

Krysten Rutherford

Curriculum Vitae

2-2550 Windsor St.
Halifax, NS, B3K 5C3
☎ (902)292 8251
✉ krysten.rutherford@dal.ca

Education

- 2014- **Doctor of Philosophy**, *Dalhousie University*, Halifax, NS.
Oceanography
- 2013-2014 **GIS Certificate**, *Loyalist College*, Belleville, ON.
Geographic Information Systems
- 2009–2013 **Bachelor of Science, Engineering Chemistry**, *Queen's University*, Kingston, ON, *GPA – 3.70*.
First Class Honours

PhD Thesis

Summary Ongoing PhD research project is part of the Marine Environment Observation, Prediction and Response (MEOPAR) Network and the FCRF project *Improved accounting of the Arctic Ocean's carbon sink through a combination of observations and models*. Research aims to quantify inorganic carbon cycling on the continental shelves of the Canadian sections of the Atlantic and Arctic Oceans using a 3D biogeochemical model. The project focuses on studying the effects of transport pathways on air-sea CO₂ flux here, both now and in the future.

Supervisor Dr. Katja Fennel

Scholarships and Awards

- 2019 L'Oreal Canada - FCRF Scholarship (\$5 000)
 - 2018-present Nova Scotia Graduate Scholarship (*Dalhousie University*, \$15 000 per year for four years)
 - 2009-2011 Principal's Scholarship (*Queen's University*, \$10 000 over two years)
 - 2009 Stanley/Jean Pitt Distinguished Alumni Entrance Scholarship (*Queen's University*, \$2 000)
- Conference awards
- 2019 Best Overall talk, Conference of the Dalhousie Oceanography Graduate Students
 - 2018 Best PhD talk, Conference of the Dalhousie Oceanography Graduate Students
- Other
- October 2017 Let's Talk Science volunteer of the month.
 - 2009-2013 Dean's Scholar (*Queen's University*)

Publications

- Rutherford, K.** and K. Fennel (2018), Diagnosing transit times on the northwestern North Atlantic continental shelf. *Ocean Science*, 14, 1207-1221. doi:10.5194/os-14-1207-2018.
- Fouche, J., M.J. Lafreniere, **K. Rutherford**, and S.F. Lamoureux. 2017. Seasonal hydrology and permafrost disturbance impacts on dissolved organic matter composition in High Arctic headwater catchments. *Arctic Science*, 3: 378-405. doi:10.1139/AS-2016-0031.

Presentations

International conferences

- February 2020 **Rutherford K.**, K. Fennel, A. Laurent, H. Thomas, *Can $p\text{CO}_2$ observations help-constrain predator-prey interactions in a biological model?*, Oral Presentation, AGU Ocean Sciences Meeting. San Diego, California
- June 2019 **Rutherford K.**, K. Fennel, A. Laurent, D. Atamanchuk, D. Wallas and H. Thomas, *Model-data assessment of Scotian Shelf carbon dynamics: A spatially varied and biologically active system.*, Poster Presentation, Ocean Carbon and Biogeochemistry Summer Workshop. Woods Hole, Massachusetts
- May 2019 **Rutherford K.**, K. Fennel, D. Atamanchuk, D. Wallas, H. Thomas and K. Kam, *Model-data assessment of Scotian Shelf carbon dynamics: A spatially varied and biologically active system.*, Oral Presentation, Ocean Predict '19. Halifax, Nova Scotia
- February 2019 **Rutherford K.**, K. Fennel, A. Laurent, D. Brickman, and J. John, *Shifting circulation under a changing climate: Biogeochemical impacts in the northwest North Atlantic*, Oral Presentation, ASLO Aquatic Sciences Meeting. San Juan, Puerto Rico
- February 2018 **Rutherford K.**, K. Fennel, and H. Thomas, *Elucidating Carbon Transport Mechanisms that Drive Air-Sea CO_2 Fluxes on Continental Shelves: A Numerical Modeling Study of the Scotian Shelf*, Oral Presentation, AGU Ocean Sciences Meeting. Portland, Oregon
- February 2016 **Rutherford, K.**, K. Fennel, C. E. Brennan, H. Thomas, K. Azetsu-Scott, and A. Mucci, *Source or Sink? A Modeling study of inorganic carbon cycling on the Scotian Shelf*, Poster Presentation, AGU Ocean Sciences Meeting. New Orleans, LA

National conferences

- June 2018 **Rutherford K.** and K. Fennel, *Residence times and transport pathways on the northwestern North Atlantic continental shelf: Results from a numerical tracer analysis*, Oral Presentation, CMOS. Halifax, NS
- June 2018 **Rutherford K.**, K. Fennel, A. Laurent, A. Kuhn, H. Thomas, K. Azetsu-Scott, and A. Mucci, *Elucidating Carbon Transport Mechanisms that Drive Air-Sea CO_2 Fluxes on Continental Shelves: A Numerical Modeling Study of the Scotian Shelf*, Poster Presentation, CMOS. Halifax, NS
- March 2017 **Rutherford, K.** and K. Fennel, *Source or Sink? Elucidating the carbon transport mechanisms that drive air-sea CO_2 flux on the Scotian Shelf*, Oral Presentation, MEOPAR Ocean Acidification Workshop. Ottawa, ON

Institutional conferences

- March 2019 **Rutherford K.**, K. Fennel, A. Laurent, D. Brickman, and J. John, *Shifting circulation under a changing climate: Biogeochemical impacts in the northwest North Atlantic*, Oral Presentation, Conference of the Dalhousie Oceanography Graduate Student Association.
Halifax, NS
- March 2018 **Rutherford K.**, K. Fennel, A. Laurent, A. Kuhn, H. Thomas, K. Azetsu-Scott, and A. Mucci, *Elucidating Carbon Transport Mechanisms that Drive Air-Sea CO₂ Fluxes on Continental Shelves: A Numerical Modeling Study of the Scotian Shelf*, Oral Presentation, Conference of the Dalhousie Oceanography Graduate Student Association.
Halifax, NS
- March 2016 **Rutherford, K.**, K. Fennel, C. E. Brennan, H. Thomas, K. Azetsu-Scott, and A. Mucci, *Source or Sink? A modeling study of inorganic carbon cycling on the Scotian Shelf*, Oral Presentation, Conference of the Dalhousie Oceanography Graduate Student Association.
Halifax, NS
- March 2015 **Rutherford, K.**, K. Fennel, C. E. Brennan, H. Thomas, K. Azetsu-Scott, and A. Mucci, *Modeling inorganic carbon in the northwestern North Atlantic*, Oral Presentation, Conference of the Dalhousie Oceanography Graduate Student Association.
Halifax, NS

Teaching and Work Experience

Teaching Experience

- 2019 **Lecturer**, *International Ocean Institute*, Halifax, NS,
Ocean acidification lecturer for Summer Training Programme 2019.
- 2015-2017 **Teaching Assistant**, *Dalhousie University*, Halifax, NS,
Conversations with Ocean Scientists (first-year scientific writing course).

Work Experience

- 2012-2013 **Research Assistant**, *Department of Geography, Queen's University*, Kingston, ON,
Conducted research at the remote Cape Bounty Arctic Watershed Observatory (CBAWO) on Melville Island, Nunavut. Primary research focused on sampling High Arctic rivers, and testing for carbon, nitrogen and fluorescence characteristics of the samples once back in the lab.
- 2011 **Research Assistant**, *Department of Geography, Queen's University*, Kingston, ON,
Evaluated the effect of fertilizer treatments on greenhouse gas emissions from switchgrass fields.

Volunteer Experience

Community Involvement

- 2019-present Frontier College Tutor (Halifax, NS)
- November 2018 Facilitator at the Girl Guides STEM Retreat (Halifax, NS).
Co-facilitated an ocean-related workshop for Halifax-wide Girl Guides, emphasizing the importance of science and mathematics, particularly when studying the ocean.
- 2017-2018 Let's Talk Science Volunteer (Dalhousie University; Halifax, NS)
Facilitated scientific workshops in schools throughout the Halifax Regional Municipality to promote curiosity in science.
- April 2017, Role Model at Women in Science and Engineering (WISE) retreat (Halifax, NS).
- August 2018 *Guest speaker at WISE retreat, describing life as an oceanographer and sparking interest for science in young girls.*
- 2016-present Sunday Suppers Volunteer (Halifax, NS)
- 2016-2017 Researcher at the Canadian Mental Health Association (Halifax, NS)

2015, 2017, Coldest Night of the Year Fundraising Walk (ARK; Halifax, NS)
2018 2019

School Involvement

2016-2018 Social Committee (Dalhousie Oceanography Student Association; Halifax, NS)

2015-2018 Merchandise Committee (Dalhousie Oceanography Student Association; Halifax, NS)

Leadership Experience

2017-present Riley Lecture Co-Organizer (Dalhousie Oceanography Student Association; Halifax, NS)

2017-2018 Vice President (Dalhousie Oceanography Student Association; Halifax, NS)

2017-2018 Scientific Retreat Organizer (Dalhousie Oceanography Student Association; Halifax, NS)

2015-2017 Treasurer (Dalhousie Oceanography Student Association; Halifax, NS)

Additional Experience

March 2019 Three-Minute Thesis (3MT) Presenter (Dalhousie University; Halifax, NS)

January 2019 Guest lecturer for Conversations with Ocean Scientists course (Dalhousie University; Halifax, NS)

2019 Author for Current Tides vol. 4: Tracking the Ocean's Biogeochemistry (Dalhousie Oceanography Student Association; Halifax, NS)

February 2017 Student Speaker (Marine Environmental Observation, Prediction and Research (MEOPAR) Network, Dalhousie University, Halifax, NS)

Student presenter during the visit of the Canadian Minister of Science, the Honourable Kirsty Duncan, to Dalhousie University. Presentation illustrated some of the important ocean research done at Dalhousie.

2015, 2017 Editor for Current Tides vol. 2 and 3 (Dalhousie Oceanography Student Association; Halifax, NS)