

**CURRICULUM VITAE**  
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## EDUCATION

- 2017      **Ph.D., Chemical Oceanography, MIT/WHOI Joint Program in Oceanography**  
Thesis title: *The remineralization of marine organic matter by diverse biological and abiotic processes*  
Advisor: Dr. Ben Van Mooy
- 2011      **M.E.Sc., Marine Biogeochemistry, Yale School of Forestry & Environmental Studies**  
Thesis title: *Estimates of new and total productivity in central Long Island Sound from in situ measurements of nitrate and dissolved oxygen*  
Advisor: Dr. Pete Raymond
- 2004      **Political Science (with distinction), Yale College**

## PROFESSIONAL SCIENTIFIC EXPERIENCE

- 2017 – present    Moore/Sloan & WRF Innovation in Data Science Postdoctoral Fellow, eScience Institute and Sch. of Oceanography, Univ. of Washington
- 2017 – present    Guest Investigator, Dept. Mar. Chem. & Geochem, Woods Hole Ocean. Inst.
- 2017                Postdoctoral Investigator, Dept. Mar. Chem. & Geochem, Woods Hole Ocean. Inst.
- 2011 – 2016        Research Assistant, Dept. Mar. Chem. & Geochem, Woods Hole Ocean. Inst.
- 2009 – 2011        Research Assistant and Licensed Captain, Yale Sch. of Forestry & Environmental Studies

## AWARDS & HONORS

- 2017      Moore/Sloan & Washington Research Foundation Innovation Postdoctoral Fellowship in Data Science
- 2017      Student Fellow (Data Stewardship Cluster), Federation of Earth Science Information Partners (ESIP)
- 2016      Invited Participant, DISCO XXV (Dissertations Symposium on Chemical Oceanography)
- 2014      Antarctica Service Medal of the United States of America
- 2012      EPA Science to Achieve Results (STAR) Graduate Fellowship

- 2009 Post-9/11 G.I. Bill “Yellow Ribbon” Program Recipient, Yale School of Forestry & Environmental Studies
- 2004 Montaigne Prize, Yale College, for excellence in spoken and written French
- 2000 Golub Foundation Founder’s Scholarship, Yale College  
William A. Henry III Scholarship, Yale College

## PROFESSIONAL PUBLICATIONS

- Collins, J. R.**, P. D. Fucile, G. McDonald, J. E. Ossolinski, R. G. Keil, J. R. Valdes, S. C. Doney, and B. A. S. Van Mooy. 2017. A new, autonomous *in situ* device captures variation in oxygen consumption and community metabolism. In review, *Frontiers in Marine Science*.
- Collins, J. R.**, B. R. Edwards, Helen F. Fredricks, and B. A. S. Van Mooy. 2016. LOBSTAHS: An adduct-based lipidomics strategy for discovery and identification of oxidative stress biomarkers. *Analytical Chemistry* 88:7154-7162; doi:[10.1021/acs.analchem.6b01260](https://doi.org/10.1021/acs.analchem.6b01260)
- Collins, J. R.**, B. R. Edwards, K. Thamatrakoln, J. E. Ossolinski, G. R. DiTullio, K. D. Bidle, S. C. Doney, and B. A. S. Van Mooy. 2015. The multiple fates of sinking particles in the North Atlantic Ocean. *Global Biogeochemical Cycles* 29:1471-1494; doi:[10.1002/2014GB005037](https://doi.org/10.1002/2014GB005037)
- Collins, J. R.**, P. A. Raymond, W. F. Bohlen, and M. M. Howard-Strobel. 2013. Estimates of new and total productivity in central Long Island Sound from *in situ* measurements of nitrate and dissolved oxygen. *Estuaries and Coasts* 36:74-97; doi:[10.1007/s12237-012-9560-5](https://doi.org/10.1007/s12237-012-9560-5)

## SOFTWARE AUTHORSHIP

- Collins, J. R.**, B. R. Edwards, Helen F. Fredricks, and B. A. S. Van Mooy. 2017. LOBSTAHS: Lipid and Oxylipin Biomarker Screening through Adduct Hierarchy Sequences. R package version 1.2.0. Available via Bioconductor at <http://bioconductor.org/packages/devel/bioc/html/LOBSTAHS.html>

## PATENTS

- Adduct-Based Lipidomics System and Methods for Discovery and Identification of Oxidative Stress Biomarkers.  
U.S. Provisional Patent Application No. 62345175. **Collins, J. R.**, B. A. S. Van Mooy, Helen F. Fredricks, and B. R. Edwards.

## INVITED TALKS & LECTURES

- Collins, J. R.**, B. R. Edwards, Helen F. Fredricks, K. W. Becker, and B. A. S. Van Mooy. September 2016. “Investigating oxidative stress and metabolic function in marine microbes using new a tool for environmental lipidomics.” Bigelow Laboratory for Ocean Sciences, East Boothbay, ME.
- Collins, J. R.**, B. R. Edwards, Helen F. Fredricks, K. W. Becker, and B. A. S. Van Mooy. June 2016. “Investigating oxidative stress and metabolic function in marine microbes using new a tool for environmental lipidomics.” Fort Johnson Marine Science Seminar, National Institute of Standards and Technology/Hollings Marine Laboratory, Charleston, SC.
- Collins, J. R.**, B. R. Edwards, K. Thamatrakoln, J. E. Ossolinski, G. R. DiTullio, K. D. Bidle, S. C. Doney, and B. A. S. Van Mooy. September 2015. “Balancing the direct and indirect removal of sinking particles in the North Atlantic Ocean.” Departmental Seminar, Department of Marine Chemistry & Geochemistry, Woods Hole Oceanographic Institution, Woods Hole, MA.

**Collins, J. R.**, and P. A. Raymond. March 2012. "Controls on new production and nitrate inventory in central Long Island Sound." Biogeochemistry Seminar, Department of Marine Chemistry & Geochemistry, Woods Hole Oceanographic Institution, Woods Hole, MA.

## PRESENTATIONS AT MEETINGS

Becker, K. W., **J. R. Collins**, H. F. Fredricks, J. E. Ossolinski, A. E. White, D. J. Repeta, and B. A. S. Van Mooy. February 2017. The microbial lipidome of the oligotrophic North Pacific Subtropical Gyre. *Oral presentation*. Ocean Sciences Meeting, Honolulu, HI.

**Collins, J. R.**, B. R. Edwards, K. W. Becker, H. F. Fredricks, and B. A. S. Van Mooy. January 2017. Discovery and identification of oxidative stress biomarkers in marine phytoplankton using a new, open-source R package for lipidomics. *Poster*. Winter meeting of the Federation of Earth Science Information Partners (ESIP), Bethesda, MD.

**Collins, J. R.**, B. R. Edwards, K. W. Becker, H. F. Fredricks, and B. A. S. Van Mooy. December 2016. Putting the oxylipidome to work: The R-based LOBSTAHS lipidomics software reveals candidate biomarkers for stress in plankton. *Poster*. Annual meeting of the Simons Collaboration on Ocean Processes & Ecology (SCOPE), New York, NY.

**Collins, J. R.**, B. R. Edwards, H. F. Fredricks, and B. A. S. Van Mooy. August 2016. Discovery & identification of oxidative stress biomarkers in marine microbes using LOBSTAHS, a new R package for lipidomics. *Poster*. 16th International Symposium on Microbial Ecology (ISME16), Montreal, Canada.

**Collins, J. R.**, B. R. Edwards, H. F. Fredricks, and B. A. S. Van Mooy. January 2016. Discovery and identification of biomarkers for oxidative stress in phytoplankton using LOBSTAHS, a new pipeline for semi-untargeted lipidomics. *Poster*. EMBO/EMBL Symposium: A New Age of Discovery for Aquatic Microeukaryotes, European Molecular Biology Laboratory, Heidelberg, Germany.

Becker, K. W., H. F. Fredricks, **J. R. Collins**, J. E. Ossolinski, J. Wingenroth, D. J. Repeta, D. A. Caron, S. W. Chisholm, and B. A. S. Van Mooy. May 2016. The microbial lipidome of subtropical Pacific surface waters dominated by *Prochlorococcus*. *Poster*. 12<sup>th</sup> Workshop on Cyanobacteria, Arizona State University, Tempe, AZ.

Fredricks, H. F., **J. R. Collins**, B. R. Edwards, and B. A. S. Van Mooy. June 2015. Lipidomics of marine microorganisms under stress: Solving the needle / haystack problem with a large database and open-source software. *Poster*. Annual Conference, American Society for Mass Spectrometry, St. Louis, MO.

**Collins, J. R.**, H. F. Fredricks, H. W. Ducklow, and B. A. S. Van Mooy. February 2015. Photochemical production of oxylipin infochemicals in West Antarctica: An approach using new tools for semi-untargeted lipidomics. *Poster*. ASLO Aquatic Sciences Meeting, Granada, Spain.

Edwards, B. R., **J. R. Collins**, H. F. Fredricks, J. E. Ossolinski, H. McNair, M. A. Brzezinski, J. W. Krause, K. Thamatrakoln, K. D. Bidle, and B. A. S. Van Mooy. Comparative lipidomics link bloom decline to infochemical production in the California upwelling zone. *Oral presentation*. ASLO Aquatic Sciences Meeting, Granada, Spain.

**Collins, J. R.**, B. R. Edwards, K. Thamatrakoln, J. E. Ossolinski, G. R. DiTullio, S. C. Doney, and B. A. S. Van Mooy. July 2014. Constraints on observationally intractable aspects of the mesopelagic carbon cycle: Comparison of direct observations and results from multi-parameter sensitivity analyses. *Poster*. Ocean Carbon and Biogeochemistry Workshop, Woods Hole, MA.

**Collins, J. R.**, J. E. Ossolinski, B. R. Edwards, K. Thamatrakoln, J. Tagliaferre and B. A. S. Van Mooy. February 2014. Constraining carbon cycle parameters in the North Atlantic through independent measurements of

- bacterial production, respiration, and particulate carbon export. *Poster*. Ocean Sciences Meeting, Honolulu, HI.
- Fulton, J. M., B. A. S. Van Mooy, J. R. Collins, J. E. Hunter, and K. Bidle. February 2014. Lipid connections between viral termination of coccolithophore blooms and carbon export. *Poster*. Ocean Sciences Meeting, Honolulu, HI.
- Collins, J. R., J. R. Valdes, J. E. Ossolinski, R. G. Keil, and B. A. S. Van Mooy. February 2013. The PHORCYS: An autonomous, dual-chamber *in situ* incubator for the estimation of community metabolism. *Oral presentation*. ASLO Aquatic Sciences Meeting, New Orleans, LA.
- Collins, J. R., P. A. Raymond, W. F. Bohlen, and M. M. Howard-Strobel. November 2011. Metabolism in central Long Island Sound, minute by minute: Estimates from *in situ* oxygen and nitrate measurements. *Poster*. Coastal and Estuarine Research Federation (CERF) Biennial Conference, Daytona Beach, FL.
- Collins, J. R., and P. A. Raymond. April 2011. Controls on nutrient flux and productivity over multiple time scales in Long Island Sound. *Poster*. Master's Student Colloquium, 2011, Yale School of Forestry & Environmental Studies, New Haven, CT.

## PROFESSIONAL SERVICE

Reviewer for *Analytical Chemistry*, *Biogeosciences*, *Estuaries and Coasts*, *Deep-Sea Research Part II*, *The ISME Journal*, *Journal of Geophysical Research – Oceans*, *Limnology & Oceanography: Methods*

## RESEARCH SUPPORT

- 2017     NSF-PLR 1543328: *Production and fate of oxylipins in waters of the Western Antarctic Peninsula: Linkages between UV radiation, lipid peroxidation, and carbon cycling*. Primary proposal author; project participant. \$582,484 award to B. A. S. Van Mooy.
- 2013     Ocean Ventures Fund, Woods Hole Oceanographic Institution: *Communication by peroxidation: A lipid-derived stress response to ultraviolet radiation in the coastal Antarctic*. \$7,000.
- 2010     The Sounds Conservancy Grant, Quebec-Labrador Foundation. \$500.  
Carpenter/Sperry Research Fund, Yale School of Forestry & Environmental Studies. \$1,810.
- 2009     Yale/Connecticut Sea Grant Student Research Internship (\$1,474).

## TEACHING EXPERIENCE

- Fall 2014     Teaching Assistant for Marine Chemistry (12.742), Massachusetts Institute of Technology.  
Assisted students with understanding and interpretation of lecture material from introductory chemical oceanography survey course; graded problem sets; prepared and led weekly recitation (one hour) on lecture concepts and additional topics of my choice
- Fall 2012     Two invited guest lectures to BP plc scientists as part of two-week industry partner resident course, Woods Hole Oceanographic Institution, Woods Hole, MA
- Fall 2011     Three invited guest lectures in Organic Pollutants in the Environment, graduate-level course, Yale School of Forestry & Environmental Studies, New Haven, CT

## CRUISE PARTICIPATION AND FIELD EXPERIENCE

Oct-Dec 2015	Field Team Member, Palmer Long Term Ecological Research (LTER) study, Palmer Station, Antarctica: Conducted field operations and laboratory analysis for microbial/biogeochemical component of NSF LTER study. Operator of Zodiac small boats for sample collection.
Jul-Aug 2015	<i>R/V KA'IMIKAI-O-KANALOA</i> , Station Aloha, North Pacific Ocean, 11 days: Simons Collaboration on Ocean Processes and Ecology (SCOPE)
Sep 2014	<i>R/V CLIFFORD BARNES</i> , Clayoquot Sound, British Columbia, 8 days
Jan-Feb 2014	<i>R/V LAURENCE M. GOULD</i> , Bellingshausen Sea (West Antarctica), 35 days as part of Palmer LTER study cruise
Oct-Dec 2013	Field Team Member, Palmer LTER study, Palmer Station, Antarctica
June-July 2012	<i>R/V KNORR</i> , North Atlantic Ocean, 35 days: Ponta Delgada, Azores, to Reykjavik, Iceland
April-May 2012	<i>R/V KNORR</i> , North Atlantic Ocean, 14 days: Woods Hole, MA, to Bermuda
December 2010	<i>M/V SARAH BORDELON</i> , Northern Gulf of Mexico, 11 days: NOAA/ Deepwater Horizon Cooperative Cruise, site of Deepwater Horizon wellhead
2009-2011	Yale/Peabody Marine Station, Guilford, CT: Managed marine research operations on Long Island Sound for laboratory of Dr. Peter Raymond and six other investigators; over 40 day cruises on Long Island Sound and Connecticut River as U.S. Coast Guard licensed operator of 23-foot research boat <i>R/V CATCH THE JOY</i>

#### PUBLICATIONS (NON-REFEREED)

**Collins, J.R.** 2010. YIBS Center for Field Ecology: Long Island Sound project. *Yale Environmental News*, Yale Institute for Biospheric Studies **15** (2): 27.

**Collins, J. R.** 2010. Community respiration in coastal Connecticut: How fast does an aquatic ecosystem breathe? *News of the Center for Coastal and Watershed Systems*, Yale School of Forestry & Environmental Studies, Spring 2010: 4-5.

#### LECTURES AND TALKS FOR GENERAL AUDIENCES

**Collins, J.R.** May 2014. "Anthropogenic impacts in coastal environments: Long Island Sound and the West Antarctica Peninsula." Lecture to members of Pittsburgh, PA, chapter, World Presidents' Organization.

**Collins, J. R.** August 2011. "Two months in Mobile: A Coast Guard Reservist's reflections on the Deepwater Horizon oil spill." MIT/WHOI Joint Program "Jelly Talk," Woods Hole Oceanographic Institution, Woods Hole, MA.

**Collins, J. R.** May 2011. "Oil, water, boom, and beaches: Select aspects of the Deepwater Horizon disaster." Two special lectures to high-school students. Bridgeport Regional Aquaculture Science and Technology Education Center, Bridgeport, CT.

P. T. Anastas, J. D. Kessler, M. S. Schröpe, and **J. R. Collins**. December 2010. "Disaster in the Gulf: A Panel Discussion on the Deepwater Horizon Oil Spill." One of four invited panelists. Yale Climate & Energy Institute, New Haven, CT.

## **PROFESSIONAL ASSOCIATIONS**

- 2015 – Member, The Oceanography Society  
2011 – Member, American Society of Limnology & Oceanography (ASLO)  
2009 – Member, American Geophysical Union (AGU)  
2009 – Member, Coastal & Estuarine Research Federation (CERF)

## **ADVISING AND MENTORSHIP**

- 2015 Primary supervisor to WHOI summer Guest Student Gabriel Roy Liguori (Yale University)  
2014 – 2016 Peer mentor to MIT/WHOI Joint Program Student Kevin Sutherland

## **EXTRACURRICULAR ACTIVITIES AND VOLUNTEER SERVICE**

- 2016 – 2017 Co-President, Boston Chapter, Yale Veterans Association  
2013 – 2015 Student representative, Institutional Safety Committee, Woods Hole Oceanographic Institution  
2012 – 2013 Science education outreach volunteer, Charlestown High School, Boston, MA  
2012 – 2015 Librarian, John W. Farrington Collection, Woods Hole Oceanographic Institution  
2011 – 2013 Steering Committee member, Yale Veterans Association  
2010 – 2011 President, Fresh & Salty (student organization for water science and policy, Yale School of Forestry & Environmental Studies)  
2010 – 2011 Communications Chair, Yale Veterans Council  
2010 – 2011 Graduate Affiliate, Berkeley College, Yale University  
2009 – 2011 Student member, Environmental Stewardship Committee, Yale School of Forestry & Environmental Studies  
2005 – Undergraduate admissions interviewer (volunteer), Yale Alumni Schools Committee  
2003 – 2004 Managing Editor, Yale Daily News (Yale College)

## **MILITARY SERVICE**

- Current rank: LCDR/O-4  
Branch of service: U.S. Coast Guard Reserve (2009 to present)  
U.S. Coast Guard (2004-2009)  
Date of rank: 1 September 2015

## **PROFESSIONAL CREDENTIALS & SKILLS**

Commercial master's license (U.S. Coast Guard): Master of Steam or Motor Vessels, 100 Tons (Near Coastal), with Assistance Towing Endorsement; issued April 2016

Current certifications: BLS-CPR/Advanced First Aid; OSHA 40-hour HAZWOPER; Critical Incident Stress Management (CISM) counselor

National Incident Management System (NIMS) Incident Command System (ICS) qualifications (Type 3, U.S. Coast Guard): Operations Section Chief; Situation Unit Leader; Division/Group Supervisor. Formal training: 100, 200, 300, 339, 341, 347, 400, 430/440, 700, and 800 levels.

U.S. Coast Guard professional education and qualifications: U.S. Coast Guard Pollution Incident Response (Yorktown, VA); U.S. Coast Guard Boarding Officer and Radiation Detection Level 2 Operator (Federal Law Enforcement Training Center, Charleston, SC); Northeast Fisheries Boarding Officer (U.S. Northeast Regional

Fisheries Training Center, Falmouth, MA); Maritime Search & Rescue Planning, National Search and Rescue School (Yorktown, VA)

Languages: French (fluent); Spanish (proficient); Haitian Creole (conversational)