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**PROGRESS REPORT: YEAR 2**  
THE MCGILL CHAIR IN NORTHERN RESEARCH:  
WILDLIFE CONSERVATION AND TRADITIONAL FOOD SECURITY

**1. GENERAL OBJECTIVES OF THE CHAIR RESEARCH PROGRAM**

Three general objectives of the McGill INQ Chair in Northern Research are to:

1. Capitalize on new technologies in wildlife biologging and remote sensing to assess the impacts of resource development and environmental change on northern wildlife and traditional food security.
2. Locate and characterize northern research conducted at McGill to foster cross-faculty and inter-disciplinary collaborations within McGill's northern research community and to provide northern exposure to McGill's excellence in sustainability science.
3. Enhance McGill's contributions to Institut Nordique du Quebec (INQ).

**2. PROGRESS MADE TOWARDS THESE OBJECTIVES FOR THE PERIOD COVERED BY THE REPORT**

**Objective 1. Capitalize on new technologies in wildlife biologging and remote sensing to assess the impacts of resource development and environmental change on northern wildlife and traditional food security.**

We conducted a wide variety of field-based research projects oriented around the biologging and remote sensing of northern wildlife species, which are important to local communities as furbearers and traditional food sources (Table 1), in partnership with federal and territorial governments as well as co-management and Indigenous organizations. We also pursued document- and data-based research on the traditional food systems and subsistence economies of Indigenous communities from across northern Canada. The integration of the wildlife biologging and traditional foods research axes is occurring through the research programs supported by the NSERC CREATE Environmental Innovation graduate training program, with a dedicated focus on the impacts of resource development on wildlife in northern Canada, as well as the newly initiated research program, entitled *WILD FOOD, INC. & Climate Change in Northern Quebec*, focusing on the impacts of climate change on traditional food security in Eeyou Istchee and Nunavik territories.

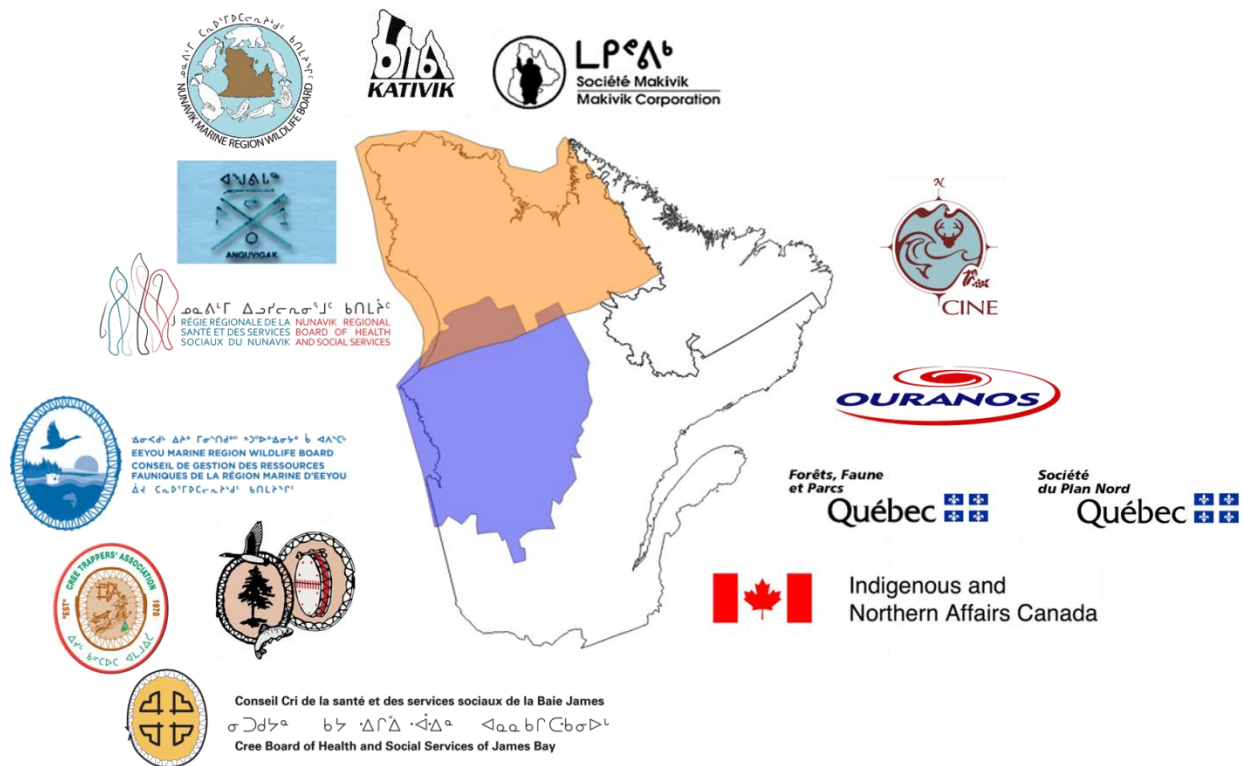
Since our last report, we have:

- 1) Initiated two new wildlife specific projects, one on muskox-caribou interactions in Yukon and Northwest Territory and one on beaver-salmonids interactions in Nunavik.
- 2) Secured funding from Ouranos, Ministère des Forêts, de la Faune et des Parcs, and Indigenous and Northern Affairs Canada (through Cree Nation Government).
- 3) Actively engaged and collaborated with organizations with mandates related to health and food security (e.g., Cree Health Board, Nunavik Regional Board of Health and Social Services), wildlife harvest and subsistence economies (e.g., Cree Trappers Association, Nunavik Hunters, Fishermen and Trappers Association (R/LNUK), the JBNQA Hunting, Fishing and Trapping Coordinating Committee), and regional governance, environmental protection, and sustainable development (e.g., Cree Nation Government, Makivik, Kativik Regional Government, Eeyou Marine Region Wildlife Board, Nunavik Marine Region Wildlife Board) to co-develop the research agenda in Eeyou Itschee and Nunavik territories (Figure 1).
- 4) Initiated national-scope review and synthesis papers highlighting the ecological diversity and socioeconomic value of wild food systems in northern North America. Currently these efforts have yielded three close-to-submission review and synthesis manuscripts, with the following titles:
  - a. The ecological diversity of the wild animal food systems of northern Indigenous communities
  - b. Valuing country food harvest in Nunavut, Canada
  - c. The ecological importance of body size in the traditional food systems of northern Indigenous Peoples

**Table 1.** Research projects oriented around the biologging and remote sensing of northern wildlife species (<sup>l</sup> denotes projects initiated since our last report, <sup>o</sup> denotes field work ongoing in this reporting period, <sup>c</sup> indicates field work completed prior to this reporting period but analyses ongoing).

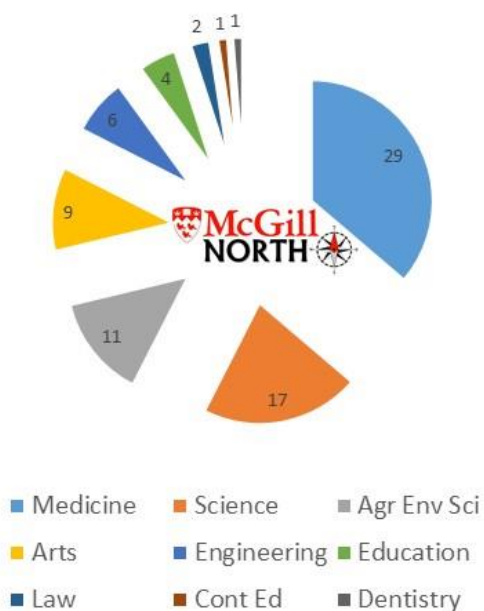
Wildlife species	Biologging and remote sensing technology	Impacts of concern	Location	Community partners	Government partners	NGO partners
<b>Muskox<sup>l</sup></b>	GPS and satellite collars, satellite imagery	Interaction with caribou	Yukon-NWT North Slope	Aklavik Hunters and Trappers Committee	Yukon Territorial Government, Government of the Northwest Territories, Parks Canada	Wildlife Management Advisory Council, Gwitch'in Renewable Resources Board
<b>Beaver<sup>l</sup></b>	Aerial survey, satellite imagery	Range expansion, interaction with salmonids	Nunavik	Hunting	Makivik, Nunavik Research Center, Ministère Forêts, Faune et Parc	
<b>Lynx and their prey<sup>o</sup></b>	Satellite collars, accelerometers, audio recorders, camera traps	Climate change, ecological drivers	South-western Yukon		Yukon Territorial Government, US Fish and Wildlife Service	
<b>Sharp-tailed grouse<sup>o</sup></b>	Radio-collars, camera traps	Placer mining	Central Yukon		Yukon Territorial Government	Yukon Fish and Wildlife Enhancement Trust
<b>Wolverines<sup>c</sup></b>	Satellite collars, accelerometers	Cumulative Impacts	Northern Alberta	Alberta Trappers Association		Alberta Conservation Association

<b>Wildlife species</b>	<b>Biologging and remote sensing technology</b>	<b>Impacts of concern</b>	<b>Location</b>	<b>Community partners</b>	<b>Government partners</b>	<b>NGO partners</b>
<b>Muskrats and their predator<sup>o</sup></b>	Aerial survey, carcass collection, satellite imagery	Changes in water regime and ice phenology	Mackenzie Delta, NT	Gwich'in Renewable Resources Board	Government of Northwest Territories, Aurora College, Canadian Wildlife Service	
<b>Muskrats<sup>o</sup></b>	Aerial survey, carcass collection, satellite imagery	Changes in water regime and ice phenology	Old Crow Flats, Yukon	Vuntut Gwitchin First Nation	Yukon Territorial Government, Parks Canada	North Yukon Renewable Resource Council
<b>Narwhals<sup>c</sup></b>	Satellite tags, satellite imagery	Shipping	Eclipse Sound, Nunavut		Department of Fisheries and Oceans	World Wildlife Fund
<b>Canada Geese<sup>o</sup></b>	Automated acoustic recording units, camera traps	Aquaculture	Tabusintac Bay, New Brunswick		Canadian Wildlife Service	Tabusintac Watershed Association, Wildlife Habitat Canada
<b>Caribou<sup>o</sup></b>	GPS and satellite collars, satellite imagery	Cumulative impacts	Northwest Territories		Government of Northwest Territories	



**Figure 1.** Funding and partner organizations involved in the WILD FOOD, INC. & Climate Change in Northern Quebec research program.

**Objective 2. Locate and characterize northern research conducted at McGill to foster cross-faculty and inter-disciplinary collaborations within McGill’s northern research community and to provide northern exposure to McGill’s excellence in sustainability science**



The McGill Chair in Northern Research has initiated an institution-wide northern research network called McGill North, which currently includes 83 professors from 9 faculties (Figure 2), with the objective to promote, mobilize, and interdisciplinize northern, arctic, and circumpolar research at McGill by organizing networking and training events involving northern researchers across McGill faculties.

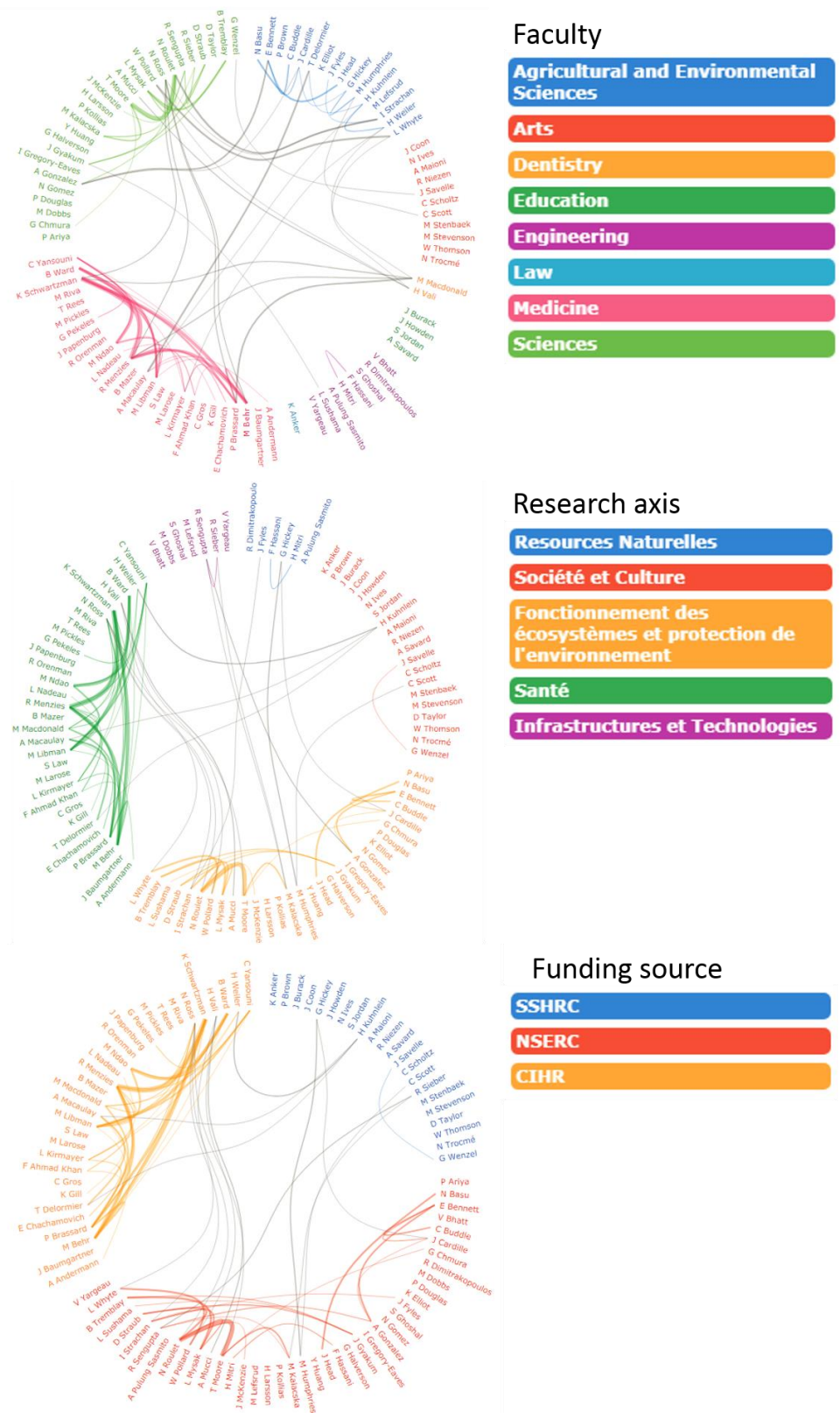
**Figure 2.** Faculty representation of professors included in the McGill North network.



McGill and CINE have also successfully recruited our first Indigenous Northern Scholar, Treena Wasonti:io Delormier, conducting research focused on food, nutrition and health of Indigenous Peoples. Dr. Delormier is based at CINE and an active collaborator in the research program *WILD FOOD, INC. & Climate Change in Northern Quebec*, including securing funding from McGill Sustainability Systems Initiative (MSSI) for a health and food security component of the program.

Since our last report, we have:

- 1) Created and updated the McGill North website (<https://www.mcgill.ca/mcgillnorth/>), including a network analysis of connections between McGill northern researchers by faculty, research axis, and funding source (Figure 3) and a section - McGill North Luminaries - highlighting McGill's rich history in northern research with profiles of excellence in northern research at McGill.
- 2) Created a McGill North Student Facebook page for McGill students working on northern and Arctic research to share news, events, ideas, and questions. Up to now, there are 79 members and so far, it has helped students connect across disciplines and be more engaged in northern research on campus.
- 3) Organized and hosted, jointly with INQ, the Second Northern Research Day (Jan 2018) attended by almost 80 McGill and INQ researchers (Figure 4).
- 4) Organized and hosted, jointly with INQ, Quebec Centre for Biodiversity Sciences, NSERC CREATE Environmental Innovation program, and the Association of Polar Early Career Scientists, the Intercultural Indigenous Workshop – Sharing perspectives and experiences of research in Canada's North, attended by 48 participants (Nov 2017).
- 5) Contributed to the MSSI working group on Sustainable Landscapes for the Future, co-led by Elena Bennett (Natural Resource Sciences and School of Environment), Brian Robinson (Geography), and Laxmi Sushama (Civil Engineering and Applied Mechanics), focused on connecting sustainability science with landscape ecology.
- 6) Participated in ResNet, an emerging NSERC Strategic Network, led by Elena Bennett (Natural Resource Sciences and School of Environment), on applications of ecosystem services to Canadian landscape, including northern environments.
- 7) Served as the Ecosystem theme leader on the Canadian Mountain Network (CMN) Networks of Centres of Excellence (NCE) application. CMN is a voluntary alliance of partners from universities, governments, Indigenous communities, and businesses dedicated to the sustainability of mountain environments and communities across the country.



**Figure 3.** Network of connections among 83 McGill northern researchers by faculty (top), research axis (middle), and funding source (bottom) (<https://www.mcgill.ca/mcgillnorth/research>).



a)



b)



c)



d)



e)



f)

**Figure 4.** a) INQ and McGill representatives b) Presentation by Murray Humphries, INQ-McGill Chair in Northern Research c) Presentation by Dr. Louis Fortier, INQ Scientific Director d) Around 80 participants attended the event e) and f) Networking and lunchtime

### **Objective 3. Enhance McGill's contributions to *Institut Nordique du Quebec (INQ)***

As McGill Chair in Northern Research, I have been very active at McGill, the *Institut Nordique du Québec* (INQ), and the broader northern Quebec, northern Canadian, and circumpolar research communities to ensure McGill is well represented at INQ and conversely that INQ is well represented at McGill. Table 2 summarizes the activities that I have been involved in within the last year that I believe have contributed to fostering McGill's relationship with the INQ.

Since our last report, we have:

1. Participated, with the other INQ chairs, in a working group on sustainable development, ensuring INQ research is relevant and applicable to sustainable development priorities and that there are synergies between the three chairs. Up to now, the group has created a virtual library that contains sustainable development documents (academic articles, chapters, books, strategies) relevant to INQ and its members. In addition, the working group has started an analysis to understand how the INQ research axis address the United Nations Sustainable Development Goals.
2. Presented a banner at a booth shared by all INQ Chairs and encouraged the attendance of 29 graduate students from the McGill-University of Alberta Environmental Innovation CREATE program NSERC CREATE at the Arctic Change conference in Quebec City (attended by 1450 researchers, Inuit, First Nations and Northern community representatives, government and non-government organizations, students, and industry stakeholders).
3. Attended and presented at the Arctic Circle conference in Reykjavik, Iceland, where all three INQ Chairs were represented among over 2000 participants from more than 60 countries.
4. Participated in and mentored a training activity during Sentinel North International PhD School on The Changing Cryosphere, held for one full week in Iqaluit, where 19 students from 15 different universities and various backgrounds teamed up with 11 northern students and 15 internationally renowned professors and local experts to explore the complex issue of the changing Arctic cryosphere, in a transdisciplinary and highly technological learning environment.

**Table 2.** List of July 2017-June 2018 activities of the McGill Chair in Northern Research related to INQ and northern research at McGill

DATE	ACTIVITY	ROLE	LOCATION	PEOPLE INVOLVED
<b>3-7 Jul 2017</b>	Search committee interviews for Fish and Wildlife Faculty position at McGill	Chair	Macdonald Campus, McGill	McGill faculty and Administration
<b>10 Jul 2017</b>	Meeting with Ouranos staff regarding proposal development	Meeting	Ouranos Montreal Offices	Stephanie Bleau, Robert Siron, Ouranos
<b>10 Jul 2017</b>	Meeting with Cree Health Board representatives	Presenter	Macdonald Stewart Building, McGill	Elizabeth Robinson, Reggie Tomatuk.
<b>25 Jul 2017</b>	Meeting with university donor interested in supporting Indigenous food security research	Presenter	CINE, McGill	Donor, McGill Development Office Staff
<b>25 Jul 2017</b>	Meeting with Nunavik Research Center Director	Organizer	Teleconference	Ellen Avard, Director of the Nunavik Research Center
<b>26 Jul 2017</b>	Meeting with the Cree Nation Government	Organizer	Teleconference	Alan Penn, Science Advisor, Cree Nation Government
<b>1 Aug 2017</b>	Meeting with the Cree Nation Government and Cree Trappers Association	Organizer	Teleconference	Allan Penn & Aurelie Bourbeau-Lemieux from CNG, Willie Gunner & Clark Schecapio from CTA
<b>8 Aug 2017</b>	Follow-up with Cree Nation Government Representative	Organizer	Teleconference	Alan Penn, Science Advisor, Cree Nation Government
<b>31 Aug 2017</b>	INQ Sustainable Development Working Group	Organizer	Teleconference	Members of INQ Sustainable Development Working Group
<b>13 Sep 2017</b>	NSERC Discovery Grant Preparation Workshop	Presenter (as current member of NSERC 1503 evaluation group)	Macdonald Campus	McGill Faculty applying for NSERC Discovery Grants
<b>14 Sep 2017</b>	Field Research Safety Seminar	Presenter	Macdonald Campus	All incoming graduate students of McGill's Faculty of Agricultural and Environmental Science

DATE	ACTIVITY	ROLE	LOCATION	PEOPLE INVOLVED
<b>20 Sep 2017</b>	INQ Implementation Committee Meeting	McGill Representative	Laval University, Ste Foy	INQ Implementation Committee members including representatives of Inuit, Cree, Naskapi, and Innu
<b>21 Sep 2017</b>	McGill CREATE Environmental Innovation Monthly Meeting & Seminar	PI	McGill / web-based	CREATE EI Students and Faculty from McGill and Alberta and collaborating institutions
<b>22 Sep 2017</b>	Meeting McGill INQ Northern Research Infrastructure	INQ Chair & Participant	McGill	Beatriz Osorio and Nathalie Foissett (Strategic Initiatives)
<b>25 Sep 2017</b>	McGill Sustainability Science Funding and Brainstorming Session	INQ Chair & Participant	Tadja Hall, Macdonald Campus, McGill University	McGill and national researchers and policy makers interested in a national Sustainability Science initiative
<b>26 Sep 2017</b>	Trudeau Foundation meeting at McGill	INQ Chair & Participant	James Admin Bldg, McGill University	Trudeau Foundation representatives, McGill faculty and administrators
<b>28 Sep 2017</b>	McGill Advisory Committee on Northern Research Meeting	INQ Chair & Participant	James Admin Bldg, McGill University	McGill faculty and administrators involved in northern research at McGill
<b>13-17 Oct 2017</b>	Arctic Circle	Presenter, INQ Chair & McGill Representative	Reykjavik, Iceland	Quebec Contingent, including Adamie Delisle Alaku, Makivik, Éric Thérourx, sous-ministre adjoint aux politiques et affaires francophones et multilatérales, Robert Sauvé, président-directeur général de la Société du Plan Nord; Circumpolar leaders, policy makers and researchers
<b>19 Oct 2017</b>	McGill CREATE Environmental Innovation Monthly Meeting & Seminar	PI	McGill / web-based	CREATE EI Students and Faculty from McGill and Alberta and collaborating institutions
<b>24 Oct 2017</b>	Meeting with Kakwiranó:ron Cook McGill Special Advisor, Indigenous Initiatives	McGill Northern Research Chair	Telephone meeting	

DATE	ACTIVITY	ROLE	LOCATION	PEOPLE INVOLVED
<b>27 Oct 2017</b>	Yukon ecological monitoring and biologging research meeting	Presenter	Trent University	Wildlife researchers from Trent, Toronto, McGill, Alberta, UBC, plus Yukon Government representatives
<b>1 Nov 2017</b>	Meeting with Laxmi Sushama, Trottier Chair in Sustainability in Engineering and Design to discuss northern sustainability science at McGill	McGill Northern Research Chair	Macdonald Engineering Building, McGill University	Beatriz Osorio
<b>16 Nov 2017</b>	McGill Intercultural Indigenous Workshop for Graduate Students	Supporter and Presenter	SSMU Building, McGill	Graduate students from across Quebec and Canada, Indigenous community representatives
<b>27-28 Nov 2017</b>	Muskox research meeting	Participant and Presenter	Aklavik, NWT	Community members, representatives of Yukon Government, GNWT, Parks Canada, Yukon North Slope Advisory Council
<b>6 Dec 2017</b>	Institut Nordique du Québec Implementation Committee	McGill Representative	Laval University, Ste Foy	INQ Implementation Committee members including representatives of Inuit, Cree, Naskapi, Innu
<b>11-14 Dec 2017</b>	Arctic Change Conference	McGill / INQ / CREATE-EI representative	Convention Centre, Quebec City	ArcticNet NCE and many affiliated northern research organizations
<b>11 Dec 2017</b>	Meeting with Ouranos and the <i>Ministère des Forêts, de la Faune et des Parcs</i> (MFFP)	Presenter	INRS, Quebec City	Jean-François Bergeron (MFFP, Environmental coordinator, Direction de la planification et la coordination), Jean-Nicolas Bujold (MFFP), Laurie Beaupre (MFFP), Robert Siron (Ouranos), Stéphanie Bleau (Ouranos), Pascale Ropars (UQAR, PDF)
<b>12 Dec 2017</b>	Meeting with Nunavik Representatives	Participant	Convention Centre, Quebec City	Ellen Avard, Barry Ford (Makivik, Nunavik Research Centre), Gregor Gilbert, Stas Olpinski, Mark O'Connor (Makivik, Resource Development)

DATE	ACTIVITY	ROLE	LOCATION	PEOPLE INVOLVED
				Department), Lea Laflamme (Nunavik Regional Board of Health and Social Services)
<b>13 Dec 2017</b>	Meeting with Nunavik Community Climate Change Liaison Advisor	Participant	Convention Centre, Quebec City	Adam Gardner, Nunavik Community Climate Change Liaison Advisor
<b>13 Dec 2017</b>	Meeting with Société du Plan Nord	Representative of INQ Sustainable Development Working Group	Société du Plan Nord offices, Quebec City	Members of INQ Sustainable Development Working Group, Robert Suave and additional staff from Plan Nord head office
<b>8 Jan 2018</b>	McGill CREATE Advisory Group review meeting	PI of McGill CREATE-EI	James Admin Bldg, McGill University	Deans and administrative staff overseeing McGill CREATE programs
<b>17 Jan 2018</b>	Meeting with representatives of potential Montreal Arctic aquarium initiative	McGill Northern Research Chair	Downtown Montreal	
<b>17 Jan 2018</b>	Conference call with INAC and Cree Nation Government	Participant	Teleconference	Nadia Saganash & Kelly LeBlanc (CNG), Andree Mailloux & Yves Terriault (INAC), Stephanie Bleau (Ouranos)
<b>19 Jan 2018</b>	Discussion with Cree Nation Government	Participant	Teleconference and email exchange	Nadia Saganash, Kelly LeBlanc, and Alan Penn (CNG),
<b>19 Jan 2018</b>	Submission by CNG of proposal to INAC	Contributor		Proposal submission led by Kelly Leblanc, supported by Marie-Jo Ouimet and Jill Torrie of Cree Board of Health and Social Services
<b>24 Jan 2018</b>	Joint McGill-INQ 2nd Annual Northern Research Day	Organizer	McGill Faculty Club and Conference Centre, Montreal	McGill Northern Researchers, Louis Fortier INQ director, 3 INQ chairs, Stephanie Bleau, Robert Siron (Ouranos), Cree Board of Health and Social Services
<b>8 Feb 2018</b>	Meeting of McGill Grand Challenges theme Pathways to Indigenous Success	Representative of CINE and McGill Chair in Northern Research	McGill Faculty of Education	Deans, faculty, administrators, and development office staff involved in Indigenous initiatives at McGill



DATE	ACTIVITY	ROLE	LOCATION	PEOPLE INVOLVED
<b>15 Feb 2018</b>	Centre Etude Nordique Research Symposium	Plenary Presenter	Université de Sherbrooke	Opportunity to present project approach to academic researchers active in northern Quebec
<b>19-23 Feb 2018</b>	NSERC Discovery Grant Evaluation Committee 1503 Ecology and Evolution	Member and reviewer	NSERC Offices, Ottawa	NSERC staff and other members of 1503 committee
<b>28 Feb 2018</b>	Hudson Bay Consortium	Attendee	Sheraton, Montreal	Opportunity to meet with Gregor Gilbert, Makivik, Adam Gardner, Nunavik Community Climate Change Liaison Advisor, and Stephanie Bleau, Ouranos
<b>28 Feb 2018</b>	Meeting of McGill Grand Challenges theme Pathways to Indigenous Success	Representative of CINE and McGill Chair in Northern Research	McGill Faculty of Education	Deans, faculty, administrators, and development office staff involved in Indigenous initiatives at McGill
<b>2-9 Mar 2018</b>	Sentinel Nord International Arctic Field School	Mentor	Iqaluit, Nunavut	See: <a href="https://sentinellenord.ulaval.ca/en/training/changing-cryosphere-sensors-decision-making">https://sentinellenord.ulaval.ca/en/training/changing-cryosphere-sensors-decision-making</a>
<b>10 Mar 2018</b>	Yukon unFURled	Did not attend, but my graduate students created a booth highlighting our lab's biologging research	Whitehorse, Yukon	Yukon trappers, fur industry representatives, government representatives, general public,
<b>19 Mar 2018</b>	Institut Nordique du Québec Implementation Committee	McGill Representative	Laval University, Ste Foy	INQ Implementation Committee members including representatives of Inuit, Cree, Naskapi, and Innu
<b>20 Mar 2018</b>	McGill Advisory Committee on Northern Research Meeting	INQ Chair & Participant	Burnside Hall, McGill University	McGill faculty and administrators involved in northern research at McGill
<b>22 Mar 2018</b>	INQ Three Chairs meeting	McGill Northern Chair	Skype	Meeting to discuss future 3 INQ chairs research day
<b>5 Apr 2018</b>	Meeting to discuss northern	McGill Northern Chair	CINE, McGill	Suzanne Halveka, McGill School of Architecture

DATE	ACTIVITY	ROLE	LOCATION	PEOPLE INVOLVED
	architecture and research at McGill			
<b>6 Apr 2018</b>	McGill's NSERC CREATE Internal Evaluation Committee	Evaluator	James Admin Bldg, McGill University	McGill faculty and administrators involved in applying for and administering NSERC CREATE programs.
<b>12 Apr</b>	Wild Food Inc project discussion and prioritization	Presenter	Makivik offices, Saint Laurent	Gregor Gilbert and Mark O'Connor from Makivik Gordon Hickey from McGill
<b>19 Apr 2018</b>	Meeting profiling MFFP PACC research projects	Presenter	Kuujuaq	MFFP, Makivik, KRG, NHFTA
<b>26 Apr 2018</b>	Meeting to discuss McGill subarctic research station in Schefferville	McGill Northern Chair	Otto Maass Bldg, McGill	McGill faculty and administrators involved in northern research
<b>2 May 2018</b>	Meeting with Cree Nation Government	Presenter	CNG Offices, Duke Street, Montreal	Kelly LeBlanc and Nadia Saganash from CNG, Treena Delormier from CINE
<b>8 May 2018</b>	Meeting to discuss Indigenous education initiatives at CINE	CINE director	Macdonald Campus	Margaret Forrest, Projects Officer, McGill Office of Student Academic Services
<b>14 May 2018</b>	Future Earth McGill collaborative opportunity meeting	McGill Northern Chair	James Administration Building, McGill University	Future Earth representatives, McGill Sustainability Sciences researchers and administrators
<b>14 May 2018</b>	Muskox research priorities meeting	Presenter	Teleconference	Canadian academic and government scientists involved in muskox research
<b>15 May 2018</b>	Canadian Mountain Network NCE meeting	Contributor	Teleconference	Researchers involved in developing the Alberta based CMN NCE application
<b>22 May 2018</b>	Meeting with representative of Naskapi Nation to discuss expansion of Wild Food Inc project	Presenter	NDG, Montreal	Robert Provost, Nathalie Dastous
<b>22 May 2018</b>	Discussion of Indigenous Initiatives at McGill	Presenter	Martlet House, McGill	McGill Development Office staff, potential private donor

DATE	ACTIVITY	ROLE	LOCATION	PEOPLE INVOLVED
	and fundraising opportunities			
<b>May 30 2018</b>	Meeting with representatives of potential Montreal Arctic aquarium initiative	McGill Northern Research Chair	James Admin Bldg, McGill University	Developers, Hans Larsson (Director McGill Redpath Musueum), Yves Beauchamp VP Admin & Finance
<b>Jun 13 2018</b>	Institut Nordique du Québec Implementation Committee	McGill Representative	Teleconference	Members of implementation committee
<b>Jun 15 2018</b>	Meeting to discuss McGill Advisory Committee on Northern Research	McGill Northern Research Chair	James Admin Bldg, McGill University	Nancy Ross, Associate VP Research, Beatriz Osorio
<b>Jun 28-29 2018</b>	Canadian Mountain Network NCE proposal development meeting	Theme leader	Whitehorse Yukon (attended remotely by skype)	Researchers involved in developing the Alberta based CMN NCE application

### 3. RESEARCH TEAM

As our newly initiated research program *WILD FOOD, INC. & Climate Change in Northern Quebec* focuses on traditional food systems that multidisciplinary, including natural, health, and social science dimensions, our research team has grown to include a health scientist and a social scientist with complementary food systems and community-based research expertise. **Trenea Wasonti:io Delormier** is Associate Professor of Indigenous Peoples' Nutrition and Food Security and Associate Director of CINE. Dr. Delormier is a Professional Dietitian and has degrees in nutrition and public health. She is Kanien'kehà:ka (Mohawk) from the Kahnawake (by the rapids) community. Her research interests include food, food security, nutrition and health, social perspectives of food choice, Indigenous research methodologies, qualitative methodologies, Indigenous Peoples' food systems, and the prevention of diabetes and obesity. In collaboration with Indigenous communities, Dr. Delormier applies social perspectives and theories of food choice to better understand the lived experience of food insecurity at the family level and translate community understandings of health issues to guide actions to support healthy lifestyles at the community level. **Gordon Hickey** is Associate Professor and William Dawson Scholar in the Department of Natural Resource Sciences at McGill where he leads the Sustainable Futures Research Laboratory. Dr. Hickey has degrees in forestry, policy, and public administration. His research focuses on the sustainable governance of complex natural resource management systems, from the local to the global scale, including a directed

focus on public policy for sustainable food security and natural resource management and institutional arrangements for resilient social-ecological systems.

As in the previous year, coordination of research activities conducted by the McGill Chair in Northern Research has been led by Ms. Manuelle Landry-Cuerrier, who also serves as the coordinator of the NSERC CREATE Environmental Innovation graduate training program. Coordination of outreach activities conducted by the McGill Chair in Northern Research has been led by Ms. Beatriz Osorio, Research Advisor, Strategic Initiatives, McGill Vice-Principal Office, assisted by Ms. Landry-Cuerrier. Ms. Osorio also coordinates McGill North activities and serves as a critical liaison between the McGill Chair in Northern Research and the INQ, as well as with Ouranos. Other members of the research team are the students, post-doctoral fellows (PDF), technicians, research professionals indicated in section 4 (Table 3) and the organizations indicated in Table 1 and Figure 1 & 5.

#### 4. RECRUITMENT AND TRAINING (STUDENTS OF FIRST, SECOND AND THIRD CYCLES, POST-DOCS, RESEARCH PROFESSIONALS, TECHNICIANS, ETC.)

Since our last report, we have recruited, trained, and worked with one new undergraduate student, two new MSc students, one new post-doctoral fellow (PDF), two new field technicians, and two new research professionals (Table 3). As part of our newly initiated research program *WILD FOOD, INC. & Climate Change in Northern Quebec*, we have also recruited two future MSc students and one future PDF starting in fall 2018.

**Table 3.** List of students, technicians, and research professionals supervised by the McGill Chair in Northern Research (\* denote personnel recruited since our last report)

Name	Status	Period
Nathan Badry*	MSc	Jun 2018-present
Nathalie Chéhab*	MSc	Mar 2018-present
Emily Charry Tissier*	Professional	Mar 2018-present
Hekia Bodwitch*	PDF	Feb 2018-present
Anne Kirsten Bowser*	Professional	Jan 2018-present
Laurence Carter	MSc	Jan 2018-present
Noah Israel*	Technician	Jan 2018-Apr 2018
Heather Sterling*	Technician	Jan 2018-Apr 2018
Roxanne Tremblay	BSc	Jun 2017-present
Sereena Moore	BSc	Oct 2016-Aug 2018
Joanna Griffin	BSc	Nov 2016-present
Katelyn Depot*	BSc	Sep 2017-Aug 2018
Alec Robitaille	BSc	May 2016-Jul 2017
Juliana Balluffi-Fry	BSc	Oct 2015-Aug 2017
Gabrielle Rimok	BSc	Oct 2016-Apr 2017
Dylan Yaffy	BSc	May 2015-Aug 2016

<b>Laurence Carter</b>	Assistant	May 2017-Dec 2017
<b>Shannon Whelan</b>	Technician	Nov 2016-Jan 2017
<b>Claire Hoffmann</b>	Technician	Nov 2016-Mar 2017
<b>Hannes Schraft</b>	Technician	Nov 2016-Jan 2017
<b>Joël Potié</b>	MSc	Sep 2015-present
<b>Bertrand Charry</b>	MSc	Jan 2015-May 2018
<b>Duncan Warltier</b>	PhD	Sep 2016-present
<b>Jeremy Brammer</b>	PhD/PDF	Jul 2016-Dec 2017
<b>Emily Studd</b>	PhD	Jan 2014-present
<b>Allyson Menzies</b>	PhD	Sep 2014-present
<b>Melanie Leblanc</b>	PhD	Jan 2014-present
<b>Xavier Giroux-Bougard</b>	PhD	Jan 2015-present
<b>Manuelle Landry-Cuerrier</b>	Professional	Nov 2008-present

## 5. COLLABORATION WITH PARTNERS (INDUSTRIAL, INSTITUTIONAL AND OTHERS)

The alignment of the McGill Chair in Northern Research with the NSERC CREATE Environmental Innovation program broadens the McGill Chair in Northern Research collaborative network to multiple organizations, which are serving as collaborators, steering committee members, and internship hosts of the graduate students being trained through that program (Figure 5). Key partners and collaborators on wildlife specific projects are listed in Table 1 and our engagement and collaboration activities with organizations involved in the newly initiated research program *WILD FOOD, INC. & Climate Change in Northern Quebec* are listed in Table 2. These collaborators include organizations involved in health and food security (e.g. Cree Health Board, Nunavik Regional Board of Health and Social Services, Indigenous and Northern Affairs Canada), wildlife harvest and subsistence economies (e.g., Cree Trappers Association, Nunavik Hunters, Fishermen and Trappers Association (HFTA,R/LNUK), JBNQA Hunting, Fishing and Trapping Coordinating Committee, Ministère des Forêts, de la Faune et des Parcs du Québec), and regional governance, environmental protection, and sustainable development (e.g., Cree Nation Government, Makivik, Kativik Regional Government, Eeyou Marine Region Wildlife Board, Nunavik Marine Region Wildlife Board, Société du Plan Nord) (Figure 5).



**Figure 5.** Organizations and locations currently collaborating in the NSERC CREATE Environmental Innovation graduate training program, led by the McGill Chair in Northern Research

## 6. THE ADDED VALUE IN THE CONTEXT OF THE CREATION OF THE INQ

The creation of INQ has added value to the research program of the McGill Chair in Northern Research and, more broadly, to northern research at McGill, by providing a platform for transdisciplinary and intersectoral collaborations oriented around northern research and its contributions to sustainable development. The profile offered by INQ's funding and promotion of the McGill Chair in Northern Research has created opportunities for the chair to engage with organizations like Ouranos, the *Ministère des Forêts, de la Faune et des Parcs du Québec*, the Northern Quebec Hunting, Fishing and Trapping Coordinating Committee, and the *Société du Plan Nord*. From this engagement, the Wild Food INC project has emerged as an unprecedented, large scale, and well-funded opportunity for truly interdisciplinary and community co-developed research on traditional food systems in Northern Quebec. The INQ has helped to ensure that McGill's excellence in sustainability science will contribute to the sustainable development of northern Quebec and that the substantial northern research expertise offered by Laval and INRS is better synergized with McGill researchers and organizations.

## 7. DISSEMINATION OF RESULTS AND KNOWLEDGE OR TECHNOLOGY TRANSFER

### Peer-reviewed Publications (\*since last report)

- \*Humphries, M.M., H.E. Milligan, J. Samson. In Press. Mammals of Wemindji: multiple scales and multiple perspectives. In Partnerships, Politics and Perspectives: Protected Area Creation in Wemindji Cree Territory. M. Mulrennan, C. Scott, K. Scott (eds.). UBC Press.
- \*Charry, B., M. Marcoux, M.M. Humphries. 2018. Aerial photographic identification of narwhal (*Monodon monoceros*) newborns and their spatial proximity to the nearest adult female. *Arctic Science* <https://doi.org/10.1139/AS-2017-0051>.
- \*Lemieux Lefebvre, S., M. Landry-Cuerrier, M.M. Humphries. 2018. Identifying the critical habitat of Canadian vertebrate species at risk. *Canadian Journal of Zoology* 96(4): 297-304
- \*Williams, C.M., Ragland, G.J., Betini, G., Buckley, L.B., Cheviron, Z.A., Donohue, K., Hereford, J., Humphries, M.M., Lisovski, S., Marshall, K.E. and Schmidt, P.S. 2017. Understanding evolutionary impacts of seasonality: an introduction to the symposium. *Integrative and Comparative Biology*\* 57:921-933
- \*Humphries, M.M., E.K. Studd, A.K. Menzies, S. Boutin. 2017. To everything there is a season: summer-to-winter food webs and the functional traits of keystone species. *Integrative and Comparative Biology*\* 57:961-979
- \*Brunet, N.D., G.M. Hickey, and M.M. Humphries. 2017. How can research partnerships better support local development? Stakeholder perceptions on an approach to understanding research partnership outcomes in the Canadian Arctic. *Polar Record* 53:479-488
- Kuhnlein, H.V. and M.M. Humphries. 2017. Traditional Animal Foods of Indigenous Peoples of Northern North America: <http://traditionalanimalfoods.org/>. Centre for Indigenous Peoples' Nutrition and Environment, McGill University, Montreal.
- Levesque, D., A.K. Menzies, M. Landry-Cuerrier, G. Larocque, M.M. Humphries. 2017. Embracing heterothermic diversity: non-stationary waveform analysis of temperature variation in endotherms. *Journal of Comparative Physiology B* doi:10.1007/s00360-017-1074-9
- Brammer, J.R., N.D. Brunet, C. Burton, A. Cuerrier, F. Danielsen, K. Dewan, T.M. Herrmanne, M. Jackson, R. Kennett, G. Larocque, M. Mulrennan, A.K. Pratihasth, M. Saint-Arnaud, C. Scott, M.M. Humphries. 2016. The role of digital data entry in participatory environmental monitoring. *Conservation Biology* 30:1277-1287
- Brunet, N., G. Hickey, M.M. Humphries. 2016. Local participation and partnership development in Canada's Arctic research: Challenges and opportunities in an age of empowerment and self-determination. *Polar Record* 52:345-359

### Conference Presentations (\*since last report)

- \*March, 2018. Studd, E.K., S. Boutin, A.K. Menzies, D.L.Murray, M.M. Humphries. New biologging techniques for quantifying individual-level predator behaviour and kill rates. Alberta Chapter of the Wildlife Society Conference. Lethbridge, AB.
- \*February, 2018. Warltier, D., M. Landry-Cuerrier, M.M. Humphries. Valuing country food harvest in Nunavut, Canada. Hudson Bay Summit. Sheraton Hotel, Montreal, Qc.

- \*December, 2017. Giroux-Bougard, X., M.M. Humphries, J.A. Cardille. Monitoring freshwater ice phenology in Canada's North in the era of abundant open-access satellite sensors. Arctic Change. Quebec City, Qc.
  - \*December, 2017. Charry, B., M. Marcoux, M.M. Humphries, T. Schwinghamer, P. Dutilleul. Spatial use and distribution of narwhals in Tallurutiup Imanga, the Lancaster Sound National Marine Conservation Area. Arctic Change. Quebec City, Qc.
  - \*November, 2017. Studd, E., S. Boutin, D.L. Murray, A.K. Menzies, M.M. Humphries. Bad hare day: new methods of estimating kill rates in Canada lynx. 42ieme congrès annuel de la Société Québécoise pour l'Étude Biologique du Comportement (SQEBC). Université Ottawa, Ottawa, ON.
  - \*October, 2017. Warltier, D., M. Landry-Cuerrier, M.M. Humphries. Valuing wild meat harvest in Nunavut, Canada: hidden contributions to wealth and wellbeing. Joint Conference of the Canadian Society for Ecological Economics and Economics for the Anthropocene. Concordia University, Montreal, Qc.
- Menzies, A.K., D.L. Levesque, M. Landry-Cuerrier, G. Larocque, B.J. McGill, M.M. Humphries. Embracing heterothermic diversity: non-stationary waveform analysis of temperature. 41ieme congrès annuel de la Société Québécoise pour l'Étude Biologique du Comportement (SQEBC). Université du Québec à Rimouski. Rimouski, Quebec, Canada. November, 2016.
- Charry, B., M. Marcoux, M.M. Humphries. Narwhal identification and distribution Using High definition aerial photography. ArcticNet Annual Conference. Winnipeg, Manitoba, Canada. December, 2016.
- Brammer, J.R. Robitaille, A. Humphries, M.M. Changing ice phenology in the Old Crow Flats, Yukon, and its relationship with the population dynamics of traditionally harvested muskrats. Quebec Centre for Biodiversity Symposium 2016. December, 2016. Montreal, Quebec
- Levesque, D.L., M. Landry-Cuerrier, G. Larocque, A.K. Menzies, B.J. McGill, M.M. Humphries. Embracing heterothermic diversity: an analytical approach for comparing and categorizing patterns of temperature variation in endotherms. Annual Meeting of the Society for Integrative and Comparative Biology. New Orleans, LA, USA. January, 2017.

#### **Invited Presentations (\*since last report)**

- \*April, 2018. M.M. Humphries. Récolte des ressources fauniques, consommation de nourriture sauvage et impacts des changements climatiques. Colloque sur les Vulnérabilités du Québec Arctique dans le Contexte des Changements Climatiques. Ministère Forêts, Faune et Parcs. Kuujuaq, Quebec, Canada.
- February, 2018. M.M. Humphries. The traditional food systems of Indigenous Peoples of Northern North America. Northern Lights cultural showcase of Nunavut, Nunavik, and Labrador / Nunatsiavut organized by the Baffin Regional Chamber of Commerce (BRCC) and the Labrador North Chamber of Commerce (LNCC). Ottawa, Canada
- \*February, 2018. M.M. Humphries. Traditional food systems and Indigenous Peoples in northern Canada. Centre d'Étude Nordique Annual Symposium. Université de Sherbrooke, Quebec, Canada.



- \*November, 2017. M.M. Humphries. Traditional food systems and community-based research. Indigenous Engagement Graduate Student Workshop, MSU Building, McGill University, Montreal, Quebec.
- \*October, 2017. M.M. Humphries. Northern Canada's longest and largest project in sustainable development. Northern Sustainable Development Challenges: A Comparative Approach. Arctic Circle 2017. Reykjavik, Iceland.
- \*August, 2017. M.M. Humphries. Sustainable development and community-based research. First Peoples Research Forum Val D'Or, Quebec
- May, 2017. M.M. Humphries (Organizer and Presenter). Chaire de recherche nordique de l'Université McGill: la conservation de la faune et la sécurité alimentaire traditionnelle. INQ Colloquia at the 85e ACFAS Conference. McGill University, Montreal, Quebec
- April, 2017. M.M. Humphries. The McGill Chair in Northern Research. Research Advisory Council Meeting Presenter McGill University, James Building, Montreal VP-RI Representatives and Associated Deans on Research from all Faculties
- April, 2017. M.M. Humphries. Northern Canada's longest and largest project in sustainable development. Mining and Sustainable Development in Northern Canada: Current Development and Future Projects. McGill University, SSMU Ballroom, Montreal. Organized by McGill Mining Engineering Student's Association and attended by McGill professors and students from various faculties and departments
- April, 2017. M.M. Humphries. Northern Canada's longest and largest project in sustainable development. 37th Annual Conference of the International Association for Impact Assessment. Sheraton, Montreal, Quebec.
- April, 2017. M.M. Humphries. McGill Northern Research Chair –wildlife conservation and traditional food security. McGill Research Advisory Council. McGill University, Montreal.
- March, 2017. M.M. Humphries. Sustainable development and Indigenous Peoples in northern Quebec. INQ First Peoples Research Forum. Val D'Or, Quebec.
- March, 2017. M.M. Humphries. Traditional food systems of Indigenous Peoples in North America. McGill Student Sustainability Research Symposium, McGill Faculty Club. Montreal, Quebec
- January, 2017. M.M. Humphries. Diet, Energetics, and Ecology of Boreal Mammals in Time and Space. University of Manitoba. Department of Biology seminar series. Winnipeg, Manitoba
- January, 2017. M.M. Humphries. University of Manitoba. Faculty of Science. Distinguished Alumni Ceremony. Winnipeg, Manitoba
- January, 2017. Humphries, M.M. McGill North and the Institut Nordique du Quebec. McGill 1st Annual Northern Research Day. McGill Faculty Club. Montreal, Quebec.
- January, 2017. Humphries, M.M., A.K. Menzies, E.K. Studd. The seasons of things and the purposes of time: seasonal variation in morphology, metabolism, and behaviour in boreal endotherms. Annual Meeting of the Society for Integrative and Comparative Biology. New Orleans, LA, USA.
- December, 2016. M.M. Humphries. Chaire de recherche nordique de l'Université McGill - Conservation de la faune et sécurité alimentaire traditionnelle. Northern Quebec Hunting, Fishing and Trapping Coordinating Committee, Makivik Offices, St. Laurent Quebec.

- October, 2016. M.M. Humphries. Chaire de recherche nordique de l'Université McGill - Conservation de la faune et sécurité alimentaire traditionnelle. Institut Nordique du Québec Chairs and Director Announcement Event. Université Laval. Quebec City, Quebec, Canada.
- August, 2016. M.M. Humphries, Keynote. Nutritional ecology of cold climate mammals in time and space. Comparative Nutrition Society, Rio Grande, Puerto Rico.
- April, 2016 M.M. Humphries. Environmental change impacts on traditional food systems of Indigenous communities. Adaptation Canada 2016. Ottawa, Ontario.
- June, 2016. M.M. Humphries. Indigenous People, Place, and Traditional Food in Changing Northern Environments. Institut Nordique du Québec Forum Santé Nord. Université Laval. Quebec City, Quebec, Canada.
- Septembre, 2016. M.M. Humphries. Local knowledge and climate ecology of a migratory moose population in northern Yukon. International Moose Symposium. Brandon, Manitoba, Canada.

## **8. DEMONSTRATED SYNERGY, NETWORKING AND STRUCTURING EFFECT BETWEEN THE THREE INQ CHAIRS**

The three INQ chairs (Humphries-McGill, Rodon-Laval, Raymond-INRS) are all members of the INQ sustainable development working group (led by the McGill Chair in Northern Research). Examining how research can best contribute to sustainable development, and the priorities of local communities, provides an important conceptual and practical intersection for the diverse research programs pursued by the three chairs (centred in wildlife biology, political ecology, and renewable energy).

Since our last report, the McGill Chair in Northern Research led and presented at a meeting with the INQ sustainable development working group to discuss sustainable development perspectives and strategies, internationally, federally, provincially, and regionally, and future steps towards ensuring INQ research is relevant and applicable to sustainable development priorities. The working group has created a virtual library that contains sustainable development documents (academic articles, chapters, books, strategies) relevant to INQ and its members. This virtual library will be shared with INQ members via the INQ website, and should continue to be populated by INQ members in the future. The working group also met representatives of the Société du Plan Nord to learn more about their vision of sustainable development in northern Quebec. Furthermore, under the leadership of André Potvin (Université Laval) and the support of a PhD. student (Christian Tayo, Université Laval), we are now analyzing how the different INQ research axes address the United Nations Sustainable Development Objectives.

Beyond our collective efforts within the INQ sustainable development-working group, the three chairs were represented together, through an information booth, at Arctic Change 2017 and attended and presented at the Arctic Circle 2017 conference in Reykjavik, Iceland at the session entitled “Northern Sustainable Development Challenges: a comparative approach”. The session offered an original format whereby each of the three INQ Chairs and one international expert teamed up to present their own synopsis of the challenges in the Chairs’ three areas of expertise: Energy, Food Security and Environment.