

## CURRICULUM VITAE

### CHRISTOPHER MICHAEL REDDY

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### EDUCATION:

**B.Sc.** Chemistry (minor in mathematics), Rhode Island College, Providence, RI, 1992

**Ph.D.** Chemical Oceanography, Graduate School of Oceanography, University of Rhode Island, Kingston, RI, 1997

**Executive Certificate.** Management and Leadership, Sloan School of Management, Massachusetts Institute of Technology, 2010

**Certificate.** *Leadership in the 21<sup>st</sup> Century: Chaos, Conflict, and Courage*, Kennedy School of Government, Harvard University, 2008

### PROFESSIONAL EXPERIENCE:

- Chemist, ULTRA Scientific, North Kingstown, RI, 1992
- Environmental Chemist, CEIMIC Corporation, Narragansett, RI, Mar. 1993 to June 1994
- Research graduate assistant, Chemical Oceanography, University of Rhode Island, June 1994 to Dec. 1997
- Post-Doctoral Scholar and Investigator, Department of Marine Chemistry and Geochemistry, WHOI, Woods Hole, MA, Dec. 1997 to Feb. 2000
- Assistant Scientist, Dept. of Marine Chemistry and Geochemistry, WHOI, Mar. 2000 to Jan. 2004
- Visiting Scholar, Scripps Institution of Oceanography, UC San Diego, La Jolla, CA, Jan. 2003 to May 2003
- Visiting Associate, Div. of Geologic and Planetary Sciences, California Institute of Technology, Pasadena, CA, Jan. to Mar. 2005
- Adjunct Associate Professor of Biology, Boston University, Boston, MA, July 2006 to June 2008
- Associate Scientist, Dept. of Marine Chemistry and Geochemistry, WHOI, Jan. 2004 to Oct. 2006
- Associate Scientist with tenure, Dept. of Marine Chemistry and Geochemistry, WHOI, Oct. 2006 to Oct 2010
- Manager, WHOI Small Boats Fleet, 2008 to 2014
- Director, Coastal Ocean Institute, WHOI, Aug. 2008 to March 2015
- Senior Scientist, Dept. of Marine Chemistry and Geochemistry, WHOI, Oct. 2010 to present

**GRADUATE ADVISOR:** Professor James G. Quinn, University of Rhode Island

**POST-DOCTORATE ADVISOR:** Dr. Timothy I. Eglinton, Woods Hole Oceanographic Institution, (now at ETH-Switzerland)

### INTERESTS:

- Chemical oceanography
- Marine pollution
- Marine natural products
- Communicating science and how science works

### AWARDS AND HONORS:

2018 American Geophysical Union's Ambassador Award

2018 Fellow, American Geophysical Union

- 2016 First runner-up for top manuscript (Environment technology) published in *Environmental Science and Technology* (Gros *et al.* 2016)
- 2016 Stanley Watson Chair in Oceanography at WHOI
- 2014 Fellow, The Geochemical Society
- 2014 C.C. Patterson Award; awarded internationally for leading an innovative breakthrough of fundamental significance in environmental geochemistry, particularly in service to society
- 2013 R.A. Glenn Award; awarded to the most innovative and interesting paper in fuel science
- 2011 Best Paper for *Marine Pollution*. Moret Ferguson *et al.* 2010  
<https://www.sciencedirect.com/science/article/pii/S0025326X12000987?via%3Dihub>
- 2011 University of Rhode Island Distinguished Achievement Award
- 2011 Kavli Fellow
- 2010 Kavli Fellow
- 2009 Kavli Fellow; awarded by the US National Academy of Sciences; it is the Academy's premiere recognition for distinguished young scientists under 45 years of age.
- 2008 Fulbright Specialists Roster Candidate
- 2008 The Henry L. and Grace Doherty Professor of Oceanography in the MIT/WHOI Joint Program
- 2007 First runner-up for top manuscript (Environment science) published in *Environmental Science and Technology* (Hofstetter *et al.* 2007)
- 2007 *Environmental Science and Technology* Excellence in Review Award
- 2007 John B. Phillips Award; in honor of the inventor of comprehensive two-dimensional gas chromatography (GC×GC) for a paper viewed to have the most potential impact on the future of GC×GC (Arey *et al.* 2005)
- 2006 Rhode Island College Athletic Alumnus award
- 2006 Fellow, Aldo Leopold Leadership Program (trains academic environmental scientists to communicate effectively to non-scientists)
- 2003 Office of Naval Research Young Investigator Program awardee
- 1998 Rhode Island College Alumni Honor Roll award
- 1998 "Save the Bay" Environmental Award; for identifying a second more toxic oil after the *North Cape* oil spill, which led to an additional 1.5 million dollars added to the damage settlement.
- 1996 Honorable Lincoln Almond (Governor of Rhode Island) Award; for scientific contribution during the *North Cape* oil spill
- 1995 American Chemical Society's Outstanding Graduate Student Award in Environmental Chemistry
- 1991 American Chemical Society's Outstanding Undergraduate Student Award in Analytical Chemistry

#### **PARTICIPATION IN WHOI ACADEMIC PROGRAM:**

- Guest lecturer for *Marine Org. Geochemistry*, MIT/WHOI Joint Program (Spring 1999, 2001, 2003, 2005, 2007, 2009)
- Guest lecturer for *Marine Mammal Toxicology*, MIT/WHOI Joint Program (Winter 2004)
- Guest lecturer for *Elements of Modern Oceanography*, MIT/WHOI Joint Program (Fall 2016)
- Instructor (with Roger Francois), *Marine Geochemistry*, MIT/WHOI Joint Program (Fall 2002, 2003)
- Admissions committee for Department of Marine Chemistry and Geochemistry (2006, 2007, 2008)
- Pre-generals advisor for JP Students in Marine Chemistry and Geochemistry (Incoming classes of 2002, 2006)
- General exam coordinator (Spring 2007)
- Co-instructor (with Lonny Lippsett), *How not to write for peer-reviewed journals: Talking to everyone else*, MIT/WHOI Joint Program (Summer 2008, Fall 2010; Fall 2013; Fall 2017)
- Co-instructor (with Lonny Lippsett), *Communicating Science - A workshop for WHOI postdocs*, WHOI post-doctoral association (Short course, Spring 2009)
- Advised or co-advised Ph.D. students: Ana Lima (2004 w/Tim Eglinton); Helen White (2005 w/Tim Eglinton); Desiree Plata (2009 w/Phil Gschwend); Kristin Pangallo (2009); and Karin Lemkau (2012)
- Chair, Eoghan Reeves; Ph.D. defense (2010)

- Chair, Elizabeth Halliday; Ph.D. defense (2012)
- Thesis committee for Ph.D. students: Amy Marie Accardi (2003), Kristen Whalen (2008), Eric Montie (2006), Laura Hmelo (2010), and Alexandra Patricia Tcaciuc (2015)

#### **EDUCATION/ADVISING IN WHOI ACADEMIC PROGRAM:**

- Aubrey Hounshell, U. of Hawaii (Guest student, summer 2000)
- Carly Tarr, Bates College (Guest student, summer 2000)
- Nicholas Drenzek, RPI (Guest student; Summer Fellow, Summer 1999, 2000)
- Shannon Hughey, Rhode Island College (Guest student, 6/02-8/02)
- Desiree L. Plata, Union College (Summer Fellow, 6/02-8/02)
- Gregory O'Neil, Boston College (Guest student, 6/02-8/02)
- Brian Kile, Bates College (Summer Fellow, 6/03-8/03)
- Heather Bischel, UC Berkeley (Summer Fellow, 6/04-8/04)
- Byron E. Pedler, U. of New Hampshire (Summer Fellow, 6/05-8/05)
- Jared A. DeMello, U. of Conn. (Guest Student, 6/06 to 9/06)
- Emily E. Peacock, Boston University (Guest Student, 1/07 to 7/07; MS committee member)
- Matthew F. Poyton, Providence College (Guest Student, 6/07 to 9/07)
- Catherine A. Carmichael, Trinity College (Guest Student, 6/07 to 9/07)
- Meredith Praamsma, Hope College (Summer Fellow, 6/01 to 8/07)
- Jennifer Culbertson, Boston University (Guest Student, 10/06 to 6/07; PhD committee member)
- Abigail Kernan-Schloss, Kalamazoo College (Guest Student, 6/09-8/09)
- Ellen Murphy, Reed College (Guest Student, 7/09-8/09)
- Michael Barrett, Duke University (Guest Student, 05/10-08/10)
- Jonas Gros, École Polytechnique Fédérale de Lausanne, Switzerland (Guest Student, 03/12-06/12)
- Jagos Radovic, Institute of Environmental Diagnosis and Water Studies (Guest student, 05/12-8/12)
- Andrew Beir, Buckingham Browne & Nichols School (volunteer, 06/10-08/10)
- Bryan James, New Canaan High School, CT (volunteer, 06/11-08/11)
- Blake Hallisey, Greenwich High School, CT (volunteer, 08/11-08/11)
- Thomas Rugh, Cal State San Luis Obispo, CA (volunteer, 06/14-08/14)
- Charlotte Main, Southampton, UK (Guest student, 09/12-12/12)
- Benjamin Freiberg, Skidmore College (Guest student, 06/13-07/13; 06/14-08/14)
- Michael McNulty, Boston College (Guest student, 07/13-08/13; 06/14-08/14)
- Ferdinand Oberle, MARUM (Guest student, 06/13-08/13)
- Hector Koolen, Campinas University, Brazil (Guest student, 05/14 to 11/14)
- Andre Henrique, Federal University of Ceara, Brazil (Guest student, 03/15 to 09/15)
- Hilary Green, UNC Chapel Hill (Guest student, 06/16-08/16)
- Connor Love, UC Santa Barbara (Guest student, 05/17 to 08/17)
- Rose Rossell, Appalachian State (Guest student, 05/17 to 06/17)
- Eleanor Arrington, UC Santa Barbara (Guest student, 05/17 to 06/17)
- Cassia Armstong, Trinity College (Guest student, 06/17 to 08/17)
- Julia Jackson, Dartmouth College (Guest student, 01/17 to 4/17)
- Mohmaded El-Waracky, McMaster College (06/18 to 07/18)
- Brian Forst, Harvard University (volunteer, 07/13-08/13)
- Connor Love, UC Santa Barbara (volunteer, 07/18-present)
- Chalique Umasangaji, University of Aix-Marseilles (Fulbright Fellow, 9/16-12/16)
- Ana Lima, MIT/WHOI Ph.D. student (Co-advisor, Defended March 12, 2004)
- Helen White, MIT/WHOI Ph.D. student (Co-advisor, Defended December 15, 2005)
- Desiree Plata, MIT/WHOI Ph.D. student (Co-advisor, Defended April 24, 2009)
- Kristin Pangallo, MIT/WHOI Ph.D. student (Advisor, Defended July 10, 2009)
- Karin Lemkau, MIT/WHOI Ph.D. student (Advisor, Defended April 12, 2012)
- Anna Walsh, MIT/WHOI Ph.D. student (Co-Advisor; 09/18-present)

- Gregory F. Slater, Post-doctoral scholar/investigator (9/01 to 9/03)
- Emma L. Teuten, Post-doctoral investigator (7/03 to 11/05)
- J. Samuel Arey, Post-doctoral investigator (11/04 to 8/05)
- G. Todd Ventura, Post-doctoral investigator (10/06 to 12/08)
- Ananya Sen Gupta, Post-doctoral investigator (1/11 to 01/12)
- Karin L. Lemkau, Post-doctoral investigator (7/12 to 02/13)
- Christoph Aeppli, Post-doctoral investigator (6/11 to 11/13)
- Robert F. Swarthout, Post-doctoral investigator (04/14-7/30/15)
- Collin P. Ward, Post-doctoral investigator (08/16-05/18)
- Ulrich Hanke, Post-doctoral investigator (02/18-08/19)
- Ulrich Hanke (co-advised with Mark Kurz), Post-doctoral investigator (09/19 to 12/2020)
- Michael G. Mazzotta (co-advising with Collin Ward), Post-doctoral investigator (03/20 to present)
- Taylor Nelson (co-advising with Collin Ward), Post-doctoral investigator (07/20 to present)
- Bryan James (co-advising with Mark Hahn), Post-doctoral scholar (08/21 to present)

#### **PARTICIPATION IN EDUCATION ELSEWHERE:**

- Mentored undergraduates in their special projects in *Marine Pollution* at Massachusetts Maritime Academy (1998, 1999, 2000, 2001)
- Guest lecturer for *Organic Biogeochemistry*, Scripps Institution of Oceanography (Spring 2003)
- Guest lecturer for *Environmental Oceanography*, Boston College (Winter 2004)
- Instructor for course *Environmental Monitoring*, at Massachusetts Maritime Academy (Sept. 2000 to June 2001)
- Co-instructor (with John Farrington) *Biogeochemistry of Organic Contaminants*, Short course at the Austral Summer Institute I, University of Concepcion, Chile (January 22 to 31, 2001)
- Guest lecturer for *Global Coastal Change*, Boston University (Fall 2005, 2006)
- Co-instructor of Internet-based course *GC×GC Systems, Informatics, and Applications: An advanced seminar on comprehensive two-dimensional gas chromatography*, with colleagues from U. of Nebraska and Spelman College (Winter semester 2006, 2007)
- Guest lecturer for *Experimental Methods*, Mount Holyoke College (Spring 2008, 2009)
- Guest lecturer for *Environmental Chemistry*, Massachusetts Maritime Academy (Spring 2008, 2009).
- Organized and taught with Karen Weintraub (Boston Globe) a one-day seminar entitled *How to speak to the media* at MIT for post-docs (January 2009)
- Guest lecturer for *Science News Writing*, Boston University's Science Journalism graduate program (Fall 2010)
- Guest lecturer for *Marine Biogeochemistry*, Boston University (Spring 2011)
- Guest lecturer for *Natural Products*, Western Washington University (Spring 2011)
- Guest lecturer for *Topics in Energy*, US Naval War College, Newport, RI (Spring 2011)
- Guest lecturer for *Marine Pollution*, US Coast Guard Academy, New London, CT (Fall 2011, 2012, Spring 2014, 2015, 2016; 2017; 2018)
- Guest lecturer for *Concepts in Contemporary Science*, Berklee College of Music, Boston, MA (Spring 2012)
- Guest lecturer for *Energy and the Ocean Environment*, Sea Education Association, Falmouth, MA (Spring 2012, 2013, 2014)
- Guest lecturer for general science class, St. Philomena School, Portsmouth, RI (Spring 2012)
- Guest lecturer for *Translating Science*, Wesleyan University, Middletown, CT (Spring 2013)
- Guest lecturer for NOAA's "Science of Oil Spills" course, NOAA, Falmouth, MA (Fall 2013)
- Guest lecturer for *Molecular Science: Theory and Methods*, Worcester Polytechnic Institute, Worcester, MA (Fall 2014)
- Guest lecturer for NOAA's "Science of Oil Spills" course (via webinar from WHOI to Seattle, WA), Falmouth, MA (Spring 2016)

- Guest lecturer for Marine Biological Laboratory's *Semester in Science*, Woods Hole, MA (Fall 2019)
- Served on the Ph.D. committees outside of WHOI: Penny Higgins (Univ. of Toronto); Shelby Walker (Virginia Institute of Marine Sciences); Rachel Adams (MIT); Xanat Flores (MIT); Jennifer Culbertson (Boston University); Emily Peacock (MS thesis, Boston University); Amy Kelly (MIT); Andrew Wozniak (Virginia Institute of Marine Sciences); Jonas Gros (EPFL); Birgit Nabbefeld (outside reader, Curtin University); Konstantinos Kotzakoulakis (examiner, Macquarie University)

#### **PROFESSIONAL RESPONSIBILITIES:**

- Reviewed manuscripts for *Analytical Chemistry*; *Analytical and Bioanalytical Chemistry*; *Applied Energy*; *Applied and Environmental Microbiology*; *BioScience*; *CLEAN-Soil, Air, and Water*; *Environmental Forensics*; *Environmental Science and Technology*; *Estuaries*; *Geochim. Cosmochim. Acta*, *JGR Atmospheres*; *JGR Biogeosciences*; *Journal of the American Oil Chemists' Society*; *Journal of Chromatography A*; *Journal of Food and Agricultural Chemistry*; *Journal of Hazardous Materials*; *Limnology and Oceanography*; *Marine Chemistry*; *Marine Environmental Research*; *Marine Pollution Bulletin*; *Nature*; *Organic Geochemistry*; *Proceeding of the National Academy of Sciences*; *Science, Soil and Sediment Contamination*; and *Water, Air & Soil Pollution*
- Session chair at V.M. Goldschmidt Conference (Environmental geochemistry field studies), Aug. 26, 1999, Cambridge, MA
- Grant reviewer for the Hudson River Foundation, Sea Grant, DOE, NOAA, PRF, and NSF.
- Moderator for, *Beyond Crisis Science and Emergency Legislation: What do we really know about oil spills?* University of Massachusetts, Dartmouth. Feb. 16, 2001
- Organized *Biogeochemistry of Marine Organic Matter in the Contemporary Environment and Ancient sediments*, Div. of Geochemistry, American Chemical Society, Boston, MA. Aug. 19, 2001
- Presided over *Biogeochemistry of Organic Contaminants in the Aquatic Ecosystems*, Division of Environmental Chemistry, American Chemical Society, Boston, MA. Aug. 18, 2001
- Organized and presided over *Application of Forensic Chemistry in Environmental Investigations*, Pittsburgh Conference, Chicago, IL. Mar. 9, 2004
- Testified on oil spills for Joint Committee on Natural Resources and Agriculture, State of Massachusetts, Boston, MA. May 25, 2004
- Organizer of *International Society of Environmental Forensics: Theory, Applications and Case Studies*, N. Charleston, SC. Nov. 8-9, 2004
- Testified on oil spills for United States Coast Guard at Rulemaking hearings, New Bedford, MA. Nov. 16, 2004
- Moderator of *International Society of Environmental Forensics: Petroleum Hydrocarbons, Analytical Techniques, and Case Studies*, Rio de Janeiro, Brazil. Nov. 22-23, 2004
- Organized and moderated *Advances in Coastal BioGeoChemistry*, Woods Hole Oceanographic Institution, Woods Hole, MA. Nov. 8, 2005
- Discussion leader for *The Interplay of Nature and Industry: Halogenated Organic Compounds in the Environment* at the Organic Geochemistry Gordon Conference, Holderness School, Plymouth, NH, Aug. 6 to 11, 2006
- Advised offices of Senator Edward Kennedy (MA), Senator John Kerry (MA), and Representative William Delahunt (MA) on oil spills, Washington, DC, Sept. 12 to 13, 2006
- Advised Massachusetts Dept. of Environmental Protection on alternatives fuels and lubricants, Boston, MA. Mar. 13, 2007
- Board of Trustees, *Salt Pond Areas Bird Sanctuaries*, Falmouth, MA. 2007-Present
- Board member, *Metcalf Institute for Marine and Environmental Reporting*, University of Rhode Island, 2007-2010
- Advised city, state, and federal officials following the *M/V Cosco Busan* oil spill in San Francisco Bay, Nov. 2007
- Judged the Secretary of the Navy's environmental achievement awards, Feb. 2008

- Organizer and Session Chair for *Changing Chemistry of Estuaries, Coasts, and the Ocean*, Ocean Sciences Meeting, Orlando, FL, Mar. 7, 2008
- Advised Senator John Kerry (MA) on nanotechnology legislation, May 2008
- Board member, *Coalition for Buzzards Bay*, 2008-2011
- Testified on oil inputs from ocean-going vessels for House Committee on Transportation and Infrastructure, Washington, DC, June 12, 2008
- Led a half-day workshop on how to communicate with the lay public, media, and policymakers at the New England Estuarine Research society, Block Island, RI, Oct. 2008
- Participant in *Research & Development Priorities: Oil Spill Workshop*, The Coastal Response Research Center, U. of New Hampshire, March 2009
- Panelist for *Careers in Science* for Woods Hole Partnership Educational Program (PEP), Woods Hole, MA, June 2009
- Overseer for the *Sea Education Association*, Woods Hole, MA, 2009-Present
- Advised the President's Council on Environmental Quality on biofuel spills in the coastal environment, Washington, DC, July 2009
- Reviewed *Literature Synthesis for North and Central Atlantic* for the Mineral Management Service, Sept. 2009
- Participant in *Response to Liquid Asphalt Releases in Aquatic Environments*, The Coastal Response Research Center, U. of New Hampshire, Oct. 2009
- Organized and Session chair (with Dr. Kara Lavender Law, Sea Education Association), *Plastic Debris in the Ocean: Quantifying the Problem and Investigating Its Impacts*, Ocean Sciences meeting, Portland, OR, Feb. 24, 2010
- Panelist in *Standing up for Science session*, MIT Museum, Cambridge, MA, Apr. 2010
- Member, Organizing committee for the *Kavli Frontiers of Science Symposium*, 2010
- Testified on dispersant usage following the *Deepwater Horizon* disaster for House subcommittee on Energy and Commerce, Washington, DC, June 10, 2010
- Testified on NOAA's response following the *Deepwater Horizon* disaster for House subcommittee on Insular Affairs, Oceans, and Wildlife, Washington, DC, June 15, 2010
- Panelist for the President's National Commission on the BP *Deepwater Horizon* oil spill and offshore drilling, New Orleans, LA, July 13, 2010
- Briefed Lt. Governor Elizabeth Roberts (Rhode Island) and Emergency Management Council on oil spills, Warwick, RI, August 10, 2010
- Briefed the President's National Commission on the BP *Deepwater Horizon* oil spill and offshore drilling. Washington, DC, August 19, 2010
- Academic liaison at the Unified Area Command of the *Deepwater Horizon* Disaster, New Orleans, LA, September 2010
- Panelist in *Sense about Science*, "Standing up for Science media workshop" Cambridge, MA, October 2010
- Panelist for the Consortium for Ocean Leadership's Marine Geoscience Leadership Symposium, "Science informing policy: Gulf Oil Spill", Washington, DC, April 21, 2011
- Moderator in "*Oil Spill Tracking Technology*", Gulf Oil Spill SETAC meeting, Pensacola, FL, April 26, 2011
- Briefed Congressman Keating (MA) on basic science, alternative fuels, and oil spills, Washington, DC, May 11, 2011
- Panelist in "*Deepwater Horizon* panel; oil weathering and fate", SETAC meeting, Boston, MA, November 15, 2011
- Chair, Organizing committee for the *Kavli Frontiers of Science Symposium*, 2011
- Briefed Congresswoman Castor (FL) and Congressman Markey (MA) on restoring the Gulf of Mexico, Washington, DC, December 6, 2011
- Briefed Congressman Keating (MA) on restoring the Gulf of Mexico, Washington, DC, December 13, 2011

- Briefed former Congressman Taylor (Miss) on restoring the Gulf of Mexico, Bay St. Louis, June 21, 2012
- Dissertations in Chemical Oceanography (DISCO), invited alumnus, Kauai, Hawaii, October 7-11, 2012
- Briefed the Honorable Jane Lubchenco, Director of NOAA, on the *Deepwater Horizon* oil spill, Silver Spring, MD, November 12, 2012
- Briefed Deputy staff director of the House Natural Resources committee on current activities at the *Deepwater Horizon* site, Washington, DC, November 16, 2012
- Briefed Senator Kerry's (MA) office on Arctic oil spills, Washington, DC, November 16, 2012
- Briefed Congressman Keating's (MA) office on oil spills, Washington, DC, November 16, 2012
- Briefed majority staff of the House Appropriations Commerce-Science-Justice Subcommittee on oil spills, Washington, DC, November 28, 2012
- Briefed minority staff of the House Appropriations Commerce-Science-Justice Subcommittee on oil spills, Washington, DC, November 28, 2012
- Session chair for "*Chemical methods for comprehensive oil spill analysis*", Gulf of Mexico Oil Spill & Ecosystem Science Conference, New Orleans, LA, January 22, 2013
- Reviewed NAS report, *Effects of the Deepwater Horizon Mississippi Canyon-252 Oil Spill in the Gulf of Mexico*
- Briefed US Senator Jack Reed's (RI) staff on the progress of the *Deepwater Horizon* disaster Washington, DC, February 6, 2013
- Met with US Senator Begich's (AK) staff to update about oil spills in the Arctic, Washington, DC, March 14, 2013
- Met with US Senator Murkowski's (AK) staff to discuss about oil spills in the Arctic, Washington, DC, March 14, 2013
- Provided written testimony, as per request, by Senator Begich (Alaska) for a hearing held by the Senate Subcommittee on Oceans, Atmosphere, Fisheries and Coast Guard on "Arctic offshore petroleum drilling season and maritime safety", March 27, 2013
- Presented oral and written testimony to the Rhode Island Senate Committee on environmental and agriculture on plastic legislation. Providence, RI, April 3, 2013
- Session organizer for "*Beyond n-alkanes and PAHs: What have we learned about petroleum geochemistry since the Deepwater Horizon?*", American Chemical Society national meeting, New Orleans, LA, April 10, 2013
- Briefed National Academy of Science Gulf Program Advisory Group via teleconference, October 2, 2013
- Session organizer for "*Fate and transport of oil spill residues and their impacts on nearshore coastal environments*" Gulf of Mexico Oil Spill & Ecosystem Science Conference, Mobile, AL, January 28, 2014
- Panelist for 16<sup>th</sup> Annual Northeastern Student Chemistry Research Conference and Career Symposium, Boston University, Boston, MA, April 13, 2014
- Workshop leader and panelist, "Microplastics and human health" workshop, National Academy of Science, Washington, DC, April 22, 2014
- Briefed staffers from House Science, Space and Technology Committee, Research and Technology Subcommittee on *Deepwater Horizon* disaster, Washington, D.C., August 27, 2014
- Briefed staffers from House Transportation and Infrastructure Committee, Coast Guard subcommittee, Washington, DC, August 27, 2014
- Member of the NOAA SAB Restoration Science Program Advisory Working Group, 2014 to 2017.
- Testified on the lessons learned on the 5<sup>th</sup> anniversary of the *Deepwater Horizon* disaster for the Senate Committee on Science, Commerce, and Technology, Washington, DC, April 20, 2015
- Board member National Academy of Science Gulf Studies Board, 2015-2017
- Co-led "Participation of academia in oil spills" for the USCG Sector Southeastern New England PREP 2016 Cape and Buzzards Bay Response Workshop, New Bedford, MA, March 11, 2016

- Discussion member of “Scene 2” in Eve Ensler’s *In the Body of the World*, American Repertory Theater, Cambridge, MA, May 28, 2016
- Discussion leader for *The Anthropocene*, Organic Geochemistry Gordon Conference, Holderness School, Holderness, NH, July 28, 2016
- Organizing committee for COME ABOARD! Chemical Oceanography Meeting: A Bottom-up Approach to Research Directions, University of Hawaii, Honolulu, HI, October 14 to 16, 2016.
- Session co-chair, “*Integrating Science into Response*”, International Oil Spill Conference, Long Beach, CA, May 16, 2017
- Worked as a scientific liaison to state, Federal, and local officials as well as the community on the 2018 Woods Hole “*Ocean King*” oil spill
- Hosted and co-organized a “Town Hall” community update on the “*Ocean King*” spill; January 25, 2018
- Organizer and session chair for the George Olah Award Ceremony at the American Chemical Society meeting, New Orleans, LA, March 21, 2017
- Provided analytical assistance and report to NOAA and US Coast Guard for oil sheen event at the Woods Hole Steamship Authority, November 19, 2018
- Briefed staff from US Congresswomen Katherine Clark (MA) and Eddie Bernice Johnson (TX; Chair of the House Science Committee), Woods Hole, June 25, 2019
- Briefed staffers for the Inspector General of the EPA on best practices in plastic research, Woods Hole, February 26, 2020
- Advised Russian Federation following Spring 2020 Siberian oil spill (2020)
- Advised Brazilian navy on the 2019 Brazilian mystery oil spill (2021)
- Advised various stakeholders following the 2021 MV *XpressPearl* disaster (2021)
- Provided over 300 interviews to the print media, radio, and television on environmental science in the past several year
- Editorial board for *Environmental Forensics*, 2001-present
- Editorial board for *Marine Environmental Research*, 2003-2007
- Editorial board for *Environmental Research Letters*, 2014-2015
- American Chemical Society Expert, 2016-present
- Has the Pandemic Led to Increased Shipping Accidents? Naval War College Visit, September 13, 2021

## FIELD EXPERIENCE:

### *Cruises*

**R/V *Endeavor* (July 1994)** Collection of water samples in the northwest Atlantic Ocean.

**R/V *Argo Maine* (September 1995)** Collection of water samples and sediment traps in the northwest Atlantic Ocean.

**R/V *Pelican* (April 1997)** Collection of sediment cores in the Gulf of Mexico.

**R/V *New Horizon* (May to June 2001)** Collection of sediment cores and water samples along the California coastline.

**R/V *Oceanus* (April 2004; Chief Scientist)** Collection of sediment cores and water samples in the northwest Atlantic Ocean.

**R/V *Cape Hatteras* (August 2004; Chief Scientist)** Collection of sediment cores and water samples in the northwest Atlantic Ocean.

**R/V *Atlantis* (July 2007)** Collection of sediment as well as gas and oil samples at the Santa Barbara oil seeps via the DSV *Alvin* (dives #4322, 4328, and 4332).

**R/V *Atlantis* (September 2009)** Sampling of asphalt volcanoes off the coast of California via the DSV *Alvin* (dive #4544).

**R/V *Endeavor* (June 2010)** Investigating subsurface plumes in the Gulf of Mexico resulting from the *Deepwater Horizon* disaster.

**HOS *Sweetwater* (August 2011)** Sampling sediments in the Gulf of Mexico.



**R/V Atlantis (September 2011)** Sampling of water and sediments off the coast of California.

**R/V Atlantis (June 2015; co-Chief Scientist)** Sampling of naturally seeped oil in the Gulf of Mexico (DSV *Alvin* dives #4792 and 4797).

### ***Additional fieldwork***

**Siskiwit Lake, Isle Royale, Lake Superior (July 1998)** Collection of sediment cores.

**Hudson River, Glen Falls, NY (July 1999)** Collection of sediment cores.

**Lowes Cove, Walpole, ME (April 2002, June 2002, July 2003)** Collection of benthic animals.

**San Francisco Bay (November 2007, December 2007, January 2008, March 2008, September 2008, June 2009)** Collection of oil-covered samples following the *Cosco Busan* spill.

**Gulf coast (LA, MI, AL, and FA; 2010 to present)** >25 visits following the *Deepwater Horizon* (beach surveys, small boats, and overflights).

**Pearl Harbor, HI (July/August 2018)** Collection of oil residues around the USS *Arizona* Memorial.

**Santa Barbara, CA (September 2018)** ROV surveys around Platform Holly.

**Santa Barbara, CA (July 2019)** Kayak-based sampling along coastal Santa Barbara

In addition, I have participated in many one-day cruises for the collection of water, sediments, and biota in Narrow River, Narragansett Bay, New Bedford Harbor, Buzzards Bay, Woods Hole, coastal California, and in a variety of local rivers and lakes in New England.

### **In the news (100s of interviews in total, below only Oct. 2019 to present)**

1. [Your Take-Out Coffee Cup May Shed Trillions of Plastic ‘Nanoparticles’](#), U.S. News & World Report, May 3, 2022.
2. [Mysterious rubber bales found along the Texas coast could be from WWII](#), NPR, November 8, 2021.
3. [KNX-in-depth-with-mike-simpson-and-charles-feldman](#), (0:06:51-0:11:44) 1070 am, October 7, 2021
4. ‘Mysterious Boxes’ are washing up on Texas beaches. What are they? Houston Public Media, 09/17/21
5. “Sunlight could dissolve plastics out of the ocean-study”, POLITICO, 9/10/21.
6. “Gulf of Mexico ‘eye of fire’ caused by electrical discharges, leaking gas and heavy rain, oil company says”, Stuff, 7/6/21.
7. “Decoding marine oil spills requires slick detective work”, Voice of San Diego, 7/6/21.
8. Impact of nurdles on fisheries unlikely to be a problem-U.S. scientist”, Daily Mirror (Sri Lanka), July 3, 2021.
9. “The science behind extinguishing the Gulf of Mexico’s ‘ocean fire’”, Wired, 7/2/21.
10. “Mystery of rubber bales that washed up on Palm Beach may be solved: The answer appears to date back to World War II and a confrontation at sea”, Palm Beach Post, 6/11/21.
11. “X-Press Pearl Controversy : Can SL stop marine disaster going from bad to worse?”, Daily Mirror, 6/1/21.
12. “Ein Schreckensfund auf Kaliforniens Meeresboden” (A Horror Find on California’s Seabed), Neue Zürcher Zeitung, 5/3/21
13. “Over 25,000 DDT-tainted barrels Are discovered on seafloor off California”, NY Times, 4/28/21.
14. “There Are Massive Chemical Dumps in The Gulf”, HuffPost, 4/22/21.
15. “Mauritius oil spill: questions mount over ship fuel safety”, Climate Change News, 2/19/21.
16. “Five famous environmental disasters where humans and nature healed together”, Popular Science, 2/16/21.
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18. “Should You DIY Home Cleaning Supplies to Kill COVID-19 and Flu Viruses?”, Everydayhealth.com, 10/13/20.
19. “Next week, foam containers for carryout food will be banned throughout Maryland. Not everyone is

- happy.” Baltimore Sun, 9/25/20.
20. “What did we learn from the Deepwater Horizon disaster?” C&EN, 9/13/20.
  21. “Don't use Brakleen to clean everything in your shop”, Road and Track, 7/29/20.
  22. “As if Yemen needed more woes, a decrepit oil tanker threatens disaster”, NY Times, 7/17/20.
  23. “Scientists discover a new material for cleaning up oil spills”, NPR, 7/16/20.
  24. “Those plastic stats are trash”, WBUR (Boston NPR), 7/3/20.
  25. “Canadian Arctic awash in microplastics”, Globe and Mail, 6/20/20.
  26. “Deepwater Horizon: What we learned from worst oil spill ever.” Christian Science Monitor, 6/10/20.
  27. “PepsiCo pulls contentious BVO from Mountain Dew but it isn't a flame retardant”, USA Today, 5/28/20.
  28. “Deepwater Horizon disaster fueled a Gulf science bonanza”, WIRED, 4/22/20.
  29. “LEGO Bricks May Survive in the Oceans for 1,300 Years”, Newsweek, 3/17/20.
  30. “Keystone pipeline spills 9,120 barrels of oil in Dakota Wetlands”, EOS, 11/8/19.
  31. “Thousands of barrels of oil are contaminating Brazil's pristine coastline”, Washington Post, 10/22/19.
  32. “In the sea, not all plastic lasts forever”, NY Times, 10/11/19.

## PUBLICATIONS

Listed below are peer-reviewed publications that I have co-authored. I have annotated the names of other co-authors as follows: graduate students that I have advised or co-advised; post-docs I have advised; and graduate students, summer student fellows, guest students, and others that have worked in my laboratory with an \*, †, and †, respectively.

### Submitted

216. James, B., Reddy, C., Hahn, M., Nelson, R. de Vos, A., Aluwihare, L., Wade, T., Knap, A., Bera, G. (2022). The M/V *X-Press Pearl* Ship Fire Produced Pyroplastics Highly Enriched in PAHs. Submitted to *Environmental Science and Technology*.
215. Walsh, A., Mazzotta, M., Nelson, T., Reddy, C., Ward, C. (2022). Synergy between Sunlight, Titanium Dioxide, and Microbes Enhances Cellulose Diacetate Degradation in the Ocean. Submitted to *Environmental Science and Technology*.
214. Oliveira, A.H., Fernandes, G.M., dos Santos, F.R., de Almeida, N.M., Nogueira, T.R., ; Melo, D. d. Q., Martins, L.L., Cavalcante, R.M., do Nascimento, R.F., Reddy, C.M. (2022). Insights about levels and source appointment of petroleum hydrocarbons in Brazilian semi-arid coastal: Baseline status assessment for ocean decade targets. Submitted to *Environmental Science and Pollution Research*.
213. de Oliveira, A.H.B., Fernandes, G.M., dos Santos, F.R., de Almeida, N.M., Nogueira, T.R., Melo, D.D., Cavalcante, R.M., Nascimento, N.M., Nelson, R.K., Reddy, C.M. (2022). Background levels and source estimates of aliphatic hydrocarbons, PAHs, hopanes, and steranes in surface sediments in the Fortaleza coastal zone.. Submitted to *Organic Geochemistry*.
212. Hanke, U.M.†, Gagnon, A.R., Reddy, C.M., Lardie Gaylord, M.C., Cruz, A.J., Galy, V., Hansman, R., Kurz, M.D., NOSAMS Laboratory (2020). Sequential thermal analysis of complex organic mixtures: procedural standards and advanced cleaning of CO<sub>2</sub> yields. Submitted to *Radiocarbon*.

### Accepted

211. LeClerc, H., Tompsett, G., Paulsen, A., McKenna, A., Niles, S., Reddy, C., Nelson, R., Cheng, F., Teixeira, A., Timko, M., (2002). Catalytic hydrothermal liquefaction transforms food waste from an environmental liability to a renewable fuel. Accepted in *iScience*.

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209. Reddy, C.M., Nelson, R.K., Hanke, U., Cui, X., Summons, R.E., Valentine, D.L., Rodgers, R.P., Chacón-Patiño, M.L., Niles, S.F., Teixeira, C.E.P., Bezerra, L.E.A., Cavalcante, R.M., Soares, M.O., Oliveira, A.H.B., White, H.K., Swarthout, R.F., Lemkau, K.L., Radović, J.R. (2022). Synergy of analytical approaches enables a robust assessment of the Brazil mystery oil spill. Accepted in *Energy and Fuels*.

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207. Nelson, R.K., Scarlett, A.G., Gagnon, G.G., Holman, A.I., Reddy, C.M., Sutton, P.A., Grice, K. (2022) Characterizations and comparison of low sulfur fuel oils compliant with 2020 global sulfur cap regulation for international shipping. *Marine Pollution Bulletin*, **180**, 113791, <https://doi.org/10.1016/j.marpolbul.2022.113791>.
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56. Reddy, C.M. (2008). Practical steps to a cleaner bay. (My View), *Cape Cod Times* August 5, 2008 edition.
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75. Reddy, C.M. (2005). A sluggish response to a smoldering problem, *Environmental Forensics* 6, 103-104.
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77. Reddy, C.M., Eglinton, T.I., Hounshell, A., White, H.K., Xu, L., Gaines, R.B., and Frysinger, G.S. (2003). Response to comment on “The West Falmouth oil spill after thirty years: the persistence of petroleum hydrocarbons in marsh sediments”, *Env. Sci. and Technol.* 37, 2021-2022.
78. Reddy, C.M. (2002). Book review of *Chlorine in the Environment* by Stringer and Johnson for *Environmental Science and Pollution Research* 9, 356-357.

**PRESENTATIONS/POSTERS (presenter is underlined; since 2018):**

**(a) At WHOI**

1. Reddy, C.M. *Has the pandemic led to increased shipping accidents?*, Naval War College Visit, September 13, 2021, Presentation.
2. Reddy, C.M. Science in a time of crisis presented to Paul Salem at the request of Peter de Menocal, November 16, 2020, Presentation.
3. Reddy, C.M. *Not normal and mutated; Science in a time of crisis*, Department of Marine Chemistry and Geochemistry seminar series, May 5, 2020, Presentation.
4. Reddy, C.M. *Lessons from the Deepwater Horizon; 10 years later*, Hosted by WHOI communications and development, April 20, 2020. Presentation. (Invited; webinar).
5. Hahn, M. and Reddy, C.M.\**Halogenated Marine Natural Products: A Potential Risk to Human Health?* Woods Hole Sea Grant, March 6, 2020. Presentation.
6. Reddy, C.M. *Swimming outside of the Ivory Tower*. WHOI Academic Programs Office. August 29, 2018. Woods Hole (Presentation). Invited.
7. Reddy, C.M. *Plastics in the marine environment: Myth vs Reality*. American Chemical Society visitors. August 23, 2018. Woods Hole (Presentation). Invited.
8. Reddy, C.M. *Marine microplastics: How can an oceanographic and ocean engineering perspective advance our understanding?* Visit from his Serene Highness Albert II, Sovereign Prince of Monaco. July 9, 2018. Woods Hole (Presentation). Invited.
9. Reddy, C.M. *An elevator speech is not going to bring you to the penthouse*. Department of Marine Chemistry and Geochemistry seminar. June 9, 2018. Woods Hole (Presentation). Invited.

**(b) Elsewhere**

1. Reddy, C.M. *Science in a Time of Crisis: Lessons from an 18-yr, 8,500-mile-long journey, The Role of Science in Extreme Pollution Events*, Marine Biological Laboratory Semester in Environmental Science (SES) Distinguished Scientist Seminar Series, October 15, 2021, Presentation (in person and virtual).
2. Mazzotta, M.G., Reddy, C.M., Amarpuri, G., Edwards, B., Izallalen, M., Mazumder, S., Ward, C.P. (2021) Orthogonal techniques for observing the degradation of plastics in a natural seawater mesocosm: cellulose diacetate degrades within 3 months. American Chemical Society National Meeting. Virtual. Submitted poster. Abstract published. August 25, 2021.
1. Nelson, R.K., Scarlett, A.G., Gagnon, M., Holman, A., Reddy, C.M., Grice, K. Comprehensive two-dimensional gas chromatographic analysis of a spilled Fuel oil on Mauritius. American Chemical Society Fall 2021 Meeting, August 22, 2021, (Virtual Presentation).
2. Baki, G., O’Neil, G.W., Reddy, C.M., Liberatore, M.W., Chandler, M. *Retooling geochemical proxies for next-generation cosmetics*. Society of Cosmetic Chemists webinar. July 28, 2021 (virtual presentation, invited).
3. Reddy, C.M. *Plastic pollution. Afloat in misunderstanding and misinformation*. The Salon lecture series sponsored by the Spirit of the Senses. July 18, 2021 (virtual presentation, invited).

4. Reddy, C.M. Beyond Nurdles: A broader look at marine environmental incidents. American Spaces program, US Embassy, Sri Lanka, July, 1, 2021 (virtual presentation, invited).
5. Reddy, C.M., Nelson, R.K., Valentine, D.L. A pressing need for GC×GC-based untargeted analysis of dumped waste in the ocean. 18<sup>th</sup> International GC×GC symposium, June 11, 2021 (virtual presentation, keynote; invited).
6. Mazzotta, M.G.; Reddy, C.M.; Amarpuri, G.; Edwards, B.; Izallalen, M.; Mazumder, S.; Ward, C.P. “Marine plastic pollution- lessons from the Vineyard Sound”. American Chemical Society, Small Chemical Business Seminar, June 11, 2021. Invited talk.
7. Reddy, C.M. A crisis is an opportunity: Want to collaborate? Brazil-USA Oil Spill Workshop, May 26, 2021 (virtual presentation, invited).
8. Reddy, C.M. and R.P. Rodgers. Advance geochemical analysis of the 2019 Brazilian oil spill. April 23, 2021. (virtual presentation). Networking Friday with LABOMAR Atlantic International Research Centre.
9. Walsh, A.N., Reddy, C.M., Niles, S.F., McKenna, A.M., Hansel, C.M., Ward C.P. (2021) Plastic formulation is an emerging control of its photochemical fate in the ocean. American Chemical Society Spring 2021 Meeting. Virtual. Poster/video presentation, April 5-16, 2021.
10. Scarlett, A.G., Nelson, R.K., Gagnon, M., Holman, A., Reddy, C.M., Grice, K. Comparison of very low sulphur fuel oil with spilled oil following the grounding of the MV Wakashio in Mauritius, 2020. *International Meeting on Organic Geochemistry, Bremen, Germany*. January 9, 2021. (Oral Presentation with abstract). DOI: 10.3997/2214-4609.202134190.
11. MullerDahlberg, F., Sen Gupta, A., Nelson, R.K., Lemkau, K., Arrington, E., Kivenson, V., Valentine, D., Reddy, C. Comparing the Results of Peak Topography Mapping Across Different Compound Groups for Fingerprinting the Refugio Oil Spill. *eCF Paper Id: 200702-001, Global Oceans Conference & Exposition – Singapore, October 5-14, 2020 (presentation – virtual)*.
12. Reddy, C.M. Watching for plastics and oil spills. Global Ocean Watch OceanSITES - Optimal Approaches for 2030. September 16, 2020. (virtual presentation and invited).
13. Reddy, C.M. *Good news and Bad news: Pollution in Narragansett Bay*, Masonic Grand Lodge of Rhode Island, May 18, 2020 Presentation. (Invited; webinar).
14. Reddy, C.M. Plastics in the environment: Separating myth from reality. Massachusetts College of Liberal Arts, Green Living Seminar Series; North Adams, MA, January 30, 2020. Presentation. (Invited)
15. Reddy, C.M., Radović, J.R., Nelson, R.K., Frysinger, G., Hall, G., Sanders, R., Pawlowski, S. *Environmental forensics of oil leaking from the USS Arizona*. 53<sup>rd</sup> Annual Conference on Historical and Underwater Archaeology, Boston, MA, January 11, 2020. Presentation.
16. Reddy, C.M., Ward, C.P. *Navigating the science of plastics in uncertain seas*. MIT Water Summit, Massachusetts Institute of Technology, Cambridge, MA, November 21, 2019. Presentation and panelist (Invited).
17. Reddy, C.M. *Navigating policy, media, and the public: Oil spills, fisherman, and Anthony Bourdain*. Sea Education Association, Woods Hole, MA, October 2, 2019. Presentation (Invited).
18. Reddy, C.M. *Navigating policy, media, and the public: Oil spills, fisherman, and Anthony Bourdain*. Leading Voices in Public Health seminar series. Eastern Tennessee State University, Johnston City, Tennessee, September 19, 2019. Presentation (Invited).
19. Reddy, C.M., Valentine, D., Love, C., Kivenson, K., White, H., *Cyanobacteria production of alkanes: An intersection of basic and applied science*. Goldschmidt Conference, Barcelona, Spain, August 21, 2019. Presentation (Invited keynote).
20. Nelson, R.K., Reddy, C.M., Radović, J.R. *The second largest oil spill in the Gulf of Mexico (That you may or may not have heard of or remember); Exploring the complexity of Ixtoc I crude oil using*



- GC×GC-HRT*. North American Chemical Residue Workshop (NACRW). Naples, FL. July 23, 2019. Presentation.
21. Nelson, R.K., Kivenson, V., Lemkau, K.L., Pizarro, O., Yoerger, D.R., Kaiser, C., Carmichael, C., Paul, B.G., Reddy, C.M., Valentine, D.L. *Analysis of ocean dump site samples for single class persistent organic pollutants (POPs) using comprehensive gas chromatography coupled with high resolution mass spectrometry*. North American Chemical Residue Workshop (NACRW). Naples, FL. July 22, 2109. Presentation.
  22. Reddy, C.M., *Navigating policy, media, and the lay public*, Gordon Research Conference seminar, Holderness, NH, July 14, 2019. Presentation (Invited keynote).
  23. Walsh A., Ward C., Armstrong C., Jackson J., Reddy C. *Rapid and complete photochemical oxidation of polystyrene in the ocean*. Ocean Outlook meeting, Bergen, Norway, May 8, 2019. Poster.
  24. Ward, C.P., Sutherland, K., Wankel, S, Reddy, C. *Stable oxygen isotopes as a novel, sensitive tracer of hydrocarbon oxidation on the sunlit sea surface*, American Chemical Society meeting, Orlando, Florida, March 31, 2019. Presentation.
  25. Reddy, C.M., Hahn, M. *Mother Nature's DDT and PCBs*. Ocean Health and human health workshop, Principality of Monaco, March 27, 2019. (Presentation) Invited.
  26. Ward, C.P., Reddy, C.M. *Impacts of weathering on carbon and polymer degradation*, Eastman Chemical lecture series, Eastman Chemicals, Kingsport, TN. March 7, 2019. (Presentation). Invited.
  27. Reddy, C.M. *Swimming outside of the Ivory Tower*. Guest lecture, Sea Education Association, Woods Hole, MA. February 13, 2019. (Oral). Invited.
  28. Ward, C.P., Reddy, C.M. (2019) *Stable oxygen isotopes as a novel, sensitive tracer of petroleum hydrocarbon oxidation at the sunlit sea surface*. Gulf of Mexico Oil Spill & Ecosystem Science Conference, New Orleans, LA. February 6, 2019. (Poster).