

# **ANNA E.S. VINCENT, M.S.**

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## EDUCATION

University of Notre Dame

**Ph.D. Student**, Department of Biological Sciences – August 2019 to *Present*

Loyola University Chicago

**M.S. Biology** – 21 December 2019

Thesis Title: *Plastic in Urban Streams: Distribution, Transport, and Influence on Biofilm Community Composition and Activity* (Defended 13 September 2019)

GPA: 4.0

**B.S. Biology (Ecology emphasis)**, Honors, *Magna cum laude* – 12 May 2017

Minor in Environmental Science

Interdisciplinary Honors Program

Study Abroad – Universidad San José in San Ramón, Costa Rica – July 2016

GPA: 3.787

## RESEARCH FOCUS

Biogeochemistry and ecosystem ecology in human-impacted streams. Effects of human activity on ecosystem function. Controls on nitrogen cycling. Transport of contaminants in urban and agricultural watersheds.

## ACADEMIC & PROFESSIONAL EXPERIENCE

**Graduate Research Assistant**, 01/2020 to *Present*, Department of Biological Sciences, University of Notre Dame, Advisor: Dr. Jennifer Tank

**Graduate Teaching Assistant**, 08/2019 to 12/2019, Department of Biological Sciences, University of Notre Dame, Advisor: Dr. Jennifer Tank

**Graduate Research Assistant**, 08/2017 to 08/2019, Department of Biology, Loyola University Chicago, Advisor: Dr. Timothy Hoellein

**Lab Technician**, 05/2017 to 08/2017, Department of Biology, Loyola University Chicago, Advisor: Dr. Timothy Hoellein

**Undergraduate Research Assistant**, 03/2015 to 05/2017, Department of Biology, Loyola University Chicago, Advisor: Dr. Timothy Hoellein

**Field Scientist and Research Director**, 01/2018 to 05/2019, TODO, Collaborator: Elianna Rivkin

**Research Consultant**, 06/2016 to 12/2017, TODO, Collaborators: Elianna Rivkin, Dr. Timothy Hoellein

**Collections Volunteer**, 09/2016 to 05/2017, Department of Mammals, Field Museum of Natural History, Advisor: Dr. Bruce Patterson

**Research Fellow**, 05/2015 to 08/2015, Alliance for the Great Lakes, Advisors: Olga Lyandres, Sarah Neville, Dr. Timothy Hoellein

## TEACHING EXPERIENCE

**General Ecology Lab**, Fall 2019, Department of Biological Sciences, University of Notre Dame, Instructor of Record: Dr. Dominic Chaloner

**Linnology** (Lecture/Lab), Fall 2018, Department of Biology, Loyola University Chicago, Instructor of Record: Dr. Timothy Hoellein.

**Ecology** (Lecture), Spring 2018, Department of Biology, Loyola University Chicago, Instructor of Record: Dr. Samuel Dunn.

## WORKSHOPS & RELEVANT COURSES (\*Online)

1. \*4<sup>th</sup> **International Workshop and PhD Course on High Temporal Resolution Water Quality Monitoring and Analysis**. May-June 2021. Swedish University of Agricultural Sciences
2. **Fundamentals of Ecosystem Ecology**. January 2020. Cary Institute of Ecosystem Studies. Millbrook, NY

## PUBLICATIONS (§Thesis/Dissertation; \*Undergraduate Mentee)

1. **Vincent, A.E.S.** and Hoellein, T.J. 2021. Distribution and Transport of Microplastic and Fine Particulate Organic Matter in Urban Streams. *Ecological Applications*.  
<https://doi.org/10.1002/eap.2429>
2. \*Lazcano, R.F., **A.E.S. Vincent**, and T.J. Hoellein. 2020. Trash Dance: Anthropogenic Litter and Organic Matter Co-Accumulate on Urban Beaches. *Geosciences* 10(9): 335.  
<https://doi.org/10.3390/geosciences10090335>
3. §**Vincent, A.E.S.** 2019. Plastic in Urban Streams: Distribution, Transport, and Influence on Biofilm Community Composition (Master's Thesis). Loyola University Chicago, Chicago, IL, USA. *ProQuest Dissertations Publishing*, 27540350.
4. **Vincent, A.E.S.** and Hoellein, T.J. 2017. Anthropogenic Litter Abundance and Accumulation Rates Point to Seasonal Litter Sources on a Great Lakes Beach. *J. of Contemporary Water Research and Education* 106(1): 72-84.  
<https://doi.org/10.1111/j.1936-704X.2017.03241.x>
5. **Vincent, A.**, N. Drag, O. Lyandres, S. Neville, and T. Hoellein. 2017. Citizen science datasets reveal drivers of spatial and temporal variation for anthropogenic litter on Great Lakes beaches. *Science of The Total Environment* 577: 105-112.  
<https://doi.org/10.1016/j.scitotenv.2016.10.113>

## ORAL PRESENTATIONS

1. **Vincent, A.E.S.**, J.L. Tank, S.L. Speir, M.T. Trentman, U.H. Mahl, A.N. Pruitt, T.V. Royer, S.S. Roley. 2021. *Influence of Storms on Ecosystem Metabolism in Two Agricultural Watersheds*. 4<sup>th</sup> International Workshop and PhD Course on High Temporal Resolution Water Quality Monitoring and Analysis. Swedish University of Agricultural Sciences.
2. Pruitt, A.N., J.L. Tank, S.L. Speir, U.H. Mahl, **A.E.S. Vincent**, T.V. Royer. 2021. *Winter cover crops reduce stream sediment export during storms*. 4<sup>th</sup> International Workshop and PhD Course on High Temporal Resolution Water Quality Monitoring and Analysis. Swedish University of Agricultural Sciences.
3. **Vincent, A.E.S.**, J.L. Tank, S.L. Speir, U.H. Mahl, E.D. Snyder, A.N. Pruitt. 2021. *Quantifying the Role of Substrate and Biofilm Colonization in Controlling Nitrification Rates Using Experimental Streams*. Society for Freshwater Science.
4. Pruitt, A.N., J.L. Tank, S.L. Speir, U.H. Mahl, **A.E.S. Vincent**, T.V. Royer. 2021. *Land cover change reduces storm-driven sediment export in agricultural streams*. Society for Freshwater Science.
5. Snyder, E.D., J.L. Tank, K. Bibby, A.W. Bivins, P.F.P. Brandão Dias, **A.E.S. Vincent**, S.L. Speir, A. Pruitt, G.A. Lamberti. 2021. *Exploring the Role of Biofilm Colonization on the Transport and Fate of Environmental DNA (eDNA)*. Society for Freshwater Science.
6. Tank, J., **A. Vincent**, U. Mahl, A. Hamlet. 2020. Paw Paw River Watershed: February 2020 Update. EPA Great Lakes Restoration Initiative. Hartford, MI
7. Hoellein, T.J., R. McNeish, **A. Vincent**, L. Hou, E. Berg, L. Wisbrock, J.J. Kelly. 2019. *Plastic Litter in Freshwaters: An Ecosystem Approach*. American Geophysical Union. San Francisco, CA
8. **Vincent, A.E.S.**, J.J. Kelly, S.T. Dunn, R.L. Lazcano, T.H. Hoellein. 2019. *Plastic in Urban Streams: Distribution, Transport, and Influence of Biofilm Community Composition*. Society for Freshwater Science. Salt Lake City, UT

9. Berg, E.M., **A.E.S. Vincent**, A.J. Shogren, M.M. Dee Gerig, J.L. Tank, J.J. Kelly, T.H. Hoellein. 2019. *The Transport and Retention of Microplastic Fibers in Experimental Streams with Varying Benthic Substrate, Discharge, and Biofilm Colonization*. Society for Freshwater Science. Salt Lake City, UT
10. Hoellein, T., R. McNeish, S. Dunn, L. Kim, **A. Vincent**, L. Hou, E. Berg, and J. Kelly. 2018. *Plastic Litter in Freshwaters: Abundance, Movement, and Biological Interactions*. Society for Freshwater Science. Detroit, MI
11. Dunn, S., **A. Vincent**, and T. Hoellein. 2018. *Human Trash and Microbial Treasures: Distinct Patterns of Microbial Biofilm Succession on Plastic Litter Surfaces*. Society for Freshwater Science. Detroit, MI
12. Berg, E., **A. Vincent**, A. Shogren, M. Dee Gerig, J.L. Tank, J. Kelly, and T. Hoellein. 2018. *The role of substrate and biofilm growth on the transport and retention of microplastic fibers in streams*. Society of Environmental Toxicology and Chemistry (Midwestern Chapter). Chicago, IL

#### POSTER PRESENTATIONS

1. **Vincent, A.E.S.**, J.L. Tank, A.N. Pruitt, S.L. Speir, M.T. Trentman, U.H. Mahl, T.V. Royer. 2021. *The effects of conservation on ammonium dynamics in two agricultural watersheds*. Colleges of Science and Engineering Joint Annual Meeting, University of Notre Dame. Notre Dame, IN
2. Pruitt, A.N., J.L. Tank, E.D. Snyder, **A.E.S. Vincent**, E. Curtis, E.M. Thrift. 2021. *The role of periodical cicadas as a resource subsidy and their influence on nutrient uptake in stream ecosystems*. Colleges of Science and Engineering Joint Annual Meeting, University of Notre Dame. Notre Dame, IN
3. Thrift, E.M., J.L. Tank, **A.E.S. Vincent**, U.H. Mahl, A. Hamlet. 2021. *Changes in land cover and discharge drive dynamics of nutrient and E. coli export in Great Lakes watersheds of contrasting land use*. Colleges of Science and Engineering Joint Annual Meeting, University of Notre Dame. Notre Dame, IN
4. **Vincent, A.E.S.**, J.L. Tank, U.H. Mahl, A. Hamlet. 2020. *Comparing the impact of cover crops on nutrient and E. coli among watersheds of contrasting land use*. Society for Freshwater Science.
5. **Vincent, A.E.S.**, J.L. Tank, U.H. Mahl, C.J. Talbot, M.A. Roseman. 2019. *Comparing the effects of winter cover crops on nutrient and E. coli loss in Great Lakes watersheds of contrasting land use*. Colleges of Science and Engineering Joint Annual Meeting, University of Notre Dame. Notre Dame, IN
6. Lazcano, R.F., L. Wisbrock, **A.E.S. Vincent**, T.H. Hoellein. 2019. *Anthropogenic Litter on Chicago Beaches*. Society for Freshwater Science. Salt Lake City, UT
7. Lazcano, R.F., L. Wisbrock, **A.E.S. Vincent**, T.H. Hoellein. 2019. *Anthropogenic Litter on Chicago Beaches*. Loyola Undergraduate Research and Engagement Symposium. Chicago, IL
8. **Vincent, A.E.S.**, J.J. Kelly, S.T. Dunn, R.F. Lazcano, and T.J. Hoellein. 2019. *Plastic in Urban Streams: Distribution, Transport, and Influence of Biofilm Community Composition*. Frontiers in Science. Chicago, IL
9. Berg, E., **A.E.S. Vincent**, A. Shogren, M. Dee, J.L. Tank, J. Kelly, and T. Hoellein. 2019. *The Transport and Retention of Microplastic Fibers in Experimental Streams with Varying Benthic Substrate, Discharge, and Biofilm Colonization*. Frontiers in Science. Chicago, IL
10. **Vincent, A.E.S.**, J.J. Kelly, S.T. Dunn, R.F. Lazcano, and T.J. Hoellein. 2019. *Plastic in Urban Streams: Distribution, Transport, and Influence of Biofilm Community Composition*. Graduate School Interdisciplinary Research Symposium at Loyola University Chicago. Chicago, IL
11. Berg, E., **A. Vincent**, A. Shogren, M. Dee, J.L. Tank, J. Kelly, and T. Hoellein. 2018. *The role of benthic substrate, discharge, and biofilm growth on the transport and retention of microplastic fibers in streams*. Ecological Society of America. New Orleans, LA
12. **Vincent, A.** and Hoellein, T. 2018. *Distribution and Movement of Microplastic in Urban Streams*. Society for Freshwater Science. Detroit, MI
13. Berg, E., **A. Vincent**, A. Shogren, M. Dee, J.L. Tank, J. Kelly, and T. Hoellein. 2018. *The Role of*

*Substrate, Flow, and Biofilm Growth on the Transport and Retention of Microplastic Fibers in Streams*. Society for Freshwater Science. Detroit, MI

14. Rovegno, C.M., R. F. Lazcano, **A.E.S. Vincent**, T.J. Hoellein, and J.J. Kelly. 2018. *The Abundance and Movement of Microplastic in Urban Streams*. Loyola Undergraduate Research and Engagement Symposium. Chicago, IL
15. **Vincent, A.** and Hoellein, T. 2018. *Distribution and Transport of Microplastic in Urban Streams*. Frontiers in Science. Chicago, IL
16. **Vincent, A.** and Hoellein, T. 2017. *Abundance and accumulation of anthropogenic litter on Great Lakes beaches*. Society for Freshwater Science. Raleigh, NC
17. **Vincent, A.**, T. Hoellein, O. Lyandres, S. Neville, and N. Drag. 2017. *Citizen Science Datasets Reveal Drivers of Spatial and Temporal Variation for Anthropogenic Litter on Great Lakes Beaches*. Loyola Undergraduate Research and Engagement Symposium. Chicago, IL
18. **Vincent, A.E.S.** and Hoellein, T.J. 2016. *Anthropogenic Litter Abundance on a Lake Michigan Beach*. Loyola Undergraduate Research and Engagement Symposium. Chicago, IL
19. **Vincent, A.E.S.** and Hoellein, T.J. 2015. *Anthropogenic Litter Abundance on a Lake Michigan Beach*. Loyola Department of Biology Poster Session. Chicago, IL

#### OUTREACH PRESENTATIONS & EVENTS (§Virtual Google Meet/Zoom)

1. §**Vincent, A.E.S.** 2020. *Steps of the Scientific Method*. Introduced ~20 first grade students to the steps of the scientific method, drawing comparisons between doctoral research and development of experiments at the elementary level. Students completed activity identifying each step from a list of possible examples and completed booklets (pictures/text) detailing an experiment they would like to run.
2. Spier, S.L., **A.E.S. Vincent**, A. Gross. 2019. *Science Sunday*. Practiced measuring stream discharge using three different methods with community members at Notre Dame's Linked Experimental Ecosystem Facility (ND-LEEF).
3. Hoellein, T., **A. Vincent**, L. Wisbrock. 2019. *Garbage Science: Presentation on Researching Plastic in the Environment*. Polaris Charter Academy. Chicago, IL. Introduced macro- and microplastic research topics and methods to middle school students (Grades 7-8). Included hands-on activities for data collection, processing, and analysis. Activities exemplified connection between plastic pollution and environmental chemistry.
4. **Vincent, A.** 2019. *Winogradsky Columns: Make your own ecosystem!* Grassy Waters Elementary. West Palm Beach, FL. Facilitated hands-on science experiment with students, demonstrating how microbial communities can be self-sustaining when provided with initial nutrient sources. Student questions and comments showed understanding between usable and recalcitrant carbon sources.
5. §**Vincent, A.** 2019. *Classifying Organisms*. Grassy Waters Elementary. West Palm Beach, FL. Video call with students introducing Linnaean taxonomy and the importance of scientific naming.
6. **Vincent, A.** 2018. *What are debris dams? An introduction to anthropogenic litter and stream ecology*. Grassy Waters Elementary. West Palm Beach, FL. Presentation and enrichment activity integrating anthropogenic litter and stream ecology; introduced the concept of hydrology; demonstrated increased litter retention in debris dams (relative to non-debris dam sites).
7. §**Vincent, A.** and Hoellein, T. 2018. *Meet the Scientists: Anna Vincent & Timothy Hoellein*. Grassy Waters Elementary. West Palm Beach, FL. Facilitated a question and answer session to introduce gifted/advanced elementary students to individuals in STEM careers.
8. **Vincent, A.** 2018. *Pollution in Chicago Waterways*. Stone Scholastic Academy. Chicago, IL. Presented litter research studies completed in Chicago waterways; discussed deleterious effects of pollution on the biological community of the Chicago River.
9. §**Vincent, A.** 2018. *Plastic is Persistent: Managing Anthropogenic Litter in our Communities*. Grassy Waters Elementary. West Palm Beach, FL. Shared litter examples collected during field work to demonstrate environmental litter longevity; introduced pollution management and mitigation strategies.

10. **Vincent, A.** 2018. *Why do people Litter?* Grassy Waters Elementary. West Palm Beach, FL. Discussed sources of litter accumulation and methods of quantification.
11. **Vincent, A.** 2018. *From the Glades to Garbage.* Jupiter Environmental Research and Field Studies Academy at Jupiter High School. Jupiter, FL. Alumna seminar speaker discussing journey from Academy graduate to graduate student; presentation highlighted undergraduate and graduate level academic rigor and research expectations.
12. **Vincent, A.** 2018. *Anthropogenic Litter in our Communities.* Grassy Waters Elementary. West Palm Beach, FL. Introduced students to the scientific method, including data collection and analysis methods; created enrichment activity that uses the scientific method to understand interactions between wildlife and anthropogenic litter; completed in-class experiment with students to visualize differences between litter generated at school and at home.
13. **Vincent, A.** 2018. *Introduction to Pollution & Recycling.* Grassy Waters Elementary. West Palm Beach, FL. Guest speaker to group of 120 students introducing pollution and recycling science unit; used toiletry and personal care products (e.g., toothpaste, hand sanitizer, face wash) to introduce the topic of microplastic in the environment; provided examples of products that replace microplastic with natural substitutes as a contrast.

#### RESEARCH HONORS & AWARDS

- Aug 2019     **Best Oral Presentation in Applied Research**, Society for Freshwater Science  
 Apr 2019     **Honorable Mention**, Graduate Research Fellowship Program, National Science Foundation

#### PROFESSIONAL DEVELOPMENT – RESARCH & TRAVEL GRANTS

- April 2021     **ND-LEEF Research Grant**, ND Environmental Change Initiative (\$500)  
 April 2021     **General Endowment Award**, Society for Freshwater Science (\$1000)  
 April 2020     **ND-LEEF Research Grant**, ND Environmental Change Initiative (\$1500)  
 Oct 2019     **ND Graduate School Professional Development Research Grant** (\$1350)  
 Oct 2019     **Fundamentals of Ecosystem Ecology Course Award**, Cary Institute (\$500)  
 Mar 2018     **General Endowment Award**, Society for Freshwater Science (\$1000)  
 Mar 2018     **Conference Travel Award**, The Graduate School, Loyola University Chicago (\$500)  
 Feb 2017     **Undergraduate Travel Award**, Society for Freshwater Science (\$600)  
 2016     **Mulcahy Scholarship**, Loyola University Chicago (\$1000)  
 2015     **WISER Fellowship**, Loyola University Chicago (\$1500)  
 2015     **Research Fellowship**, Alliance for the Great Lakes (\$1500)

#### OTHER HONORS & AWARDS

- 2017     **High Honors**, Department of Biology, Loyola University Chicago  
 2014-2017     **Dean's List**, College of Arts and Sciences, Loyola University Chicago  
 2013-2016     **Rubin Scholar**, J.M. Rubin Foundation  
 2013     **Damen Scholarship**, Loyola University Chicago

#### MEMBERSHIP SERVICE

- 2021-2022     Chair, Silent Auction Committee, SRC Society for Freshwater Science  
 2020-2021     Chair, Student-Mentor Mixer Committee, Society for Freshwater Science Student Resource Committee (SRC)  
 2019-2020     Member, Silent Auction Committee, SRC Society for Freshwater Science  
 2018-2019     Chair, Silent Auction Committee, SRC Society for Freshwater Science  
 2018-2019     Member, Undergraduate Travel and Awards Committee, SRC Society for Freshwater Science  
 2017-2018     Chair, Undergraduate Travel and Awards Committee, SRC Society for Freshwater Science  
 2017-2018     Member, Silent Auction Committee, SRC Society for Freshwater Science

#### NEWS & MEDIA

Plastic Litter on Great Lakes Beaches. February 2017. Great Lakes Echo.

<http://greatlakeecho.org/2017/02/13/plastic-litter-on-great-lakes-beaches/>

Cigarette butts make up nearly half of trash at Chicago beaches, study shows. December 2016. Chicago Tribune.

<http://www.chicagotribune.com/news/ct-lake-michigan-beaches-trash-met-20161227-story.html>

Study Reveals What Litters Chicago's Shores. December 2016. Loyola Phoenix.

<http://loyolaphoenix.com/2016/12/study-reveals-litters-chicagos-shores/>

Cigarette Butts, Food Waste Account For Almost All Chicago Beach Trash. December 2016. Chicagoist.

<http://chicagoist.com/2016/12/27/cigarette-butts-food-waste-chicago.php>

Gross! Analysis Of Chicago Beach Garbage Shows Butts, Needles, Condoms. November 2016. DNAinfo Chicago.

<https://www.dnainfo.com/chicago/20161121/gold-coast/chicago-beach-garbage-needles-condoms-cigarette-butts>

#### ACADEMIC & PROFESSIONAL AFFILIATIONS

2020 to *Present* Association for the Sciences of Limnology and Oceanography

2017 to *Present* Society for Freshwater Science

2014 to *Present* Beta Beta Beta (National Biological Honor Society)

#### RELATED SKILLS

Moderate Proficiency: SigmaPlot, Rstudio, aquatic insect identification, DNA extraction and PCR (gel electrophoresis)

Limited Proficiency: Mothur, SYSTAT, Minitab, MorphoJ, ImageJ, TPS, SAS

#### ACADEMIC COURSWORK

*Transcript provided upon request*