

## Curriculum Vitae: Dr. Andrew S. Wozniak

### Andrew S. Wozniak, Ph.D.

Research Assistant Professor  
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Old Dominion University  
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### EDUCATION

University of Virginia	Biology	B.A. 2000
University of Rhode Island	Biological Oceanography	M.S. 2004
	Dr. Charles T. Roman, advisor	
College of William and Mary	Marine Science/Chemical Oceanography	Ph.D. 2010
	Drs. James E. Bauer and Rebecca M. Dickhut, Co-advisors.	

### APPOINTMENTS

2012- Self Supporting Research Professional/*Research Assistant Professor*, Department of Chemistry and Biochemistry, Old Dominion University

2011-2013 *Visiting Assistant Research Scientist*, Physical Sciences Department, Virginia Institute of Marine Science, College of William and Mary

2009-2012 *Post-doctoral Researcher*, Department of Chemistry and Biochemistry, Old Dominion University, Dr. Patrick G. Hatcher, advisor.

### PEER-REVIEWED PUBLICATIONS

1. Graves, J. E., **A. S. Wozniak**, R. M. Dickhut, M. A. Cochran, E. H. Macdonald, E. O. Bush, H. Arrizabalaga, and N. Goñi. 2015. Trans-Atlantic movements of juvenile Atlantic bluefin tuna inferred from analyses of organochlorine tracers. *Canadian Journal of Fisheries and Aquatic Sciences*, **72**: 1–9 (2015) dx.doi.org/10.1139/cjfas-2014-0305
2. Gurganus, S. C., **A. S. Wozniak**, and P. G. Hatcher. 2015. Molecular characteristics of the water soluble organic matter in size resolved aerosols collected over the North Atlantic Ocean. *Marine Chemistry* 170, 37-48, doi:10.1016/j.marchem.2015.01.007.
3. **Wozniak, A. S.**, R. U. Shelley, S. M. McElhenie, A. S. Willoughby, W. M. Landing, P. G. Hatcher. 2015. Insights into potential Fe-binding aerosol water soluble organic ligands from the 2011 US GEOTRACES cruise. *Marine Chemistry*, 173, 162-172, doi:10.1016/j.marchem.2014.11.002.
4. Willoughby, A. S., **A. S. Wozniak**, and P. G. Hatcher. 2014. A molecular-level approach for characterizing water-insoluble components of ambient organic aerosol particulates using ultra-high resolution mass spectrometry. *Atmospheric Chemistry and Physics*, 14, 10299-10314, doi:10.5194/acpd-14-10393-2014.
5. **Wozniak, A.S.**, A. S. Willoughby, S. C. Gurganus, P. G. Hatcher. 2014. Distinguishing molecular characteristics of aerosol water soluble organic matter from the 2011 trans-North Atlantic US GEOTRACES cruise. *Atmospheric Chemistry and Physics*, 14, 8419-8434, doi:10.5194/acp-14-8419-2014.
6. Hauser, E. A., R. M. Dickhut, R. A. Falconer, and **A. S. Wozniak**. 2013. An improved method for quantification of volatile organic carbon air-sea fluxes. *Limnology & Oceanography: Methods*, 11, 287-297, DOI: 10.4319/lom.2013.11.287.

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7. Meskhidze, N., M. D. Petters, K. Tsigaridis, and 40 others (including **A. S. Wozniak**). 2013. Production mechanisms, number concentration, size distribution, chemical composition, and optical properties of sea spray aerosols. *Atmospheric Science Letters*, DOI: 10.1002/asl12.441.
8. Mitra, S., **A. S. Wozniak**, R. Miller, P. G. Hatcher, C. Buonassisi, M. Brown, 2013. Multiproxy probing of rainwater dissolved organic matter (DOM) composition in storms as a function of trajectory. *Marine Chemistry*, 154, 67-76.
9. **Wozniak, A. S.**, R. L. Sleighter, H. Abdulla, A. S. Priest, P. L. Morton, R. U. Shelley, W. M. Landing, and P. G. Hatcher, 2013. Relationships among aerosol water soluble organic matter, iron and aluminum in European, North African, and Marine air masses from the 2010 US GEOTRACES cruise. *Marine Chemistry*, 154, 24-33.
10. Sleighter, R. L., H. Chen, **A. S. Wozniak**, A. S. Priest, P. Caricasole, and P. G. Hatcher. 2012. Establishing a measure of reproducibility of ultrahigh resolution mass spectra for complex mixtures of natural organic matter. *Analytical Chemistry*, 84, 9184-9191, DOI: 10.1021/ac3018026.
11. **Wozniak, A. S.**, J. E. Bauer, R. M. Dickhut, A. P. McNichol, and L. Xu. 2012. Isotopic characterization of organic carbon and its components in eastern United States aerosol particulate matter, *Journal of Geophysical Research-Atmospheres*, VOL. 117, D13303, doi:10.1029/2011JD017153, 2012.
12. **Wozniak, A. S.**, J. E. Bauer, and R. M. Dickhut. 2012. Characteristics of water-soluble organic carbon associated with aerosol particles in the eastern United States, *Atmospheric Environment* 46, 181-188.
13. **Wozniak, A. S.**, J. E. Bauer, and R. M. Dickhut. 2011. Fossil and contemporary aerosol particulate organic carbon in the eastern United States: Implications for deposition and inputs to watersheds. *Global Biogeochemical Cycles*, VOL. 25, GB2013, 14 PP., 2011doi:10.1029/2010GB003855.
14. Kroll J. H., N. M. Donahue, J. L. Jimenez, S. H. Kessler, M. R. Canagaratna, K. R. Wilson, K. E. Altieri, H. Bluhm, L. R. Mazzoleni, E. R. Mysak, J. D. Smith, **A. S. Wozniak**, C. E. Kolb, and D. R. Worsnop. 2011. Carbon oxidation state and the chemistry of atmospheric organic aerosol, *Nature Chemistry*, 133-139, doi:10.1038/NCHEM.948.
15. **Wozniak, A. S.**, J. E. Bauer, R. L. Sleighter, R. M. Dickhut, and P. G. Hatcher. 2008. Molecular characterization of aerosol-derived water soluble organic carbon using ultrahigh resolution electrospray ionization Fourier transform ion cyclotron resonance mass spectrometry. *Atmospheric Chemistry and Physics*. 8, 5099-5111.
16. **Wozniak, A. S.**, C. T. Roman, S. C. Wainright, R. A. McKinney, and M.-J. James-Pirri. 2006. Monitoring food web changes in tide-restored salt marshes: a carbon stable isotope approach. *Estuaries and Coasts* 29: 568-578.

### MANUSCRIPTS IN PREPARATION

1. R. U. Shelley, **Wozniak, A. S.**, P. G. Hatcher, and W. M. Landing. Organic and inorganic aerosol fingerprints for emission sources to the marine environment. *In preparation for Frontiers in Marine Chemistry*.
2. Willoughby, A. S., **A. S. Wozniak**, P. G. Hatcher. A combined fluorescence and mass spectrometric characterization of organic aerosols from multiple sources. *In preparation for Atmospheric Environment*.

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### CURRENT, PENDING, AND PAST FUNDING

1. NOAA/NMFS – Bluefin Tuna Research Program: Temporal variability of stock mixing within the western North Atlantic recreational fishery for school bluefin tuna determined by organochlorine tracer analysis, J. E. Graves (PI, VIMS), **A. S. Wozniak** (co-PI), D. J. Velinsky (co-PI, Drexel University), \$218,394, submitted September, 2014.
2. NSF EAR – Geobiol & Low Temp Geochem: Collaborative Research: Dissolved pyrogenic organic matter dynamics in the environment, A. Zimmerman (lead PI, U. Florida), S. Mitra (PI, E. Carolina U.), **A.S. Wozniak** (PI, ODU, \$176,888 to ODU), and P.G. Hatcher (co-PI, ODU), June 1, 2015 to May 31, 2018.
3. NSF AGS: Role of organic matter in determining the solubility of atmospherically delivered iron, (\$367,104, *NSF Chemical Oceanography program, OCE-1234166*), **A. S. Wozniak** (PI ODU), P. G. Hatcher. September, 2012 – August, 2015.
4. NOAA/NMFS Bluefin Tuna Competitive Research Grants (administered by Virginia Polytechnic Institute and State University): Use of Organochlorine Tracer Analysis to Determine the Magnitude and Temporal Variation of Mixing Rates of Eastern and Western School Size Bluefin Tuna in the Western Atlantic Recreational Fishery for School Bluefin Tuna, J. E. Graves (College of William & Mary, VIMS, PI), **A. S. Wozniak** (ODU, co-PI, \$33,859.63 to ODU)

### RECENT PRESENTATIONS, CONFERENCE PROCEEDINGS, AND INVITED TALKS

1. **Wozniak, A.S.**, A. S. Willoughby, S. D. McElhenie, P. G. Hatcher, P. K. Quinn, D. J. Coffman, 2015. *An ultrahigh resolution mass spectrometry study of sea spray aerosol water soluble and water insoluble organic matter composition*, American Chemical Society, National Meeting and Exposition, Denver, CO.
2. **Wozniak, A.S.**, 2015. *An ultrahigh resolution mass spectrometry study of sea spray aerosol water soluble and water insoluble organic matter composition*, Data Meeting of the Western Atlantic Climate Study 2, Beaufort, NC.
3. **Wozniak, A. S.** 2014. *Ultrahigh resolution mass spectrometry studies of organic aerosol molecular composition*, Drexel University Chemistry Department Seminar Series, Philadelphia, PA.
4. McElhenie, S. D., **A. S. Wozniak**, R. U. Shelley, W. M. Landing, and P. G. Hatcher. 2014. *Source-specific characteristics of aerosol organic matter over the North Atlantic Ocean: Implications for the identity of iron binding ligands*, Ocean Sciences Meeting, Honolulu, HI.
5. **Wozniak, A. S.**, R. U. Shelley, S. D. McElhenie, W. M. Landing, and P. G. Hatcher. 2014. *Aerosol water soluble organic matter molecular characteristics and iron solubility from the 2010-11 US GEOTRACES cruises in the North Atlantic Ocean*, Ocean Sciences Meeting, Honolulu, HI.
6. **Wozniak, A. S.**, S. C. Gurganus, S. D. McElhenie, R. L. Sleighter, and P. G. Hatcher, 2013. *Molecular characteristics of aerosol water soluble organic matter from the 2010-11 US GEOTRACES cruises in the North Atlantic Ocean*. American Geophysical Union Fall Meeting, San Francisco, CA.
7. Graves, J. E., **A. S. Wozniak**, H. Arrizabalaga, and N. Goñi, 2013. *Trans-Atlantic movements of juvenile Atlantic bluefin tuna inferred from analyses of organochlorine tracers*. ICCAT, SCRS/2013/092.

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8. Graves, J. E., **A. S. Wozniak**, 2013. *Trans-Atlantic movements of juvenile Atlantic bluefin tuna inferred from analyses of organochlorine tracers*. The Tuna Conference, Lake Arrowhead, CA.
9. **Wozniak, A. S.**, R. U. Shelley, S. C. Gurganus, A. S. Willoughby, R. L. Sleighter, H. A. N. Abdulla, W. M. Landing, P. G. Hatcher, 2013. *Exploring the relationships between organic matter molecular characteristics and trace metal solubilities of combustion- and dust-influenced marine aerosols*. American Society of Limnology and Oceanography Aquatic Sciences Meeting, New Orleans, LA.
10. Gurganus, S. C., **A. S. Wozniak**, R. U. Shelley, A. S. Willoughby, R. L. Sleighter, H. A. N. Abdulla, W. M. Landing, and P. G. Hatcher, 2013. *Trace metal and organic matter characteristics of aerosols from primarily marine air mass sources*. American Society of Limnology and Oceanography Aquatic Sciences Meeting, New Orleans, LA.
11. Willoughby, A. S., **A. S. Wozniak**, H. A. N. Abdulla, and P. G. Hatcher, 2013. *Chemical characterization of chromophoric organic matter in ambient aerosols using UV-vis, NMR and ESI-FTICR-MS*. American Society of Limnology and Oceanography Aquatic Sciences Meeting, New Orleans, LA.
12. Mitra, S., **A. S. Wozniak**, R. Miller, P. G. Hatcher, and E. R. M. Druffel, 2013. *Marine-to-land atmospheric transport of organic matter in coastal areas*. American Society of Limnology and Oceanography Aquatic Sciences Meeting, New Orleans, LA.
13. **Wozniak, A. S.**, R. U. Shelley, R. L. Sleighter, H. A. Abdulla, P. M. Morton, W. M. Landing, and P. G. Hatcher, 2012. *Aerosol organic matter-trace metal relationships revealed by <sup>1</sup>H NMR spectroscopy*. Marine Aerosol Workshop, Raleigh, NC.
14. Priest, A. S., **A. S. Wozniak**, and P. G. Hatcher, 2011. *Characterization of water-insoluble aerosol organic matter by ultra-high resolution mass spectrometry*. American Geophysical Union Fall Meeting, San Francisco, CA.
15. **Wozniak, A. S.**, R. L. Sleighter, P. M. Morton, R. L. Shelley, W. M. Landing, and P. G. Hatcher, 2011. *Aerosol organic matter-trace metal relationships revealed by ultra-high resolution mass spectrometry*. American Geophysical Union Fall Meeting, San Francisco, CA.
16. **Wozniak, A. S.**, 2011. *Quantities and characteristics of atmospheric particulate organic matter in the eastern United States: Implications for fossil and contemporary organic carbon inputs to coastal watersheds and rivers*. University of South Florida Marine Science Seminar Series, St. Petersburg, FL.
17. **Wozniak, A. S.**, 2010. *Deposition and characterization of aerosol organic matter in the eastern United States*, Dissertations in Chemical Oceanography (DISCO) XXII Symposium, Honolulu, HI.
18. **Wozniak, A. S.**, J. E. Bauer, R. M. Dickhut, P. G. Hatcher, R. L. Sleighter, E. E. Keesee, 2010. *Deposition and characterization of aerosol organic carbon to coastal watersheds of the eastern United States*, Ocean Sciences Conference, Portland, OR.
19. Hatcher, P. G., R. L. Sleighter, A. S. Willoughby, P. A. Mazzer, **A. S. Wozniak**, J. E. Bauer, 2009. *Molecular characterization of atmospheric particulates using Fourier transform ion cyclotron resonance mass spectrometry*. Goldschmidt Conference, Davos, Switzerland.
20. **Wozniak, A. S.**, J. E. Bauer, R. M. Dickhut, 2009. *Seasonal characterization of aerosols in the York River watershed: Fossil fuel versus natural sources*. Virginia Council of Graduate Schools Research Forum, Richmond, VA.
21. **Wozniak, A. S.**, J. E. Bauer, E. E. Keesee, A. P. McNichol, L. Xu, and R. M. Dickhut, 2008. *Detailed carbon isotopic characterization of aerosol-derived organic carbon deposited to two temperate watersheds*. American Geophysical Union Fall Meeting, San Francisco, CA.
22. **Wozniak, A. S.**, J. E. Bauer, R. M. Dickhut, P. G. Hatcher, E. E. Keesee, and R. L. Sleighter, 2008. *Isotopic and molecular characterization of total and water-soluble aerosol organic*

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*matter: implications for carbon fluxes and budgets in watersheds and rivers.* Ocean Sciences Meeting, Orlando, FL.

23. **Wozniak, A. S.**, J. E. Bauer, R. M. Dickhut, and E. E. Keesee, 2007. *Deposition and reactivity of aerosol-derived organic carbon in temperate watersheds.* American Society of Limnology and Oceanography Aquatic Sciences Meeting, Santa Fe, NM.
24. **Wozniak, A. S.**, R. M. Dickhut, J. E. Bauer, and E. E. Keesee, 2006. *Atmospheric fossil sources of river and estuarine organic carbon transported to the coastal ocean.* Ocean Sciences Meeting, Honolulu, HI.
25. **Wozniak, A. S.**, R. Blake, L. E. Gerald, and L. Haas, 2005. *Hydrodynamic influence on nutrient limitation and species composition of the York River, VA spring bloom.* Estuarine Research Federation, Norfolk, VA.
26. **Wozniak, A. S.**, C. T. Roman, M.-J. James-Pirri, S. C. Wainright, and R. A. McKinney, 2004. *Detecting changes in organic matter flow on tide-restored salt marshes: A stable isotope approach.* New England Estuarine Research Society Meeting, Block Island, RI.
27. **Wozniak, A. S.**, M.-J. James-Pirri, C. T. Roman, S. C. Wainright, and R. A. McKinney, 2003. *Monitoring the success of a salt marsh restoration by evaluating trophic relationships: A multiple stable isotope approach.* Estuarine Research Federation, Seattle, WA.

### PROFESSIONAL ACTIVITIES

- Appointed *Visiting Assistant Research Scientist* at VIMS in the fall of 2011 taking over existing projects in the Contaminant Organic Geochemistry laboratory of Dr. Rebecca M. Dickhut. Activities included overseeing two expiring NSF grants (including the writing of NSF final reports), mentoring graduate students, and serving as co-PI for a project titled “Use of Organochlorine Tracer Analysis to Determine the Magnitude and Temporal Variation of Mixing Rates of Eastern and Western School Size Bluefin Tuna in the Western Atlantic Recreational Fishery for School Bluefin Tuna” with co-PI, Dr. John Graves.
- United States GEOTRACES Arctic Cruise Implementation Plan Workshop *participant*, NSF, Washington, DC, June 2012.
- Marine Aerosol Workshop *participant*, sponsored by NSF, NOAA, NASA, DOE, and ONR, Raleigh, NC, June 2012.
- *Reviewer* for National Estuarine Research Reserve Fellowship Program (2008), NSF Atmospheric Chemistry division (2012, 2013)
- *Reviewer* for *Marine Chemistry, Analytical Chemistry, JGR-Atmospheres, Atmospheric Environment, Atmospheric Chemistry and Physics, Organic Geochemistry, Environmental Science & Technology, Nature Communications* (2011 to present)
- *Member* of several professional research societies: Estuarine Research Federation (2002-2004), New England Estuarine Research Society (2003-2004), American Geophysical Union (2005-present), American Society of Limnology and Oceanography (2005-present), and European Geophysical Union (2014-present)
- *Student poster presentation judge*: ASLO 2013, AGU 2013, Ocean Sciences 2014.
- *Student Representative* to the VIMS Educational Policy Committee (2005-07), Library Advisory Committee (2007-09), and Physical Sciences Dept. (2008-09)
- *Experience* with several geochemical analytical techniques: elemental (C, N) analysis, total organic carbon analysis (using a Shimadzu TOC V), chemo-thermal oxidation-375 method for black carbon analysis, vacuum line extraction for preparation of samples for  $\Delta^{14}\text{C}$  of particulate and dissolved organic carbon by accelerator mass spectrometry (AMS), silica column chromatography extraction techniques, GC-MS, isotope ratio MS ( $\delta^{15}\text{N}$ ,  $\delta^{13}\text{C}$ ), Electrospray Ionization Fourier Transform Ion Cyclotron Resonance (ESI FT-ICR) MS, excitation-emission fluorescence spectroscopy, UV-vis spectroscopy, Nuclear Magnetic Resonance Spectroscopy

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- *Field Sample Collection* in a variety of environments including research cruises, small boat sampling in rivers and estuaries, salt marshes, and aerosol sample collection.

### HONORS AND AWARDS

- *Invited Participant in the NSF/NOAA Dissertations in Chemical Oceanography (DISCO) XXII Symposium*, October, 2010.
- *VIMS Sun Trust Fellowship Award* from the VIMS foundation, 2008.
- *Student Research Grant* from the School of Marine Science, 2008.
- *NOSAMS Student Internship Award* from the National Ocean Sciences Accelerator Mass Spectrometry facility at Woods Hole Oceanographic Institution, 2006-2008.
- *Graduate Fellowship Award* from the Hudson River Foundation, 2006-2007.
- *Student Research Award* from the New England Chapter of the Society of Wetland Scientists, 2003.

### TEACHING, MENTORING AND EDUCATIONAL EXPERIENCE

- Research mentor for VIMS graduate students, Emily Hauser (M. S., 2011) and Emily Brault (M. S., 2012), ODU graduate students, Sarah Gurganus (M. S. 2013), Amanda Willoughby (Ph.D. expected, 2015), Stephanie McElhenie (Ph.D. student), and undergraduate students (William Wall, Jennifer Strout).
- Chemical Oceanography Question Writer for the 2015 National Ocean Science Bowl.
- *Volunteer* for VIMS Marine Science Day and for the National Ocean Science Bowl as a Team Challenge and Buzzer Question reviewer (2009) and as a Virginia Blue Crab Bowl Official (2005-present; Moderator, Science Judge, Grader).
- *Volunteer* Presenter for the STEM Career Conference at Corporate Landing Middle School Virginia Beach, VA.
- Teaching Assistant for VIMS core courses in chemical, physical, and geological oceanography (MS501, Fall 2008).
- Teaching Assistant for VIMS NSF Research Experience for Undergraduates program (summer 2009).
- Mentoring of ODU (Amanda Willoughby, Sarah Gurganus, Stephanie McElhenie, William Wall, Jennifer Strout) and VIMS (Emily Jayne, Emily Brault) graduate and undergraduate students.

### RECENT COLLABORATORS

John Pohlman (USGS), Jesse Kroll (MIT), Ann McNichol (Woods Hole Oceanographic Institute), Li Xu (Woods Hole Oceanographic Institute), James Bauer (Ohio State University), Ken Mopper (Old Dominion University), Rachel Sleighter (Old Dominion University), Murray Johnston (University of Delaware), Rebecca Dickhut (VIMS)\*, Bill Landing (Florida State University), Peter Morton (Florida State University), Rachel Shelley (Florida State University), Sid Mitra (East Carolina University), Emily Hauser (Princeton University), Peter Sedwick (Old Dominion University), Kristen Buck (BIOS), Andy Zimmerman (University of Florida), Haritz Arrizabalaga (Azti Tecnalia), John Graves (VIMS), David Velinsky (Academy of Natural Sciences, Drexel University), Peter DeCarlo (Drexel University)

\*deceased