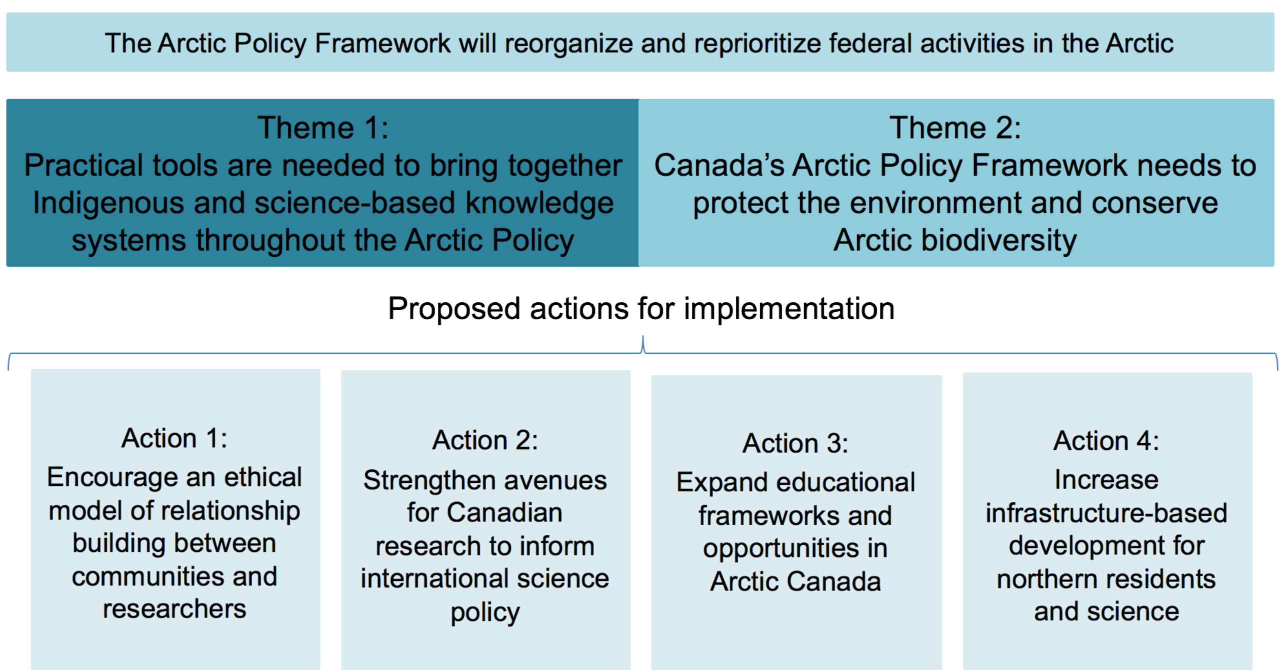
Arctic Policy Framework
15 rue Eddy, 14th floor
Gatineau, QC, K1A 0H4

February 27, 2018

Recommendations for the Arctic Policy Framework Review from researchers who work with Canada's northern communities

We are six scientists in Canada writing to contribute to the *Arctic Policy Framework Review*. Our input relates to ***two overarching themes*** integral to creating an inclusive and constructive Arctic policy; we suggest that these themes be incorporated throughout the Arctic Policy Framework (APF). Including these themes will help ensure that the policies resulting from this review successfully meet the challenges and harness emerging opportunities in the Arctic. To provide concrete mechanisms for applying these themes, we provide ***four proposed actions*** for implementation and discuss examples for steps forward.



Box 1. We recommend considering two overarching themes and four actions to help develop an Arctic Policy Framework that addresses important community, education, and science needs in the north.

OVERARCHING THEMES

Echoing calls from *A New Shared Arctic Leadership Model,*[1] we would like to reiterate that we support the importance of strong families and strong communities in the Arctic. Research and researchers can be closely linked with building community capacity, informing decision-making, and enhancing educational opportunities in the north.

THEME 1: PRACTICAL TOOLS ARE NEEDED TO BRING TOGETHER INDIGENOUS AND SCIENCE-BASED KNOWLEDGE SYSTEMS THROUGHOUT THE ARCTIC POLICY FRAMEWORK

Building a constructive policy framework for communities and Arctic research requires ensuring that both Indigenous and scientific perspectives are included. This means using Indigenous and science-based knowledge to explore and inform research priorities and processes, as well as in the application and implementation of research results. Using both knowledge systems in tandem requires collaboration, patience, and strong local and regional governance to oversee decision-making responsibilities. Using and supporting Indigenous languages is a critical step towards establishing equitable and ethical research because language is essential to articulating Indigenous knowledge, worldviews, and concepts. Creative technologies and interdisciplinary methods have the potential to foster co-learning opportunities and build sustainable solutions. For example, software applications are available that enable using Indigenous orthographies (e.g., FirstVoices[2]). Such approaches are outlined in the *Ottawa Traditional Knowledge Principles*[3] by the Arctic Council Permanent Participants; we suggest that they be implemented within the APF.

THEME 2: CANADA'S ARCTIC POLICY FRAMEWORK NEEDS TO PROTECT THE ENVIRONMENT AND CONSERVE ARCTIC BIODIVERSITY

The Arctic is rapidly changing. Many people are concerned about the direct and cumulative threats of climate warming, human activity, and invasive species on fragile Arctic ecosystems. The overlapping realms of cultural, biological, and linguistic diversity that occur throughout the north are intrinsically tied to the land - we have heard these messages repeatedly expressed by northern people during our research in the Yukon, Northwest Territories, the Inuvialuit region, Manitoba, Nunavut, Nunavik and Nunatsiavut. The close links between northern people and the natural environment make conserving Arctic biodiversity an essential component of the social, cultural, and physical well-being of Arctic communities. The APF must recognize the urgent need to effectively protect Arctic biodiversity as a critical part of life in the north. This includes effectively mitigating future threats to biodiversity (e.g., increased shipping traffic) in addition to ongoing environmental changes as outlined in the *Adaptation Actions for a Changing Arctic*[4] project under the Arctic Council's Arctic Monitoring and Assessment Program (AMAP).

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[1] Simon, M. (2017) A new Shared Arctic Leadership Model. Minister's Special Representative, Indigenous and Northern Affairs Canada. March 2017. ISBN: 978-0-660-09492-2. 32 p. Available at: http://publications.gc.ca/pub?id=9.842964&sl=0

[2] FirstVoices app for Indigenous languages in Canada: http://www.firstvoices.com/en

[3] Arctic Council - Permanent Participants (2015). Ottawa Traditional Knowledge Principles. Available at www.arcticpeoples.com/our-work-2/#traditional-knowledge-1

[4] Arctic Council - Arctic Monitoring and Assessment Program (2013) Adaptation Actions for a Changing Arctic. Available at https://www.amap.no/adaptation-actions-for-a-changing-arctic-part-c

PROPOSED ACTIONS FOR IMPLEMENTATION

ACTION 1: ENCOURAGE AN ETHICAL MODEL OF RELATIONSHIP BUILDING BETWEEN COMMUNITIES AND RESEARCHERS

Self-determination for Indigenous peoples in Arctic Canada, as called for by Canada's Truth and Reconciliation Commission[5] and the United Nations Declaration on the Rights on Indigenous Peoples (UNDRIP)[6], should be implemented in part through an ethical and respectful approach to research in the north. As Article 32 of UNDRIP states, *"Indigenous peoples have the right to determine and develop priorities and strategies for the development or use of their lands or territories and other resources"*. All research programs in northern communities and regions should be guided by northern research priorities and agendas, based on developing reciprocal and accountable collaboration between communities and researchers.

There are a number of successful models for this approach to research, from large scale programs that integrate with communities across multiple regions, to examples of individual researchers or research teams working in specific areas. Here we provide two example programs where community concerns and priorities drive the research agenda:

- Tsá Túé UNESCO Biosphere Reserve[7]: Established in March 2016, this biosphere reserve encompasses >93,300 km^2 in central Northwest Territories, including Great Bear Lake. Tsá Túé was the first international UNESCO biosphere reserve to be established entirely by Indigenous people.
- SIKU[8]: This project pairs Inuit knowledge and cutting-edge ice mapping technology into an online tool to document how ice conditions are changing in Hudson Bay.

In addition to learning from existing successful research methods, there are resources online and in the academic literature that can assist in developing similar ethical research programs. A list of suggested literature is provided at the end of this document; we would also be happy to share our experiences.

ACTION 2: STRENGTHEN AVENUES FOR CANADIAN RESEARCH TO INFORM INTERNATIONAL SCIENCE POLICY

There is a need for stronger links between Canadian researchers and the international science community. The APF should outline strategies and implementation plans that facilitate increased dialogue and opportunities for Canadian Arctic research to inform global policy. This could include a two-pronged approach. First, efforts should be focused on improving how research in Canada aligns with international efforts to ensure harmonization of data collection across the Arctic. For example, an implementation plan that will engage researchers working in the region should be developed for the *Agreement on Enhancing International Arctic Scientific Cooperation*[9] (signed by Canada at the Fairbanks Ministerial in 2017).

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[5] The Truth and Reconciliation Commission of Canada (2015). Truth and Reconciliation Canada: Calls to Action. Available at: http://nctr.ca/reports.php

[6] United Nations General Assembly (2007). United Nations Declaration on the Rights of Indigenous Peoples. Available at www.un.org/esa/socdev/unpfii/documents/DRIPS_en.pdf

[7] http://www.unesco.org/new/en/natural-sciences/environment/ecological-sciences/biosphere-reserves/europe-north-america/canada/tsa-tue/

[8] https://sikuatlas.ca/index.html

[9] Arctic Council. (2017). Agreement on Enhancing International Arctic Scientific Cooperation. Available at https://oaarchive.arctic-council.org/handle/11374/1916

Second, programs that allow for Canadian researchers to engage in sharing results and shaping international research priorities are needed. Such programs could include funding for Canadian scientists to attend and contribute to international working groups under the International Arctic Science Committee or the Arctic Council working groups (e.g., CAFF, AMAP, PAME) to ensure that Canadian priorities are included in these international frameworks. Building on the need to include Indigenous perspectives, this should include prioritizing Indigenous participation in meetings at the international level to ensure that Indigenous knowledge and priorities are considered.

ACTION 3: EXPAND EDUCATIONAL FRAMEWORKS AND OPPORTUNITIES IN ARCTIC CANADA

Accessible, diverse, and relevant education opportunities are key to creating sustainable and beneficial economic opportunities for northerners. Place-based curriculum that is culturally relevant for Arctic communities is integral to ensuring student engagement. Importantly, education programs should focus on including Indigenous knowledge and science in context – both inside and outside the classroom – that will allow students to take active roles in their communities. This includes increased support for Indigenous languages, a diversity of learning pathways beyond the standard K-12 framework, alternative learning assessment methods, and culturally appropriate timelines.

We also suggest that Canada commit to creating an Arctic university. Many other Arctic nations (e.g., USA, Denmark, and Norway) have established universities in the Arctic and these institutions are global leaders for northern-led research. Innovative approaches to specialized education such as digital learning, research internships, and expanding collaborative degree programs with southern universities should be implemented and funded through budgetary enhancements to the Post-Secondary Student Support Program. Such commitments would support the reforms suggested in the *National Strategy on Inuit Education*[10] and would be aligned with Article 14 and 15 of UNDRIP,[11] adopted by the federal government in 2016.

ACTION 4: INCREASE INFRASTRUCTURE-BASED DEVELOPMENT FOR NORTHERN RESIDENTS AND SCIENCE

There is a need to address the significant infrastructure deficit across Arctic Canada to enhance the social, economic, and environmental needs of northerners. In particular, the Arctic region as a whole has limited internet connectivity, which restricts how residents can take an active role in numerous initiatives, including science. This includes even basic participation in research discussions via commonly used online meeting platforms (e.g., Skype, Zoom, GoToMeeting) and web-based document sharing spaces (e.g., Dropbox, Google Drive, SharePoint, OneDrive). To fully incorporate northern Indigenous perspectives within the research and policy domains, communities must be able to fully participate in the online platforms that are routinely used to plan projects, submit funding applications, and share results. A plan for improving Arctic digital connectivity has already been outlined in the *Arctic Communications Infrastructure Assessment Report*;[12] we urge the government to adopt these recommendations.

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[10] Simon, M. (2011). National Strategy on Inuit Education. Available at: https://itk.ca/national-strategy-on-inuit-education/

[11] United Nations General Assembly (2007). United Nations Declaration on the Rights of Indigenous Peoples. Available at: www.un.org/esa/socdev/unpfii/documents/DRIPS_en.pdf

[12] Imaituk Inc. (2011) Arctic Communications Infrastructure Assessment Report. Available at: http://www.aciareport.ca/

Second, Canada must continue its development of Arctic research stations in communities and collaborate with northerners to build capacity and strengthen partnerships with northerners. There have been advancements in the investment and acquisition of analytical laboratory equipment and training for community members to meaningfully carry out research projects (e.g., an instrument for analyzing mercury content in tissues at the Nunavut Research Institute in Iqaluit). However, this must be expanded across northern Canada so that community members can take an active role in research projects. Initiatives should be funded through existing programs that have a strong track record of collaboration with northern communities (e.g., the Northern Contaminants Program) and new models to deliver equipment and training to communities as suited to their research priorities.

CONCLUSIONS

Thank you for considering our recommendations. The Arctic is an iconic part of Canada and we applaud the government's attempt to create a new APF that supports Arctic people. To be effective, this policy must be based on Arctic science and Indigenous knowledge, and must protect the Arctic environment that northerners depend on. We hope that our recommendations help lay a path to accomplish these goals. We appreciate the opportunity to contribute to the discussion regarding the APF and we welcome opportunities to further contribute to its development and implementation.

Sincerely,

Cody Dey, PhD

Emma Hodgson, PhD

Aerin Jacob, PhD

Jean Polfus, PhD

Jennifer Provencher, PhD

David Yurkowski, PhD

ABOUT THE AUTHORS:

This document is a collaboration of six conservation scientists from the Liber Ero Fellowship and the W. Garfield Weston Fellowship programs. We conduct and communicate research to inform applied conservation and management issues in Canada with a focus on the Arctic. We work with academic institutions and community, industry, government, and non-governmental partners to create theoretical and applied advances in conservation science.

Cody Dey is a Liber Ero Fellow at the University of Windsor. He studies climate change and animal ecology in the Canadian Arctic. codydey@uwindsor.ca

Emma Hodgson is a Liber Ero Fellow at Simon Fraser University. Working with community partners, she studies how people both rely on and impact fish in western and northern Canada. ehodgson@sfu.ca

Aerin Jacob is a Conservation Scientist and Liber Ero Fellow at the Yellowstone to Yukon Conservation Initiative. She studies large landscape conservation across western North America. aerin@y2y.net

Jean Polfus is a Liber Ero Fellow at Trent University. She collaborates with communities in the Northwest Territories to learn about caribou through interdisciplinary research and art. jeanpolfus@gmail.com

Jennifer Provencher is a Liber Ero Fellow and a W. Garfield Weston Fellow in Northern Research at Acadia University. She collaborates with northern hunters and fishers to study how human activities affect Arctic marine ecosystems such as plastics pollution, contaminants, and fisheries. jennifer.provencher@acadiau.ca

David Yurkowski is a W. Garfield Weston Fellow in Northern Research at the University of Manitoba. He studies food web and animal movement ecology in aquatic ecosystems. dyurkowski1@gmail.com

RESOURCES RELATED TO COMMUNITY-BASED RESEARCH

We would be happy to provide any the pay-walled resources* upon request.

Adams, M., J. Carpenter, J. Housty, D. Neasloss, P. Paquet, J. Walkus, and C. T. Darimont. (2014) Towards increased engagement between academic and indigenous community partners in ecological research. Ecology and Society 19:5.

*Castleden, H., V. S. Morgan, and C. Lamb. (2012) "I spent the first year drinking tea": Exploring Canadian university researchers' perspectives on community-based participatory research involving Indigenous peoples. The Canadian Geographer 56:160-179.

*Simpson, L. R. (2004) Anticolonial strategies for the recovery and maintenance of Indigenous knowledge. The American Indian Quarterly 28:373-384.

*Tobias, J. K., C. A. Richmond, and I. Luginaah. (2013) Community-based participatory research (CBPR) with indigenous communities: Producing respectful and reciprocal research. Journal of Empirical Research on Human Research Ethics 8:129-140.

Tondu, J. M. E., A. M. Balasubramaniam, L. Chavarie, N. Gantner, J. A. Knopp, J. F. Provencher, P. B. Y. Wong, and D. Simmons. (2014) Working with northern communities to build collaborative research partnerships: perspectives from early career researchers. Arctic 67:419-429.

*Watson, A. (2013) Misunderstanding the "nature" of co-management: a geography of regulatory science and indigenous knowledges (IK). Environmental Management 52:1085-1102.