

Brian P. DiMento, PhD

Postdoctoral Research Scientist
Bigelow Laboratory for Ocean Sciences
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EDUCATION

University of Connecticut, Groton, CT, 2010-2017

Ph.D. in Oceanography (Advisor: Robert Mason)

- Dissertation: *An Investigation of the Major Transformations and Loss Mechanisms of Mercury and Selenium in the Surface Ocean*

Colby College, Waterville, ME, 2006-2010

B.A. in Chemistry with honors, Environmental Science concentration

- Thesis: *A Method for the Photochemical Production of Superoxide Radicals in Aqueous Acetone-Ethanol Solutions, and the Simultaneous Chemiluminescent Detection of Superoxide and Hydrogen Peroxide.*

RESEARCH EXPERIENCE

Bigelow Laboratory for Ocean Sciences, East Boothbay, ME (March 2019 – Present)

Postdoctoral Research Scientist (Advisor: Christoph Aeppli)

- Studying the photochemical degradation of short-chain chlorinated paraffins (SCCPs)

University of Connecticut Marine Sciences Dept, Groton, CT (May 2017 – January 2019)

Research Technician, Postdoctoral Research Associate (Advisors: Robert Mason, Zofia Baumann)

- Improving analytical techniques for the analysis of methylmercury in seawater
- Analysis of environmental sediment and water samples for mercury
- Training of new graduate students

University of Connecticut Marine Sciences Dept, Groton, CT (August 2012 – May 2017)

Graduate Research Assistant

- Studied the photochemical cycling of mercury and selenium species in seawater, and air-sea exchange of mercury in the Arctic
- Assisted with projects studying the cycling of mercury in the sediments and water column of coastal estuaries

Colby College Chemistry Department, Waterville, ME (January 2008 – May 2010)

Undergraduate Research Assistant

- Optimized a method for the photochemical production of superoxide standards, and a method for the chemiluminescent detection of superoxide and hydrogen peroxide

Belgrade Regional Conservation Alliance, Belgrade Lakes, ME (June - August 2008)

Research Assistant

- Assisted in the study of water quality on the Belgrade Lakes

TEACHING EXPERIENCE

Colby College, Waterville, ME

Laboratory Instructor for Organic Chemistry (CH241) (August – December 2019)

Connecticut College, New London, CT

Visiting Lecturer in Chemistry (August 2018 – May 2019)

- Teaching Analytical Chemistry (CHM214) lecture and labs as well as General Chemistry (CHM103L) labs

Mitchell College, New London, CT

Adjunct Professor, College Chemistry I and II (September 2017 – May 2018)

- Taught at Mitchell College (CH112) and the Science and Technology Magnet High School of Southeastern Connecticut (CH111 and CH112)

University of Connecticut, Groton, CT

Graduate Teaching Assistant (August 2010 – May 2012, August 2015 – May 2017)

- General Chemistry Labs (CHEM1127/1128) – Taught between 1 and 3 undergraduate general chemistry labs per semester, each with up to 20 students
- The Hydrosphere (MARN3000) – Evaluated homework assignments
- Coastal Studies Seminar (MARN3801) – Evaluated writing assignments

General chemistry tutor (June – July 2012)

Colby College, Waterville, ME

Organic chemistry tutor (September 2008 – May 2009)

PUBLICATIONS

DiMento B P, Mason R P, Brooks S and Moore C. (2018) The impact of sea ice on the air-sea exchange of mercury in the Arctic Ocean. *Deep Sea Research Part I: Oceanographic Research Papers* 144, 28-38.

Mason R P, Soerensen A, DiMento B P and Balcom P H. (2018) The Role of Air-Sea Exchange in the Global Selenium Cycle: Insights from Measurements and Modeling. *Global Biogeochemical Cycles* 32(12), 1720-1737.

DiMento B P and Mason R P. (2017) Factors controlling the photochemical degradation of methylmercury in coastal and oceanic waters. *Marine Chemistry* 196, 116-125.

Gosnell K, Balcom, P, Ortiz V, DiMento B, Schartup A, Greene R and Mason R. (2016) Seasonal Cycling and Transport of Mercury and Methylmercury in the Turbidity Maximum of the Delaware Estuary. *Aquatic Geochemistry* 22(4), 313-336.

Burns J M, Cooper W J, Ferry J L, King D W, DiMento B P, McNeill K, Miller C J, Peake B M, Rusak S A, Rose A L and Waite T D (2011) Methods for reactive oxygen species (ROS) detection in aqueous environments. *Aquatic Sciences* 74, 683-734.

PRESENTATIONS

13th International Conference on Mercury as a Global Pollutant – Providence, RI (July 2017)

- *Air Sea Exchange of Mercury in the Arctic*. Poster.
- *Factors controlling the photochemical degradation of methylmercury in coastal and oceanic waters*. Oral.

The 11th Biennial S. Y. Feng Graduate Research Colloquium – Groton, CT (May 2016)

- *Photochemical Degradation of Methylmercury from Coastal Waters to the Open Ocean*. Poster.

12th International Conference on Mercury as a Global Pollutant – Jeju, Korea (June 2015)

- *Photochemical Transformations of Mercury and Selenium in Seawater*. Poster.

The 10th Biennial S. Y. Feng Graduate Research Colloquium – Groton, CT (May 2014)

- *Selenium in the Marine Environment*. Oral.

11th International Conference on Mercury as a Global Pollutant – Edinburgh, Scotland (July 2013)

- *Investigations of Methylmercury Photochemical Degradation in Seawater*. Poster.

The 9th Biennial S. Y. Feng Graduate Research Colloquium – Groton, CT (May 2012)

- *Investigations of the Methylmercury Photodegradation of Methylmercury in Seawater*. Poster.

10th International Conference on Mercury as a Global Pollutant – Halifax, NS (July 2011)
- *Investigations of Methylmercury Photodegradation in Seawater*. Poster.

AGU Ocean Sciences Meeting – Portland, OR (February 2010)
- *The Detection of Superoxide and Hydrogen Peroxide Using the Chemiluminescent Reagent Acridinium Ester*. Oral.

Colby Chemistry Department Senior Seminar – Waterville, ME (December 2009, May 2010)
- *Detection of Superoxide and Hydrogen Peroxide Using the Chemiluminescent Reagent Acridinium Ester*. Oral.

Colby Undergraduate Research Symposium – Waterville, ME (May 2010)
- *The Chemiluminescent Detection of Superoxide and Hydrogen Peroxide*. Poster.

Colby Undergraduate Summer Research Retreat – The Forks, ME (July 2009)
- *Detection of Superoxide and Hydrogen Peroxide Using the Chemiluminescent Reagent Acridinium Ester*. Oral.

Colby Undergraduate Research Symposium – Waterville, ME (May 2009)
- *Method for the Photochemical Production of Superoxide Radicals in Water-Ethanol Solutions*.
Poster.

Colby Undergraduate Summer Research Retreat – The Forks, ME (July 2008)
- *The Gold Standard for Superoxide*. Poster.

HONORS AND AWARDS

2016 Marine Sciences Summer Pre-doctoral Award

2015 Marine Sciences Summer Pre-doctoral Award
Feng Marine Sciences Student Activity Fund Award

2014 Marine Sciences Summer Pre-doctoral Award
UCONN Doctoral Dissertation Fellowship
CLAS Dean's Fund Fellowship

2013 Marine Sciences Summer Pre-doctoral Award
Feng Marine Sciences Student Activity Fund Award

2012 Dean Ross MacKinnon Endowment for College of Liberal Arts and Sciences Graduate Fellows
Marine Sciences Summer Pre-doctoral Award

2011 Covenant Insurance Co. Summer Fellowship
Feng Marine Sciences Student Activity Fund Award
Connecticut Sea Grant Travel Award

2010 Dean's List all semesters at Colby College
Class Marshal of the Class of 2010
ACS Division of Inorganic Chemistry: 2010 Undergraduate Award for Inorganic Chemistry
New England Institute of Chemists Student Award in Chemistry

2009 Inducted into Phi Beta Kappa (Beta Chapter)
ACS Division of Analytical Chemistry: Analytical Chemistry Award
Bixler Scholar

2008 ACS Division of Polymer Chemistry: POLYED Undergraduate Award for Achievement in
Organic Chemistry
Bixler Scholar

2007 Strider Scholar
Phi Beta Kappa Scholastic Achievement Award

LABORATORY AND RESEARCH SKILLS

Trace metal clean sample collection and analysis techniques

Total and methylmercury analysis with Tekran instrumentation, including distillation and solvent extraction preparation methods

Inorganic selenium analysis with PS Analytical Millennium Excalibur

Extensive use of atomic fluorescence and UV/Vis spectroscopy, as well as photon counting-based chemiluminescence detection

Preparation of buffers, multi-component solutions
Familiarity with many other techniques and instrumentation including ICP-MS, HPLC, GC-MS, IR and Raman spectroscopy, analysis of IR, NMR, and MS spectra
Computer programs: chemical modeling programs MINEQL+ and Geochemist's Workbench, data acquisition software such as LoggerPro and SprettraSuite, extensive use of Microsoft Excel, and some use of Mathematica and MATLAB

RESEARCH INTERESTS

Photochemical cycling of trace metals, organic contaminants, and biologically active species
Mercury and selenium biogeochemistry
Reactive oxygen species dynamics
Method development and optimization
Water quality and environmental awareness

COMMUNITY OUTREACH

Taste, Touch, and Smell of Science (September 8, 2012; September 20, 2014; September 26, 2015)
- Co-lead chemistry based activities for elementary school children during a science day camp
Guest lecture at Rocori High School in Cold Spring, MN discussing what it's like to study oceanography and go to grad school (January 4, 2018)
Bigelow Laboratory Open House (July 19, 2019)
- Hands on activity leader for ocean acidification and water pressure demonstrations

ACTIVITIES

S. Y. Feng Graduate Research Colloquium Organizing Committee (May 2012, 2014)
- University of Connecticut, Marine Sciences Department
Graduate Student Association Treasurer (August 2012 – May 2013)
- University of Connecticut, Marine Sciences Department
Art & Photography - <http://www.flickr.com/photos/bdimento/>
- *insideColby* photographer (September 2008 – May 2010)
- Personal artwork exhibited at student art shows at Colby College, as well as at the Blue Marble Gallery in Waterville, ME
- Paintings selected to exhibit in the 2009 Maine Open Juried Art Show in Waterville, ME and the 2014 Ninth Annual Crossing Juried Exhibition in New London, CT
- Experienced digital and film photographer – adept with use of Adobe Lightroom, Photoshop
Avid fisherman, kayaker, boater