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Arctic and Northern

Newsletter 2026 – Issue 4



Table of contents

A message from Anne Barker, Program Director 1

UNESCO endorses the Arctic and Northern Challenge program 2

Canada–Inuit Nunangat–United Kingdom Arctic Research Programme (CINUK): Project impacts 4

Project updates 5

Program mid-term review 10

New projects 12

Have you met us yet? 13

Contact us 16

A message from Anne Barker, Program Director

I'm pleased to share updates from the Arctic and Northern Challenge Program's fourth year of research activities, from April 1, 2025, to March 31, 2026.

This was an important year, with the program completing its mid-program review. The review highlighted that the program remains highly relevant and that it has been effective in advancing its objectives to address pressing challenges related to health, housing, food and water; improve quality of life for Northern peoples through technology and innovation; and prioritize Northern-led research projects that strengthen individual, organizational and community R&D capacity across the North. In this issue, we'll dive deeper into the review and share project outcomes and progress from the past year.

Another exciting development was the program's endorsement by UNESCO as part of the International Decade of Sciences for Sustainable Development. As one of the first Canadian initiatives to receive this endorsement, we're proud to support this important movement, working towards achieving the United Nation's Sustainable Development Goals. Some

information about the International Decade of Sciences for Sustainable Development, and what it means for our program, are highlighted in this issue as well.

And of course, there's the research! Over the past year, 10 research projects were underway with the Challenge program. In addition, recipients of our development grants have launched their full research projects. This issue also includes a look ahead at the 22 new research projects that are beginning in the year from April 1, 2026, to March 31, 2027.

I hope this newsletter gives you valuable insights into the program's activities and achievements over the past year. Our team looks forward to connecting at upcoming events to discuss our ongoing research.

If you would like more information about the program and its research activities, please send us an email at NRC.Arctic_Northern-Arctique_Nord.CNRC@nrc-cnrc.gc.ca.

UNESCO endorses the Arctic and Northern Challenge program

In November 2025, the National Research Council of Canada's (NRC) Arctic and Northern Challenge program (ANCP) was officially endorsed by UNESCO as part of the International Decade of Sciences for Sustainable Development (IDSSD), from 2024 to 2033!

This endorsement recognizes the program's research that supports resilient Northern communities and promotes Northern-led initiatives. It's a reflection of the commitment of Northern partners, the program's leadership and project teams, and the NRC's National Program Office's Collaborative Science, Technology and Innovation Program team.

The IDSSD highlights science across disciplines that can help achieve the United Nations' Sustainable Development Goals. It brings together nations and institutions that use science to address shared challenges such as climate change, health and well-being, and sustainable infrastructure.

This international recognition also strengthens our role in advancing the Sustainable Development Goals. The program's approach—combining Indigenous Knowledge, science, community engagement and capacity-sharing—was key to earning UNESCO's endorsement. Our collaborative projects embody the values of IDSSD, from resilient infrastructure and tools for water quality monitoring to virtual technologies for well-being and Northern food systems.

"By supporting Northern-led research capacity and fostering the inclusion of Indigenous Knowledge and through co-developed science that leverages transdisciplinary collaboration, the NRC is implementing the IDSSD's call for bold, interdisciplinary and scalable solutions, grounded in real-world needs for inclusive development, environmental sustainability and societal resilience."

—Anne Barker, Director of the Arctic and Northern Challenge program

We celebrate this achievement and reaffirm our commitment to sustainable development through collaboration, innovation and respect for the knowledge and leadership of Northern communities.

Learn more about the role of the ANCP in the International Decade of Sciences for Sustainable Development.



Canada–Inuit Nunangat–United Kingdom Arctic Research Programme (CINUK): Project impacts

The CINUK programme wrapped up last year, and an impact study was recently released. The program's 13 projects generated new knowledge, strengthened interdisciplinary research capacity, and enhanced community resilience across the Arctic. CINUK projects raised the standard for Arctic research in several areas. Researchers studied indoor air quality and its effects on lung health, examined how shoreline erosion and permafrost thaw affect infrastructure, and assessed renewable energy options for small scale technologies. The research teams also improved how slush ice and ice roughness are identified to support safer on-ice travel, enhanced Arctic search and rescue response times, and tracked microplastics in water, snow and harvested wildlife.

These projects led to strong international research partnerships, new technologies and viable community-based solutions—a true success story. Read more about the impacts of CINUK.

Project updates

Planning the future of water supply in Pangnirtung (PangWAS)

This project to study the Duval River was led by the Hamlet of Pangnirtung with support from the NRC's Construction Research Centre. It developed an approach that can be adopted by other Nunavut communities wanting to better understand the future viability of their traditional surface water sources.

Team's accomplishments during the year:

- Deployed a non-contact water velocity sensor and relocated the water quality monitoring station and team tested and calibrated the radar-based velocity sensor at the University of Windsor hydraulics laboratory
- Continued close collaboration with the Pangnirtung community, including contributions from hamlet residents, municipal garage staff, water treatment plant staff and multiple local officials
- Continued capacity building and provided training for water treatment plant staff and hamlet residents
- Supported a graduate student at the University of Windsor and hired 2 research assistants to gain advanced skills and training through the project
- Researchers presented project updates at the Northern Territories Water and Waste Association's annual conference, reaching a broader Northern audience
- The project team gave online presentations to the Northwest Territories and Nunavut Association of Professional Engineers and Geoscientists and to the UArctic Congress in the Faroe Islands



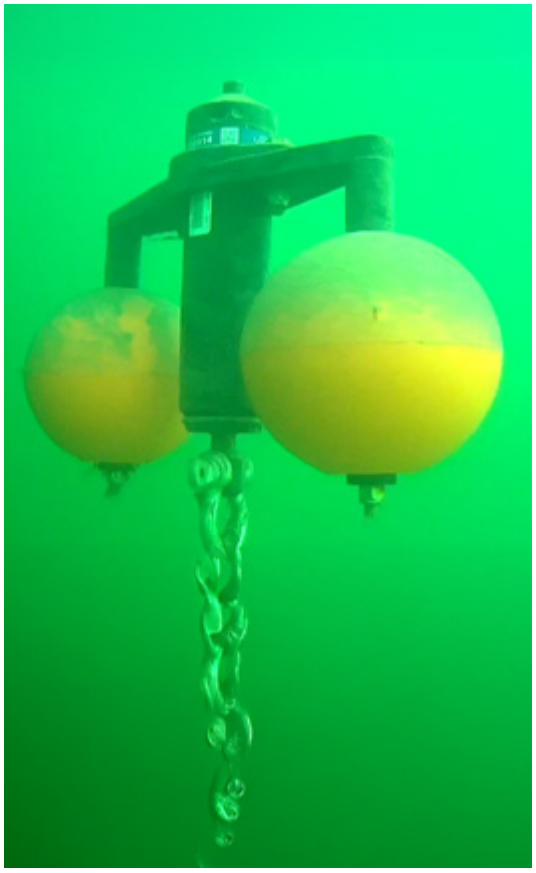
A researcher makes notes at an isolated spot on the Duval River but with access to electricity via a small solar power station. Photo courtesy of Andrew Colombo.

Enabling better management of a critical subsistence fish in Kugluktuk, Nunavut (ArcticChar)

This project sought to answer questions from and with Inuit about how Arctic char move between the Coppermine River and Coronation Gulf.

Team's accomplishments during the year:

- Tracked char using radio and acoustic telemetry and deployed 5 acoustic tags and 29 radio tags
- Successfully tagged 19 Arctic char
- Maintained an array of 70 receivers that record signals from tagged fish in the Coronation Gulf and the Coppermine River
- Installed 3 new receivers in Grays Bay
- Continued to benefit from Inuit knowledge and expertise across all project activities, with Inuit team members leading the work and co-authoring presentations and publications
- Provided training to an undergraduate student, a PhD candidate and a postdoctoral fellow
- Trained 5 Indigenous researchers: 4 research assistants and 1 Inuit research lead
- Presented project updates at ArcticNet in Calgary and the Western Arctic Char Summit in Inuvik



Underwater receiver tracking transmissions from migrating fish. Photo courtesy of Eric Hitkolok.



Students and instructors participating in the Water, Sewage and Health (WASH) winter school. Photo courtesy of Matthieu Dessureault.

Inclusive design of pilot water equipment for innovative water strategies in Nunavik (NunavikWater)

This project aims to develop and evaluate water treatment and monitoring strategies for water tanks in Northern households.

Team's accomplishments during the year:

- Organized and carried out a sampling campaign in Kuujjuaq and Kangiqsualujjuaq in collaboration with Nunavik Regional Board of Health and Social Services, Kativik Regional Government and Kativik Municipal Housing Bureau
- Sampled 40 household water tanks
- Administered a questionnaire on water access, water consumption habits and perceptions of the quality of stored water
- Provided training to 8 highly qualified personnel: 3 master's students, 2 PhD students and 3 water operators involved in sampling campaigns
- Discussed project results at the Parnasimautik workshop in Kangiqsualujjuaq
- Participated in a 5-day field course related to Water, Sewage and Health (WASH) issues

Rapid Retrofits, Healthy Homes

Earthrise Building Services Inc. and the NRC have been working together to implement home energy upgrades. Their data-driven and community-focused approach aims to improve energy efficiency while ensuring adequate ventilation and improved indoor environment quality.

Team's accomplishments during the year:

- Completed home energy upgrades on 16 homes in the Yukon
- Completed pre-retrofit indoor air quality testing in 19 homes
- Designed and supervised the near completion of a mobile "Retrofit Test and Demonstration Unit"
- Developed technical posters and an energy bill analyzer tool to help residents understand air quality data through visualization and navigate the financial transition from oil to electric heating
- Trained 2 undergraduate students and 2 Indigenous technicians



Tenant retrofit and home system. Photo courtesy of Earthrise Building Services.



Nain, in the region of Nunatsiavut, the most northerly permanent community, on the coast of Newfoundland and Labrador. Photo courtesy of David Rivest-Hénault.

Digital Interventions to Enhance Mental Health of Northern Communities in Labrador (Digital Mental Health)

This project explores how digital interventions can support nurses and general practitioners and improve mental health care for Inuit communities. Digital tools will help with early detection of mental illness as well as remote health monitoring, timely medical training and point-of-care diagnostics for communities in Labrador.

Team's accomplishments during the year:

- Worked with Memorial University's Research Ethics Board to get research approval
- Strengthened local capacity to implement the project and began the process to recruit a research assistant based in Nain
- Welcomed 2 postdoctoral fellows to provide additional support
- Engaged with key community members in Nain (region of Nunatsiavut) and Happy Valley–Goose Bay, Newfoundland and Labrador

Program mid-term review

At the midpoint of every NRC research program, it is reviewed by an external committee as part of the Collaborative Science, Technology and Innovation Program (CSTIP). These reviews help ensure programs are meeting their goals and continue to work toward their intended research outcomes.

The recent mid-term review of the ANCP found that the program remains highly relevant and well aligned with federal priorities and the needs of Northern communities. The program's focus on community-led research and capacity building is helping advance reconciliation, close infrastructure gaps, and support Indigenous-led innovation.

The review also found strong early results. Northern organizations are taking part in research design and delivery, and Northerners are gaining new technical skills and certifications through local innovation projects. Several projects have attracted new funding and are already making a difference in people's lives.

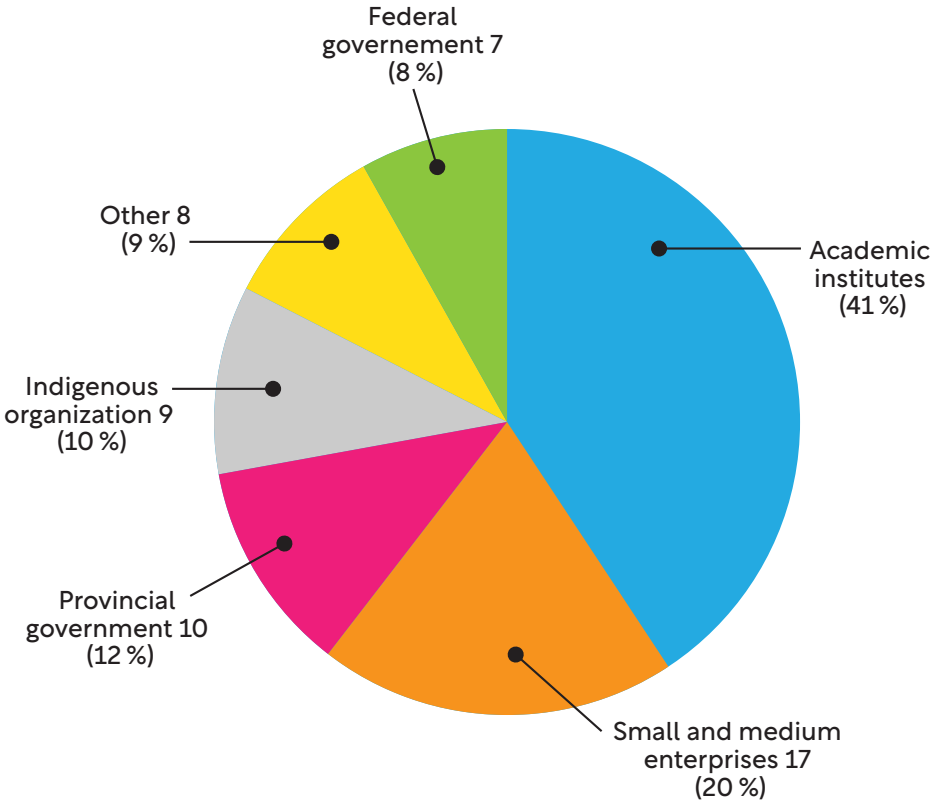
Indigenous Knowledge is being braided within research projects. More projects now include social sciences to better reflect community realities.

While the ANCP is not an economic development program, it also supports communities by creating local jobs, strengthening local expertise and supporting social enterprises.

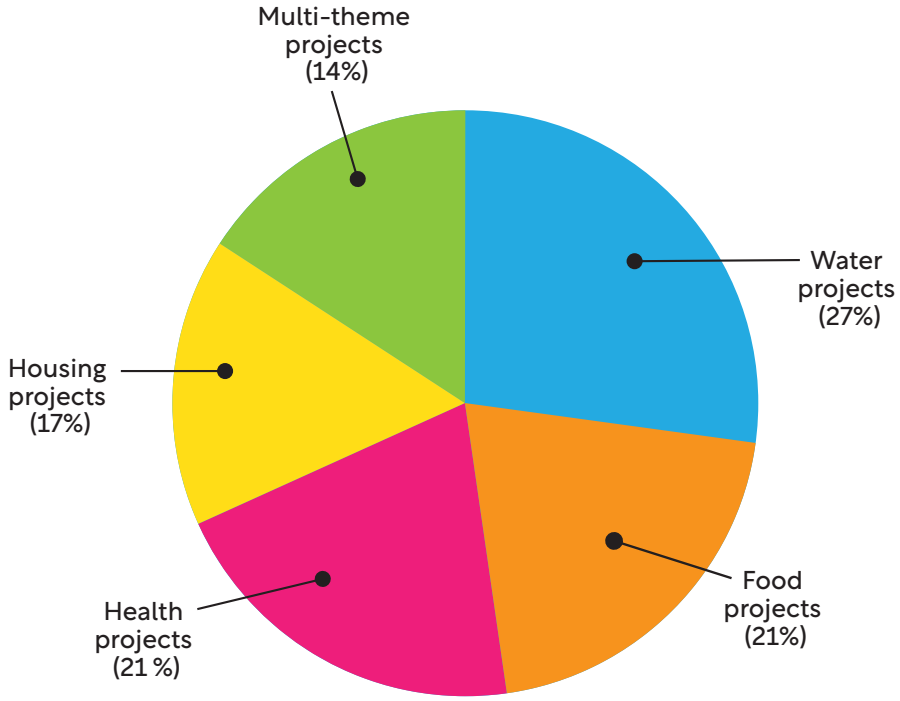
The program's flexible funding and relationship-based approach allow it to respond to regional needs and encourage collaboration. The review committee praised the program for its thoughtful and agile approach to challenges and for maintaining strong progress toward its goals.

Looking ahead, the program will focus on sharing research results more widely with communities, governments, and partners across regions. It will also explore new opportunities for joint projects, international collaboration, and ways to contribute to UNESCO's International Decade of Sciences for Sustainable Development.

Distribution of unique ANCP research collaborator types at the time of the mid-term review.



Distribution of projects by theme, including projects receiving development grants.



New projects

The ANCP is working towards supporting 21 new research projects through its development grant and call for proposals processes. To date, funding agreements for 10 of these projects have been fully executed, with the remaining projects progressing through the funding agreement negotiation process. We look forward to sharing updates as these projects get underway and their research activities move forward. For now, here's a snapshot of the 10 new research projects being supported through the ANCP.



Health

- One Health North: Decentralized molecular One Health monitoring for Northern and remote communities

Housing

- Passive Humidity Control: Hypothermal testing of a vapour-permeable wall and roof system for passive humidity control in overcrowded Northern Indigenous housing
- Paulatuq Housing and Energy Transition: Community-led housing and emission improvements

Food

- Sustainable Wild Berry: Sustainable wild berry conservation and use in Northern Canada
- Dakwakada Food Hub: Can a Modular Food Hub Work Here? Testing cost recovery in a Northern community
- Shoreline Mapping: Portage shoreline mapping for increased resiliency of winter roads
- NSMA Food Security: Food security and climate resilience for the North Slave Métis community

Water

- Arctic Biogas: Assessing viability of biogas production in Arctic conditions
- WWAVES: Condition assessment of water and wastewater systems in Whitehorse
- Augmented Water: Sensor technologies for augmented Northwest Territories water quality monitoring



The mayor of Inuvik gave a tour of the town, including a visit to the former ice rink that was transformed into a community greenhouse to provide space for growing food for families and local businesses. Photo courtesy of Corinne Dunwoody.

Have you met us yet?

Over the past year, our leadership team participated in many events, caught up with research collaborators and shared information about the research underway. Here is a sample of some of the events we attended and project site visits from the past year.

Arctic Development Expo, Inuvik

Program manager Corinne Dunwoody attended the Arctic Development Expo in Inuvik in June 2025, where she met with project partners and learned about challenges facing Northern communities and the solutions they are collaboratively developing.

ArcticNET, Calgary

The ANCP team, theme leads and researchers attended the ArcticNET conference in Calgary in December 2025. Many project teams presented their work, and program director Anne Barker was part of a panel presentation on the Northern research economy.



NRC research and program staff at the ArcticNet annual scientific meeting. Photo courtesy of Robert Briggs.



NRC researcher Rob Briggs taking ice and snow measurements and samples on Snare Lake. Photo courtesy of Corinne Dunwoody.

Project site visit

In January 2026, program manager Corinne Dunwoody visited ANCP's Winter Trails project in Wekweetì, Northwest Territories. The visit took place during field work being done with NRC researcher Rob Briggs and led by a SmartICE operator to test and improve new technology to help monitor winter trails and roads for safer travel.

Northwest Territories Association of Communities Annual General Meeting, Yellowknife

ANCP stakeholder engagement coordinator Dan Houser and program director Anne Barker attended the Northwest Territories Association of Communities (NWTAC) Annual General Meeting in Yellowknife in February 2026. Along with many networking opportunities, the event included interactive sessions where Anne and Dan met with attendees, answered questions about the ANCP and potential research partnerships, and heard a motivational talk from former NHL player Jordin Tootoo.



Presentation by Jordin Tootoo at the NWTAC. Photo courtesy of Dan Houser.

Advancing Indigenous Science and Engineering Society Conference, Toronto

ANCP student Cherish Richardson, stakeholder engagement coordinator Dan Houser and NRC Indigenous engagement advisor and Scholar-In-Residence Evan Laye attended the Advancing Indigenous Science and Engineering Society conference in Toronto in March 2026. They co-chaired a panel discussion on the student experience at the NRC and on different ways of visualizing data.



Beads as data visualization models. Photo courtesy of Cherish Richardson.

International conferences

ANCP's food theme lead Shawn Clark attended the Circumpolar Agriculture Conference in Tromsø, Norway. The conference provided a valuable opportunity for researchers to connect and learn about Arctic agriculture research in Canada and across the circumpolar region.



NRC researcher Shawn Clark. Photo courtesy of Shawn Clark.

ANCP's housing theme lead Boualem Ouazia delivered a presentation during the "Northern Housing and Indoor Air Quality: Challenges and Solutions" session at the International Conference in Moisture in Buildings, held in Portugal in October 2025.



The Azurém campus at the University of Minho, Portugal. Photo courtesy of Boualem Ouazia.



Contact us

If you have any questions or would like to learn more about the Arctic and Northern Challenge program, send an email to NRC.Arctic_Northern-Arctique_Nord.CNRC@nrc-cnrc.gc.ca

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