

DANIELLE NOWOSAD

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I am a Red River Métis-settler interdisciplinary researcher that is interested in community-driven freshwater ecology projects. I prioritize working with Indigenous collaborators in participatory research and combining multiple ways of knowing. I am currently investigating the baseline of biodiversity and response to impacts of climate change in freshwater invertebrate communities in the Kitikmeot region of Nunavut, using DNA methodologies and IQ (Inuit Qaujimajatuqangit). I have worked with government agencies, academia, non-profits, and the public.

EDUCATION

PHD CANDIDATE, INTEGRATIVE BIOLOGY [4.0 GPA]

2019 – present; expected graduation by February 2024

UNIVERSITY OF GUELPH, GUELPH, ON

Thesis: *Using DNA barcoding as a tool to assess biodiversity and risk of northern range expansion of freshwater invertebrates in the Canadian Arctic*

Advisor: Dr. Sarah Adamowicz & Dr. Karl Cottenie; Co-Advisor: Dr. Ian Hogg

BSC WITH HONOURS, PHYSICAL GEOGRAPHY [3.1 GPA]

2019

UNIVERSITY OF WINNIPEG, WINNIPEG, MB

Thesis: *Effects of seasonality and sediment properties on nutrient cycling in Sub-Arctic tundra ponds*

Advisor: Dr. Nora Casson; Co-Advisor: Dr. LeeAnn Fishback

GRANTS

MAJOR AWARDS (TOTAL 69,000 CAD)

<i>NSERC Supplemental Award – Doctoral, Government of Canada (10,000)</i>	2023
<i>NSERC Post-Graduate Scholarship – Doctoral, Government of Canada (21,000)</i>	2021-24
<i>Indigenous Graduate Scholarship – Merit, University of Guelph (15,000)</i>	2021-24
<i>Graduate Tuition Scholarship, University of Guelph (8,000 CAD) – forfeited</i>	
<i>Weston Family Award for Northern Research, Weston Family Foundation (15,000)</i>	2020-21

OTHER AWARDS (TOTAL 31,707 CAD)

<i>Indigenous Graduate Scholarship – Fulfilling Community Commitments, U of Guelph (3,000)</i>	2023
<i>Northern Scientific Training Program, Polar Knowledge Canada (3,157)</i>	2023
<i>NSERC Indigenous Student Ambassador, Government of Canada (2,950)</i>	2023
<i>NSERC Indigenous Student Ambassador, Government of Canada (4,000)</i>	2022
<i>James Bourque Northern Scholarship, Royal Canadian Geographical Society (3,000)</i>	2022
<i>Building Brighter Futures, Indspire (7,500)</i>	2021
<i>Jim Bourque Scholarship for Northern Research, Arctic Institute for North America (1,000)</i>	2021
<i>Kishaadigeh “She Who Guards The Lodge” Indigenous Leadership Award, University of Guelph</i>	
<i>First place – ArcticNet ASM Graduate Poster Competition (600)</i>	2020
<i>Campus Sustainability Recognition Award, University of Winnipeg</i>	2019-20
<i>NSERC Undergraduate Student Research Award, Government of Canada (4,500)</i>	2018
<i>Northern Scientific Training Program, Polar Knowledge Canada (2,000)</i>	2017

ACADEMIC AND RESEARCH WORK EXPERIENCE

GRADUATE RESEARCH ASSISTANT, UNIVERSITY OF GUELPH

Part-time, September 2023 – January 2024

- Supervised by Joanne Garcia-Moores (Indigenization, Equity, Diversity, and Inclusion Advisor in Research)
- Role is part of a multi-institutional project entitled “Respecting and Asserting First Nations Data Sovereignty in Research Data Management”
- Working on a team of RAs from other institutions to take minute meetings during multi-institutional and multi-Nation meetings, coding themes within transcripts, creating written summaries

ON-THE-LAND HOLISTIC FIELD COURSE

UNIVERSITY OF GUELPH AND THE KITIKMEOT INUIT ASSOCIATION

Co-Instructor, June 2023

- Contributed in-person in Cambridge Bay, NU to a field course co-created by faculty at the University of Guelph and Lakehead University (Dr Shoshanah Jacobs, Dr Tad McIlwraith, Dr Jess Clausen) and the Kitikmeot Heritage Society (KHS); funded by the Kitikmeot Inuit Association (KIA)
- Course was co-taught by academics invited by KHS and KIA, and Inuit Elders from the community
- Participants ranged from Grades 10-12, activities ranged from learning in various environmental areas (wetlands, lakes, ocean, tundra), traditional sewing and beadwork, and combining traditional Inuit Knowledge and way of life (Inuit Qaujimagatuqangit) and Western scientific ways of knowing

RESEARCH WRITER, CLEAR LAB, MEMORIAL UNIVERSITY

Part-time, September – December, 2022

- Working under Dr Max Liboiron (Department of Geography)
- Reviewing various projects for completeness and identifying gaps
- Editing manuscripts, preparing/editing figures, simple statistical analyses, preparing for publication

RESEARCH ASSISTANT, POLAR KNOWLEDGE CANADA

Full-time contracts, May – September, 2019-22

- Working remotely in Winnipeg, or at the Canadian High Arctic Research Station
- Assisting with field collections of plant phenology, insect ecology, botany, and remote sensing projects
- Collecting freshwater invertebrate samples for my MSc and PhD; planning logistics for field collections
- Training assistants in field and lab methods for freshwater invertebrate collections, sorting, preservation
- Creating and leading youth workshops in partnership with the Kitikmeot Friendship Society

GRADUATE RESEARCH ASSISTANT, UNIVERSITY OF GUELPH

March – December, 2021

- Working under Dr Melissa Perreault (Biomedical Sciences)
- Led the call for a working group, facilitated meetings, and created a communications strategy to help mitigate barriers faced by Indigenous undergraduate students in the College of Biological Sciences
- Wrote an orientation package, distributed to incoming Indigenous students in Fall 2022

RESEARCH ASSISTANT, POLAR KNOWLEDGE CANADA

Part-time contracts, September - December, 2019-21

- Working remotely in Winnipeg, or in the Collections Laboratory at the Centre for Biodiversity Genomics at the University of Guelph
- Databasing, identifying, processing, and plating specimens for DNA sequencing

GRANT WRITER, WATERWAYS CANADA

August - September 2020; April – October, 2021

- Writing grants for an Indigenous-led non-profit
- Successful applications to >\$50,000 in funding for various community, land, and culture-based programs for Indigenous youth in Manitoba

GRADUATE TEACHING ASSISTANT, UNIVERSITY OF GUELPH

January - April, 2020-21

- Teaching 2-3 lab sections of a first-year biology course (Discovering Biodiversity)
- 20-25 students per section, in-person and virtually
- Grading assignments (in-person and virtual) and proctoring exams (in-person)

RESEARCH TECHNICIAN, CHURCHILL NORTHERN STUDIES CENTRE

Full-time Contracts May – September, 2017-18

- Providing logistical support for field and lab work in Manitoba's Sub-Arctic
- Collected contract data for 15+ projects from a variety of disciplines
- Polar bear guard for school groups, researchers, citizen scientists
- Led international citizen science teams, conducted a pilot study on nutrient dynamics in Sub-Arctic tundra pond systems, and completed an Honours thesis on the same topic

PUBLICATIONS

JOURNAL PUBLICATIONS

Nowosad, D., Hogg, I., Cottenie, K., Lear, C., Adamowicz, S. (2023, pre-print). Assessing the diversity of freshwater invertebrates in the Canadian Arctic using mitochondrial DNA barcodes to monitor ecological change.

Nowosad, D. (2018) Rethinking the Foundations of Canada: From Historical Records to Life Experiences. The Case of Peter Fidler. Crossings, vol. 2, pp. 143-153.

TECHNICAL REPORTS

Nowosad, D., Hogg, I. and Adamowicz, S. (2020). Using DNA barcoding to inventory and track changes in the distribution and diversity of freshwater invertebrates in the Canadian Arctic. Aqhaliat 2020, Polar Knowledge Canada, p. 21-23 (in press).

NON-PEER REVIEWED

Nowosad, D. and Beattie, M. (2023). SciQ: A new approach to ethical research in the North. Canadian Geographic. Online. <https://canadiangeographic.ca/articles/sciq-a-new-approach-to-ethical-research-in-the-north/>

Nowosad, D. (2021). Birding in Cambridge Bay. Canadian Section of The Wildlife Society Newsletter. 14(4).

Nowosad, D. (2021). Arctic BIOSCAN: Tracking biodiversity in Canada's Middle Arctic using DNA. iBOL (International Barcode of Life) Bulletin Board. Online. <https://ibol.org/barcodebulletin/illuminations/2021-25-05-dna-barcode-research-in-the-canadian-middle-arctic-that-works-to-include-indigenous-locals/>

CONFERENCE PARTICIPATION

1. 2023. Ethical Research on Indigenous Land – How Do We Engage Communities When We Study “Uncharismatic” Animals? North American Symposium on Bat Research Annual Scientific Meeting, Winnipeg, Manitoba. October 14 (talk)
2. 2023. Using DNA barcoding to assess biodiversity of freshwater invertebrates on Inuinnait Nuna, or the Canadian Middle Arctic. Canadian Society for Ecology and Evolution Annual Scientific Meeting, Winnipeg, Manitoba. June 13 (talk)
3. 2022. Using DNA barcoding to assess biodiversity of freshwater invertebrates on Inuinnait Nuna, or the Canadian Middle Arctic. ArcticNet Annual Scientific Meeting, Toronto, Ontario. Dec 7 (talk)
4. 2022. Métis Experiences in Science. Mawachihitotaak: Let’s Get Together Métis Symposium, online (talk)
5. 2021. Building the reference library for freshwater invertebrates in the Canadian Middle Arctic. ArcticNet Annual Scientific Meeting, online (poster)
6. 2021. How can DNA barcoding be used to understand biodiversity and phylogeography of freshwater invertebrates in the Canadian Arctic? Canadian Association of Limnologists Annual Scientific Meeting, online (talk)
7. 2020. Using DNA barcoding to assess biodiversity and phylogeography of freshwater invertebrates in the Canadian Arctic. ArcticNet Annual Scientific Meeting, online (poster)
8. 2020. DNA barcoding: what is it, and how it can be used in the Canadian Arctic?. American Indian Science and Engineering Society (AISES) international annual conference, online (poster)
9. 2020. Using DNA barcoding as a tool to understand biodiversity and phylogeography of freshwater invertebrates in the Canadian Arctic. Cold Regions Research Days, online (talk)
10. 2019. Freshwater invertebrates in the Canadian Arctic: Using DNA barcoding to assess biodiversity, phylogeography, and ecological factors. ArcticNet Annual Scientific Meeting, Halifax, Nova Scotia (poster)
11. 2019. Freshwater invertebrates in the Canadian Arctic: Using DNA barcoding to assess biodiversity, phylogeography, and ecological factors. Annual Cold Regions Conference, Waterloo, Ontario. (poster)
12. 2019. Effect of Seasonality and Sediment Properties on Rate of Nutrient Uptake in Tundra Pond Sediments. Canadian Association of Geographers Annual Conference, Winnipeg, Manitoba (talk)
13. 2019. Effect of Seasonality and Sediment Properties on Rate of Nutrient Uptake in Tundra Pond Sediments, Prairie Biology University Symposium, Winnipeg, Manitoba (poster)
14. 2018. Effect of Seasonality and Sediment Properties on Rate of Nutrient Uptake in Tundra Pond Sediments. High North Programme Symposium, Gjøvik, Norway (talk)
15. 2018. Effect of Seasonality and Sediment Properties on Rate of Nutrient Uptake in Tundra Pond Sediments. Randy Kobes Poster Competition, Winnipeg, Manitoba (poster)
16. 2018. Nutrient Uptake in Tundra Pond Sediments. Geography Honours Symposium, Winnipeg, Manitoba (talk)

COMMUNITY KNOWLEDGE MOBILIZATION

YOUTH ACTIVITIES

FRESHWATER BIODIVERSITY WORKSHOPS, KITIKMEOT FRIENDSHIP SOCIETY 2023

- Workshop in Cambridge Bay, Nunavut at the Canadian High Arctic Research Station
- Funded by the NSERC Indigenous Student Ambassador award and Polar Knowledge Canada, in partnership with the Kitikmeot Friendship Society, a local youth-oriented organization which delivers many social programs and day camps
- Outdoor pond invertebrate collections and indoor microscope and identification component

- Youth took custom-made colouring pages, transfer pipettes, plastic forceps, jars, and invertebrate stickers home
- Donated all workshop materials (nets, hand microscopes, petri dishes, identification sheets and book) to the Kitikmeot Friendship Society for use in future youth programs

FRESHWATER BIODIVERSITY WORKSHOPS, MANITOBA METIS FEDERATION 2022

- Funded by NSERC Indigenous Student Ambassador award
- Workshops for ~60 youth delivered in Winnipeg, Brandon, and Grand Marais, Manitoba
- Created freshwater and bird workshops to integrate into Métis Environmental Leaders of Tomorrow (MELT) day camps, which are canoe, land, and culture-based
- Created a budget and purchased freshwater invertebrate sampling equipment, which was donated to the MELT program

“WHAT’S IN THE WATER?” YOUTH WORKSHOPS, POLAR KNOWLEDGE CANADA 2022

- 2 workshops run in Cambridge Bay, Nunavut at the Canadian High Arctic Research Station
- Funded by POLAR, in partnership with the Kitikmeot Friendship Society, a local youth-oriented organization which delivers many social programs and day camps
- Outdoor pond invertebrate collections and indoor microscope and identification component
- Youth took custom-made colouring pages, transfer pipettes, plastic forceps, jars, and invertebrate stickers home

COMMUNITY REPORTS

PROGRESS REPORTS, EKALUKTUTIAK HUNTER-TRAPPER ORGANIZATION AND THE KUGLUKTUK HUNTER-TRAPPER ORGANIZATION

JULY 2022, APRIL 2023

- Delivered in-person and by email to the HTOs in Cambridge Bay and Kugluktuk, Nunavut
- Reported sampling sites and protocols, preliminary results, knowledge mobilization strategies
- Answered project-specific questions from community members

PUBLIC/INVITED TALKS

1. 2023. Implementing Inuit guidelines for ethical research. BIOL 6110 - Emerging Problems and Opportunities in Wildlife Biology. University of Guelph. September 26.
2. 2023. Implementing Inuit guidelines for ethical research. GEOG 3330 - Research Methods, University of Winnipeg. August 21.
3. 2022. Building a genetic DNA library of freshwater invertebrates around Cambridge Bay, NU. Grade 10 Biology students in Peel, ON. December 16.
4. 2022. Indigenous inclusion in universities. Centre for Innovation in Campus Mental health. October 20.
5. 2022. Knowledge Mobilization: Implementing Inuit guidelines for ethical research. Environment and Climate Change Canada seminar series. October 18.
6. 2022. Knowledge Mobilization: Implementing Inuit guidelines for ethical research. Integrative Biology Departmental Seminar Series. September 29.
7. 2022. Building a genetic DNA library of freshwater invertebrates around Cambridge Bay. Canadian High Arctic Research Station Public Speaker Series. June 14.
8. 2022. Careers outside: Scientific research. Sturgeon Heights Collegiate Outdoor Education class (in Winnipeg, MB), online. May 24.
9. 2022. Using DNA barcoding to understand biodiversity in Canada’s North. Canadian Parks and Wilderness Society, Manitoba chapter (in Winnipeg, MB), online. May 13.
<https://vimeo.com/709658963>.

10. 2022. Exploring freshwater biodiversity in the Arctic. Live lesson via Explore By The Seat Of Your Pants, online. February 18. https://www.youtube.com/watch?v=d_G7XrDOszM&t=285s
11. 2021. Arctic BIOSCAN freshwater invertebrates in Cambridge Bay. Kiliniik High School Freshwater Biology class (in Cambridge Bay, NU), online. October 7.

SERVICE

ADVISORY

Centre for Indigenous Fisheries, University of British Columbia

September 2022-24

- Advisory council member
- Two major meetings per year to discuss Centre directives and future trajectory

MENTORSHIP

University of Guelph College of Biology Undergraduate Mentorship Program (CoBUMP)

January – April, 2020-22

- Mentor to one upper-year undergraduate student per winter semester
- Weekly meetings to discuss research interests, job opportunities, graduate school expectations
- Provided a living document of opportunities based on student's interests

Undergraduate Student Research Assistants – Adamowicz Lab (University of Guelph)

May – August, 2023

- Created/curated onboarding materials and project management plans for two undergraduate students working on full-time summer contracts in the Adamowicz lab
- Developed research projects aligned with interests and goals of each student, and aligns with research interests outlined by the Hunter-Trapper Organizations in Kitikmeot
- Twice-weekly meetings to support students in skill development including citation management software, statistical software, data management, and more

COMMITTEES

Secretariat Graduate Programs and Faculty Committee, University of Guelph

October 2022 - 24

Search committee member, Integrative Biology Chair, University of Guelph

June 2022 – present

Integrative Biology Indigenous Belonging and Connections Committee, University of Guelph

March 2021 – March 2022

IAAC Indigenous-Science Knowledge Systems Engagement, Departmental Working Group, University of Guelph

June – September, 2021

ArcticNet Student Association Executive Committee

December 2019 – 2022

- English communications officer
- Responsible for our Twitter and Instagram pages, setting up and moderating workshops, contests

OTHER

Co-Chair, ArcticNet Annual Scientific Meeting

December 2022

- Session: Freshwater ecosystems as sentinels and integrators of the Arctic landscape

Bird Safe Guelph

November 2020 – May 2021

- Outreach and engagement
- Launched a fundraising campaign that raised \$800

Manitoba Envirothon

February 2018 – present

- Co-author of the regional and provincial field exams
- Teacher and student training sessions leader
- Supervising stations during in-person field exams

MEDIA AND PRESS INTERVIEWS

TEXT

1. 2022. DNA barcoding in Arctic freshwaters with Danielle Nowosad. *Arctic Research Foundation*. Text. <https://www.arcticfocus.org/stories/dna-barcoding-arctic-freshwaters-danielle-nowosad/>
2. 2022. Guelph, Ont. Grad student's work helps Indigenous students feel welcome on campus. *CBC radio, Kitchener and Waterloo*. Radio and text. <https://www.cbc.ca/news/canada/kitchener-waterloo/guelph-student-danielle-nowosad-indigenous-research-1.6492815>
3. 2022. How this Metis student is changing what it means to be Indigenous in STEM. *University of Guelph News*. Text. <https://news.uoguelph.ca/2022/06/how-this-metis-student-is-changing-what-it-means-to-be-indigenous-in-stem/>
4. 2021. New UoG program to enhance research in biology for Indigenous students. *University of Guelph News*. Text. <https://news.uoguelph.ca/2021/06/new-u-of-g-program-to-enhance-research-in-biology-for-indigenous-students/>
5. 2021. CBS graduate student wins prestigious award. *University of Guelph News*. Text. <https://www.uoguelph.ca/cbs/news/2021/04/cbs-graduate-student-wins-prestigious-award>
6. 2021. UWinnipeg alumna Danielle Nowosad receives Kishaadigeh Award. *University of Winnipeg News*. Text. <https://news.uwinnipeg.ca/uwinnipeg-alumna-danielle-nowosad-receives-kishaadigeh-award/?fbclid=IwAR0>
7. 2021. Gryphons improving life: student experience awards 2021. *University of Guelph News*. Text. <https://news.uoguelph.ca/2021/04/gryphons-improving-life-student-experience-awards-2021/>
8. 2019. UWinnipeg celebrates excellence. *University of Winnipeg News*. Text. <https://news.uwinnipeg.ca/uwinnipeg-celebrates-excellence/>
9. 2019. A summer job up north: Headingley scientist conducting research in Cambridge Bay. *Headingley Times*. Print.
10. 2018. Louis Riel Bursaries – meet the talented Metis students. *University of Winnipeg News*. Text. <https://news.uwinnipeg.ca/louis-riel-bursaries-meet-the-talented-metis-students/>
11. 2018. Undergraduate research wins at Randy Kobes Symposium. *University of Winnipeg News*. Text. <https://news.uwinnipeg.ca/undergraduate-research-wins-at-randy-kobes-symposium/>
12. 2018. Crossings Volume 2 launches this month. *University of Winnipeg News*. Text. <https://news.uwinnipeg.ca/crossings-volume-ii-launches-this-month/>

AUDIO

1. 2023. Minisode #1: A Journey to Respectful Research with Danielle Nowosad. ArcticMinded (funded by ArcticNet) podcast, hosted by Julia McPherson.
2. 2022. Dani chills with Arctic invertebrates. We Know Some Stuff podcast, hosted by Louis Colaruotolo. louiscolaruotolo.com/blog/daniellenowosad
3. 2019. Dani Nowosad – Living up north, struggling with multiple choice questions, and having a creative partner. 2M Creative Labs podcast, hosted by Juan Manual.

<https://podcasts.apple.com/ca/podcast/023-dani-nowosad-living-up-north-struggling-multiple/id1447254>

4. 2018. Polar bear defense & bottled atmosphere with Dani Nowosad. The Ponder Pod podcast, hosted by Jeremy Darvill and Eric Jorgenson.

PROFESSIONAL DEVELOPMENT

1. Skills for research impact series: planning for research impact – University of Guelph 2022
2. Reproducible practices for Arctic research using R – Arctic Data Center 2022
3. Introduction to geographic analyses of biodiversity – Transmitting Science 2021
4. Project Management Graduate Course – partnership between the University of Guelph and the Community Engaged Scholarship Institute 2021