

## Diana Oviedo-Vargas, PhD

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### EDUCATION

- 2013 Ph.D. Indiana University, School of Public and Environmental Affairs.  
*Environmental Sciences*
- 2011 M.S. Indiana University, School of Public and Environmental Affairs.  
*Environmental Sciences*
- 2007 B.S. University of Costa Rica, *Chemistry*

### PROFESSIONAL EXPERIENCE

- 2018-present Adjunct Professor, Plant and Soil Sciences Department, University of Delaware
- 2017-present Assistant Research Scientist, Stroud Water Research Center
- 2013-2017 Postdoctoral Research Associate, Department of Marine Earth and Atmospheric Sciences, North Carolina State University
- 2011-2013 Associate Instructor, School of Public and Environmental Affairs, Indiana University, Bloomington
- 2004-2007 Teaching Assistant, Analytical and organic chemistry laboratories, University of Costa Rica
- 2004-2007 Research Assistant, Natural Products Research Center, University of Costa Rica

### SCIENTIFIC PUBLICATIONS AND BOOK CHAPTERS

- Arellano, A. R., T. S. Bianchi, C. L. Osburn, E. J. D'Sa, N. D. Ward, **D. Oviedo-Vargas**, I. D. Joshi et al. 2019. Mechanisms of organic matter export in estuaries with contrasting Carbon Sources. *Journal of Geophysical Research: Biogeosciences* doi.org/10.1029/2018JG004868
- Montgomery, M. T., G. E. Collins, T. J. Boyd, C. L. Osburn, **D. Oviedo-Vargas**, and Q. Lu. 2019. Eco-friendly organic nanotubes encapsulating alkaline phosphatase and ecotoxicology of nanotubes to natural bacterial assemblages in coastal estuarine waters. *ACS Omega* 4:2196-2205.
- Bianchi T.S., Morrison E., Barry S., Arellano A.R., Feagin R.A., Hinson A., Eriksson M., Allison M., Osburn C.L. and **Oviedo-Vargas D.**, 2018. The fate and transport of allochthonous blue carbon in divergent coastal systems. In *A Blue Carbon Primer* (pp. 27-49). CRC Press.
- Joshi, I. D., N. D. Ward, E. J. D'Sa, C. L. Osburn, T. S. Bianchi, and **D. Oviedo-Vargas**. 2018. Seasonal trends in surface  $p\text{CO}_2$  and air-sea  $\text{CO}_2$  fluxes in Apalachicola Bay, Florida, from VIIRS ocean color. *Journal of Geophysical Research: Biogeosciences* 123: 2466-2484.
- Joshi I.D., E.J. D'Sa, C.L. Osburn, T.S. Bianchi, D.S. Ko, **D. Oviedo-Vargas**, A.R. Arellano, and N.D. Ward. 2017. Assessing chromophoric dissolved organic matter (CDOM) distribution, stocks, and fluxes in Apalachicola Bay using combined field, VIIRS ocean color, and model observations. *Remote Sensing of Environment* 191:359-372.
- Osburn C. L., **D. Oviedo-Vargas**, E. Barnett, D. Dierick, S. F. Oberbauer, and D. P. Genereux. 2018. Regional groundwater and storms are hydrologic controls on the quality and export of dissolved organic matter in two tropical rainforest streams, Costa Rica. *Journal of Geophysical Research: Biogeosciences* 123:850-866.

- Oviedo-Vargas D.**, D. Dierick, D.P. Genereux, and S.F. Oberbauer. 2016. Chamber measurements of high CO<sub>2</sub> emissions from a rainforest stream receiving old C-rich regional groundwater. *Biogeochemistry* 130:69-83.
- Oviedo-Vargas D.**, D.P. Genereux, D. Dierick, and S.F. Oberbauer. 2015. The effect of regional groundwater on carbon dioxide and methane emissions from a lowland rainforest stream in Costa Rica, *Journal of Geophysical Research: Biogeosciences* 120:2579–2595.
- Oviedo-Vargas D.**, and T.V. Royer. 2015. The role of dissolved organic nitrogen in a nitrate-rich agricultural stream. *Journal of Environmental Quality* 44:668-675.
- Warner, D., **D. Oviedo-Vargas**, and T.V. Royer. 2015. Evaluation of passive samplers for the collection of dissolved organic matter in streams. *Environmental Monitoring and Assessment* 187:1-9.
- Oviedo-Vargas D.**, T.V. Royer, and L.T. Johnson. 2013. Dissolved organic carbon manipulation reveals coupled cycling of carbon, nitrogen and phosphorus in a nitrogen-rich stream. *Limnology & Oceanography* 58:1196-1206.

## PRESENTATIONS AT NATIONAL AND REGIONAL CONFERENCES

- Oviedo-Vargas D.**, M. Peipoch, J. Jackson, D. Bressler, D. Arscott, C. Dow. Spatio-temporal patterns of specific conductivity in streams and rivers of the Delaware River Basin. Delaware Watershed Research Conference, Philadelphia, PA. 2019
- Oviedo-Vargas D.** High-resolution spatio-temporal DOM dynamics in White Clay Creek, Pennsylvania. Society for Freshwater Science, Salt Lake City, UT. 2019
- Osburn C.L., I. Joshi, **D. Oviedo-Vargas**, T.S. Bianchi, E.J. D'Sa, D. Ko, A.R. Arellano, M.R. Shields, N.D. Ward. Higher rates of sea level rise result in higher lateral flux of dissolved organic carbon (DOC) from tidal wetlands to coastal waters of the northern Gulf of Mexico. American Geophysical Union Fall Meeting, Washington, DC. 2018.
- Arellano A.R., T.S. Bianchi, C.L. Osburn, E.J. D'Sa, **D. Oviedo-Vargas**, N.D. Ward, I. Joshi, D. Ko, M.R. Shields, G. Kurian, J. Green. Mechanisms of Blue Carbon Export in Blackwater River-dominated and Particle-dominated Estuaries. American Geophysical Union Fall Meeting, Washington, DC. 2018.
- Arellano A. R., T.S. Bianchi, C. L. Osburn, E. J. D'Sa, **D. Oviedo-Vargas**, N. D. Ward, I. Joshi. Physical factors controlling carbon cycling dynamics in blackwater river-dominated and particle dominated estuaries. American Geophysical Union Fall Meeting, New Orleans, LA. 2017.
- Osburn C.L., I. Joshi, M.C. Lebrasse, **D. Oviedo-Vargas**, T.S. Bianchi, D.R. Bohnenstiehl, E.J. D'Sa, R. He, D. Ko, A. Arellano, and N.D. Ward. Local and regional scale exchanges of dissolved organic carbon (DOC) between tidal wetlands and their adjacent coastal waters. American Geophysical Union Fall Meeting, New Orleans, LA. 2017.
- Oviedo-Vargas D.**, C.L. Osburn, T.S. Bianchi, E.J. D'Sa, D.S. Ko, A. Arellano, I.D. Joshi, Extracellular enzyme activity in estuarine systems of the Gulf of Mexico and its links to organic matter biogeochemistry. Aquatic Sciences Meeting, Honolulu, HI. 2017.
- Oviedo-Vargas D.**, C.L. Osburn, T.S. Bianchi, E.J. D'Sa, D.S. Ko, N.D. Ward, A. Arellano, I.D. Joshi, and J.D. Kinsey. Examining the relative contribution of 'blue carbon' to coastal shelf environments via optical properties of dissolved and base-extracted particulate organic matter. Ocean Sciences Meeting, New Orleans, LA. 2016.
- Oviedo-Vargas D.**, D. Dierick, D. P. Genereux, S.F. Oberbauer, and C.L. Osburn. Regional groundwater discharge drives high carbon dioxide emissions from a lowland tropical rainforest stream. American Geophysical Union Fall Meeting, San Francisco, CA. 2015.

- Genereux, D.P., **D. Oviedo-Vargas**, D. Dierick, C.L. Osburn, and S.F. Oberbauer. Effects of regional groundwater on carbon budgets and fluxes in tropical rainforest watersheds. North Carolina State University Postdoctoral Research Symposium, Raleigh, NC. 2015.
- Oviedo-Vargas D.**, D.P. Genereux, C.L. Osburn, and S.F. Oberbauer. Contribution of stream CO<sub>2</sub> and methane emissions to carbon budgets in low-land tropical watersheds with and without connections to carbon-rich deep groundwater. Society for Freshwater Sciences, Portland, OR. 2014.
- Oviedo-Vargas D.**, D.P. Genereux, C.L. Osburn, and S.F. Oberbauer. Effects of regional groundwater on carbon emissions from tropical streams. North Carolina State University Postdoctoral Research Symposium, Raleigh, NC. 2014.
- Oviedo-Vargas D.**, T.V. Royer, and L.T. Johnson. Ecoenzymatic activity in sediments and water of rivers across the western and midwestern United States. Society for Freshwater Sciences, Jacksonville, FL. 2013.
- Oviedo-Vargas D.**, T.V. Royer, and L.T. Johnson. Characterization of dissolved organic nitrogen in a stream draining a heavily modified agricultural landscape. Association for the Science of Limnology and Oceanography, New Orleans, LA. 2013.
- Oviedo-Vargas D.**, T.V. Royer, and L.T. Johnson. Temporal and spatial variation of the nature of dissolved organic matter in a stream network dominated by agricultural activities. Society for Freshwater Science, Louisville, KY. 2012.
- Johnson, L.T., T.V. Royer, R.P. Phillips, and **D. Oviedo-Vargas**. The role of artificial subsurface drainage in greenhouse gas emissions from agricultural watersheds. Society for Freshwater Science, Louisville, KY. 2012.
- Oviedo-Vargas D.**, T.V. Royer, and L.T. Johnson. Coupling between carbon and phosphorus cycling in a nitrate-rich stream in Indiana, USA. North American Benthological Society, Providence, RI. 2011.
- Johnson, L.T., T.V. Royer, **D. Oviedo-Vargas**, and L.G. Leff. Effect of a labile carbon addition on nitrogen cycling in a nitrate-rich stream in Indiana, USA. North American Benthological Society, Providence, RI. 2011.
- Oviedo-Vargas D.**, L.T. Johnson, T.V. Royer, and L.G. Leff. Characterization of dissolved organic carbon sources in an agricultural stream in Central Indiana. North American Benthological Society, Santa Fe, NM. 2010.
- Oviedo-Vargas D.**, L.T. Johnson, and T.V. Royer. Whole-stream metabolism and characterization of dissolved organic carbon sources in an agricultural stream in central Indiana. Women in Science, Bloomington, IN. 2010.
- Oviedo-Vargas D.**, L.T. Johnson, and T.V. Royer. Dissolved organic carbon sources and sinks in an agricultural stream in central Indiana. Indiana Academy of Sciences, Kokomo, IN. 2009.

## GRANTS AND AWARDS FUNDED

- Melinda D. Daniels (PI), JinJun Kan, **Diana Oviedo-Vargas**, Marc Peipoch. Mitigating agricultural pollution of fresh water and combating climate change by restoring soil health through conservation and organic agricultural practices, Prince Albert of Monaco II Foundation, €237,405.
- Matthew Ehrhart (PI), David B. Arscott, Melinda D. Daniels, Scott H. Ensign, John K. Jackson, JinJun Kan, Steve Kerlin, **Diana Oviedo-Vargas**, Marc Peipoch. Technical support for DRWI Phase 2 monitoring, citizen science, data loggers, modeling & agricultural restoration, William Penn Foundation, \$1,450,000.
- JinJun Kan (PI), David B. Arscott, Melinda D. Daniels, Matthew Ehrhart, **Diana Oviedo-Vargas**, Bernard W. Sweeney. Evaluating How Conventional, Conservation, and Organic Farming

Management Practices Enhance Soil Health and Improve Water Quality, 2017, William Penn Foundation, \$2,590,000.

John Jackson (PI), David B. Arscott, Melinda D. Daniels, Charles Dow, JinJun Kan, Steve Kerlin, **Diana Oviedo-Vargas**, Marc Peipoch. LTREB Renewal: Trajectory for the recovery of stream ecosystem structure and function during reforestation, 2016, National Science Foundation, \$450,000.

Melinda D. Daniels (PI), JinJun Kan, **Diana Oviedo-Vargas**. Transforming Water Quality in the Sharitz Headwaters of Brandywine Creek, 2015, Pennsylvania Department of Environmental Protection, \$874, 244.

Todd V. Royer (PI) and **Diana Oviedo-Vargas**, Doctoral Dissertation Improvement Grant: Extracellular enzyme activity in large rivers and its relationship to dissolved organic matter quality and inorganic nutrient uptake, 2012, National Science Foundation, \$14,406.

**Diana Oviedo-Vargas (PI)**, Grant-in-aid of Doctoral Research: Quality assurance and inter-laboratory comparison of fluorescence techniques for the characterization of dissolved organic matter, 2011, IU Graduate School, \$930.

**Diana Oviedo-Vargas (PI)**, Dissolved organic carbon in Sycamore Creek: A comparison to agriculturally impaired streams, 2010, IU Research and Teaching Preserve Student Research Grant, \$500.

**Diana Oviedo-Vargas (PI)**, Whole-stream metabolism and characterization of dissolved organic carbon sources in agricultural streams in central Indiana, 2009, Indiana Academy of Science Senior Research Grant, \$2,500.

## OTHER AWARDS

Best poster presentation award. 3rd Prize. North Carolina State University Postdoctoral Research Symposium, 2015.

## WORKSHOPS AND SHORT COURSES ATTENDED

2016	Thermal analysis of organic matter (Ramped Pyrolysis). Woods Hole Oceanographic Institution, Woods Hole, MA
2014	Portal to the public (communicating science to the public). Association of Science-Technology Centers, Raleigh, NC
2014	Effective teaching with technology. North Carolina State University, Raleigh, NC
2013	Linking optical and chemical properties of dissolved organic matter in natural waters. Association for the Sciences of Limnology and Oceanography, New Orleans, LA
2012	New developments in fluorescence spectroscopy to characterize dissolved organic matter. Geological Society of America Meeting, Charlotte, NC
2011	Seminar in teaching public and environmental affairs. Indiana University, Bloomington, IN
2009	Fluorescence Workshop. University of Colorado, Boulder, CO. Organized by Dr. Dianne McKnight

## SERVICE

### Peer Reviews: Journal and Monograph Manuscripts

EGU Biogeosciences  
 AGU Journal of Geophysical Research-Biogeosciences

Biogeochemistry  
Estuaries and Coasts  
Freshwater Biology  
ACS Environmental Science and Technology  
Ecosystems

### **Institutional Service and Outreach**

2018-present Member of the International Committee, Society for Freshwater Science  
2017-present Co-chair of the Stroud Center Workplace Safety Committee  
2017-present Environmental/Watershed member of the Toxics Advisory Committee of the Delaware River Basin Commission  
2011-2012 Environmental Science Outreach Chair. Association of SPEA PhD students  
2010-2012 Member of the Undergraduate Travel Award Committee, Society for Freshwater Science

### **TEACHING EXPERIENCE**

#### **University of Pennsylvania-Philadelphia**

BIO415 Introduction to Freshwater Ecology (co-taught with Stroud Center Science Team)

#### **Indiana University-Bloomington**

E260 Introduction to Water Resources  
E355 Introduction to Limnology  
E262 Environmental Problems and Solutions

### **UNDERGRADUATE AND GRADUATE STUDENTS MENTORED**

- Teresa Sauer, Fairfield University. National Science Foundation Research Experience for Undergraduate Internship. 2019
- Paul Cöckson, Wake Technical Community College. MEAS Summer Research Internship. 2016
- Chiao-Wen Lin, North Carolina State University. Graduate student. 2014-2015
- Angela Cole, North Carolina State University. Undergraduate laboratory assistant. 2013
- Andrew Madison, Indiana University. Graduate laboratory assistant. 2012
- Cora Lewis, Indiana University. Undergraduate laboratory assistant. 2012
- Daniel Warner, Indiana University. Senior thesis. Utilization of passive samplers for the characterization of dissolved organic matter. 2011

### **MEMBERSHIPS IN PROFESSIONAL ASSOCIATIONS**

- Society for Freshwater Science
- Association for the Sciences of Limnology and Oceanography