunities (CURO)

Honors Summer Research Fellow Award

Featured online as CURO Research Spotlight

Featured online at UGA Alumni Association website

2013 Featured on front page of the University of Georgia Columns, Vol. 41, No. 10.

CURO Summer Research Fellowship

2012-2013 Northeast Georgia Section American Chemical Society (NEGS ACS) Outstanding Undergraduate Student Award

2012 National Science Foundation (NSF) funded Research Experience for Undergraduates (REU) with Dr. Daniela Di Iorio, UGA Marine Sciences

2011-2014 HOPE Scholarship

Publications

- 2015 Powers, L. C., **Babcock-Adams, L. C.**, Enright, J. K. & Miller, W. L. Probing the photochemical reactivity of deep ocean refractory carbon (DORC): Lessons from hydrogen peroxide and superoxide kinetics. *Mar. Chem.* 177(2). 306-317. 2015.
- Babcock-Adams, L.**, Chanton, J., Joye, S. B., Medeiros, P.M. A time series of hydrocarbon composition and concentrations in the Gulf sediments within 3 years following the Macondo well blowout. *Submitted to Environmental Science & Technology*.
- Babcock-Adams, L.**, Miller, W. L. Deep Ocean Photochemistry: Photochemical Production of Carbon Monoxide in the North Pacific. *UGA Journal for Undergraduate Research Opportunities*. 2015.

Presentations (* denotes presenter)

- 2016 Letourneau, M. L., Pannill, V. R., **Babcock-Adams, L. C.**, Medeiros, P. M.* Dissolved Organic Matter Composition and Processing in the Altamaha River and Estuary: The Influence of Hydrology. Poster. *Goldschmidt*, Yokohama/Japan, June 2016.
- Babcock-Adams, L.***, Miñarro, S., Fitt, W. K., Medeiros, P. M. Assessing Coral Response to a Severe Bleaching Event Using Multimolecular Biomarkers. Poster. *Ocean Sciences Meeting*, New Orleans/LA, February 2016.
- 2015 John, D.L.*, Walker, S.E., **Babcock-Adams, L.**, Medeiros, P.M. Anthropocene overprints in trilobite biomarkers from the Cambrian. Poster. *Annual Meeting of Geological Society of America*, Baltimore/MD, November 2015.
- Babcock-Adams, L.***, Chanton, J., Joye, S., Medeiros, P. M. Oil Distribution and Transformation in the Gulf Sediments after the 2010 Macondo Blowout: A Multi-Tracer Approach. Poster. *Southeastern Biogeochemistry Symposium*, Atlanta/GA, March 2015.
- Seidel, M., Kleindienst, S., **Babcock-Adams, L.***, Dittmar, T., Joye, S. B., Medeiros, P. M. Unraveling Microbial Degradation of Dispersant and Water-Soluble Oil Compounds in Deep Seawater from the Gulf of Mexico using Ultrahigh Resolution Mass Spectrometry. Poster. *Gulf of Mexico Oil Spill & Ecosystem Science Conference*, Houston/TX, February 2015.
- 2014 **Babcock-Adams, L.***; Miller, W. L.; Deep Ocean Photochemistry: Reevaluating the Role of UV Radiation on the Global Marine Organic Carbon Cycle. Poster. *Posters on the Hill*, Washington D.C., April 2014.
- Babcock-Adams, L.***; Miller, W. L.; Chemistry at Sea: An Expedition to the North Pacific to Analyze Deep Ocean Refractory Carbon (DORC). Oral Presentation. *University of Georgia Center for Undergraduate Research Opportunities Symposium*, Athens/GA, April 2014.
- Babcock-Adams, L.***; Joye, S. B.; Medeiros, P.M.; Tracking Transformations in the Gulf of Mexico Sediments after the 2010 Macondo Blowout using Biomarker Ratios. Poster. *Ocean Sciences Meeting*, Honolulu/HI, February 2014.

Miller, W. L.*; Powers, L. C.; Cao, F.; **Babcock-Adams, L.**; Enright, J.; Photochemical Reactivity of the Oceanic Refractory Organic Carbon Pool: Insights from the Gulf of Alaska. Poster. *Ocean Sciences Meeting*, Honolulu/HI, February 2014.

Powers, L. C.*; Miller, W. L.; Enright, J.; **Babcock-Adams, L.**; Probing the Photochemical Reactivity of Deep Ocean Refractory Carbon: A Lesson from Superoxide and Hydrogen Peroxide Kinetics. Oral Presentation. *Ocean Sciences Meeting*, Honolulu/HI, February 2014.

Babcock-Adams, L.*; Joye, S. B.; Medeiros, P. M.; Changes in Sedimentary Ratios of Oil-Derived Biomarkers Within Three Years Following the Macondo Blowout. Poster. *Gulf of Mexico Oil Spill & Ecosystem Science Conference*, Mobile/AL, January 2014.

2013

Babcock-Adams, L.*; Medeiros, P.M.; Joye, S.B.; Petroleum Biomarker Levels in the Gulf Sediments Following the 2010 Macondo Blowout. Poster. *Gulf of Mexico Oil Spill & Ecosystem Science Conference*, New Orleans/LA, January 21 to 23, 2013.

Field Research

R/V Savannah, Georgia Coastal Ecosystem Long-Term Ecological Research project, collection of seawater for subsequent CDOM, DOC, and FTICRMS analyses, 5 days (December 2014)

R/V Savannah, South Atlantic Bight, collection of seawater for subsequent CDOM, DOC, and FTICRMS analyses, 5 days (August 2014)

R/V Savannah, South Atlantic Bight, collection of seawater for subsequent CDOM, DOC, and FTICRMS analyses, 4 days (May 2014)

R/V Melville, Gulf of Alaska, collection of seawater and photochemical analyses performed onboard to assess the reactivity of deep ocean refractory carbon (DORC) in the North Pacific, 21 days (August 2013).

Field trip to Sapelo Island, Georgia, for water collection and subsequent photochemical analyses (2013).

Synergistic and Educational Activities

Co-President of UGA Marine Sciences Graduate Student Association (2015-2016)

Student mentor for UGA Honors Program Peer Assisted Leadership (PAL) mentoring program (2015)

Student panel member for UGA Honors Program recruitment “Accepted Student Days” (2014, 2015)

Visitor to 2nd grade classroom to perform science demonstrations (2014)

UGA Journal for Undergraduate Research Opportunities content editor (2014-2015)

Steering committee member for UGA's new Science Learning Center (2014 - present)

Guest speaker in 4th grade classroom about research project with Dr. William Miller (2013, 2014)

Mentor, Shop with a Bulldog (2011, 2012, 2013).

Spanish/English translator for parent/teacher conferences at Chase Street Elementary School (2012).

Professional Societies

American Chemical Society (ACS), since 2014

American Geophysical Union (AGU), since 2013

Alpha Lambda Delta Honors Society, since 2012

The National Society of Collegiate Scholars, since 2012

Extracurricular Activities

Staff Member, Leap High Flying Trapeze (2014-2015)

Company Member, The Human Soul Connection – CORE Concert Dance Company (2015)

Performer, Twofold – Canopy Studio Student Show (2015)

Participant, Clarke/Oconee American Heart Association 5K Heart Walk (2014)

Performer, Canopy Fest – Canopy Studio Student Show (2014)

Performer, Alice in Wond-AIR-Land – Canopy Studio Advanced Student Show (2014)

Performer, Festivus – Canopy Studio December Show (2013)

Guest Performer, Play! – Canopy Studio Repertory Company Show (2013)

Guest Performer, Taking Flight – CORE Concert Dance Company (2013)

Performer, Into the Myth – Canopy Studio Advanced Student Show (2013)

Company Member, Awe-Wakening – CORE Concert Dance Company (2012)

Performer, Senior Exit Concert – UGA Dance Department (2011)