

ELIZABETH A. CANUEL

Virginia Institute of Marine Science
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EDUCATION

Ph.D., 1992, University of North Carolina, Chapel Hill, NC, Marine Sciences.

B.S., 1981, Stonehill College, North Easton, MA, Chemistry.

ACADEMIC POSITIONS

2013 Visiting Professor, Chemistry Department, Pontifical Catholic University of Rio de Janeiro (PUC-Rio). Supported by Conselho Nacional de Desenvolvimento Científico e Tecnológico or National Research Council of Brazil (CNPq)

2006-present Professor, Department of Physical Sciences, School of Marine Science, The College of William & Mary, VA.

2000-2006 Associate Professor, Department of Physical Sciences, School of Marine Science, The College of William & Mary, VA.

2002-2005 Class of 1964 Term Endowed Associate Professor of Marine Science, School of Marine Science, The College of William & Mary, VA.

1994-2000 Assistant Professor, Department of Physical Sciences, School of Marine Science, The College of William & Mary, VA.

1992-1994 National Research Council Post-doctoral Fellow, Water Resources Division, U.S. Geological Survey, Menlo Park, CA.

RESEARCH INTERESTS

Natural and human-induced changes to the origin, composition, and reactivity of organic carbon
Biogeochemistry; Microbial transformations of organic matter
Stable isotope (C, N) geochemistry
Organic matter diagenesis
Biofuels and sustainable energy
Ocean Sciences/Geosciences education; promoting efforts to increase the participation of under-represented groups; professional development of graduate students and postdocs

ADMINISTRATIVE AND LEADERSHIP POSITIONS

2013-2015 Member-at-Large, Coastal and Estuarine Research Federation

2013-2014 Participant, Leadership Initiative Program, College of William & Mary

2012-2013 Past Chair, Organic Geochemistry Division, Geochemical Society

2011-2012 Advisory Council, Women in Scientific Education (WISE) Initiative, College of William & Mary

2010-2015 Member, Delta Independent Science Board, Sacramento CA

2010-2011 Chair, Organic Geochemistry Division, Geochemical Society

2010-2011 Board of Directors, Geochemical Society
2009-present Co-director, Undergraduate Minor in Marine Science, College of William & Mary
2008-present AGU Ocean Science Section Secretary – Marine Geochemistry (re-elected 2010)
2007-2006 Secretary, Faculty Assembly, College of William & Mary
2004-2005 Member, Search Committee, President of The College of William & Mary
2004-2005 Secretary, Faculty Assembly, College of William & Mary
2002-2008 Chair, Academic Council, School of Marine Science (elected; two consecutive terms)
2002-2008 SMS/VIMS Representative, Faculty Assembly, College of William & Mary
1998 Workshop participant, Future of Chemical Oceanography in the U.S. (FOCUS), NSF
1996-2001 Director, Female Initiation into Research, Science & Technology (F.I.R.S.T.)
Program, Supported by NSF CAREER grant
1996 Member, Future of ASLO (American Society of Limnology & Oceanography)
Committee

HONORS, PRIZES AND AWARDS

2014 William & Mary Thomas Ashley Graves, Jr. Award for Sustained Excellence in Teaching (http://www.vims.edu/newsandevents/topstories/canuel_graves.php)
2011 Aldo Leopold Environmental Fellow
2011 VIMS Outstanding Teacher Award
2009 Plumeri Faculty Excellence Award, College of William & Mary
2008 Plenary Speaker, American Society of Limnology & Oceanography Annual Meeting, St. Johns, Newfoundland.
2006 Thomas Jefferson Teaching Award, College of William & Mary (1 award/year)
2004 Dean's Prize for the Advancement of Women in Marine Science, SMS/VIMS
2001 William & Mary Alumni Fellowship Award for teaching (5 awards/year)
1997 Dean's Prize for the Advancement of Women in Marine Science, SMS/VIMS
1997 Best Paper Award in Organic Geochemistry, The Geochemical Society
1995 National Science Foundation CAREER Grant Awardee, Ocean Sciences Division
1992 Outstanding Student Paper Award, AGU Ocean Sciences Meeting
1991 National Research Council Postdoctoral Fellowship
1991 Dissertations Symposium on Chemical Oceanography, Invited Participant

EDUCATIONAL ACTIVITIES

Graduate Courses

MSCI 524. Principles of Chemical Oceanography

Spring 2014: 4 students enrolled (50:50, Canuel:Beck)
Spring 2011: 3 students enrolled (50:50, Canuel:Beck)
Fall 2009: 7 students enrolled (55:35:10, Canuel:Beck:Bauer)
Spring 2006: 3 students enrolled (50:50, Canuel:Bauer)
Spring 2003: 4 students enrolled (50:50, Canuel:Bauer)
Spring 1999: 7 students enrolled (50:50, Canuel:Bauer)
Fall 1997: 5 students enrolled ((50:50, Canuel:Bauer)
Spring 1996: 6 students enrolled (50:50, Canuel:Bauer)
Spring 1995: 3 students enrolled (50:50, Canuel:Bauer)

MSCI 627. Marine Organic Geochemistry

Spring 2012: 2 students enrolled, 1 audit (Canuel)
Spring 2010: 5 students enrolled (Canuel)
Spring 2007: 4 students enrolled (Canuel)
Spring 2004: 8 students enrolled (75:25; Canuel:Bauer)
Spring 2000: 4 students enrolled (75:25; Canuel:Bauer)
Spring 1998: 4 students enrolled (75:25; Canuel:Bauer)
Spring 1996: 6 students enrolled (75:25; Canuel:Bauer)

MSCI 550. Rivers: Processes and Problems

Spring 2014: 6 students enrolled (50:40:10, Canuel:Milliman, Hein)
Spring 2012: 10 students enrolled (60:40, Milliman:Canuel)
Spring 2010: 7 students enrolled (75:25, Milliman:Canuel)

MSCI 610. Effects of Global Change on Modern Marine Ecosystems

Fall 2013: 8 students enrolled (50:50, Canuel:Smith)
Fall 2011: 14 students enrolled (50:50, Canuel:Smith)
Fall 2007: 10 students enrolled (33:33:33, Bauer:Canuel:Smith)

MSCI 501L. Fundamentals of Marine Science Lab, Coordinator and Instructor

Fall 2003: 19 students enrolled (co-coordinator with Dr. Kam Tang)
Fall 2002: 21 students enrolled (coordinator)
Fall 2001: 17 students enrolled (coordinator)
Fall 2000: 19 students enrolled (coordinator)

MSCI 503. Field and Laboratory Methods in Marine Science, Co-Instructor

Fall, 1994: 32 students enrolled

MSCI 548. Experimental Design in the Marine Science Laboratory, Co-Instructor

Summer 2001: ~20 students enrolled
Fall 2000: 20 students enrolled

MSCI 698. Sediment Biogeochemistry (with A. Beck and S. Kuehl)

Spring 2013: 8 students

MSCI 698. Respiration in Aquatic Ecosystems (with D. Steinberg)

Fall 2006: 5 students enrolled

MSCI 698. Global Change (with J. Bauer)

Spring 2005: 7 students enrolled

MSCI 698. Advanced Readings in Sediment Biogeochemistry (with I. Anderson)

Spring 2003: 6 students enrolled

MSCI 698. Advanced Readings in Organic Geochemistry

Fall, 1999: 8 students enrolled

MSCI 698. Biogeochemistry (with I. Anderson, J. Bauer, H. Ducklow)

Spring 1997: 16 students enrolled

MSCI 698. Topics in Organic Geochemistry

Fall, 1994: 6 students enrolled

Undergraduate Courses

MSCI 391. Marine Science Mash-up

Fall 2012: 19 students enrolled

Fall 2013: 20 students enrolled

Fall 2014: 22 students enrolled

CHEM 409. Spring 2005. Undergraduate Research, Timothy Montgomery, Chemistry Department, College of William & Mary.

CHEM 409. Fall 2004. Undergraduate Research, Timothy Montgomery, Chemistry Department, College of William & Mary.

CHEM 409. Spring 1999. Undergraduate research and Honors Thesis
Jennifer Boxwell, Chemistry Department, College of William & Mary.

CHEM 409. Fall 1998. Undergraduate research and Honors Thesis
Jennifer Boxwell, Chemistry Department, College of William & Mary

Students Mentored

1. Major Advisor

Current Students:

2007-present **Sarah Schillawski** (Ph.D candidate) Sources of Watershed Dissolved Organic Matter and its Reactivity in the York River Estuary VA

2013 **Amanda Knobloch** (MS student) Marsh-Estuarine Carbon Fluxes: A Study of Tidal, Seasonal, Annual, and Event Variations in Carbon Fluxes in Taskinas Creek VA

Graduated Students:

2014 **Christie Pondell** (Ph.D.) *Sediment and Organic Carbon Burial in Englebright Lake CA over the Last Century.*

Present Position: Instructor, Environmental Science Program, American University

2013 **Hadley McIntosh** (M.S.) *Composition, Sources, and Age of Dissolved and Particulate Organic Matter in the Delaware Estuary.*

Present Position: Lab Assistant, Virginia Commonwealth University

2012 **Emily Brault** (M.S.) *Evaluating Persistent Organic Pollutants (POPs) and Mercury in the West Antarctic Peninsula (WAP) Food Web, With a Focus on Antarctic Fur Seals (*Arctocephalus gazella*).*

Present Position: Ph.D. Student, University of California – Santa Cruz

2011 **Stephanie Salisbury** (M.S.) *Dynamics and Composition of the Extracellular Polymeric Substances Produced by Benthic Microalgae: An In Situ ¹³C and ¹⁵N*

- Approach.*
Present Position: Chemistry Teacher, Henrico County, VA
- 2009 **Amber Hardison** (Ph.D.; Co-advised with I. Anderson). *Fate of Macroalgal Organic Matter in a Shallow Coastal Lagoon: A Dual Isotope Tracer and Biomarker Approach.*
Present Position: Assistant Professor, Marine Science Institute, U. Texas
- 2008 **Amanda Spivak** (Ph.D.) Co-advised with J. Emmett Duffy. *The Effect of Trophic Structure and Biodiversity on Sediment Organic Carbon.*
Present Position: Assistant Scientist, Woods Hole Oceanographic Institution
- 2006 **John Pohlman** (Ph.D.) Co-Advised with J. Bauer. *Methane Biogeochemistry and Sulfate Reducing Bacteria Chemotaxonomy at Biogenic and Thermogenic Gas Hydrate Sites on the Northern Cascadia Margin off Vancouver Island.*
Present Position: Research Geochemist, USGS Woods Hole MA
- 2006 **Vicki Pilon** (Ph.D.) *Sources and Composition of Particulate Organic Matter in the Sacramento-San Joaquin River Delta, CA.*
Present Position: Executive Director at Literacy Volunteers of America - Prince William County VA
- 2005 **Elizabeth Waterson** (M.S.) *Sources of Sedimentary Organic Matter in the Mississippi River and Adjacent Gulf of Mexico.*
Present Position: Chemistry Teacher, Tabb High School, York County VA
- 2005 **Christine Conrad** (Ph.D.). Co-advised with Michael Kelly. *Using Planar Oxides as a Novel Approach to Metal Ion Sorption Studies: From the Lab to the Field.*
Present Position: Senior Regulatory Specialist, Williamsburg Environmental Group
- 2002 **Krisa Arzayus** (Ph.D.) *Association and Partitioning of Polycyclic Aromatic Hydrocarbons With Bound and Extractable Phases of Estuarine Sediments: A Lipid Biomarker Approach.*
Present Position: Chief, Marine Data Stewardship Division. NOAA/NODC
- 2000 **Andrew Zimmerman** (Ph.D.) *Organic Matter Composition of Sediments and the History of Eutrophication and Anoxia in the Mesohaline Chesapeake Bay.*
Present Position: Associate Professor, Department of Geological Sciences, University of Florida.
- 1999 **Craig Tobias** (Ph.D.) Co-advised with I. Anderson, *Nitrate Reduction at the Groundwater Saltmarsh Interface.*
Present Position: Associate Professor/Coastal Studies Program Coordinator
Department of Marine Sciences, University of Connecticut
- 1999 **Jennifer Boxwell** (B.S. Chemistry Dept., William & Mary), *Microwave-Assisted Extraction of Lipids from Estuarine Sediments.* Undergraduate Thesis. Graduated with high honors.

Graduate Student Awards (selected)

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| 2012 | Hadley McIntosh, NOSAMS Graduate Student Internship |
| 2011 | Hadley McIntosh, Craig L. Smith Memorial Scholarship |
| 2010 | Sarah Schillawski, Matthew Fontaine Maury Award (VIMS) |
| 2009 | Sarah Schillawski, NERRS Graduate Fellowship |
| 2007 | Amanda Spivak, Matthew Fontaine Maury Award (VIMS) |
| 2006-present | Amber Hardison, EAOG Travel Scholarship |
| 2006-present | Amber Hardison, US EPA STAR Fellowship |

2005-present	Amanda Spivak, US EPA STAR Fellowship
2005	John Pohlman, Best Student Paper Award, AGU
2004-2005	Elizabeth Waterson, Kelley Watson Fellowship (VIMS)
2004-2005	Amber Hardison, Hargis Fellowship (VIMS)
2003-2004	John Pohlman, Kelley Watson Fellowship (VIMS)
1999-2002	Christine Conrad, NSF Graduate Fellowship
1998	Craig Tobias, Matthew Fontaine Maury Award (VIMS)

2. Student Committee Service (33 Ph.D. students; 21 M.S. students)

Rachael Blake (Ph.D.; degree completed January 2012)
David Carlini (Ph.D.; degree completed August 1998)
Tom Chisholm (Ph.D.; degree completed August 1999)
Matt Church (Ph.D.; degree completed May 2003)
Tim Dellapenna (Ph.D.; degree completed August 1999)
James Douglass (Ph.D.; degree completed August 2008)
Heidi Geisz (Ph.D.; degree completed December 2010)
David Gillett (Ph.D.; degree completed December 2009)
Wes Hudson (Ph.D. Candidate)
Daniel Kaufman (Ph.D. Candidate)
Kimani Kimbrough (Ph.D.; degree completed December 2001)
Kewan Liu (Ph.D.; degree completed December 1996)
Ai Ning Loh (Ph.D.; degree completed December 2002)
Leigh McCallister (Ph.D.; degree completed December 2002)
Julia Moriarty (Ph.D. Student)
Scott Neubauer (Ph.D.; degree completed December 2000)
Michelle Thompson Neubauer (Ph.D.; degree completed May 2000)
Frank Parker (Ph.D. Candidate)
Jennifer Rhode (Ph.D.; degree completed December 2002)
Wendi Ribeiro (Ph.D.; degree completed August 2013)
Lila Rose (Ph.D.; degree completed August 2012)
Troy Sampere (Ph.D. student, Tulane University; degree completed August 2008)
Gary Schultz (Ph.D.; degree completed May 1999)
Jason See (Ph.D.; degree completed 2003)
Arash Sharifi (Ph.D. student, University of Miami)
Amy Shields (Ph.D.; degree completed August 2007)
Kathryn Sobocinski (Ph.D.; degree completed May 2013)
Jenna Spackeen (Ph.D. Candidate)
Amy Then (Ph.D.; degree completed January 2013)
Padma T.V. (Ph.D.; degree completed May 2001)
Shelby Walker (Ph.D.; degree completed August 2003)
Stephanie Wilson (Ph.D.; degree completed December 2008)
Andrew Wozniak (Ph.D.; degree completed December 2009)

Samantha Bickel (M.S.; degree completed August 2009)
Tyler Christensen (M.S.; degree completed August 2002)
Matthew Church (M.S.; degree completed May 1999)

Rebecca Countway (M.S.; degree completed December 1999)
 Jennifer DeAlteris (M.S.; degree completed)
 Kristen Delano (M.S.; degree completed)
 Carolina Funkey (M.S.; degree completed August 2011)
 Anna Hermes (M.S. student, Rutgers University; degree completed January 2013)
 Emily Jayne (M.S.; degree completed August 2011)
 Sara Kamfe (M.S., Chemistry Dept., W&M; degree completed May 2010)
 Tara Kniskern (M.S.; degree completed Spring 2001)
 Ai Ning Loh (M.S.; degree completed August 1998)
 Tong Li (M.A.; degree completed December 1996)
 Patrick Lynch (M.S.; degree completed May 2008)
 William Metcalfe (M.S.; degree completed December 2005)
 Andrea Miller (M.S.; degree completed May 2008)
 Althea Moore (M.S.; degree completed May 2011)
 Heidi Romine (M.S.; degree completed)
 Lila Rose (M.S.; degree completed May 2008)
 Kate Ruck (M.S.; degree completed August 2012)
 Emily Yam (M.S.; degree completed)

3. Undergraduate Research

Nyanza Rothman	Vassar College, REU, Co-advised with A. Beck, Summer 2010
Hadley McIntosh	College of Saint Benedict/Saint John's University, REU, Summer 2009
Carolina Funkey	University of Mary Washington, REU, Co-advised with I. Anderson, Summer 2006
Tim Montgomery	College of William & Mary, REU, Summer 2004
Jennifer Boxwell	College of William & Mary, REU, Summer, 1997-1999
Chia Chia Chang	University of Alabama, REU, Summer, 1995
Heidyleen Cruz	Inter-American U., Puerto Rico, REU, Summer, 1996

4. Post-Doctoral Scholars

2010	Amber Hardison
2008-2010	Yuehan Lu, Mellon Postdoctoral Scholar (co-advised with J. Bauer and R. Chambers)
2006-2008	Laura Palomo, Fulbright Fellow, Spain.
2002	Renato Carreira, EAOG Fellow, Brazil.

5. Other Educational Activities (selected)

2012	Pre-Major Undergraduate Advisor
2011	Advisor, Mary Chang, College of William & Mary
2011	Organizer and Leader, Tools of the Trade Workshops <ul style="list-style-type: none"> • January 2011: Learning to Lead Effectively • November 2011: Scientists as Leaders
2011	Mentor, Catherine Dudley, High School Shadowing Experience
2011	Mentor, Ashley Meredith Ashley, Governor's School in Marine Science

2009	Mentor, Charlie Shobe, Governor's School in Marine Science.
2003-2009	VIMS REU Program, Workshop Coordinator, "Responsible Conduct in Science". Annual workshop presented to REU students.
2005	Hall-Bonner Program, Workshop Co-coordinator, "Responsible Conduct in Science".
2003-2004	VIMS REU Program, PI and coordinator Bay Eagle Cruise.
2001-2002	Mentor, Nichole Hirst, New Horizons Governor's School for Science and Technology.
1997-2001	Director, Female Initiation into Research, Science and Technology Program.

FELLOWSHIPS AND GRANTS

2014-2016	Tidal wetlands as sources and sinks of carbon in a changing world: Remote Sensing, Measurements & Modeling of Wetland-Ocean-Atmosphere Interactions. NASA Carbon Cycle Science Program. \$126k to Canuel
2013-2015	Collaborative Research: Sediment Supply in a Regime of Accelerated Coastal Erosion (SedS-RACE): Paleo-Perspectives, Anthropogenic Influences and Future Challenges. NSF Coastal SEES (Track I), Total Award: \$533,430.
2013-2014	Molecular and isotopic tools in marine biogeochemistry: case study in the upwelling region of Cabo Frio, Rio de Janeiro. Special Visiting Scientist Fellowship – CAPES/CNPq/FAPs. Dr. Renato da Silva Carreira, Chemistry Department, Pontifical Catholic University of Rio de Janeiro/Brazil (R\$ 16,500 (~\$8250) per year for Travel and Housing).
2010-2011	Sustainable Algal Energy Production and Environmental Remediation. Department of Energy. Total Award: \$500k (\$55k to Canuel)
2010-2013	Collaborative Research; High-resolution, Multi-proxy Reconstruction of Holocene Climate Variability in West Asia. NSF Paleo Perspectives on Climate Change (P2C2) Program. Total Award: \$345k (\$90k to Canuel)
2010-2011	Collaborative Research: A Proposal to Identify Future Directions in Coastal Science Research. NSF Division of Earth Sciences. Total Award: \$10k.
2010-2013	Collaborative Research: Constraining the Sources, Ages and Alteration of Dissolved and Particulate Lipids in Estuarine and Coastal Organic Matter. NSF Chemical Oceanography Program. Total Award: \$710k (\$362k to Canuel).
2009-2011	An Integrated Research Program for Algal Energy and Environmental Remediation, StatOil Hydro. Total Award: \$1.6M (~\$348k to Canuel).
2006-2012	Collaborative Research: Benthic Microalgal Regulation of Carbon and Nitrogen Turnover in Land margin Ecosystems: A Dual Stable Isotope Tracer Approach. NSF Ecosystems Program. C. Tobias (PI), J. Vallino, I. Anderson, E. Canuel. Total Award: \$700k (\$380k to Anderson & Canuel).
2008-2010	Collaborative Research: Assessing the bioavailability of effluent organic nitrogen along a freshwater to saltwater continuum, NSF CBET. D. Bronk (PI), E. Canuel, M. Mulholland and P. Hatcher (ODU), N. Love (U. Michigan). Total Award: \$448k (\$40k to Canuel).
2007-2009	Investigation of potential for biodiesel production from algae, Virginia Coastal Energy Research Consortium, \$40k per year.

- 2005-2007 Modeling Atlantic Menhaden in Support of Nutrient and Multispecies Management. R. Latour (PI), M. Brush and E. Canuel. US EPA Chesapeake Bay Program, \$256k.
- 2005-2007 Collaborative Research: Anthropogenic Impacts on Carbon Cycling in the Sacramento-San Joaquin River Delta: Changes in Source, Nature, and Age of Organic Carbon. NSF DEB Ecosystems, E. Canuel (PI), S. Wakeham and T. Bianchi, Total Award: \$310k (\$150k to Canuel).
- 2002-2005 Collaborative Research: How Temporal Changes in River Discharge and Storms Affect the Source and Age Distribution of Sedimentary Organic Carbon Across a River-Dominated Margin. T. Bianchi, B. McKee, M. Allison, E. Canuel, and S. Wakeham. Funded by: NSF Ocean Sciences. Total Award: \$500K (\$115K to Canuel).
- 2004-2005 Assessing effectiveness of restoration of salt marsh cordgrass (*Spartina alterniflora*) marshes by replacing the invasive common reed (*Phragmites australis*). Ken Able, (PI), C. Currin and S. Thorrold; subcontract to E. Canuel (\$10k to Canuel).
- 2004-2005 Sediment Organic Matter Quality as an Indicator for The Distribution and Abundance of *Corbicula Fluminea* In The Sacramento-San Joaquin Delta. San Francisco Bay-Delta Consortium Science Support Funds. \$25k.
- 2002 Use of Stable Isotopes for Developing a Food Web Model in a Recovering Seagrass System in Virginia Coastal Bays. R.J. Orth and E.A. Canuel. Funded by NOAA VCR. \$10k.
- 2001-2002 Interaction of Sediment Surfaces with Organics: Mechanistic Studies and Connection to Environmental Behavior. M.J. Kelley and E.A. Canuel. Funded by VIMS and W&M Collaborative Research Program. \$24k.
- 2000 Accelerated Solvent Extractor System for Contaminant and Organic Geochemical Analyses. E.A. Canuel (PI) and R.M. Dickhut (co-PI). Funded by Harbor Processes Program, Office of Naval Research. \$44k.
- 1999 Mass Spectrometer and Data Analysis System for Contaminant and Organic Geochemistry. R.M. Dickhut (PI) and E.A. Canuel (co-PI). Funded by Harbor Processes Program, Office of Naval Research. \$90k.
- 1998-2001 The Role of Seabed Dynamics in Controlling the Distribution and Preservation of Polycyclic Aromatic Hydrocarbons (PAHs) in Estuarine Sediments. E.A. Canuel (PI) with R.M. Dickhut and S.A. Kuehl. Funded by Office of Naval Research, Harbor Processes Program. \$300,000.
- 1998-2002 Assessment of the Sacramento-San Joaquin Delta as Habitat for Production of the Food Resources that Support Fish Recruitment. E.A. Canuel (PI). Funded by U.S. Geological Survey. \$232,567.
- 1995-1998 Particulate Organic Matter-Contaminant Associations at the Water-Sediment Interface: Biological and Physical Controls. E.A. Canuel (PI) with R.M. Dickhut (co-PI). Funded by Office of Naval Research, Marine Environmental Quality Program. \$300,000.
- 1995-2000 Sources of Particulate and Sedimentary Organic Matter in the Chesapeake Bay Estuary: A Biomarker Approach. E.A. Canuel (PI). Funded by National Science Foundation CAREER Program, Ocean Sciences Division. \$293,536.

- 1995-1997 Organic Carbon Abundance and Distribution at the Oyster, Virginia, Study Site. E.A. Canuel (PI). Exploratory Funds from the Subsurface Science Program, Department of Energy. \$25,000.
- 1995-1996 Sources and Reactivity of Organic Matter in San Francisco Bay: The Roles of Hydrologic Regime and Autochthonous Production. E.A. Canuel. Funded by California Department of Water Resources. \$27,394.
- 1995-1996 Lipid Biomarker Composition of Particulate Organic Matter in the Lower Chesapeake Bay. E.A. Canuel (PI). Funded by the Virginia Water Resources Research Center. \$20,000.
- 1995 Sources and Reactivity of Organic Matter in San Francisco Bay, CA. E.A. Canuel (PI). U.S. Geological Survey. \$5950.
- 1994-1995 Benthic Microalgal Production Associated with Intertidal Habitats in San Francisco Bay, CA. E.A. Canuel, with co-PI's C.A. Currin (NOAA-NMFS) and S.B. Joye (San Francisco State University). Funded by California Department of Water Resources, \$20,000.

RESEARCH

Books

- Bianchi, T.S. and **E.A. Canuel** (2011) *Chemical Biomarkers in Aquatic Ecosystems*. Princeton University Press, published Spring 2011.

Refereed publications in periodicals, chapters in books, law review articles and conference proceedings.

- Canuel, E.A.** and A.K. Hardison (submitted) Sources, Ages, and Alteration of Organic Matter in Estuaries. *Annual Reviews in Marine Science*.
- Canuel, E.A.**, Brush, G. Cronin, T.M., Lockwood, R. and Zimmerman, A.R. (accepted) Paleocology studies in Chesapeake Bay: A model system for understanding interactions between climate, anthropogenic activities and the environment. *In: Application of Paleoenvironmental Techniques in Estuarine Studies*. J. Gibson, K. Saunders, P. Gell, and J. Tibby (Eds.) Springer.
- Kao, S.-J., Kandasamy, S., Lee, T.-Y., Yang, J.-Y., **Canuel, E.A.**, Huang, C., Dai, M., Liu, J.T. (2015) Stable isotopic and biomarker evidence of terrigenous organic matter export to the deep sea during tropical storms. *Marine Geology* 364: 32–42.
- McIntosh, H.A., McNichol, A.P., Xu, L. and **Canuel, E.A.** (2015) Source-age dynamics of estuarine particulate organic matter using fatty acid $\delta^{13}\text{C}$ and $\Delta^{14}\text{C}$ composition. *Limnology & Oceanography*, DOI: 10.1002/lno.10053
- Canuel, E.A.** and Diaz, R.J. (accepted) Coastal Eutrophication and Hypoxia, The Nature Education Knowledge Project, <http://www.nature.com/scitable/knowledge/ecology-102>.
- Ruck, K.E., Steinberg, D.K. and **Canuel, E.A.** (2014) Regional differences in krill and fish prey quality along the Western Antarctic Peninsula. *Marine Ecol. Prog. Series*. 509:39-55, DOI:10.3354/meps10868
- Lu, Y, **Canuel, E.A.**, Bauer, J.E. and Chambers, R. M. (2014) Sources and diagenetic status of particulate organic matter in temperate headwater streams: watershed land use and seasonal effects. *Aquatic Sciences*, DOI 10.1007/s00027-014-0344-9

- Lu, Y., Bauer, J.E., **Canuel, E.A.**, Yamashita, Y. Chambers, R. and Jaffé, R. (2014) Effects of land use on sources and ages of inorganic and organic carbon in temperate headwater streams. *Biogeochemistry*, DOI 10.1007/s10533-014-9965-2
- Brault E.K., Goebel, ME., Geisz, H.N., **Canuel, E.A.**, and Dickhut, R.M. (2013) inter-annual variation of concentrations of persistent organic pollutants (POPs) in an Antarctic top predator *Arctophoca gazelle*. *Environ. Sci. Technol.* 47: 12744–12752.
- Hardison, A.K., **Canuel, E.A.**, Anderson, I.C., Tobias, C.R., Veuger, B. and Waters, M. (2013) Benthic micro- and macroalgae determine sediment organic matter composition in shallow photic sediments. *Biogeosciences* 10: 5571-5588.
- Lu, Y., Bauer, J.E., **Canuel, E.A.**, Yamashita, Y. Chambers, R. and Jaffé, R. (2013) Photochemical and microbial alteration of dissolved organic matter in temperate headwater streams associated with different land use. *Journal of Geophysical Research- Biogeosciences*, doi:10.1002/jgrg.20048.
Featured in “Research Spotlight” Eos, Vol. 94, No. 23, 4 June 2013
- Pohlman, J.W., Riedel, M., Bauer, J.E., **Canuel, E.A.**, Paull, C.K., Lapham, L., Grabowski, K.S., Coffin, R.B. and Spende, G. (2013) Increased efficiency of anaerobic methane oxidation in low-organic content seep sediments. *Geochimica et Cosmochimica Acta*, <http://dx.doi.org/10.1016/j.gca.2013.01.022>.
- Lu, Y., Bauer, J.E., **Canuel, E.A.**, Yamashita, Y. Chambers, R. and Jaffé, R. (2013) Photochemical and microbial alteration of dissolved organic matter in temperate headwater streams associated with different land use. *Journal of Geophysical Research – Biogeosciences*, DOI: 10.1002/jgrg.20048.
- Rothman, N.J., **Canuel, E.A.** and Beck, A.J. (2012) Trace metal cycling in an algal floway system. *Ecological Engineering*, <http://dx.doi.org/10.1016/j.ecoleng.2012.11.002>.
- Newcomer, T.A., Kaushal, S.S., Mayer, P.M., Shields, A.R., **Canuel, E.A.**, Peter M. Groffman, P.M., and Gold, A.J. (2012) Influence of natural & novel organic carbon sources on denitrification in forested, degraded-urban, & restored streams. *Ecological Monographs*, 82(4): 449–466.
- Carreira, R. da Silva, **Canuel, E.A.**, Macko, S.A., Lopes, M.B. Luz, L.G., Luciana N., and Jasmim, L.M. (2012) On the accumulation of organic matter on the southeastern Brazilian continental shelf: A case study based on a sediment core from the shelf off Rio de Janeiro. *Brazilian Journal of Oceanography* 60: 75-87.
- Canuel, E.A.** Cammer, S.S., McIntosh, H.A. and Pondell, C.R. (2012) Climate change impacts on the organic carbon cycle at the land-ocean interface. Invited Contribution: *Annual Review of Earth and Planetary Sciences*, 40:685–711, 10.1146/annurev-earth-042711-105511.
- White, K., Lorenza, N., Potts, T., Penneya, W.R., Babcocka, R., Hardison, A., **Canuel, E.A.**, Hestekin, J.A. (2011) Production of Biodiesel Fuel from Tall Oil Fatty Acids Via High Temperature Methanol Reaction. *Fuel* 90:3193-3199.
- Hardison, A.K., Anderson, I.C., **Canuel, E.A.**, Tobias, C.R. and Veuger, B. (2011) Carbon and nitrogen dynamics in shallow photic systems: Interactions between macro- and microalgal communities. *Limnol. Oceanogr.* 56(4): 1489–1503.
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Invited scholarly papers and talks

- 2013 "Sources and Ages of Dissolved and Particulate Organic Matter in the Delaware Estuary". School of Marine Science and Policy, University of Delaware, April 2013.
- 2013 "Sources and ages of lipids associated with dissolved and particulate organic matter in a major temperate estuary." Department of Geological Sciences, University of Alabama, March 2013.
- 2012 "Human modification of carbon delivery to the San Francisco Bay-Delta System", University of Miami – RSMAS, February 2012.
- 2011 "Influence of climate and human activities on the estuarine organic carbon cycle:

- Lessons from the San Francisco Bay/Delta”, Institute of Marine and Coastal Sciences, Rutgers University, October 2011.
- 2010 “Organic biomarkers along the river-coastal ocean continuum: Human activities and their influence on carbon delivery”, Invited speaker for “Advances in the use of Biomarkers”, Paleoceanography/Paleoclimatology focus group, AGU Fall Meeting.
- 2010 “Turning pollution into fuel: Prospects for using wild algae to clean coastal waters and produce biofuels”, Invited speaker, Garden Club of Virginia, Annual Meeting, November 2010.
- 2010 “Turning pollution into fuel: Prospects for using wild algae to clean coastal waters and produce biofuels” Department of Civil and Environmental Engineering, University of Virginia, March, 2010.
- 2009 “An Integrated Research Program for Algal Energy and Environmental Remediation at VIMS/W&M” Hampton Roads Research Partnership, August, 2009.
- 2009 “Turning pollution into fuel: Prospects for using wild algae to clean coastal waters and produce biofuels” Garden Club of Gloucester and Williamsburg, October, 2009.
- 2009 “Can algae fuel our cars?” Geology Dept. Brown Bag Series, College of William & Mary, April, 2009.
- 2008 “Can algae fuel our cars?” Christopher Wren Society, College of William & Mary, October, 2008.
- 2008 “Can algae fuel our cars?” VIMS After Hours Lecture Series, September 2008.
- 2008 “Organic carbon composition in the coastal zone: Insights from biomarker studies”, ASLO Plenary Presentation, St. Johns, Newfoundland, June 2008.
- 2006 “Biodiversity and Food Web Structure Influence Short-term Accumulation of Sediment Organic Matter in an Experimental Seagrass System, Marine Sciences Program, University of South Carolina, November 2006.
- 2006 “Anthropogenic Impacts on Carbon Cycling in the Sacramento-San Joaquin River Delta: Changes in Source, Nature and Age of Organic Carbon”, ASLO, Victoria, Canada, June, 2006.
- 2006 “Molecular Fossils: Unraveling the Mysteries of the Carbon Cycle in Past and Present Ecosystems”, Department of Marine Science, Hampton University, Hampton, VA, January 2006.
- 2005 “Biodiversity and Food Web Structure Influence Short-Term Accumulation of Sediment Organic Matter in an Experimental Seagrass System”, Department of Marine Sciences, University of Connecticut, Groton CT.
- 2005 “Tracers and Chemical Biomarkers in Food Web Research”, Invited Speaker, Response of Aquatic Food Webs to Nutrient Enrichment: Assessing the State of the Science, EPA Sponsored Workshop, Gulf Breeze, FL.
- 2004 “Organic Matter Diagenesis in Surface Sediments: Factors Controlling Organic Matter Passage from the Biosphere to the Geosphere: A Tribute to Mary Jo Baedeker”, Geological Society of America, Denver CO.
- 2004 “Sources and Composition of Organic Carbon in an Anthropogenically-Modified Ecosystem: The Sacramento-San Joaquin River Delta, CA”, Chesapeake Biological Laboratory, University of Maryland, Solomons, MD.
- 2004 “Sources and Composition of Organic Carbon in an Anthropogenically-Modified Ecosystem: The Sacramento-San Joaquin River Delta, CA”, Department of Geography and Environmental Engineering, Johns Hopkins University, MD.

- 2004 “Composition of Organic Matter in South San Francisco Bay: Seasonal Variations and Linkages between Water Column Production and Sediment Organic Matter.” ASLO/TOS Ocean Research Conference.
- 2004 “Trophic Structure, Biodiversity and Carbon Cycling: Evidence of Cascading Effects in an Experimental Eelgrass System.” A.C. Spivak*, E.A. Canuel, J.E. Duffy and E.J. Waterson, ASLO/TOS Ocean Research Conference.
- 2003 “Accumulation and Composition of Sediment Organic Carbon in Eelgrass Beds: Effects of Benthic Biodiversity and Food Web Structure on Sediment Biogeochemistry.” Estuarine Research Federation Meeting, Seattle, WA.
- 2002 “Sources of Organic Matter in the Sacramento-San Joaquin Delta: Insights Gained from Coupled Biomarker-Stable Isotope Studies.” Interagency Ecological Program of San Francisco Bay-Delta, Annual Meeting, Pacific Grove, CA.
- 2002 “Back to the Source: Can Isotopes Tell Us the Origin of Organic Matter that Fuels Biological Production in the Bay-Delta?” J.E. Cloern and **E.A. Canuel**, Interagency Ecological Program of San Francisco Bay-Delta, Annual Meeting, Pacific Grove, CA.
- 2001 “Molecular Fossils: Geochemical Tools for Assessing Water Quality in the Past and Present.” Invited Speaker, The College of William & Mary, Homecoming Academic Festival.
- 2001 “Effects of Physical Mixing on PAH Diagenesis in Estuarine Sediments.” Harbor Processes Program PIs Workshop, Office of Naval Research, VA.
- 2000 “Influence of river flow, primary production and anthropogenic activity on POM composition in Chesapeake Bay.” Invited Seminar. Chesapeake Biological Laboratory, University of Maryland Solomons, MD.
- 2000 “Sources of organic matter in the Sacramento-San Joaquin River Delta as inferred through the use of biomarkers.” CALFED Science Conference, Sacramento, CA.
- 2000 “Role of physical mixing and organic matter diagenesis on PAH distributions in estuarine sediments.” San Diego Bay: Marine Sediment Processes Workshop, Sponsored by ONR, San Diego, CA.
- 1999 “Applications of lipid biomarker compounds: Assessing sources of organic matter in estuarine systems.” Dept. of Environmental Sciences, University of Virginia, Charlottesville, VA.
- 1999 “Applications of biomarkers to understanding sources and composition of organic matter in estuaries: Comparisons between San Francisco and Chesapeake Bay” Estuarine Research Federation Meeting, New Orleans, LA.
- 1999 “Eutrophication history of Chesapeake Bay established from sedimentary organic matter composition.” A.R. Zimmerman* and E.A. Canuel. Estuarine Research Federation Meeting, New Orleans, LA.
- 1999 “Applications of lipid biomarker compounds to assessing sources of organic matter in estuarine systems.” Institute for Earth and Ecosystem Science, Tulane University, New Orleans, LA.
- 1999 “Microbial responses to the influx of labile organic matter to the sediment-water interface: Insights gained from biomarker studies.” Dept. of Ocean, Earth and Atmospheric Sciences, Old Dominion University, Norfolk, VA.
- 1999 “Use of lipid compounds for evaluating phytoplankton, bacterial and terrestrial sources of organic matter.” Workshop on the Use of Chemical Markers in Historical

- Environmental Assessments, U.S. Environmental Protection Agency, Narragansett, RI.
- 1999 “Sources of organic matter in the Chesapeake Bay: A biomarker approach.” Poster Presentation, CAREER Program P.I. Meeting, National Science Foundation, Washington, DC.
- 1998 “Application of lipid biomarker techniques for understanding and quantifying early diagenetic processes.” Gordon Research Conference on Organic Geochemistry, Plymouth, NH.
- 1997 “Composition of particulate organic matter in estuarine systems: Comparisons between San Francisco Bay and the Chesapeake Bay.” Department of Marine Sciences, University of North Carolina at Chapel Hill.
- 1997 “Microbial utilization of organic matter at the water-sediment interface.” Special Session on Inputs and Heterotrophic Utilization of Organic Matter in Lakes, Rivers and Estuaries, ASLO Aquatic Sciences Meeting, Sante Fe, NM.
- 1996 “Composition of particulate organic matter in estuarine systems: Comparisons between San Francisco Bay and the Chesapeake Bay.” College of Marine Studies, University of Delaware, Lewes, DE.
- 1995 “Seasonal changes in the sources of organic matter delivered to a coastal sediment: A GC-IRMS approach.” Symposium on Isotopic and Molecular Biogeochemistry of Organic Matter in Ancient and Modern Environments. American Chemical Society Meeting, Chicago, IL.
- 1995 “Marine organic geochemistry: Chemical fossils for understanding sources of organic matter.” Geology Department Colloquium, College of William and Mary, Williamsburg, VA.
- 1994 “The roles of hydrologic regime and autochthonous production in controlling the reactivity of organic matter in San Francisco Bay: Evidence from lipid biomarker compounds.” Horn Point Environmental Laboratory, Cambridge, MD.
- 1994 “Regional differences in the composition of organic matter in the San Francisco Bay Ecosystem: Evidence from lipid biomarkers.” Chesapeake Biological Laboratory, Solomons, MD.
- 1994 “Regional differences in the composition of organic matter in the San Francisco Bay Ecosystem: Evidence from lipid biomarkers.” Department of Chemistry and Biochemistry, Old Dominion University, Norfolk, VA.
- 1994 “Variability in organic matter inputs to the San Francisco Bay estuary.” San Francisco Bay: The Ecosystem, Special Symposium at the AAAS Pacific Division Meeting, San Francisco, CA.
- 1992 “Seasonal variations in the sources and accumulation of organic matter in coastal/estuarine environments.” U.S. Geological Survey, Menlo Park, CA.
- 1992 “Seasonal variations in the sources and accumulation of organic matter in a coastal sediment.” Virginia Institute of Marine Science, Gloucester Point, VA.
- 1991 “Seasonal variations in the sources, accumulation and early diagenesis of organic matter in a coastal sediment.” Dissertations Symposium on Chemical Oceanography (DISCO), Honolulu, HI.
- 1990 “Source variations in organic constituents associated with recently-deposited coastal sediments.” U.S. Geological Survey, Menlo Park, CA.
- 1990 “Source variations in organic constituents associated with recently-deposited coastal sediments.” U.S. Geological Survey, Reston, VA.

Contributed scholarly papers and talks (oral presentation unless otherwise indicated; asterisk indicates presenter if other than Canuel)

- 2013 Distributions and transformations of radiocarbon ages in dissolved and particulate lipids in a major temperate estuary. J.E. Bauer*, H.A. McIntosh, A. Barrett, K. Hossler, E. Tyler and **E. Canuel**, Oral Presentation, 12th International Estuarine Biogeochemistry Symposium, Plymouth University, UK.
- 2013 Using biomarkers to determine sources and composition of estuarine organic matter: Delaware Bay to the Classroom. H.A. McIntosh*, C. Pondell, E. Tyler and **E. Canuel**, Oral Presentation, ASLO Aquatic Sciences Meeting, New Orleans, LA.
- 2013 Sources and composition of dissolved and particulate organic matter in the Delaware Estuary. H. McIntosh*, J.E. Bauer and **E.A. Canuel**, Oral Presentation, Delaware Estuary Science & Environmental Summit, Cape May NJ
- 2012 “Climate change impacts on the organic carbon cycle at the land-ocean interface” **E.A. Canuel**, S.S. Cammer, H. McIntosh and C.R. Pondell. Poster Presentation, 2012 Ocean Sciences Meeting, Salt Lake City UT
- 2012 Characterization of Extracellular Polymeric Substances (EPS) Produced by Benthic Microalgae Under Different Physical Regimes” S.K. Salisbury*, **E.A. Canuel**, I.C. Anderson, C.R. Tobias, J.W. Stanhope, A.K. Hardison. Oral Presentation, 2012 Ocean Sciences Meeting, Salt Lake City UT
- 2012 Using excitation emission spectroscopy to assess the potential impact of riverine dissolved organic matter on biogeochemical processes. S.S. Cammer*, **E.A. Canuel** and W.G. Reay. Oral Presentation, 2012 Ocean Sciences Meeting, Salt Lake City UT
- 2012 “Response of organic carbon accumulation in eglebright lake, ca to climate and anthropogenic impacts in the watershed” C.R. Pondell*, **E.A. Canuel**, A.J. Beck and P. Louchouart. Poster Presentation, 2012 Ocean Sciences Meeting, Salt Lake City UT
- 2012 “Sources and composition of particulate and dissolved organic matter in the Delaware Estuary” H. McIntosh*, P.Littreal, J.E. Bauer and **E.A. Canuel**. Poster Presentation, 2012 Ocean Sciences Meeting, Salt Lake City UT
- 2012 “Turning pollution into fuel: prospects for using wild algae to clean coastal waters and produce biofuels E. Ferer*, **E.A. Canuel**, M. Mainor, P. Richardson, and J.E. Duffy. Poster Presentation, 2012 Ocean Sciences Meeting, Salt Lake City UT
- 2011 “Dissolved Organic Matter Release During Baseflow and Storm Events and its Potential Impact on Riverine and Biogeochemical Cycles. S.S. Cammer, **E.A. Canuel** and W. G. Reay, Poster Presentation, AGU Fall Meeting, San Francisco CA
- 2011 “Tracing Carbon Pool Dynamics in Shallow Coastal Sediments Using an in situ Labeling Experiment” S.K. Salisbury*, **E.A. Canuel**, I.C. Anderson, C.R. Tobias, J.W. Stanhope, A.K. Hardison. Poster Presentation, 21st Biennial Conference of the Coastal and Estuarine Research Federation, Daytona Beach FL.
- 2011 “Turning pollution into fuel: Prospects for using wild algae to clean coastal waters and produce biofuels” **E. Canuel**, E. Ferer, M. Mainor, P. Richardson and J.E. Duffy, 11th International Estuarine Biogeochemistry Symposium, Atlantic Beach, NC
- 2011 “Climate Change Impacts on the Biogeochemistry of Estuarine Carbon Cycling” E.A. Canuel, S. Cammer* and C.R. Pondell. Poster Presentation at 11th International Estuarine Biogeochemistry Symposium, Atlantic Beach, NC

- 2011 “An integrated approach to examining the effects of physical processes on shallow sediment biogeochemistry” S. Salisbury*, **E.A. Canuel**, I.C. Anderson, C.R. Tobias, J. Stanhope and A.K. Hardison. Aquatic Sciences Meeting, Puerto Rico, February 2011
- 2010 “Sources and Composition of Dissolved Organic Matter in Headwater Streams Draining Watersheds with Different Land Uses in the York River Estuary” Y. Lu, **E. Canuel**, J. Bauer, Y. Yamashita, R. Chambers and R. Jaffe. Oral Presentation, AGU Fall Meeting, December 2010.
- 2010 “Characteristics of organic carbon retained in upstream reservoirs: A study into the effects of land-use and climate change on carbon accumulation in Englebright Lake, CA” C. Pondell*, **E. Canuel** and P. Louchouart, Poster Presentation, National Conference & Expo on Coastal and Estuarine Habitat Restoration, November 2010.
- 2010 “Sources of Organic Carbon to Reservoirs Impounded by Dams using Englebright Lake as a Model System” C. Pondell*, **E. Canuel** and P. Louchouart, Poster Presentation at 6th Biennial Bay-Delta Science Conference, September, 2010.
- 2010 “Sources and Dynamics of Particulate Organic Matter in Headwater Streams Draining Watersheds with Different Land Uses in the York River Estuary, VA Y. Lu*, **E. Canuel**, J. Bauer, R. Chambers, Gordon Research Conference on Organic Geochemistry, August 2010.*
- 2010 “Microbes mediate carbon and nitrogen retention in shallow photic sediments: Isotopic analysis of microbial biomarkers.” A.K. Hardison*, **E.A. Canuel**, I.C. Anderson, and B. Veuger. Poster Presentation, Gordon Research Conference on Organic Geochemistry, August 2010.
- 2010 “Benthic microalgae and bacteria facilitate carbon and nitrogen retention in shallow photic sediments.”, A.E. Hardison*, **E.A. Canuel**, I.C. Anderson, C. Tobias, B. Veuger. Goldschmidt Conference, June 2010.
- 2010 “Understanding Catchment Controls on Dissolved Organic Matter Release and Its Downstream Reactivity” S. Schillawski*, J. Bauer, **E. Canuel**, E. Keesee, and W. Reay, Poster presentation, Ocean Sciences Meeting, February 2010.
- 2010 “Assessing the Potential Viability of Algae for Environmental Remediation and as a Biofuel Feedstock: Biochemical Composition” H. McIntosh* and **E. A. Canuel**. Ocean Sciences Meeting. Eos Trans. AGU, 91(26), Ocean Sci. Meet. Suppl., Abstract ED25A-09.
- 2009 “Microbes mediate carbon and nitrogen retention in shallow photic sediments. Poster presentation” A. Hardison, **E. Canuel***, I. Anderson, C. Tobias, B. Veuger. AGU Fall Meeting, December 2009.
- 2009 “Macroalgal blooms change the sediment microbial community of a shallow coastal lagoon” A. Hardison*, **E. Canuel**, I. Anderson, C. Tobias, B. Veuger. CERF Meeting, November 2009.
- 2009 “Tracking carbon and nitrogen flow through the sediment microbial community of a shallow subtidal lagoon” A. Hardison*, **E. Canuel**, I. Anderson, B. Veuger. ASLO Meeting, January 2009.
- 2009 “Tracking the fate of carbon and nitrogen in a shallow photic coastal lagoon” Anderson, I., A. Hardison, **E. Canuel**, C. Tobias. ASLO Meeting, January 2009.
- 2008 “Use of Sediment Core Records to Understand Anthropogenic Impacts on Carbon Delivery to the Sacramento-San Joaquin River Delta, CA.” **E.A. Canuel**, E.J.,

- Lerberg, R.M. Dickhut, S.A. Kuehl, T.S. Bianchi and S.G. Wakeham. Oral Presentation, AGU Fall Meeting, San Francisco CA.
- 2008 “Use of Sediment Core Records to Understand Anthropogenic Impacts on Carbon Delivery to the Sacramento-San Joaquin River Delta, CA.” **E.A. Canuel**, E.J., Lerberg, R.M. Dickhut, S.A. Kuehl, T.S. Bianchi and S.G. Wakeham. Poster Presentation, Gordon Research Conference on Organic Geochemistry.*
- 2008 “Isotopic Analysis of Microbial Biomarkers: Tracking Nutrient Flow Through the Sediment Microbial Community.” A.K. Hardison, **E.A. Canuel** and B. Veuger, Gordon Research Conference on Organic Geochemistry.
- 2008 “New Biomarkers and Novel Applications of Classic Biomarkers in Aquatic Systems: An Overview” **E.A. Canuel** and T.S. Bianchi, Oral Presentation, Ocean Sciences Meeting, Orlando FL.
- 2008 “Resource Availability, Biodiversity, And Trophic Structure Affect Sediment Nutrient Dynamics In A Seagrass Habitat: A Mesocosm Experiment.” A.C. Spivak, **E.A. Canuel**, J.E. Duffy and J.P. Richardson. Oral Presentation, Ocean Sciences Meeting, Orlando FL.
- 2008 “Examination Of Organic Matter In Sediment Core Records To Elucidate Antrhopogenic Impacts Within The Sacramento-San Joaquin River Delta.” **E.J., Lerberg**, E.A. Canuel, R.M. Dickhut, S.A. Kuehl, T.S. Bianchi and S.G. Wakeham, Oral Presentation, Ocean Sciences Meeting, Orlando FL.
- 2007 “Trophic Structure and Resource Availability Alter SOM Composition in a Seagrass System: A Field Experiment.” A. Spivak*, **E. Canuel**, J.E. Duffy, J. Douglass and J.P. Richardson. Oral Presentation, ERF Biennial Meeting, Providence, RI.
- 2007 “Fate of Carbon and Nitrogen Sequestered by Macroalgae in a Coastal Lagoon.” A. Hardison*, B. Veuger, I. Anderson and **E. Canuel**. Oral Presentation, ERF Biennial Meeting, Providence, RI.
- 2007 “Use of Sediment Records to Understand Anthropogenic Impacts on Carbon cycling in Coastal Ecosystems.” **E. Canuel**, E. Waterson, R. Dickhut, S. Kuehl, T. Bianchi, S. Wakeham. Poster Presentation, ERF Biennial Meeting, Providence, RI.
- 2007 “Short-term Degradation of Fatty Acids in Biological vs. Physical Mixing Regimes in the York River Estuary.” L. Palomo*, P. Dickhudt, A. Brylawski, C. Friedrichs, L. Schaffner, **E. Canuel**. Poster Presentation, ERF Biennial Meeting, Providence, RI.
- 2007 “Measuring the Effects of Decomposition of a Macroalgal Bloom on Sediment Metabolism.” Funkey, C., I. Anderson, **E. Canuel**, and A. Hardison. Poster Presentation, AERS Meeting, Spring 2007.
- 2006 “Persistent Organic Pollutants in Sediments Cores from the San Joaquin and Sacramento Rivers.” R.M. Dickhut, **E.A. Canuel**, E.J. Waterson and M.A. Cochran, SETAC Meeting.
- 2006 “Contributions of Terrigenous and Algal Derived Organic Matter to Sediments of the Mississippi River and Adjacent Gulf of Mexico.” E.J. Waterson and **E.A. Canuel***, Gordon Research Conference on Organic Geochemistry, Poster Presentation, Holderness, NH.
- 2006 Biogeochemical Effects of a Nuisance Macroalgal Crash: A Stable Isotope Tracer and Biomarker Approach”, A.K. Hardison*, **E.A. Canuel** and I.C. Anderson. Gordon Research Conference on Organic Geochemistry, Poster Presentation, Holderness, NH

- 2006 “Density Fractionations of Continental Margin Sediments” S.G. Wakeham*, I. Putnam, **E.A. Canuel**, E.J. Waterson, T. Bianchi, and T. Sampere. Gordon Research Conference on Organic Geochemistry, Poster Presentation, Holderness, NH.
- 2006 “The Biogeochemical Effects of a Nuisance Macroalgal Crash: A Field Monitoring and Mesocosm Approach”, A.K. Hardison*, I.C. Anderson and **E.A. Canuel**, Poster Presentation, LTER All Scientists Meeting, Estes Park, CO.
- 2006 “Linking community structure to carbon cycling: evidence of cascading effects in an experimental seagrass system” A.C. Spivak*, E.A. Canuel, J.E. Duffy, and P. Richardson, Ecological Society of America, Memphis TN.
- 2006 “Contributions of Terrigenous and Algal Derived Organic Matter to Sediments of the Mississippi River and Adjacent Gulf of Mexico” E.J. Waterson* and E.A. Canuel, Poster Presentation, Ocean Sciences Meeting, Honolulu, HI.
- 2006 “Density Fractionations of Continental Margin Sediments” I. Putnam, S.G. Wakeham*, E.A. Canuel, E.J. Waterson, and T. Bianchi, Poster Presentation, Ocean Sciences Meeting, Honolulu, HI.
- 2005 “Lipid Biomarker Composition of Particulate Organic Matter in Antarctic Surface Waters” E.J. Waterson*, M.A. Cochran, H.W. Ducklow and E.A. Canuel, Poster Presentation, LTER site meeting, Gloucester Pt., VA.
- 2005 “Interactions Between Benthic Community Structure and the Accumulation of Microalgal Biomass in an Experimental Seagrass System: Biomarker Insights.” **E.A. Canuel***, A.C. Spivak, E.J. Waterson and J.E. Duffy, Estuarine Research Federation Biennial Meeting, Norfolk VA.
- 2004 “Linking community structure to carbon cycling: evidence of cascading effects in an experimental seagrass system.” A.C. Spivak*, **E.A. Canuel**, J.E. Duffy, and J.P. Richardson. Estuarine Research Federation Biennial Meeting, Norfolk VA.
- 2005 “Seasonal effects of an ephemeral macroalgal bloom on water quality and sediment characteristics in a shallow coastal lagoon.” A.K. Hardison*, I.C. Anderson and **E.A. Canuel**, Estuarine Research Federation Biennial Meeting, Norfolk VA.
- 2005 “Sources Of Sedimentary Organic Matter in the Mississippi River and Adjacent Gulf of Mexico.” E.J. Waterson* and **E.A. Canuel**, Estuarine Research Federation Biennial Meeting, Norfolk VA.
- 2005 “Trophic Dynamics in Restored Seagrass Beds Using Stable Isotopes of Carbon, Nitrogen and Sulfur.” S.H. Harbeson*, R.J. Orth, J. van Montfrans, D. Combs and **E.A. Canuel**, Estuarine Research Federation Biennial Meeting, Norfolk VA.
- 2005 “Fate of Atmospherically Deposited Polycyclic Aromatic Hydrocarbons (PAHs) in Chesapeake Bay. R.M. Dickhut*, R.E. Countway, K.M. Arzayus, and **E.A. Canuel**, Estuarine Research Federation Biennial Meeting, Norfolk VA.
- 2005 “Linking community structure to carbon cycling: evidence of cascading effects in an experimental seagrass system.” A.C. Spivak*, **E.A. Canuel**, J.E. Duffy, J. P. Richardson, Ecological Society of America, Montreal, Canada.
- 2005 “Dissolved and Particulate Organic Matter Source-Age Characterization in River and Estuarine Outflow Waters: A Combined Isotope and Biochemical Approach.” A. N. Loh*, J.E. Bauer, and **E.A. Canuel**, ASLO Annual Meeting, Santiago, Spain.
- 2005 “Benthic Community Structure and Carbon Cycling: Evidence of Cascading Effects in an Experimental Eelgrass System.” A.C. Spivak*, **E.A. Canuel**, J.E. Duffy, J.P. Richardson, Benthic Ecology Meeting, Williamsburg, VA.
- 2005 “Sediment Organic Matter Composition in Eelgrass Beds: Goodwin’s Island VA.” T.

- Montgomery*, A. C. Spivak, **E. A. Canuel**, Poster Presentation, Benthic Ecology Meeting, Williamsburg, VA.
- 2004 “Biogeochemical cycling of methane in sediments overlying gas hydrates in Barkley Canyon and implications for methane flux into the water column. J. Pohlman, **E. Canuel**, L. Lapham, J. Chanton, R. Chapman, R. Coffin. Poster Presentation, Gordon Conference on Organic Geochemistry, Plymouth, NH.
- 2004 “Sources of sedimentary organic matter in the Mississippi River and adjacent Gulf of Mexico.” E. J. Waterson and **E. A. Canuel**. Poster Presentation, Gordon Conference on Organic Geochemistry, Plymouth, NH.
- 2003 “Biochemical Assessment of Particulate Organic Carbon in the Sacramento-San Joaquin River Delta- Implications for Habitat Rehabilitation and Food Web Dynamics.” V.L. Pilon* and **E.A. Canuel**, Estuarine Research Federation, Biennial Meeting, Seattle, WA.
- 2003 “Comparison of the Sources and Reactivity of Organic Matter Within a Temperate Estuary Using a Multi-Tracer Approach.” S.M. McCallister, J.E. Bauer, **E.A. Canuel**, J.E. Cherrier, and Hugh Ducklow, Estuarine Research Federation Biennial Meeting, Seattle, WA
- 2003 “A Large-scale Seagrass Restoration Program in Virginia’s Coastal Lagoons: Challenges and Opportunities.” R.J. Orth*, S.R. Marion, K.A. Moore, D.C. Combs, D.J. Wilcox, J. van Montfrans, **E.A. Canuel**. Poster Presentation, Estuarine Research Federation, Seattle, WA
- 2003 “Effects of Grazer Species Diversity on Sediment Organic Carbon Composition and Abundance.” A.C. Spivak*, **E. A. Canuel** and J. E. Duffy. Poster Presentation, Benthic Ecology Meeting, Mystic, CT.
- 2002 “Effects of Human Activities on the Composition of Organic Carbon in Estuaries: Insights Gained Through Lipid Biomarker Studies”. **E.A. Canuel**, AGU Meeting, San Francisco, CA.
- 2002 “Accumulation and Composition of Sediment Organic Carbon in Eelgrass Beds: Effects of Benthic Biodiversity and Food Web Structure on Sediment Biogeochemistry.” **E.A. Canuel**, A.C. Spivak, E.J. Waterson and J.E. Duffy. Poster presentation at Symposium on New Approaches in Marine Organic Biogeochemistry, Friday Harbor Lab, WA.
- 2002 “Sources of Particulate Organic Matter in the Sacramento-San Joaquin River Delta.” **E.A. Canuel**, V.L. Pilon, M. Ederington-Hagy, and J.E. Cloern, ASLO Meeting, Victoria, BC.
- 2002 “Flow Dynamics And Their Effect On Particulate Organic Matter Composition In The Sacramento And San Joaquin Rivers, CA” V.L. Pilon*, **E.A. Canuel**, and M. Ederington-Hagy. ASLO Meeting, Victoria, BC.
- 2001 “Organic Matter Sources in the Sacramento-San Joaquin Delta: Insights from Biomarker Studies.” **E.A. Canuel**, V. Pilon and M. Ederington-Hagy. Estuarine Research Federation, Biennial Meeting, St. Pete Beach, FL.
- 2001 “Sources and Reactivity of Organic Matter in the Sacramento-San Joaquin River Delta: Applications of Geochemical Techniques for Habitat Rehabilitation.” V. Pilon* and **E.A. Canuel**. Estuarine Research Federation, Biennial Meeting, St. Pete Beach, FL.

- 2001 “A Comparison Of Oceanic And Estuarine Particulate Organic Matter Lipid Biomarkers.” A.I. Loh*, **E.A. Canuel** and J.E. Bauer. Poster Presentation, Estuarine Research Federation, Biennial Meeting, St. Pete Beach, FL.
- 2001 “A Lipid Biomarker Approach to Assessing Differences in Sources and Reactivity of Estuarine Particulate and Dissolved Organic Matter.” S.L. McCallister*, **E.A. Canuel** and J.E. Bauer. Poster Presentation, Estuarine Research Federation, Biennial Meeting, St. Pete Beach, FL.
- 2001 “A Comparison Of Oceanic And Estuarine Particulate Organic Matter Lipid Biomarkers.” A.N. Loh, **E.A. Canuel** and J.E. Bauer. Poster Presentation, Gordon Research Conference on Chemical Oceanography, Tilton, NH.
- 2001 “Sequestration of PAHs into Non-Extractable Phases of Marine Sediments.” K.M. Arzayus*, R.M. Dickhut, **E.A. Canuel**. SETAC Annual Meeting.
- 2001 “Role of Physical Mixing on Degradation and Sequestration of Organic Matter in Marine Sediments.” K.M. Arzayus* and **E.A. Canuel**, Poster Presentation, Goldschmidt Conference, Hot Springs, VA.
- 2001 “Lipid Biomarker Compositions in Chesapeake Bay Organic Matter.” A.N. Loh*, **E.A. Canuel** and J. E. Bauer. Poster Presentation, Goldschmidt Conference, Hot Springs, VA.
- 2001 “Sources and Reactivity of Organic Matter in the Sacramento-San Joaquin River Delta: Applications of Geochemical Techniques for Habitat Rehabilitation.” V. Pilon* and **E.A. Canuel**. Atlantic Estuarine Research Society, Norfolk, VA.
- 2001 “A Lipid Biomarker Approach to Assessing Differences in Sources and Reactivity of Estuarine Particulate and Dissolved Organic Matter.” S.L. McCallister*, **E.A. Canuel** and J.E. Bauer. Poster Presentation, American Society of Limnology and Oceanography Meeting.
- 2000 “Role of Physical Mixing on Organic Matter and PAH Diagenesis in Sediments.” K.M. Arzayus*, **E.A. Canuel**, and R.M. Dickhut. Poster Presentation, Gordon Research Conference in Organic Geochemistry, Plymouth, NH
- 2000 “Role Of Physical Mixing On Organic Matter And PAH Diagenesis In Sediments.” K.M. Arzayus*, **E.A. Canuel**, and R.M. Dickhut. Poster Presentation, American Chemical Society 220th National Meeting.
- 2000 “Role Of Physical Mixing On Organic Matter And PAH Diagenesis In Sediments.” K.M. Arzayus*, **E.A. Canuel**, R.M. Dickhut. Platform Presentation, SETAC 21st Annual Meeting.
- 2000 “Sources and Reactivity of Organic Matter in The Sacramento-San Joaquin River Estuary: Applications of Geochemical Methods for Habitat Rehabilitation.” V.L.Pilon*, **E.A. Canuel** and M. Ederington-Hagy. Poster Presentation, Gordon Research Conference on Organic Geochemistry, Plymouth, NH.
- 2000 “Sources and Reactivity of Organic Matter in Shallow-Water Habitats in the Sacramento-San Joaquin River Delta.” V.L. Pilon*, **E.A. Canuel** and M. Ederington-Hagy. Poster Presentation, CALFED Science Conference, Sacramento, CA.
- 2000 “Historical Progression Of Eutrophication In The Mesohaline Chesapeake Bay: A Sediment Geochemical Record.” A.R. Zimmerman* and **E.A. Canuel**. Poster Presentation, Gordon Research Conference on Organic Geochemistry, Plymouth, NH.

- 1999 “Evidence for Phytoplankton and Plant Uptake of PAHs As A Mode of Transport to Sediments.” K.M. Arzayus, R.M. Dickhut, and **E.A. Canuel**, SETAC 20th Annual Meeting, Philadelphia, PA.
- 1999 “Sources and Distributions of Polycyclic Aromatic Hydrocarbons (PAHs) in Surface Waters of the York River Estuary.” R.E. Countway, R.M. Dickhut, and **E.A. Canuel**, Poster Presentation, SETAC 20th Annual Meeting, Philadelphia, PA.
- 1999 “Processes Controlling Distributions of PAHs in Chesapeake Bay, U.S.A. Sediments.” K.M. Arzayus*, R.M. Dickhut, and **E.A. Canuel**, Estuarine Research Federation Meeting, New Orleans, LA.
- 1999 “Benthic-Pelagic Coupling Within Lower Chesapeake Bay: Sources of Organic Matter.” M.L.Thompson*, L.C. Schaffner and **E.A. Canuel**. Poster Presentation, Estuarine Research Federation Meeting, New Orleans, LA.
- 1999 “Sources of Particulate Organic Matter in Sub-habitats of the San Joaquin-Sacramento River Delta.” M.C. Ederington-Hagy*, V.L. Pilon, and **E.A. Canuel**, Estuarine Research Federation Meeting, New Orleans, LA.
- 1999 “Biochemical Characterization of Suspended Particles and Surficial Sediments Collected from the Sacramento-San Joaquin Delta.” V.L. Pilon* and **E.A. Canuel**, Poster Presentation, Estuarine Research Federation Meeting, New Orleans, LA.
- 1999 “Automobiles as a Source of Carcinogenic Polycyclic Aromatic Hydrocarbons to Chesapeake Bay.” R.M. Dickhut*, **E.A. Canuel**, and others. Poster Presentation, Estuarine Research Federation Meeting, New Orleans, LA.
- 1999 “Sources of Suspended and Sedimentary Particulate Organic Matter in the Chesapeake Bay.” **E.A. Canuel**, ASLO Aquatic Sciences Meeting, Santa Fe, NM.
- 1999 “Applications of Microwave-Assisted Solvent Extraction (MASE) for Isolating Lipid Biomarker Compounds Associated with Estuarine Particulate Matter.” J.A. Boxwell* and **E.A. Canuel**, Poster Presentation, ASLO Aquatic Sciences Meeting, Santa Fe, NM.
- 1999 “The F.I.R.S.T. Program: Female Initiation into Research, Science and Technology.” **E.A. Canuel**, ASLO Aquatic Sciences Meeting, Santa Fe, NM.
- 1998 “Spatial and Temporal Distributions of PAHs and Organic Matter in Chesapeake Bay Sediments.” K.M. Arzayus*, **E.A. Canuel** and R.M. Dickhut. Poster Presentation, SETAC 19th Annual Meeting, Charlotte, NC.
- 1998 “Spatial and Temporal Distributions of PAHs and Organic Matter in Chesapeake Bay Sediments.” K.Y. Murray*, **E.A. Canuel** and R.M. Dickhut. Poster Presentation, Gordon Research Conference on Organic Geochemistry, Plymouth, NH.
- 1998 “An Organic Geochemical Record of Eutrophication in Chesapeake Bay Sediments.” A.R. Zimmerman* and **E.A. Canuel**, Poster Presentation, Gordon Research Conference on Organic Geochemistry, Plymouth, NH.
- 1997 “A Geochemical Record of Eutrophication in Chesapeake Bay Sediments.” A.R. Zimmerman* and **E.A. Canuel**, Estuarine Research Federation Meeting, Providence, RI.
- 1997 “Organic Geochemical Evidence for Increasing Eutrophication in Chesapeake Bay: A 200 Year Sediment Record.” A.R. Zimmerman* and E.A. Canuel, AGU Spring Meeting, Baltimore, MD.
- 1997 “Composition of Particulate Organic Matter in the Lower Chesapeake Bay. Sources and Reactivity.” E.A. Canuel, A.R. Zimmerman, and S.T. Burcham. Poster Presentation, ASLO Aquatic Sciences Meeting, Santa Fe, NM.

- 1997 “Tidal Cycle Variations of Particle Associated Contaminants in the Southern Chesapeake Bay.” G.M. Edgecombe, J. Gosz, K. Liu, R. Dickhut, and **E. Canuel**, Poster Presentation, ASLO Aquatic Sciences Meeting, Sante Fe, NM.
- 1996 “Biomarker Determination of Sources of Particulate Organic Matter in Estuarine Systems: Comparisons between San Francisco Bay and the Chesapeake Bay.” **E.A. Canuel**, Poster Presentation, Gordon Research Conference in Organic Geochemistry, Plymouth, NH.
- 1996 “Tracing Benthic Microalgal Production in Estuarine Food Webs with Multiple Stable Isotopes. C. Currin*, J. Cambalik, and **E. Canuel**. Stable Isotopes and the Integration of Biological, Ecological and Geochemical Processes Conference, Newcastle upon Tyne, UK.
- 1994 “Variations in Organic Matter Inputs to the San Francisco Bay Estuary.” **E.A. Canuel** and J.E. Cloern, AGU-ASLO Ocean Sciences Meeting, San Diego, CA.
- 1993 “Application of Isotopic and Molecular Biomarkers to Understanding Trophic Relationships in San Francisco Bay.” **E.A. Canuel**, J.E. Cloern, D.B. Ringelberg, J.B. Guckert, and G.H. Rau. ASLO & SWS 1993 Annual Meeting, Edmonton, Canada.
- 1992 “Differential Reactivity of Lipid Biomarker Compounds Associated with Recently-deposited Coastal Sediments.” **E.A. Canuel** and C.S. Martens. Poster Presentation, Gordon Research Conference in Organic Geochemistry, Plymouth, NH.
- 1992 “Seasonal Variations in Rates of Sediment Accumulation and Bacterial Sulfate Reduction: Implications for the Diagenesis of Recently-deposited Lipid Biomarker Compounds.” **E.A. Canuel** and C.S. Martens, AGU Ocean Sciences Meeting, New Orleans, LA.
- 1991 “Bacterial Degradation and Synthesis of Lipid Constituents Associated with Recently-deposited Sediment.” **E.A. Canuel** and C.S. Martens. ACS Symposium on Marine Organic Chemistry, Atlanta, GA.
- 1990 “Seasonal Variations in the Distribution of Lipid Components Associated with Newly-deposited Particulate Matter.” **E.A. Canuel** and C.S. Martens. Poster Presentation, Gordon Research Conference in Organic Geochemistry, Plymouth, NH.
- 1989 “Seasonal Variations in Particulate Matter Delivery to a Coastal Sedimentary Environment.” **E.A. Canuel** and C.S. Martens. Poster Presentation, Gordon Research Conference in Chemical Oceanography, Tilton, NH.

Unrefereed publications not listed above

- Canuel, E.A.** (2007) Book Review: Molecular Geomicrobiology. *Org. Geochem.*,
- Canuel, E.A.** (2005) Invited autobiography, *Women in Oceanography*, *Oceanography* 18(1): 85.
- Canuel, E.A.**, T.A. Abrajano, T.S. Bianchi, and S.A. Macko (2003) Introduction to “Sources and Fate of Biogenic and Anthropogenic Organic Matter in Freshwater and Estuarine Systems.” Guest Edited issue of *Organic Geochemistry* 34:163.
- Riisgard, H.U. and contributors (2003) Misuse of the peer-review system: time for countermeasures? *Marine Ecol. Prog. Series*, 258: 297-309.
- Bianchi, T.S. and **Canuel, E.A.** (2001) Introduction to “Organic Geochemical Tracers in Estuaries.” Guest Edited issue of *Organic Geochemistry* 32:451.

- Canuel, E.A.**, 1999. Sources of organic matter in the Delta as inferred through the use of biomarkers. Interagency Ecological Program for the Sacramento - San Joaquin Estuary Newsletter. Winter, 1999.
- Curran, C.A., **E.A. Canuel**, and S.B. Joye, 1995. Preliminary estimates of intertidal benthic microalgal production. Interagency Ecological Program for the Sacramento-San Joaquin Estuary Newsletter. Winter, 1995.

Research reports from grant or contract work

- Canuel, E.A.** and R.J. Orth. Use of Stable Isotopes for Developing a Food Web Model in a Recovering Seagrass System in Virginia Coastal Bay. Final Report submitted to: NOAA VCR. December 2002.
- Canuel, E.A.**, R.M. Dickhut and S.A. Kuehl. The Role of Seabed Dynamics in Controlling the Distribution and Preservation of Polycyclic Aromatic Hydrocarbons (PAHs) in Estuarine Sediments. Final Report submitted to Office of Naval Research, Harbor Processes Program. December 2001.
- Canuel, E.A.**, 2000. Sources of Particulate and Sedimentary Organic Matter in the Chesapeake Bay Estuary: A Biomarker Approach. Final Report submitted to NSF Chemical Oceanography Program, Ocean Sciences Division, November 2000.
- Canuel, E.A.** and R.M. Dickhut, 1998. Particulate organic matter-contaminant associations at the water-sediment interface: Biological and physical controls. Final Report submitted to Harbor Processes Program, Office of Naval Research, December 1998.
- Canuel, E.A.**, 1997. Sources and reactivity of organic matter in San Francisco Bay: The roles of hydrologic regime and autochthonous production. Final Data Report submitted to California Department of Water Resources, December 1997, 65 p.
- Canuel, E.A.**, I. Anderson, and C. Tobias, 1997. Organic carbon abundance, distribution and metabolism at the Oyster, Virginia study site. Final Data Report submitted to the Batelle Pacific Northwest National Laboratory, June 1997, 32 p.
- Canuel, E.A.**, A.R. Zimmerman, and S.T. Burcham, 1996. Lipid biomarker composition of particulate organic matter in the lower Chesapeake Bay. Final Data Report submitted to Virginia Water Resources Research Center, October 1996, 72 p.
- Cloern, J.E., **E.A. Canuel**, and S.M. Wienke, 1993. Particulate organic matter in the San Francisco Bay estuary California: Chemical indicators of its origin and assimilation into the benthic food web. U.S. Geological Survey, Open-File Report 93-146, 46 p.

Work in progress or submitted

- Salisbury, S.K., E.A. Canuel, I.C. Anderson and C.R. Tobias (in prep.) Dynamics and composition of extracellular polymeric substances produced by benthic microalgae. For submission to: *Coasts and Estuaries*

PROFESSIONAL SERVICE

College-wide committee service

- Member, Class of 2015 Professorship Committee, Spring 2012

Member, Class of 2014 Professorship Committee, Spring 2011
Member, Planning Steering Committee, 2010-present
Member, Ad Hoc Committee for Interdisciplinary Environmental Activities, 2009-2010
Co-Chair, Undergraduate Minor in Marine Science Advisory Committee, July 2009-present
Member, Committee for Continuous Improvement, 2009-present (inactive during 2010-2012)
Member, Jefferson Awards Selection Committee, 2006 and 2009
Secretary, Faculty Assembly, 2006-2007
Member, Inaugural Committee for President Gene Nichol, 2005-2006
Member, Honorary Degrees Committee, 200.
Member, Search Committee for W&M President, August 2004 to May 2005
Secretary, Faculty Assembly. 2004-2005
SMS Representative, Faculty Assembly, August 2002 to June 2008
Member, Executive Committee of the Faculty Assembly. August 2002 to June 2008
Member, Liaison Committee of the Faculty Assembly. August 2002 to June 2008
Member, Academic Affairs Committee of the Faculty Assembly. August 2002-June 2008
Participant, University Teaching Project, W&M, 1998-1999
W&M Women's Studies Committee (SMS representative), September 1994 - June 1998
Swem Library (SMS representative), September 1997-June 2000

School of Marine Science/VIMS Governance

Chair, Search Committee for faculty positions in Marine Chemistry, 2012-2013
Member, Search Committee for faculty positions in Marine Geology, 2011-2012
Chair, Committee for Administrative Evaluation of John Wells, Spring 2011
Academic Status & Degrees Committee, DPS Representative, 2010-present
Academic Council, DPS Alternate Representative, 2010-present
Member, Steering Committee for Strategic Planning, 2007-2008
Member, Search Committee for Assistant to Director for Development, 2007-2008
Member, Committee for Administrative Evaluation of John Wells, 2006-2007.
Chair, Search Committee for Director of Development, August 2005-February 2006.
Academic Council
 Chair, July 2002-June 2008
 Dept. Physical Sciences Representative, July 1996-June 2002
 Dept. Physical Sciences Alternate Representative
 July 2009-present
 July 1995- June 1996
Advisory Committee for Marine & Environmental Policy Program, 2005-2006.
Faculty Status & Tenure Review Committee, Dept. Physical Sciences Representative,
 July 2001- June 2004
Member, Ad hoc Committee to advise Dean/Director, 2002.
Professional Faculty Review Committee, ITNS Director, 2001-2002.
Faculty Council, Academic Council Representative, July 2002 to June 2008
Participant, Faculty Retreat, Upper Brandon, October 2001; October 1999
Chair, Research Mission Working Group and lead author of white paper presented at Upper
 Brandon, October 1999
Member, Administrative Evaluation Committee for Dean L. Donelson Wright, 1999
VIMS/SMS Seminar Committee

Department Physical Sciences Representative, July 1997- June 2000
Chair, January 1995 through June 1997
Library Policy Committee
Chair, September 1997-June 2000
Departmental Representative, September 1994-June 2000
VIMS Analytical Service Lab Advisory Committee
Served on Search Committees for the Following Faculty Positions:
Inorganic Geochemist, Fall 2006-Spring 2007
Inorganic Geochemist, Fall 2001 (search was suspended due to budget cuts)
Dean of Graduate Studies, Spring 2002
Dean of Graduate Studies, Summer 1999
Coastal Physical Oceanographer, Summer, 1996
Estuarine Ecologist/Ecosystem Modeler, Spring 1996

Editorial Board Services, review panels, program reviews, national or international research programs

Editorial Board Services

Associate Editor, *Organic Geochemistry*, January 2001-present
Associate Editor, *Limnology & Oceanography*, May 2003-2007

Guest Editorships

Organic Geochemical Tracers in Estuaries, *Organic Geochemistry Vol. 32, 2001*.
Sources and Fate of Biogenic and Anthropogenic Organic Matter in Freshwater and Estuarine Systems. *Organic Geochemistry Vol. 34, 2003*.

Review Panels:

EPA STAR Graduate Fellowships, Water Quality: Hydrogeology and Surface Water- Category, Panel Participant, February 2011
NSF DEB Ecosystems Program, April 2008
NSF DEB Ecosystems Program, November 2006
NSF Biological Oceanography Program, May 2006
NSF COSEE Program, May 2005
NASA Carbon Cycle Science, May 2004
NSF CAREER Program, Ocean Sciences Division
Proposal Review Panel, November 1999
Proposal Review Panel, November 2000

Proposal Reviews:

National Science Foundation
Ocean Sciences Division:
2012 (5), 2011 (4), 2010 (3), 2009 (4), 2008 (3), 2007 (5), 2006 (13), 2005 (3), 2004 (3), 2003 (3), 2002 (1), 2001 (1), 2000 (5), 1999 (4), 1998 (3), 1997 (1), 1996 (1), 1995 (1)
Antarctic Organisms & Ecosystems: 2011 (1)
Division of Environmental Biology-Ecosystems Program:

2012 (1), 2010 (1), 2008 (22), 2007 (1), 2006 (23), 2005 (3)
EAR - Hydrologic Sciences: 2011 (1)
Environmental Geochemistry: 2006 (1)
Geology & Geophysics: 2009 (1)
Geology and Paleontology: 2002 (1)
Office of Polar Programs: 2008 (1), 2006 (1), 1997 (1)
Atmospheric Sciences Division: 2003 (1), 1998 (1), 1997 (1)
CAREER: 2003 (1), 2000 (15), 1999 (18), 1998 (1)
International Programs: 2003 (1), 2002 (1), 2000 (1)
Paleoclimate Program: 2003 (1), 2000 (1)
Geosciences MRI Program: 2008 (1); 2005 (1)
MRI-R2: 2009 (2)
STC: 2009 (1)

AAAS WISC: (1)
ACS Petroleum Research Fund: 2006 (1), 2005 (2), 2004 (1), 2003 (2), 2002 (2),
2001 (1)
Danish Council for Independent Research: 2012 (1)
Delta Science Program CA: 2011 (1)
Environmental Protection Agency: 2000 (1)
Heisenberg Foundation: 2008 (1)
Jeffress Memorial Trust: 2002 (1)
NERC, UK: 2008 (1), 2006 (1)
NIOZ Royal Netherlands Institute for Sea Research, The Netherlands: 2012 (1)
NOAA Coastal Ocean Program: 2005 (1)
NOAA Climate and Global Change: 2003 (1)
NOAA Office of Ocean Exploration: 2002 (1)
NWO/Earth and Life Sciences Proposal, Netherlands: 2012 (1), 2003 (1), 2002 (1)
NSERC, Canada: 2006 (1)
Oxford University Press: 2002
Sea Grant: 2008 (1), 2001(1), 1996 (1)

External Reviewer for Tenure/Promotion Candidates:

2013: 2 candidates
2011: 3 candidates
2010: 1 candidate
2008: 3 candidates
2007: 2 candidates
2006: 3 candidates

Workshops:

Participant, U.S. East Coast Carbon Cycle Synthesis Workshop, Virginia Institute of
Marine Science, January 2012.
Invited Participant, “*Emerging Capabilities in Compound-Specific Radiocarbon Analysis
in the Oceans*” National Ocean Sciences Accelerator Mass Spectrometry Facility
(NOSAMS), Woods Hole Oceanographic Institution, June, 2010.

- Invited Participant, *MARGINS S2S Synthesis and Integration Workshop*, Gisborne, New Zealand, April, 2009.
- Invited Participant, *Thresholds and Non-Linear Trajectories in Recovery of Eutrophic Coastal Ecosystems*, February 2007, Annapolis, MD.
- Invited Participant, Symposium on New Approaches in Marine Organic Biogeochemistry, Friday Harbor Lab, August 2003.
- Invited Speaker and Participant, "*Response of Aquatic Food Webs to Nutrient Enrichment: Assessing the State of the Science.*" US EPA, Gulf Breeze, FL, March 2005.
- Invited Participant, NSF Margins Workshop – Waipaoa Focus Area (Source-to-Sink), New Zealand, May 2003.
- Invited Participant, RioMar Workshop, Sponsored by National Science Foundation, October 2001.
- Invited Participant, Harbor Processes Program Workshop, Sponsored by Office of Naval Research, June 2001.
- Invited Participant, Harbor Processes Program Workshop, Office of Naval Research, November, 1999.
- Invited Participant, CALFED PIs Workshop, U.S. Geological Survey, September, 1999.
- Invited Participant, Chinese-American Frontiers of Science Symposium, Co-sponsored by U.S. National Academy of Sciences and the Chinese Academy of Sciences, Beijing China, August, 1999.
- Invited Participant, Workshop on the Use of Chemical Markers in Historical Environmental Assessments, U.S. EPA, Narragansett, RI, April, 1999.
- Invited Participant, CAREER Program P.I. Meeting, National Science Foundation, January, 1999.
- Invited Participant, Harbor Processes Program Workshop, Office of Naval Research, May, 1998.
- Invited Participant, Future of Chemical Oceanography in the U.S. (FOCUS), National Science Foundation, Rapporteur for Education Issues, 5-9 January, 1998.
- Invited Participant, Harbor Processes Program Workshop, Office of Naval Research, April, 1996.
- Invited Participant, Bacterial Origins Workshop, Subsurface Science Program, Dept. of Energy, Portland, Oregon, July, 1995.

Journal Article Reviews:

- 2012 *Progress in Oceanography* (1), *Marine Geology* (1)
- 2011 *Geochimica Cosmochimica Acta* (2), *Marine Chemistry* (1), *Geophysical Research Letters* (1), *Frontiers in Ecology and the Environment* (1), *Organic Geochemistry* (2)
- 2010 *ES&T* (1), *Geochimica Cosmochimica Acta* (2), *Ecology Letters* (1),
- 2009 *Limnology & Oceanography* (2)
- 2008 *Geochimica Cosmochimica Acta* (1), *ES&T* (1), *Ecology Letters* (1), *Organic Geochemistry* (1)
- 2007 *Marine Chemistry* (1), *Ecology Letters* (1), *Estuaries* (1), *Cont. Shelf Res.* (1)
- 2006 *Continental Shelf Research* (1)
- 2005 *Biogeosciences Discussions* (1)
- 2004 *Geochimical et Cosmochimica Acta* (1)

- 2003 *Environmental Science & Technology* (1), *Limnology & Oceanography* (1),
Estuarine Coastal and Shelf Science (1)
- 2002 *Marine Chemistry* (3), *Limnology & Oceanography* (2), *Marine Ecology
Progress Series* (1), *Estuarine Coastal and Shelf Science* (1)
- 2001 *Organic Geochemistry* (13), *Marine Chemistry* (3), *Limnology &
Oceanography* (1), *Estuarine Coastal and Shelf Science* (1), *Paleobiology* (1)
- 2000 *Geochimica Cosmochimica Acta* (2), *Estuaries* (2), *Estuarine Coastal and
Shelf Science* (2), *Limnology and Oceanography* (1), *Organic Geochemistry*
(10)
- 1999 *J. Marine Research* (1), *Marine Chemistry* (2), *Geology* (1), *Estuaries* (1),
Organic Geochemistry (1), *Continental Shelf Research* (1), *Limnology and
Oceanography* (1)
- 1998 *Geology* (2), *Organic Geochemistry* (2), *Geochimica et Cosmochimica Acta*
(1), *Paleoceanography* (1), *Estuaries* (1), *Limnology and Oceanography* (1)
- 1997 *Marine Chemistry* (2), *Nature* (2), *Estuarine, Coastal and Shelf Science*
(1)
- 1996 *Organic Geochemistry* (2), *Marine Chemistry* (3), *Estuarine, Coastal, and
Shelf Science* (1), ACS Symposium Volume (1)
- 1995 *Organic Geochemistry* (1), *Marine Chemistry* (1), *Geochimica et
Cosmochimica Acta* (1), *Limnology and Oceanography* (1)
- 1994 *Geochimica et Cosmochimica Acta* (2), *Limnology and Oceanography* (1)
Marine Ecology Progress Series (1), *Marine Environmental Research* (1)

Service to Professional Societies

Geochemical Society

- Organic Geochemistry Division, Past-Chair, January 2012-present
Organic Geochemistry Division, Chair, January 2010-December 2011
Organic Geochemistry Division, Chair-Elect, January 2008- December 2009

Member, Board of Directors, January 2010-December 2011

Session Organizer, Goldschmidt Conference, 2001
“Organic Geochemical Applications to Freshwater and Estuarine Systems”

American Geophysical Union

- Ocean Sciences – Secretary Marine Geochemistry (re-elected), 2010-present
Ocean Sciences – Secretary Marine Geochemistry, 2008-2010
Ocean Sciences Executive Committee: 2008-present

Fall Meeting Organizing Committee, Ocean Sciences Section, Fall 2012
Fall Meeting Organizing Committee, Ocean Sciences Section, Fall 2010
Fall Meeting Organizing Committee, Ocean Sciences Section, Fall 2009
Fall Meeting Organizing Committee, Ocean Sciences Section, Fall 2008

American Association for the Advancement of Science (AAAS)

Nominating Committee, Section E, Geology & Geography: 2008-2011

American Society of Limnology & Oceanography (ASLO)

Session Co-Chair, "Linking Biogeochemical Processes to Estuarine Physical Dynamics", 2012 Ocean Sciences Meeting
Lindemann Award Selection Committee, 2004-2011
Associate Editor, *Limnology & Oceanography*, 2003-2007
Future of ASLO Committee, 1996
Finance Committee, 1995-2000

Estuarine Research Federation

Session Co-Organizer: Interactions with Estuarine Chemistry, ERF Biennial Meeting, October 2005.
Session Co-Chair, ERF '99 Meeting, September 1999.
"Biomarkers in Estuarine Science."

Session Chair, Hot Topics in Organic Biogeochemistry, Gordon Research Conference on Organic Geochemistry, August 2004.

Session Chair, AGU-ASLO Ocean Sciences Meeting, February 1994.
"Coastal and Estuarine Waters I. Processes Affecting Fluxes."

ADVISORY SERVICE ACTIVITY

Advisory service

2013-present Member, Algal Turf Scrubber Expert Panel, Watershed Technical Workgroup, Chesapeake Bay Program
2010-present Delta Independent Science Board, Sacramento-San Joaquin River Delta, CA
2008-present Advisory work related to algal biofuels including presentations to Virginia Coastal Energy Research Consortium (VCERC), Hampton Roads Research Partnership, VIMS Council, VIMS Industry Partnership, Garden Club of Virginia
2006 STAC DON working group. Bioavailability of organic nitrogen in wastewater streams. Margaret R. Mulholland, Nancy G. Love, Vikram M. Pattarkine, Deborah A. Bronk, Elizabeth A. Canuel.

Public outreach

2012 Met with delegation from University of Electronic Science and Technology of China
2011 Presenter, VIMS Marine Sciences Day
2010 Presenter, VIMS Marine Sciences Day
2009 Speaker, VIMS Marine Sciences Day
2008 Speaker, VIMS After-Hours Lecture Series
2008 Speaker, Christopher Wren Society, College of William & Mary
2008-2010 Board Member, Gloucester Montessori School
2002-2004 VIMS representative, Northern Neck-Middle Peninsula Public Education Consortium
2002-2006 Board Member, Gloucester Montessori School
2001-2002 Mentor, New Horizons Governor's School for Science & Technology,
2000 Lab Tour, H.S. girls visiting from Massaponax High School

- 2000 Panelist, "Brave New World: Preparing Girls and Women for the New Technologies." Sponsored by Girls, Inc. and U.S. Dept. of Labor.
- 2000 Poster Presentation, Packard Foundation Visit, W&M.
- 2000 Met with faculty from Thomas Jefferson High School, Arlington VA.
- 2000 F.I.R.S.T. Program Presentation at Women's Studies Conference, W&M.
- 1999-2001 F.I.R.S.T. Program visits to Dept. of Ocean, Earth, and Atmospheric Sciences/CCPO, Old Dominion University, VA.
- 1999 Speaker, New Horizons Governor's School for Science and Technology.
- 1999 Science Judge, Blue Crab Bowl, Mid-Atlantic Regional National Ocean Sciences Bowl.
- 1999 Speaker, Girl Scouts, Gloucester VA.
- 1997 Speaker, Girl Scout Career Day, Gloucester, VA.
- 1997 Presentation Evaluator, New Horizon's Governor's School for Science and Technology, Hampton, VA.
- 1997 Lab Tour to Lady Margaret Thatcher, Chancellor of the College of William and Mary.
- 1997-2001 Developed and directed the Female Initiation into Research, Science and Technology (F.I.R.S.T.) Program. Funded through NSF CAREER Program, Ocean Sciences Division.