**Jacqueline Gerson**

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**EDUCATION**

**University Program in Ecology**, Duke University – Durham, NC

PhD., Ecology, Expected May 2021

Advisor: Emily S. Bernhardt

**College of Civil and Environmental Engineering**, Syracuse University – Syracuse, NY

2016 M.S., Environmental Engineering Science

Thesis: *Elevational and seasonal patterns in methylmercury production across the montane landscape of Whiteface Mountain in the Adirondack Region of New York*

Advisor: Charles T. Driscoll

GPA: 3.97

**Colgate University** – Hamilton, NY

2011 B.A. Biochemistry, Minor: Environmental Studies, *Magna Cum Laude*

Thesis: *The uptake of pyrene molecules onto NaCl and NaNO3 aerosol particles*

Advisor: Ephraim Woods, III

GPA 3.54

**Cardiff University** – Cardiff, Wales

2010 Colgate Natural Sciences Study Abroad Program

**RESEARCH INTERESTS**

I am interested in the biogeochemical cycling of nutrients and trace metals within watersheds with a focus on freshwater systems. In particular, I seek to understand how human actions alter chemical dynamics through acid deposition, climate change, and the introduction of contaminants. Through field and laboratory experiments, I hope to better understand the behavior of these systems and to predict future changes. I aim to utilize these ecosystem assessments to guide human health analyses and increase understanding of human exposure pathways.

**RESEARCH EXPERIENCE**

*Biogeochemistry Research Assistant* 2014-2016

Syracuse University – Syracuse, NY

Advisor: Charles T. Driscoll

* Investigated long-term trends in mercury dynamics in a forested New York lake-watershed to determine response to recent emissions decreases through detailed field collection, cold vapor atomic fluorescence spectrometry (CVAFS) to determine total and methylmercury concentrations, and ancillary chemical analyses (pH, ANC, DOC, anions, trace metals)
* Assessed nutrient dynamics in Adirondack lakes recovering from acidification by acid deposition through statistical analyses of long-term datasets using *R* software

*Biogeochemistry Research Technician* 2011-2012

Princeton University and SANAE Antarctic research station (ship-based research between Capetown, Antarctica, and South Georgia Island)

Advisor: Michael Bender

* Performed electron ionization mass spectrometry (EIMS) measurements and preliminary analysis of O2/Ar ratio to determine biological productivity and assess changes in primary production associated with climate change in the Southern Ocean
* Measured circulation patterns and thermal features using CTD, UCTD, and XBT casts
* Monitored and performed technical maintenance on EIMS and pCO2 systems

*Atmospheric Chemistry Research Assistant* 2010-2011

Colgate University – Hamilton, NY

Advisor: Ephraim Woods, III

* Investigated the uptake of pyrene molecules on sea spray constituents to gain a molecular and kinetic understanding of aerosol particles
* Utilized a Nd-YAG laser ionization scheme and *Mathematica* software to determine and compare uptake coefficients under varying conditions

*Ecology Research Intern* Summer 2010

Huyck Preserve and Biological Research Center – Rensselaerville, NY

Advisor: Susan Beatty

* Collected soil samples and performed wet chemical analyses to determine the impact of red pine plantations on ecosystem health in Central New York
* Assisted visiting scientists with their research, including invasive species monitoring, collection of ant colonies, and plant surveys

*Environmental Justice Research Assistant* 2009-2011

Colgate University – Hamilton, NY

Advisor: April Baptiste

* Conducted a literature review and performed preliminary analysis of interviews to determine the impact of climate change on fishermen in Trinidad and Tobago

*Biochemistry Research Assistant* 2007-2009

Colgate University – Hamilton, NY

Advisors: Roger Rowlett, Catherine Cardelus

* Executed protein synthesis of a mutated bacteria to determine the role of functional groups in carbonic anhydrase using PCR, electrophoresis, and X-ray crystallography
* Developed and enacted an analytical protocol for determination of nitrate concentration for small volumes of soil samples using Devarda’s alloy

**PROFESSIONAL EXPERIENCE**

Summer 2016 Wilderness Adventures, *Trip Leader* – Anchorage, AK

Summer 2014 Wilderness Adventures, *Trip Leader* – Seattle, WA

2012-2014 Peace Corps Volunteer, *Health and Environmental Education Extension Agent* –Senegal

Fall 2011 Nature’s Classroom, *Environmental Sciences Teacher* – Groton, MA

Summer 2011 Wilderness Adventures, *Trip Leader* – Jackson, WY

2008-2011 Outdoor Education, *Orientation and Program Leader* – Colgate University

2008-2011 Writing and Speaking Center, *Peer Advisor* – Colgate University

Summer 2008 Global Volunteer Network, *French Teacher* – Dawhenya, Ghana

**PEER-REVIEWED PUBLICATIONS**

**Gerson JR**, Driscoll CT, Demers JD, Sauer AK, Blackwell BD, Montesdeoca MR, Shanley JB, and Ross DS. In review. Deposition of Mercury in Forests Across a Montane Elevation Gradient: Elevational and Seasonal Patterns in Methylmercury Inputs and Production. *Global Change Biology.*

**Gerson JR** and Driscoll CT. 2016. Is mercury in a remote forested watershed of the Adirondack Mountains responding to recent decreases in emissions? *Environmental Science and Technology,* 50(20): 10943-10950.

**Gerson JR**, Driscoll CT, and Roy KM. 2016. Patterns of nutrient dynamics in Adirondack lakes recovering from acid deposition. *Ecological Applications*, 26(6): 1758-1770.

Woods III E, Yi C, **Gerson JR**, and Zaman RA. 2012. Uptake of pyrene by NaCl, NaNO3, and MgCl2 aerosol particles. *The Journal of Physical Chemistry A*, 116.15: 4137-4143.

**TECHNICAL REPORTS**

Peterson A, Zorn R, Maurer E, **Gerson JR**, Van Es K, Berlin E, Cravero C, Okonski K, Linn A, Danner S, Uller C, Pedersen C, Linn P, and Legare S. 2013. General health and nutrition manual: a resource guide for Peace Corps Volunteers. Peace Corps. Dakar, Senegal.

**Gerson JR** and Curcuruto L. 2012. Nioro du Rip action plan. Peace Corps. Dakar, Senegal.

**Gerson JR**, Cardillo M, Fox C, and Thomas R. 2010. Ecosystem analysis of red pine plantations in Central New York. Huyck Preserve and Biological Research Station. Rensselaerville, NY.

**Gerson JR**, Fernley A, McCrory C, and Parry H. 2010. Strategic land conservation plan. Cazenovia Preservation Foundation. Cazenovia, NY.

**CONFERENCE PRESENTATIONS AND SEMINARS**

**Gerson JR**, Driscoll CT, Demers JD, Sauer AK, and Montesdeoca MR. Apr 2016. “Elevational and Seasonal Patterns in Methylmercury Production Across the Montane Landscape of Whiteface Mountain in the Adirondack Region of New York,” Syracuse University Civil and Environmental Engineering Department Seminar. Oral Presentation. Syracuse, NY.

**Gerson JR**, Driscoll CT, Demers JD, Sauer AK, and Montesdeoca MR. Apr 2016. “Montane Mercury Patterns at Whiteface Mountain in the Adirondack Park of New York, ” NUNAN Research Day. Poster Presentation. Syracuse, NY.

**Gerson JR**, Driscoll CT, and Montesdeoca MR. Mar 2016. “Long-Term Mercury Dynamics in a Lake-Watershed in the Adirondack Region of New York,” Northeast Geologic Society of America. Oral Presentation. Albany, NY.

**Gerson JR**, Driscoll CT, and Montesdeoca MR. Mar 2016. “Temporal Patterns of Atmospheric Deposition and Lake Watershed Mercury of Arbutus Lake,” New York State Energy and Research Development Authority Fish Mercury Project Annual Meeting. Oral Presentation. Syracuse, NY.

**Gerson JR**, Driscoll CT, Demers JD, Sauer AK, and Montesdeoca MR. Mar 2016. “Biological Mercury Hotspots Across an Elevational Gradient at Whiteface Mountain in the Adirondacks,” Adirondack Research Forum. Poster Presentation. Old Forge, NY.

**Gerson JR**. Feb 2016. “Assessing Biological Mercury Hotspots in Montane Ecosystems of the Northern Forest,” Syracuse University Three Minute Thesis Competition. Oral Presentation. Syracuse, NY.

**Gerson JR**, Driscoll CT, and Montesdeoca MR. Nov 2015. “Influence of Watershed Characteristics on Mercury Dynamics in Arbutus Lake,” Syracuse University Civil and Environmental Engineering Department Seminar. Oral Presentation. Syracuse, NY.

**Gerson JR**, Driscoll CT, and Roy KM. Oct 2015. “Patterns of Nutrient Dynamics in Adirondack Lakes Recovering from Acidification by Acid Deposition,” International Conference on Acid Rain. Oral Presentation. Rochester, NY.

**Gerson JR**, Driscoll CT, and Roy KM. Aug 2015. “Nutrient Dynamics in Adirondack Lakes Recovering from Acidification by Acid Deposition,” Ecological Society of America Annual Meeting. Oral Presentation. Baltimore, MD.

**Gerson JR,** Driscoll CT, Demers JD, Sauer AK, Montesdeoca MR, Blackwell BD, Shanley JB, and Ross DS. Jun 2015. “Assessing Biological Mercury Hotspots in a Montane Ecosystem of New York, USA,” International Conference on Mercury as a Global Pollutant. Poster Presentation. Jeju, South Korea.

**Gerson JR**, Dricoll CT, and Montesdeoca MR. Jun 2015. “Influence of Watershed Characteristics on Mercury Dynamics in a New York Lake, USA,” International Conference on Mercury as a Global Pollutant. Poster Presentation. Jeju, South Korea.

**Gerson JR**, Driscoll CT, and Roy KM. Apr 2015. “Patterns of Nutrient Dynamics in Adirondack Lakes Recovering from Acid Deposition,” Syracuse University Civil and Environmental Engineering Department Seminar. Oral Presentation. Syracuse, NY.

**Gerson JR**, Driscoll CT, and Roy KM. Apr 2015. “Altered Nutrient Limitation Patterns in Adirondack Lakes Experiencing Decreased Acid Deposition,” NUNAN Research Day. Poster Presentation. Syracuse, NY.

**Gerson JR**, Driscoll CT, and Roy KM. Mar 2015. “Nutrient Dynamics in Adirondack Lakes Recovering from Acidification by Acid Deposition,” Northeastern Ecosystem Research Consortium. Poster Presentation. Saratoga Springs, NY.

**Gerson JR**, Driscoll CT, and Roy KM. Mar 2015. “Nutrient Dynamics in Adirondack Lakes Recovering from Acidification by Acid Deposition,” Adirondack Research Forum. Poster Presentation. Old Forge, NY.

**Gerson JR**, Driscoll CT, and Roy KM. Mar 2015. “Adirondack Lake Nutrient Limitation Patterns Associated with Decreased Acid Deposition,” Graduate Research Symposium. Poster Presentation. Syracuse, NY.

**Gerson JR** and Bender M. Feb 2012*.* “Measuring Net Community Production in the Southern Ocean as a Function of O2/Ar Ratio,*”* Council for Scientific and Industrial Research Symposium. Oral Presentation. Capetown, South Africa.

**Gerson JR** and Baptiste A. Apr 2011. "Preliminary Results of Concerns, Perceptions and Adaptation of Fishermen to Climate Change in Trinidad and Tobago," Association of American Geographers' Annual Meeting. Poster Presentation. Seattle, WA.

**Gerson JR** and Woods III E. Apr 2011. “The Uptake of Pyrene Molecules onto NaCl and NaNO3 Aerosol Particles,” Colgate University Chemistry Department Seminar. Oral Presentation. Hamilton, NY.

**Gerson JR** and Baptiste A. Mar 2011. "Preliminary Results of Concerns, Perceptions and Adaptation of Fishermen to Climate Change in Trinidad and Tobago," Colgate University Environmental Symposium. Poster Presentation. Hamilton, NY.

**Gerson JR**, Cardillo M, Fox C, and Thomas R. Aug 2010. “Ecosystem Analysis of Red Pine Plantations in Central New York,” Huyck Preserve and Biological Research Station Summer Colloquium. Oral Presentation. Rensselaerville, NY.

**Gerson JR** and Rowlett R. Apr 2010. “Human Carbonic Anhydrase II as a Model System for Targeted Imaging and as a Therapeutic Agent,” Colgate University Chemistry Department Seminar. Oral Presentation. Hamilton, NY.

**Gerson JR**, Fernley A, McCrory C, and Parry H. Apr 2010. “Strategic Land Conservation Plan,” Cazenovia Preservation Foundation Board of Directors Meeting. Oral Presentation. Cazenovia, NY.

**WORKSHOP PRESENTATIONS**

Lee-Glauser G, **Gerson JR**,Kiffle ZB.(Invited) Oct 2015. “Grant Writing Workshop for Graduate Students,” Syracuse University American Society for Engineering Education. Panel Presentation. Syracuse, NY.

**Gerson JR**. (Invited) Jun 2015. “How to Write a Research Abstract,” Syracuse University Research Program for Undergraduate Students’ Weekly Seminar. Oral Presentation. Syracuse, NY.

**Gerson JR**. Feb 2014. “Planning and Implementing Girls’ Clubs to Promote Education for Senegalese Middle School Students,” Peace Corps Senegal Annual Training for All Serving Volunteers. Oral Presentation. Thies, Senegal.

**Gerson JR**. (Invited) Feb 2014. “Teaching Health Education in Senegalese Primary Schools,” Peace Corps Senegal Annual Training for All Serving Volunteers. Oral Presentation. Thies, Senegal.

**Gerson JR**. (Invited) Apr 2013. “Common Childhood Illnesses in Senegal: Teaching Prevention and Awareness,” Peace Corps Senegal In-Service Training for New Volunteers. Oral Presentation. Thies, Senegal.

**Gerson JR** and Pedersen CJ. Mar 2013. “Becoming a Youth Peer Reproductive Health Educator,” Medina Sabakh and Poste Keur Ayip High Schools’ Youth Training (conducted in the local language of Wolof). Oral Presentation. Poste Keur Ayip, Senegal.

Bigwood A, **Gerson JR**, Powell K. Feb 2013. “Becoming a Water, Sanitation, and Hygiene Educator,” Regional Water, Sanitation, and Hygiene Training for Senegalese Health Workers. Oral Presentation (conducted in the local language of Wolof). Nioro du Rip, Senegal.

**COMMUNITY OUTREACH PRESENTATIONS**

**Gerson JR**. Mar 2015. “Water, Climate Change, and You,” Nottingham High School. Oral Presentation. Syracuse, NY.

**Gerson JR**. (Invited) Oct 2014. “Organic Bonds: From Colgate to Peace Corps to Grad School,” Colgate University Chemistry Seminar. Oral Presentation. Hamilton, NY.

**Gerson JR**. May 2014. “A Home Away from Home: My Experiences as a Peace Corps Volunteer in Senegal,” Van Der Veer Elementary School. Oral Presentation. Somerville, NJ.

**Gerson JR**. 2012-2014. “Preventing Malaria and Improving Health,” Senegalese Women’s Group Meetings and Hospital Trainings for Women. Oral Presentation (conducted monthly in the local language of Wolof). Keur Serigne Thioye, Senegal.

**Gerson JR**. 2012-2014. “The Miracle Tree: How the Moringa Plant Improves Health,” Senegalese Women’s Group Meetings. Oral Presentation (conducted weekly in the local language of Wolof). Farfenni, Gambia.

Curcuruto L and **Gerson JR**. Feb 2013. “Nioro du Rip Action Plan,” Peace Corps Senegal Annual Training for All Serving Volunteers. Oral Presentation. Thies, Senegal.

**Gerson JR**. Jan 2013. “Hygiene and Nutrition,” Senegalese Primary School Health Enrichment Program (conducted in the local language of Wolof). Oral Presentation. Keur Serigne Thioye, Senegal.

**HONORS, AWARDS, FELLOWSHIPS, SCHOLARSHIPS**

2016 *Outstanding Graduate Student in Civil and Environmental Engineering –* Syracuse University

2016 *Exploration Fund Grant: Mamont Scholar* – Explorer’s Club

2016 *Student Travel Award* – Northeast Geologic Society of America

2016 *Graduate Student Organization Travel Grant* – Syracuse University

2015-2020 *Graduate Research Fellowship* – National Science Foundation

2015-2016 *Education Model Program on Water-Energy Research (EMPOWER) National Science Foundation National Research Traineeship* – Syracuse University

2015-2016 *Selected Professions Fellowship* – American Association of University Women

2015 *Richard A. Herbert Memorial Scholarship* – American Water Resources Association

2015 *Graduate Student Organization Travel Grant* – Syracuse University

2015 *Nunan Graduate Student Travel Grant* – Syracuse University

2014-2016 *Syracuse University Graduate Fellowship* – Syracuse University

2011 *Honors in Biochemistry* – Colgate University

2011 *Award for Excellence in Environmental Studies* – Colgate University

2011 *Distinction in CORE Curriculum –* Colgate University

2007-2011 *Dean's List* – Colgate University

2010-2011 *Konosioni Senior Honor Society* – Colgate University

2008 *Phi Eta Sigma Honor Society* – Colgate University

2008 *Maurice M. Eaton Endowed Scholarship* – Colgate University

2008 *NJ Alumni Scholarship* – Colgate University

2008 *Arthur Watson Endowed Fund for Career Planning* – Colgate University

2007 *Lila and Curtiss Frank Scholarship* – Colgate University

**GRANTS**

Nutrient dynamics in Adirondack lakes recovering from acidification by acid deposition ($40,000), New York State Energy Research and Development Authority, January 2015-August 2016, PI: CT Driscoll, co-PI: **J** **Gerson**.

Reach for the stars: A Senegalese community library ($3400), World Connect, November 2013-March 2014, PI: **J Gerson**, co-PI: F Umoh.

Keur Serigne Thioye girls’ club ($250), Peace Corps Senegal Gender and Development, November 2012-April 2014, PI: **J Gerson**.

Keur Serigne Thioye women’s garden ($1200), USAID Feed the Future, October 2012-May 2013, PI: **J Gerson**.

Keur Serigne Thioye water project ($150), Water Charity Appropriate Projects, September 2012-December 2012, PI: **J Gerson**.

Gardens in 4 primary schools ($1900), Peace Corps Small Project Assistance, November 2010-August 2013, PI: D Stoermer, co-PIs: **J Gerson**,L Curcuruto, T Joel, A Constant, M Hyatt, E Corkery.

**SERVICE**

2016-present Girls on Outdoor Adventures for Leadership and Science, *Founder and Coordinator ­*– Duke University

2016-present Females Excelling More in Math Engineering and Science, *Mentor –* Duke University

2016-present Duke Biology Outreach, *Board Member* – Duke University

2016-present Student Committee, *Board Member* – International Conference on Mercury as a Global Pollutant

2015-present Exploring Our World: 4th Grade Science Day*, Coordinator* – Somerville, NJ

2015-present 1000 Girls, 1000 Futures, *STEM Mentor* – New York Academy of Sciences

2015-present ESA Student Section*, Biogeochemistry Liaison* – Ecological Society of America

2015-2016 Biogeochemistry Journal Group, *Coordinator* – Syracuse University

2014-2016 Big Brothers Big Sisters, *Mentor* – Syracuse, NY

2014-2016 Science Corps, *STEM Mentor* – Syracuse University

2015 Ying Tri-Regional Science and Engineering Fair, *Judge* – Syracuse, NY

2007-2011 Students for Fiver, *Mentor* – Colgate University

2007-2011 Campus Ecology Group, *Activity Coordinator* – Colgate University

2007-2011 Colgate Hunger Outreach Program, *Board Member* – Colgate University

2009 Finding Money for Social Change, *Grants Advisor*– Colgate University

**CERTIFICATIONS**

Teaching English as a Foreign Language (TEFL)

Wilderness First Responder (WFR)

**LANGUAGES**

French, professional written and oral proficiency

Wolof (Senegalese local language), professional oral proficiency

**PROFESSIONAL MEMBERSHIP**

Earth Science Women’s Network

Ecological Society of America

Explorer’s Club

Geologic Society of America

Graduate Women in Science

New York Academy of Sciences

Women in Science and Engineering at Duke