

CRRC HIGHLIGHTS



Stories of Change: Mackenzie River Basin Climate Change Workshop

CRRC, in collaboration with the Mackenzie River Basin Board (MRBB) and the Laurier Research Office, hosted a two-day *Stories of Change: Mackenzie River Basin (MRB) Climate Change Workshop* in Yellowknife, NWT. The workshop brought together Indigenous communities, researchers, government agencies, and environmental organizations to discuss the impacts of climate change across the MRB. CRRC secured and contributed approximately \$89K in funding to support the workshop and related activities.

Laurier researchers and CRRC members played a major role throughout the event. Dr. Homa Kheyrollah Pour delivered welcoming remarks on behalf of CRRC and co-presented on *Ice and Snow Dynamics Across the Great Bear and Great Slave Lake Basin* alongside Walter Bezha from the Délı̨nę Got'ı̨nę Government. Dr. Jennifer Baltzer presented on the impacts of wildfires on freshwater ecosystem health, while Dr. Gifty Attiah presented research on water temperature and turbidity changes across Great Bear and Great Slave Lakes. Dr. Heidi Swanson and William Alger participated in the panel discussion, *Bridging Traditional Knowledge Systems with Science to Assess Aquatic Ecosystem Health* and presented on community-based aquatic ecosystem monitoring.

The workshop agenda included keynote presentations, panel discussions, storytelling sessions, and collaborative discussion blocks on various topics, including community-based monitoring. Participants also explored how Traditional Knowledge and Western science can work together to better understand and respond to rapid environmental change in the North. These findings will contribute to the next web-based *Mackenzie River Basin State of the Aquatic Ecosystem Report (SOAER)* to support future collaborations among communities, researchers, and decision-makers across the basin.

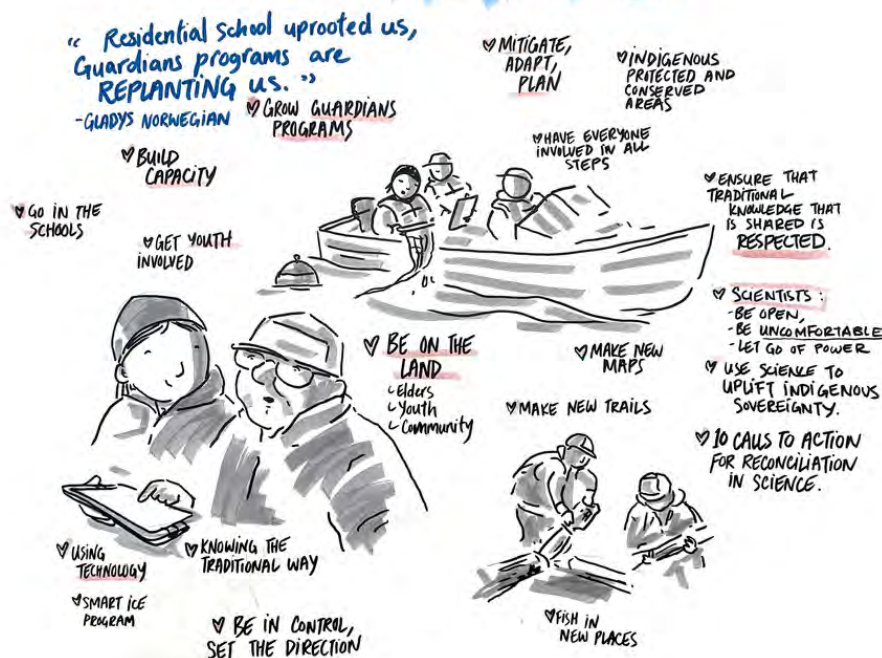
Stories of Change: From Discussion to Creation

Throughout the workshop, Alison McCreesh, a visual artist, transformed our conversations into a large-scale visual drawing. Alison carefully captured key themes, insights, and connections in real time, creating a piece that reflected the depth and energy of the dialogue. The final drawing not only showcased everything that was discussed but also served as a creative and engaging way to see the attendees' collective thoughts woven together into a story.

Below are a few snapshots of the completed drawing:



MOVING FORWARD



Federal Visit to CCRWS Showcases Community-Led Conservation Research

On May 22, the Centre for Cold Regions and Water Science (CCRWS) welcomed federal leaders for a visit focused on community-led conservation, freshwater stewardship, and northern research impact. The event showcased how Laurier researchers and CRRC members are contributing to conservation science, Indigenous partnerships, climate adaptation, and decision-ready environmental monitoring across northern Canada.

The visit included The Honourable Nathalie Provost, Secretary of State (Nature), and The Honourable Bardish Chagger, Member of Parliament for Waterloo. Guests toured the Centre for Cold Regions and Water Science facilities and learned about Laurier's interdisciplinary conservation and freshwater research initiatives.



Pictured left to right: Dr. Chris Lemieux, Dr. Michael Suits, Dr. Stephanie DeWitte-Orr, The Honourable Nathalie Provost, The Honourable Bardish Chagger, Dr. Richelle Monaghan, Dr. Heidi Swanson, and Dr. Homa Kheyrollah Pour.

As part of the research showcase, Dr. Heidi Swanson presented work on Indigenous-led freshwater stewardship and northern food security. Dr. Homa Kheyrollah Pour highlighted community-based ice and water monitoring partnerships across the Northwest Territories, while Dr. Chris Lemieux discussed conservation policy, protected areas, biodiversity, and climate adaptation research. The discussions emphasized the importance of community and Indigenous partnerships in shaping environmental monitoring and conservation research in Canada. The visit also provided an opportunity to explore future collaborations and strengthen connections between Laurier researchers, CRRC members, and federal conservation priorities.

CRRC Snow Workshop: The Science of Snow & Ice

In February, the CRRC Field Committee hosted a snow and ice workshop focused on winter field science and monitoring techniques. The workshop, led by the CRRC Field Committee and University of Waterloo students, brought together CRRC members for hands-on field training in snow and lake ice measurements. Participants were introduced to several field methods, including snow surveys, snow pit analysis, snow water equivalent coring, and lake ice monitoring techniques on Columbia Lake. The ice component of the workshop included drilling through lake ice to measure ice thickness and type, as well as collecting water quality profiles using CTD (Conductivity, Temperature, and Depth) sensors.



During the workshop, students had the opportunity to gain hands-on experience using modern tools for measuring snow and ice. Shanlin Boychuk used the Magnaprobe (pictured here) to conduct a snow survey transect. Photo credit: Branden Walker

The workshop provided practical experience with field equipment, data collection procedures, and proper sampling techniques in winter field conditions. As part of the event, attendees also toured the University of Waterloo's Meteorological Station, officially named the E.D. Soulis Memorial Weather Station, which provides real-time atmospheric data and long-term climate records for the Waterloo region.



Students practiced drilling holes in the ice on Columbia Lake to assess ice thickness and ice type. They also measured water depth and demonstrated the collection of water quality profiles using CTD (Conductivity, Temperature, and Depth) sensors. Pictured from left to right: Joshua Meyers, Calli Pendlebury, Shanlin Boychuk, Branden Walker, James Huiskamp, and Hayley Kavanagh. Photo credit: Alex Fogal.



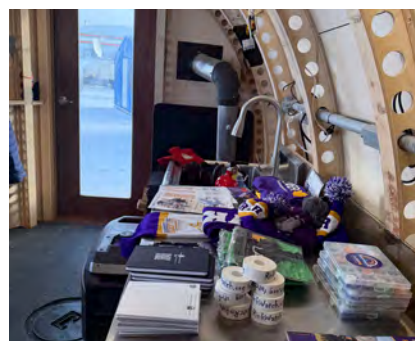
Branden Walker sharing some knowledge about snowpack development and melt processes. Students learned how to conduct snow pits and identified snow grain types within the snowpack. Photo credit: Alex Fogal.

Hockey Meets Science on Great Bear Lake



In March, the Délı̨nę, Northwest Territories community hosted the Alumni All-Star Winter Classic, where NHL stars gathered to honour 200 years of hockey tradition in the region, sponsored by Laurier Research and CRRC members. Spectators had the opportunity to visit the portable Sahtú Lab, a mobile science station used by Dr. Kheyrollah Pour and her team to measure water quality, ice thickness, and snow properties across Great Bear Lake. The lab supports research and monitoring efforts in collaboration with the Délı̨nę Got'ı̨nę Government, researchers, and community partners.

The Sahtú Lab also welcomed several distinguished visitors during the event, including NWT Premier R.J. Simpson, Minister Marc Miller, Minister Rebecca Alty, and Senator Dawn Anderson. Following the event, Dr. Kheyrollah Pour and Branden Walker, Physical Geography Laboratory Technician, introduced community members and Délı̨nę high school students to the lab, taking them onto the lake to explore the portable research station and test an underwater drone. Read more about the event [here](#).



Sahtú Lab on Great Bear Lake during winter field operations and Inside the Lab, showcasing equipment and outreach materials during community engagement activities. Photo credit: Branden Walker.

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2026 Jack Middlemass Memorial Award Winner: Claudia Haas

Congratulations to Claudia Haas, a PhD student in Biology at Wilfrid Laurier University supervised by Dr. Frances Stewart, who was the recipient of the 2026 Jack Middlemass Memorial Graduate Award. This award will support Claudia's fieldwork research in the Canadian North.



"Northern studies that recognize Indigenous ways of knowing and answers Indigenous research priorities make for rewarding and meaningful research, yet take time to be done properly, including multiple in-person community visits to build necessary trust and counteract the impacts of extractive research of the past. While the North's vast landscapes makes Northern research exciting, it is also what makes it challenging with long, expensive travel and is why the North is less studied than more accessible and populated southern Canada."

"Northern research now is even more important. I have personally experienced the impacts of accelerated climate change, most recently in 2023 when > 70% human population of the NWT was evacuated due to intensified wildfires and heavy smoke. Northern research, when done right, is immensely rewarding and provides irreplaceable information for current and future generations."

Congratulations to 20 CRRC Students Receiving NSTP Awards

We are thrilled to announce that 20 CRRC students have received Northern Scientific Training Program (NSTP) awards funded by Polar Knowledge Canada. These awards recognize students whose research advances northern knowledge and supports northern communities through field-based research and community engagement. The NSTP program helps support transportation and living costs associated with conducting fieldwork in northern regions, providing students with valuable hands-on research experience in remote and northern environments. CRRC students will undertake projects across a range of topics, including freshwater science, climate change, ice and snow monitoring, ecosystem health, remote sensing, and community-based environmental research. These awards highlight the strong contribution of CRRC students to northern research, training, and collaborative partnerships across the North. Congratulations to all award recipients on this achievement.



Wilderness and Remote First Aid Training Offered to Support Field Research Safety

In February, CRRC, in collaboration with the Faculty of Science, co-hosted a Wilderness and Remote First Aid (WAF/RFA) training opportunity for students and researchers involved in field-based research. The training was organized to help strengthen field safety preparedness for research conducted in remote environments. The first stage of the training focused on Remote First Aid certification and was held over two days at the Centre for Cold Regions and Water Science building. An additional Wilderness First Aid upgrade course was also organized for participants conducting research in more remote and isolated field settings. The training supports CRRC's ongoing commitment to safe and responsible field research, particularly for students and researchers working in northern and remote environments.



Participants practice emergency response and rescue techniques under the guidance of the IRescue instructor. *Photo credit: Branden Walker.*

Meet Our New CRRC Member: Dr. Michael Bitton

Dr. Michael Bitton is an assistant professor in the Department of Geography and Environmental Studies. His research interests focus on understanding Great Lakes shorelines and coastal processes, with an emphasis on environmental change and freshwater systems. He was recently **awarded the 2026 Donald F. Morgensen Award for Teaching Excellence in the category of Early Career Excellence**, recognizing his outstanding contributions to student learning and mentorship.

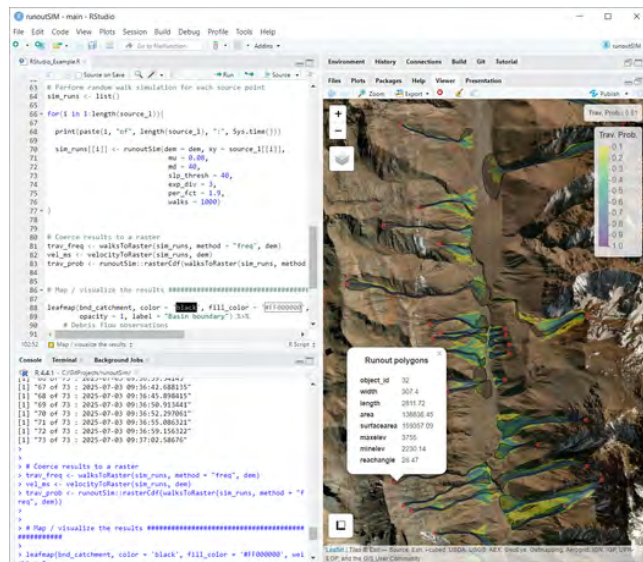
Congratulations Dr. Bitton and welcome to the CRRC community!



Dr. Michael Bitton

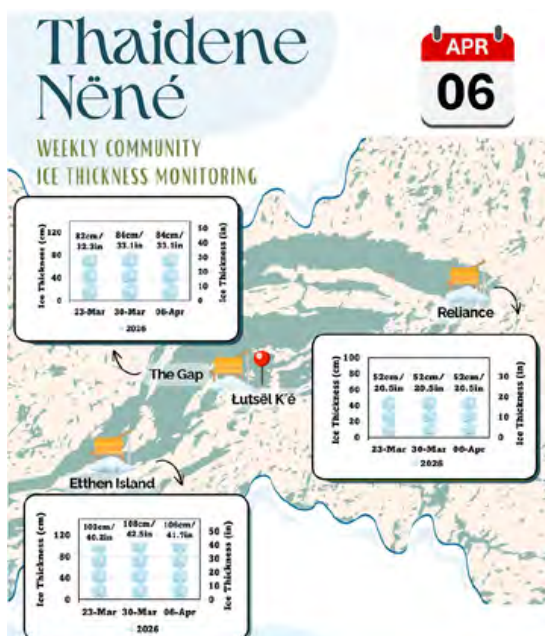
New Open-Source Tool Released for Debris Flow Runout Modelling

CRRC member, Dr. Jason Goetz, Assistant Professor, Department of Geography and Environmental Studies, recently released **runoutSIM**, a free and open-source geospatial R tool designed for regional and large-scale debris flow runout modelling. The tool helps researchers and practitioners map where debris flows and where similar landslides are likely to travel to assess whether they may impact roads, rivers, infrastructure, or other areas of concern. It is designed to support both applied hazard management and ongoing research in geomorphology, environmental change, and natural hazard modelling. Read more [here](#).



Example of the runoutSIM package workflow in RStudio, where the runout simulation results can be visualized interactively through leaflet-powered maps.

Community Ice Monitoring Work Featured in Thaidene Nënë Newsletter



Real-time community ice thickness monitoring map shared weekly with community members to support ice safety and travel conditions.

CRRC members collaborated with the Thaidene Nënë Department, within the homeland of the Łutsël K'é Dene First Nation, to monitor ice thickness at several locations near the community on Great Slave Lake. Sensors were deployed in January and retrieved in April.

This collaboration is important for supporting community-based ice safety monitoring, improving understanding of changing winter conditions, and strengthening partnerships between researchers and northern communities through shared environmental monitoring efforts. This work was recently highlighted in the May issue of the *Thaidene Nënë Newsletter*.

Read more [here](#).

Introducing Daniela Klicper

CRRC STUDENT RESEARCH

Spotlight

Daniela's research involves many hours of fieldwork collecting samples under ice and in open water to study water chemistry, algae, light, gases, and more. Her goal is to better understand how nutrients cycle seasonally and the sediment geochemistry in urban-influenced subarctic lakes. The focus is on Jackfish Lake in the City of Yellowknife, which experiences annual harmful algal blooms dominated by toxin-producing cyanobacteria (Planktothrix), posing risks to both humans and wildlife. Ongoing research aims to better understand bloom risks, what drives their formation, and how they might be mitigated.



DANIELA KLICPER

PhD student; Laurier's Geography program

Supervisor: Dr. Jason Venkiteswaran

klic3198@mylaurier.ca



Calling all Graduate Students!

Are you a CRRC undergraduate, master's, or doctoral student? Would you like to be featured in our CRRC Student Research Spotlight Series? This spotlight series is a great opportunity to share your research and graduate experience with CRRC members. It's a fantastic way to introduce yourself and connect with the CRRC community.

Please fill out this [Google Form](#) to be featured on our social media platforms.

CRRC Picnic in the Park: Register Today

The CRRC is hosting a summer picnic at Waterloo Park (East Gazebo) on Thursday, June 18th, from 2:00 - 4:00 pm. Come join us for food, fun, and networking opportunities with CRRC members!

Please register for the picnic by **filling out this form** by June 15.





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JOIN US FOR A CRRC PICNIC IN THE PARK

The CRRC is hosting a summer picnic! Come join us for food, fun, and networking opportunities with CRRC members. Snacks and refreshments will be provided.



Thursday
June 18th



Time
2:00 PM - 4:00 PM



Waterloo Park
East Gazebo



**Register by
June 15th**





Some recent (March 2026 until now) publications from our CRRC members: check them out!

**If we missed your publication, please let us know so we can include it in the next CRRC Highlights*

- Bayatvarkeshi M, Ketcheson S, Afolabi O, Brookfield A, Ludwig R, Strack M. 2026. Assessing the effects of seismic line disturbance on boreal peatland water balance using CoupModel. <https://doi.org/10.1139/cjfr-2025-0264>.
- Brubacher NC, Xu L, Segal R, Scott KA, Clausi DA. 2026. Detection of landfast ice polynyas from SAR imagery using deep learning. <https://doi.org/10.1080/07038992.2026.2638600>
- Blay-Palmer A, Anderson MD, Aunio AL, Ballamingie P, Carey R, Gudu S, Mullinix K, Murphy M, Pulasinghage C, Spring A, Szanto D, Valette E, Wilkes J, Miltenburg E. 2026. Building capacities in regional food systems: mapping change towards transformation. <https://doi.org/10.1007/s10460-025-10840-y>
- Ensom T, Kokelj SV, Marsh P, Van der Sluijs J, Connon RF. 2026. The influence of highway-stream crossing on stream temperature, aufeis, and terrain dynamics in continuous permafrost. <https://doi.org/10.1139/as-2025-0065>
- Hoyos S, Goetz G. 2026. Data limitations and opportunities in Canadian multi-hazard research. <https://doi.org/10.5194/egusphere-egu26-8503>
- Newman AJ, Cheng Y, Blaskey D, Herman-Mercer NM, Craig AP, Koch J, Toohey R, Mutter E, Carey MP, Gooseff MN, Swanson H, Thomas P, Brooks C, Musselman KN. 2026. Long-term regional hydroclimate modeling for communities and decision-makers across Alaska and Northwestern Canada. <https://doi.org/10.1175/BAMS-D-24-0131.1>
- Rafat A, Spence C, Kheyrollah Pour H. 2026. Field observations of ice melt and decay to constrain lake ice model parameterizations. <https://doi.org/10.1002/hyp.70430>
- Shahvaran AR, Chegoonian AM, Kheyrollah Pour H, Reshadi MAM, Van Cappellen P. 2026. Multisource assessment of machine learning models and atmospheric correction products for chlorophyll-a retrieval in meso-eutrophic waters: Application to Hamilton Harbour, an area of concern in Lake Ontario, Canada. doi: 10.1109/TGRS.2026.3676135
- Syahid LN, Luo X, Zhao R, Yu L, Tan LM, Detto M, Sonnentag O. 2026. A cost-efficient and robust approach to monitor ecosystem photosynthesis using near-infrared near-infrared enabled cameras. <https://doi.org/10.1029/2026JG009764>
- Turnbull ID, Yulmetova M, Kheyrollah Pour H. 2026. Predicting Déljñę ice road surface temperatures on Great Bear Lake in the Northwest Territories, Canada using long short-term memory networks and their relationship to ice melt processes. <https://doi.org/10.1016/j.coldregions.2026.104963>
- Wickham SB, Armstrong CG, Trant AJ. 2026. Legacies of ancient forest gardening along the Pacific Northwest Coast highlight broad spatial and cultural variability. <https://doi.org/10.1177/02780771261432970>

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