

# Healthy environments for food security and climate change in northern Canada:

## Case studies of food system initiatives within the Northwest Territories

**Kelly Skinner, PhD, MPH**

CIHR-PHAC Applied Public Health Chair

Advisor, Master of Health Evaluation

Associate Professor

School of Public Health Sciences



UNIVERSITY OF  
**WATERLOO**







**Food**  
(+ Water)  
(+ Climate Change)  
+  
**Health  
Communication**



TERMINOLOGY  
Being cautious - beghodé dets'eredí  
Scary - d'eredí (risk)  
?idú Dene hé gó?e ~ situation  
?enét'ez even (average)  
Bayagowe ~ marker (indicator)  
?así tsiv ~ it's spoiled (contaminated)





# POLL

Have you had the opportunity to visit a northern  
community in Canada?

I will let you decide how you define “northern” when you answer this question.

YES

NO

# Intersection Between Food, Land, Environment, and Health

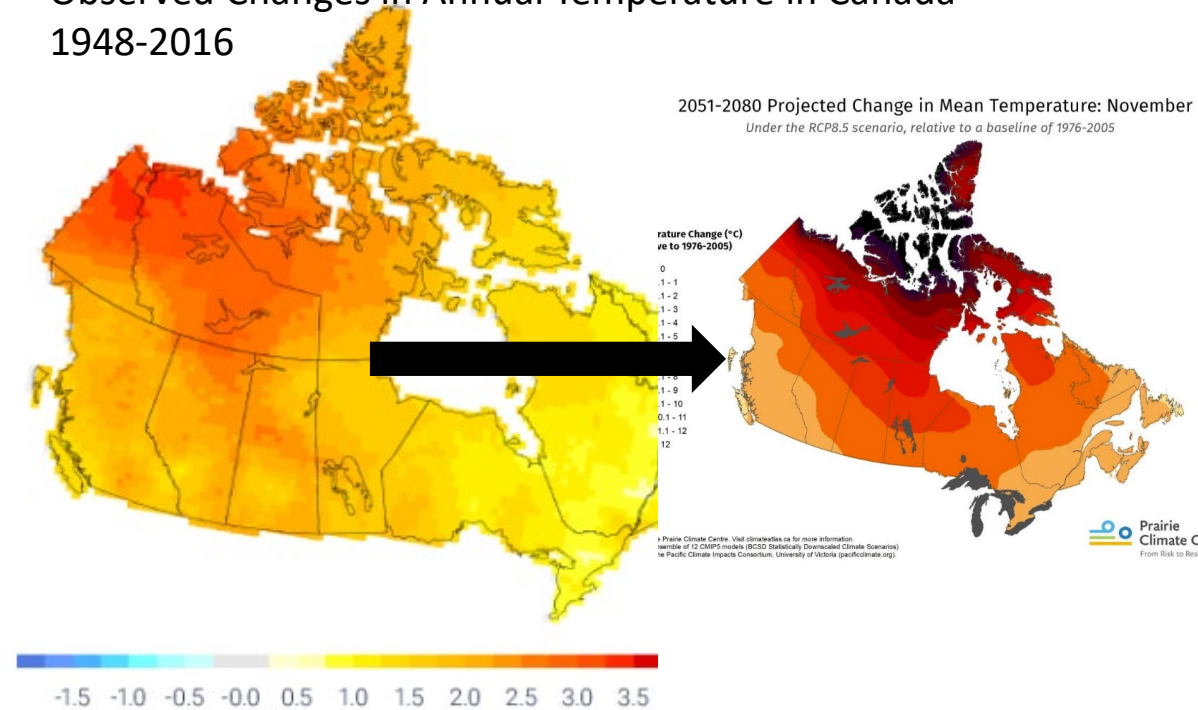


Bear Rock, Tulita, NWT, 2019

# Impacts on the Northern Food System

## Climate Change

Observed Changes in Annual Temperature in Canada  
1948-2016



Canada's Changing Climate Report, Government of Canada, 2019

## Contaminants



Frame Lake, NWT

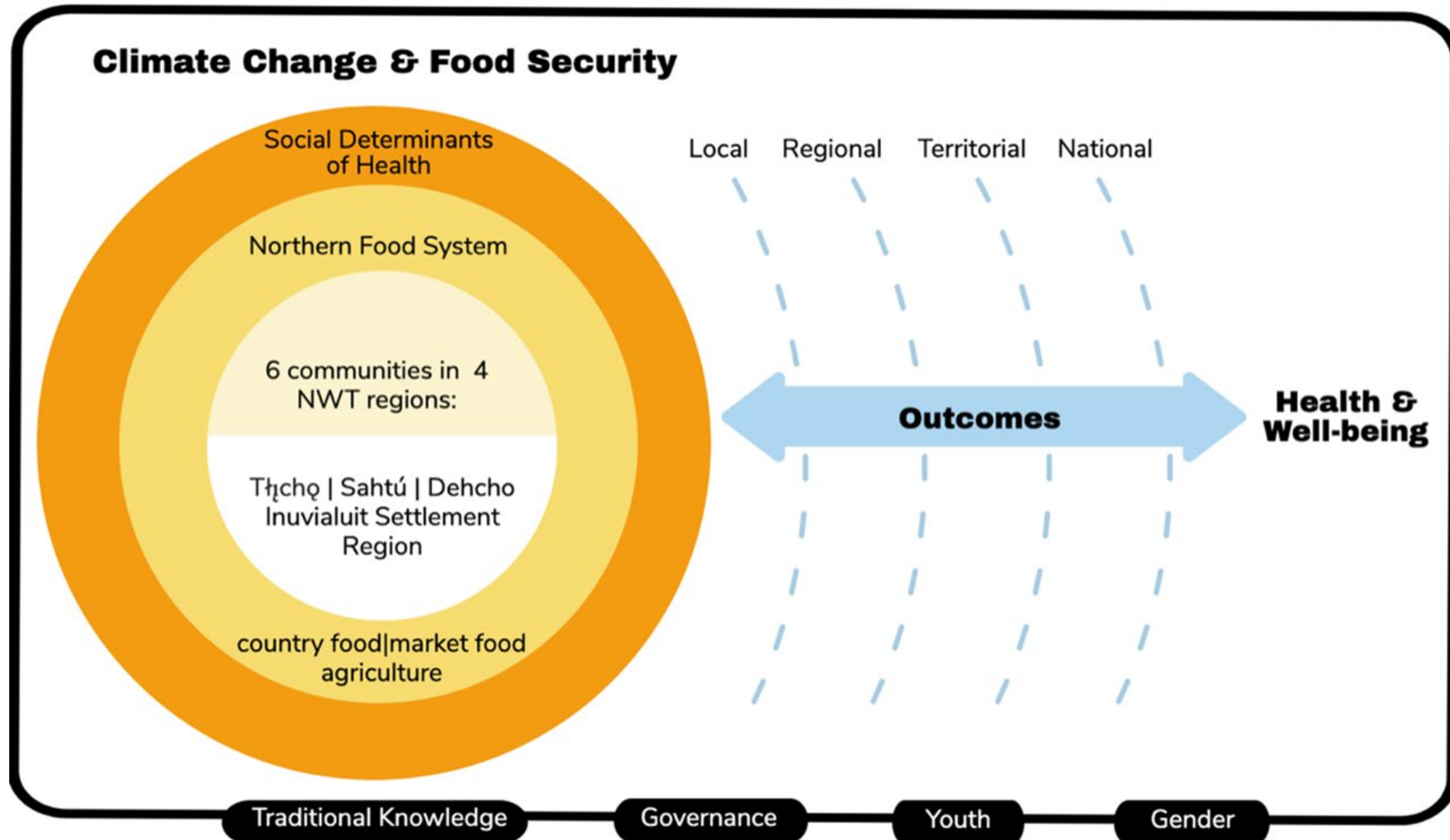
## Food Prices



Tulita, NWT



# Community Capacity for Climate Change and Food Security (C4FS) Action in the NWT, CIHR Team Grant: 2019-2026



Canadian Institutes  
of Health Research

Instituts de recherche  
en santé du Canada





Making dryfish in Paulatuk, ISR, NWT, 2022

What can we learn from northern food systems?

How can we support and facilitate stronger, self-determined food systems?

How can we use this learning to help maintain our access to good food in the face of climate change?



# Northern Food Systems are place-based and localized

- Community-driven initiatives are rarely evaluated
- Use evaluation to build research evidence
- What works, for whom, and under what conditions



Drying lake trout, Cross-Cultural Water Knowledge Camp, Great Bear River, NWT, 2019



Community harvesting, Paulatuk, NWT, 2022



# POLL

Are traditional or country foods part of any aspect of your work?

YES

NO

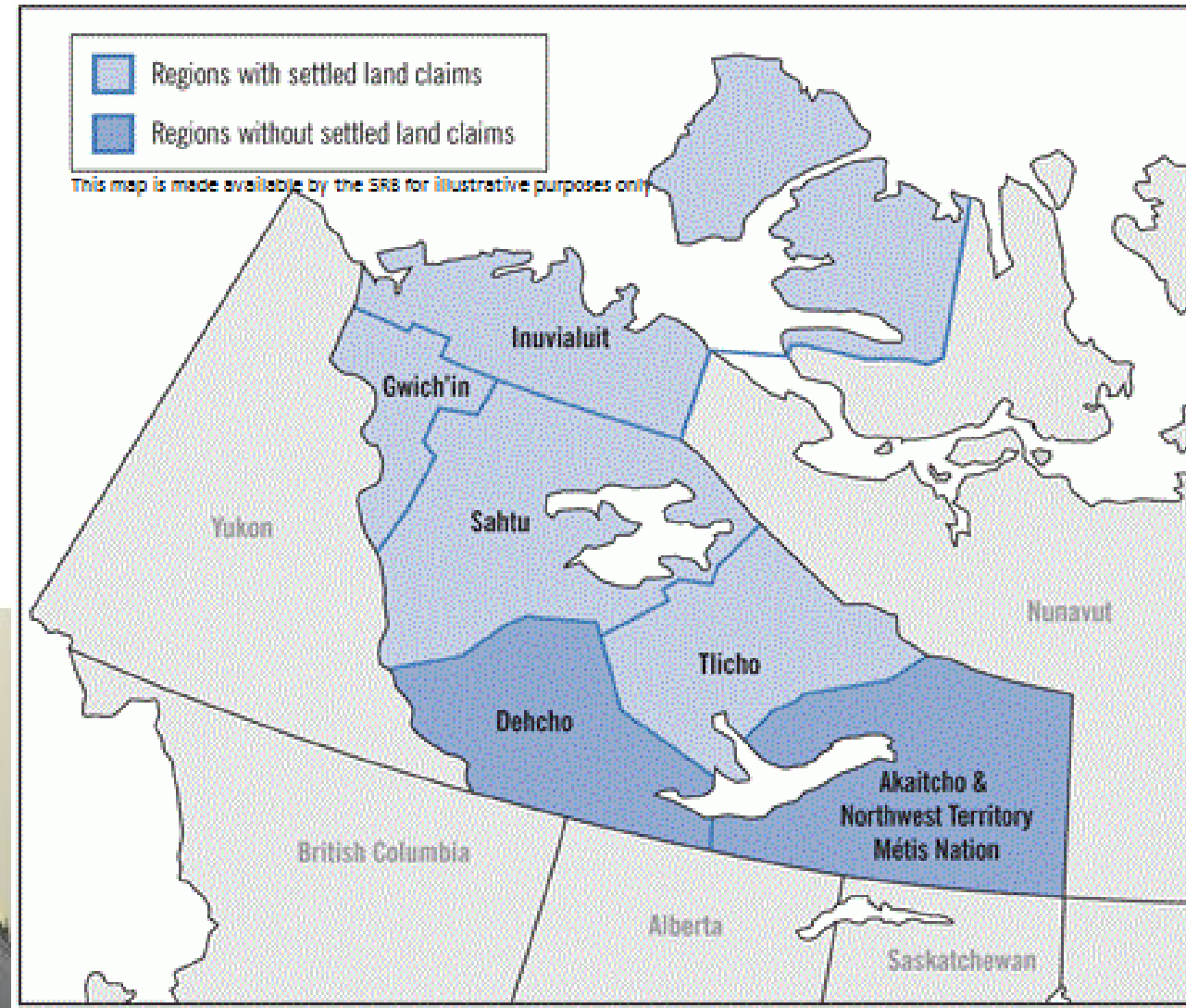
# Regional and Community Case Studies

**Case studies** with communities in two NWT regions:

- Inuvialuit Settlement Region (ISR)
- Sahtú

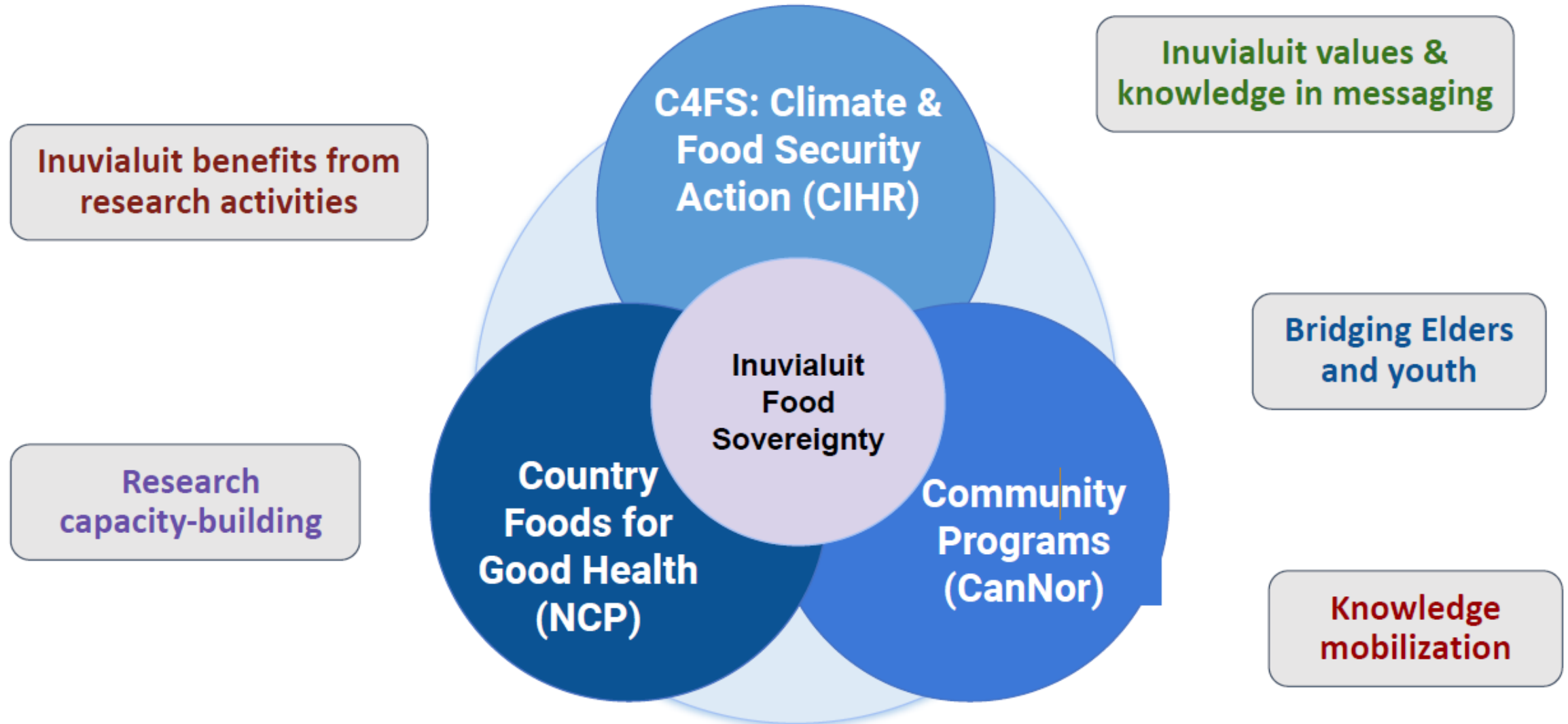
Regional Food Security Coordinators/ Leads

- Celina Wolki, ISR





# Co-Located Projects in the Inuvialuit Settlement Region



# Partners, Decision-makers, KUs



# Other Funders



# Co-Investigators



Canadian Northern Economic  
Development Agency

Agence canadienne de  
développement économique du Nord

SSHRC  CRSH



# Collaborative Development of Methods

The exact case studies and methods (e.g., storytelling interviews, talking circles, terminology workshops, on-the-land gatherings) and evaluation tools, are determined with community partners, decision-maker, and knowledge user input.



Cross-Cultural  
On-the-land camp in  
Sahtú, NWT



# On-The-Land Camps

## Harvested Food in Community Programs



Preparing fish, Cross-Cultural Water Knowledge Camp, Great Bear River, NWT, 2019



# Food Processing Facilities, Training, and Skills Transfer Policies...?



Food processing trailer,  
Deline, NWT, 2019



# Food Policies



Work by Allan Torng at DHSS, NWT



## A Comparative Policy Analysis of Wild Food Policies Across Ontario, Northwest Territories, and Yukon Territory, Canada

Connor Judge<sup>1</sup>, Andrew Spring<sup>2</sup> and Kelly Skinner<sup>1\*</sup>

<sup>1</sup> School of Public Health Sciences, University of Waterloo, Waterloo, ON, Canada, <sup>2</sup> Centre for Sustainable Food Systems, Wilfrid Laurier University, Waterloo, ON, Canada

Access to and availability of food harvested from the land (called traditional food, country food, or wild food) are critical to food security and food sovereignty of Indigenous Peoples. These foods can be particularly difficult to access for those living in urban environments. We ask: what policies are involved in the regulation of traditional/country foods and how do these policies affect access to traditional/country food for Indigenous Peoples living in urban centers? Which policies act as barriers? This paper provides a comparative policy analysis of wild food policies across Ontario, the Northwest Territories (NWT), and the Yukon Territory, Canada, by examining and making comparisons between various pieces of legislation, such as fish and wildlife acts, hunting regulations, food premises legislation, and meat inspection regulations. We provide examples of how some programs serving Indigenous Peoples have managed to provide wild foods, using creative ways to operate within the existing system. While there is overwhelming evidence that traditional/country food plays a critical role for the health and well-being of Indigenous Peoples within Canada, Indigenous food systems are often undermined by provincial and territorial wild food policies. Provinces like Ontario with more restrictive policies may be able to learn from the policies in the Territories. We found that on a system level, there are significant constraints on the accessibility of wild foods in urban spaces because the regulatory food environment is designed to manage a colonial market-based system that devalues Indigenous values of sharing and reciprocity and Indigenous food systems, particularly for traditional/country foods. Dismantling the barriers to traditional/country food access in that system can be an important way forward.

**Keywords:** wild food, traditional/country food, policy, regulations, urban, Indigenous, Canada

### INTRODUCTION

Globally, food systems have come under threat from the impacts of climate change, industrialization, environmental degradation, as well as new threats such as the COVID-19 pandemic (FAO, 2021). These impacts have disproportionately affected Indigenous Peoples' ability to access their lands for food and water sources (United Nations, 2007; CCA, 2014). There is a growing effort to increase knowledge and access to local food

### OPEN ACCESS

#### Edited by:

Caith M. Scott,  
George Brown College, Canada

#### Reviewed by:

Amish Singh,  
University of Lucknow, India  
Philip A. Loring,  
University of Guelph, Canada

#### \*Correspondence:

Kelly Skinner  
kskinner@uwaterloo.ca

#### Specialty section:

This article was submitted to  
Science and Environmental  
Communication,  
a section of the journal  
Frontiers in Communication

Received: 21 September 2021

Accepted: 28 January 2022

Published: 04 March 2022

#### Citation:

Judge C, Spring A and Skinner K  
(2022) A Comparative Policy Analysis  
of Wild Food Policies Across Ontario,  
Northwest Territories, and Yukon  
Territory, Canada.  
Front. Commun. 7:790391.  
doi: 10.3389/fcomm.2022.790391



# Local Growing, Harvesting, Hubs, and Markets



Yellowknife Farmers Market, Yellowknife, NWT, 2019



# Examples of 3 Food System Case Studies in NWT

1. Country foods in community programming (ISR)
2. Trailer processing facility (Sahtú)
3. Investigating lead exposure in northern Canada (Sahtú)





# 1

## Country Foods in Community Programming

**Goal:** To better incorporate country foods into *schools, daycares, cooking circles and youth centers* through collaboration with existing programs

**Question:** What are the pathways to increase country food use in community programs, and how can this be resilient and sustainable for communities to implement?

Existing infrastructure and capacity to support country foods inclusion

Food processing and storage spaces in each community

Existing harvest programs that could provide country foods

Guidelines to support long-term inclusion of country foods in programs

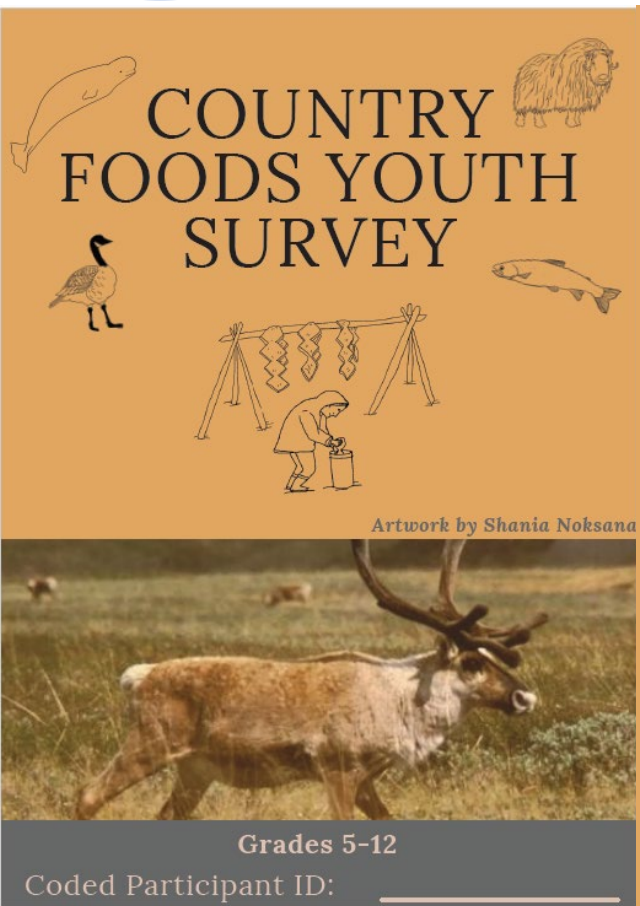
Opportunities to share knowledge and expand to other communities







# 1 Country Foods Preferences Survey for Students



**I WANT TO EAT...**

Circle the foods that you like to eat in **BLUE**.  
Circle the foods you want to try in **YELLOW**.  
Draw and/or write any other foods that you think are missing.

Dry Meat	Dry Fish
 Caribou	 Broad Whitefish
 Muskox	 Lake Whitefish
 Moose	 Herring (Arctic Cisco)
 Beluga	 Arctic Char
 Goose	
Quak	Aged Meat
 Arctic Char	 Uqsuq
 Herring (Arctic Cisco)	
 Caribou	

**I LIKE TO HELP...**

Circle the country food activities that you have helped with in **BLUE**.  
Circle the country food activities that you want to try in **YELLOW**.  
Draw and/or write any other country food activities that you think are missing.

Hunting Trapping Fishing Jiggling  
Rod & Reel Working on A... (cutting up, skinning, p...)

**I WANT TO LEARN FROM...**

Who have you learned to work on country foods from and what is their relationship to you?

Do you feel like you get out on the land enough?  
Why or why not?

**PARTICIPATE**  
What procurement activities do students want to participate in?

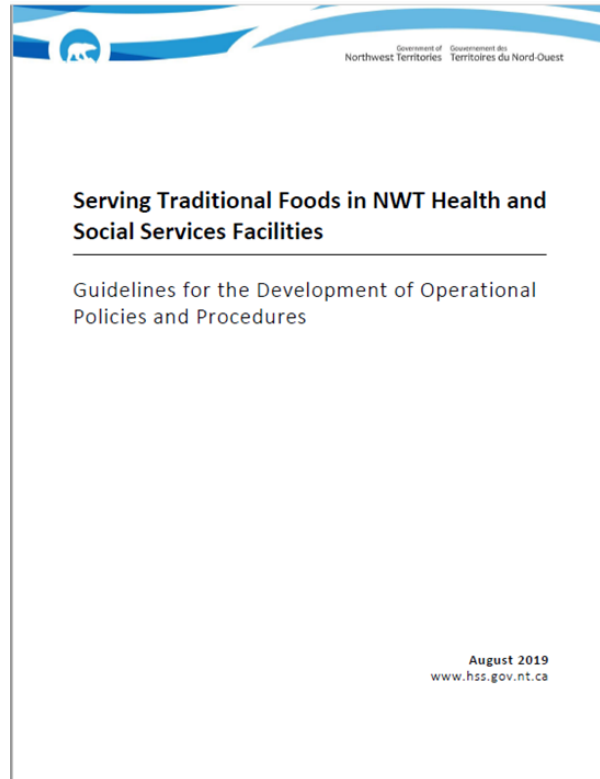
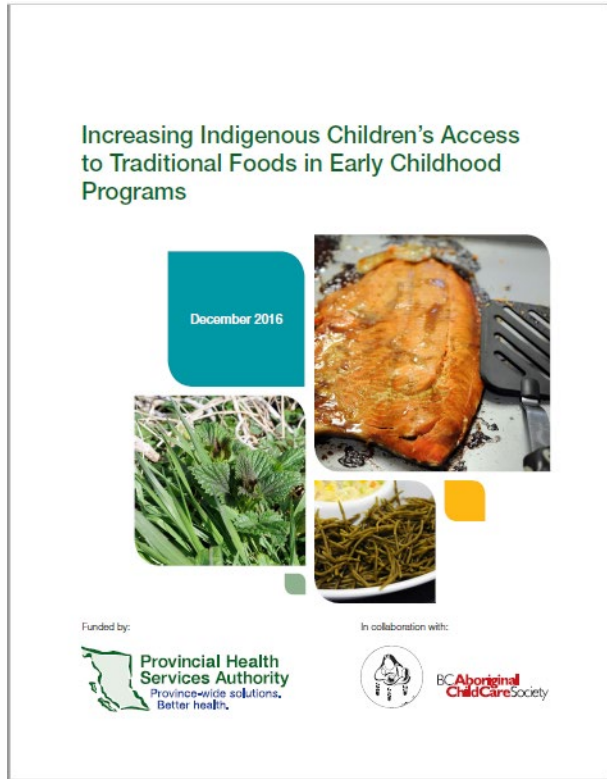
**EAT**  
What traditional foods do students want to eat?

**LEARN**  
Who in the community do students want to learn from?

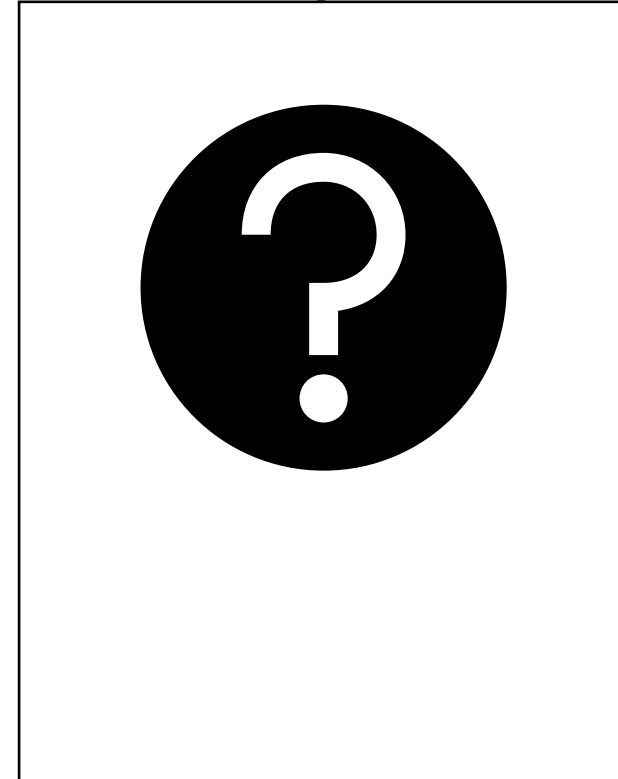
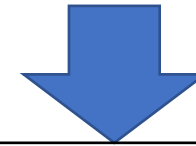
**DEVELOP**  
What harvesting and preparation skills do students want to learn?

1

## Existing Guiding Resources for Traditional Foods



## Guidelines for Serving Traditional Foods in NWT Schools, Daycares, Cooking Circles





# 2

## Trailer – Food Processing Facility

- To evaluate a country food processing training course taught in a food processing facility
- To understand how it can be used as a tool to increase food access



# 2 Evaluation Methods and Climate Adaptation



Likert Scale  
Surveys

Trainees – pre/post  
(n = 6 )

Open-house (n=70)  
Attendee surveys  
(n = 17)



Semi-structured  
interviews

Trainees  
(n = 6 )

GNWT Employee  
(n = 1 )



Training course,  
Deline, NWT, 2019



Open house food samples,  
Deline, NWT, 2019



# 3

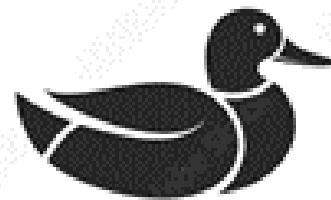
## Investigating Lead Exposure in Northern Canada and the Sahtú Region, NWT



**1. Literature review/ knowledge synthesis** of levels of lead and sources of exposure for northern Canadians



**2. Lead levels in water samples** (surface water and municipal supplies) and **fish samples** around Fort Good Hope



**3. Lead levels in hunter-shot birds** from Fort Good Hope (n=20)



**4. Work with Sahtú community members to develop a survey** to identify risk factors for exposure to lead

# 3

## Lead Study Communication and Knowledge Mobilization

1-PAGER →

Also created:







- 3-pager
- Community presentations and meetings, co-develop messages
- NCP Synopsis report
- Manuscript submitted


### Review of studies of lead exposure in northern regions and Birds harvested from the Sahtú

**REVIEW OF STUDIES:** To understand how people living in northern communities might be exposed to lead, we looked at many other studies about lead. These studies tell us that:

- for people living in the north, lead levels are decreasing;
- most studies show that lead levels in northern people are below levels that cause harm; and
- for people living in the north, lead levels are still higher than people who live in the south.

#### What are possible sources of exposure to lead?

<p>✓ <b>Probably not a lead source</b></p>  <p>Atmosphere</p>	<p>? <b>Possible lead source</b> (Usually low levels, a few with higher levels)</p> <div>  <p>Paint, house dust, and tap water</p>  <p>Traditional food</p>  <p>Natural water and soil</p> </div>	<p>✗ <b>Lead Source</b></p>  <p>Smoking</p>  <p>Lead ammunition – hunting and target practice</p>
--	--	---




John Tobac - Guardian

**BIRDS HARVESTED:** To understand how harvesting practices might affect lead in people in Fort Good Hope, we surveyed hunters and tested shot geese for lead.

We found out that:

- the hunters we surveyed use *non-lead* ammunition for bird-hunting; and
- lead levels measured in birds were *very low* - lead was often not detected in breast muscle samples.


Lead levels measured in water and fish were also very low.




Lead fragments in goose wing

As a next step, we will invite people in the Sahtú to complete a survey that provides more information on possible sources that could increase the chance of exposure to lead.

**For any questions, please contact [Dr. Kelly Skinner](mailto:kskinner@uwaterloo.ca), University of Waterloo, [kskinner@uwaterloo.ca](mailto:kskinner@uwaterloo.ca) or [Dr. Kirsty Gurney](mailto:Kirsty.Gurney@ec.gc.ca), ECCC, [Kirsty.Gurney@ec.gc.ca](mailto:Kirsty.Gurney@ec.gc.ca)**



Environment and Climate Change Canada  
Environnement et Changement climatique Canada

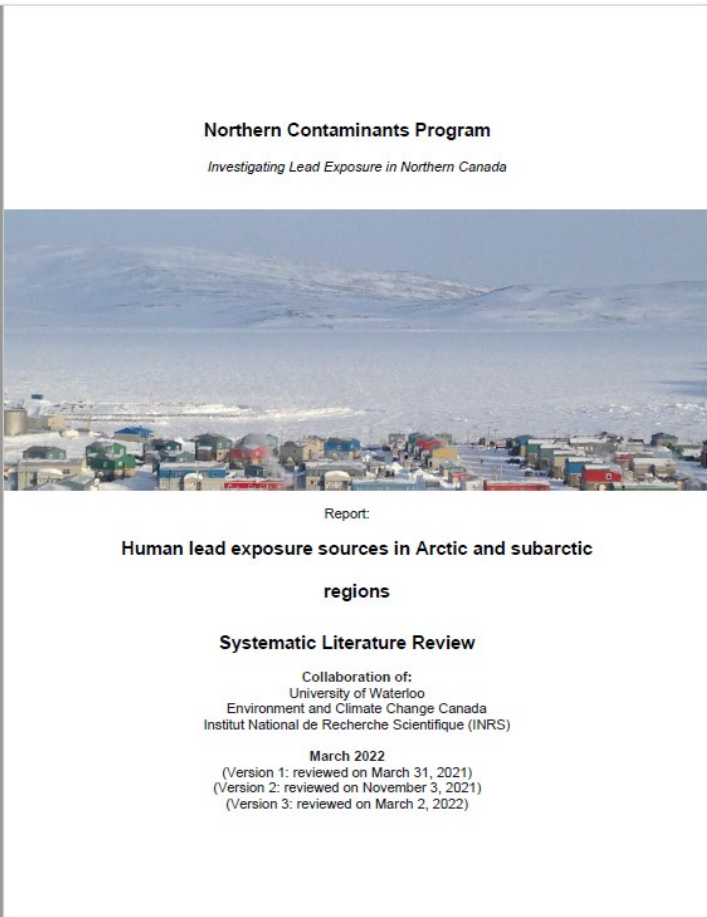


UNIVERSITY OF WATERLOO  
FACULTY OF HEALTH  
School of Public Health Sciences

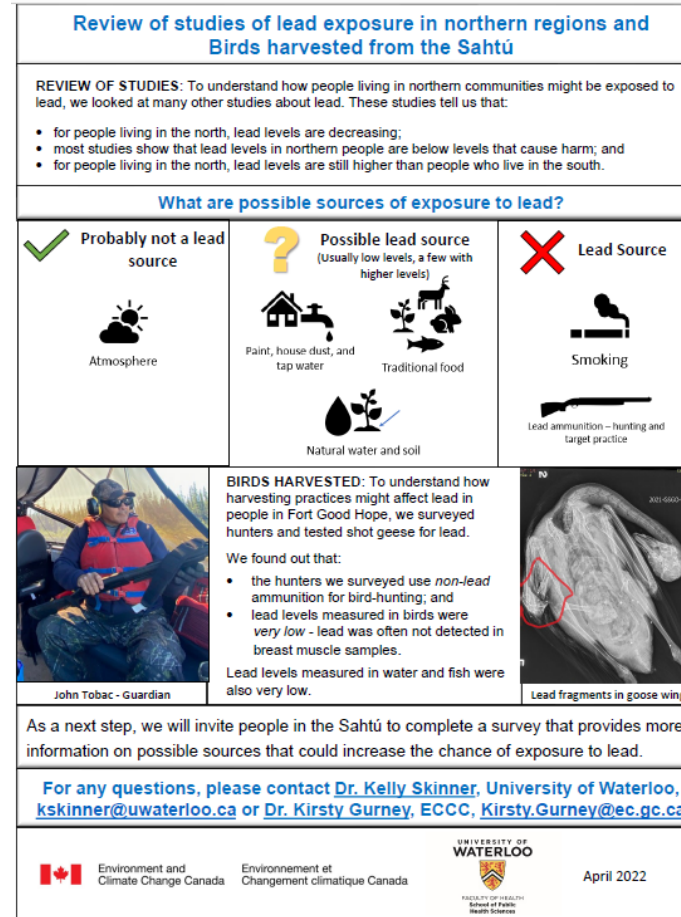
April 2022



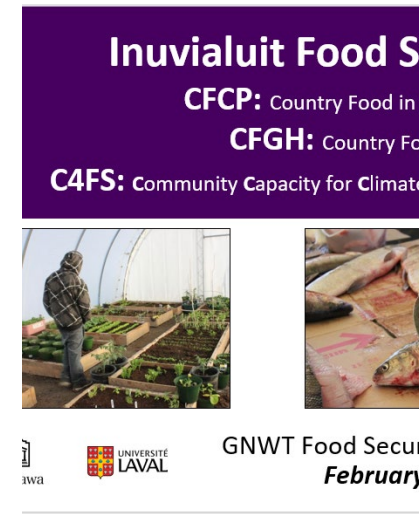
# KMb: Health and Risk Communication



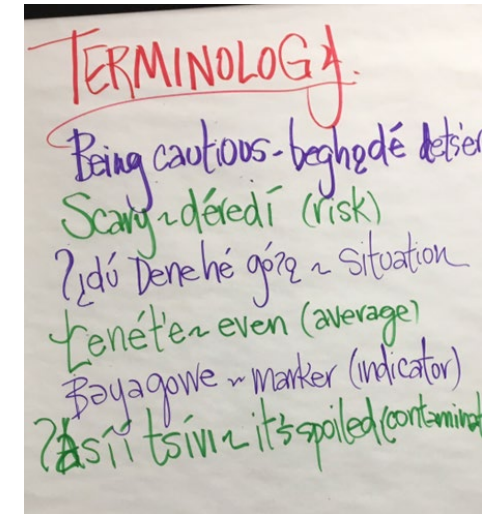
Papers and Reports



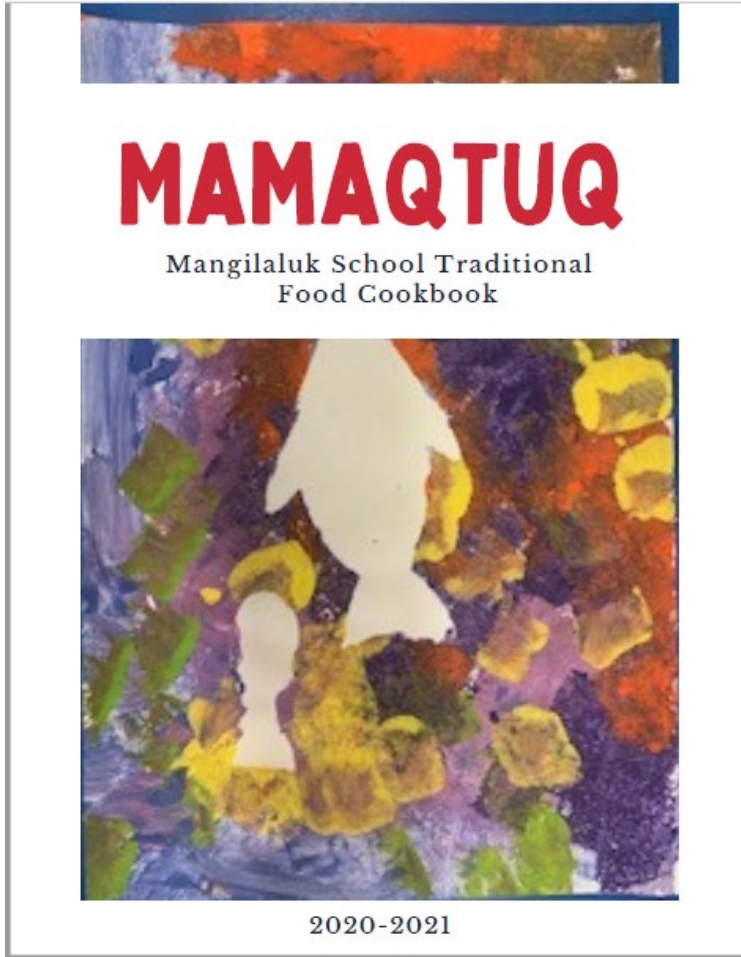
1-pagers and 3-pagers



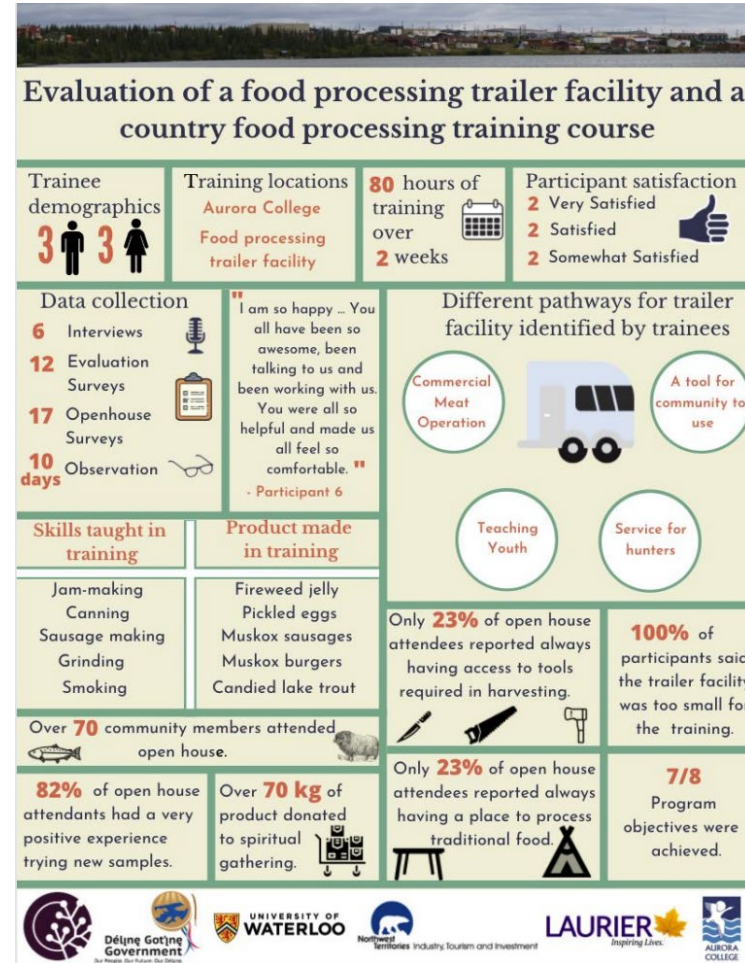
Presentations and Engagement  
Terminology Workshops



# KMb: Community Knowledge Sharing



Newsletters, magazines,  
cookbooks



Digital stories,  
infographics



Community Research Leads,  
Regional and National gatherings



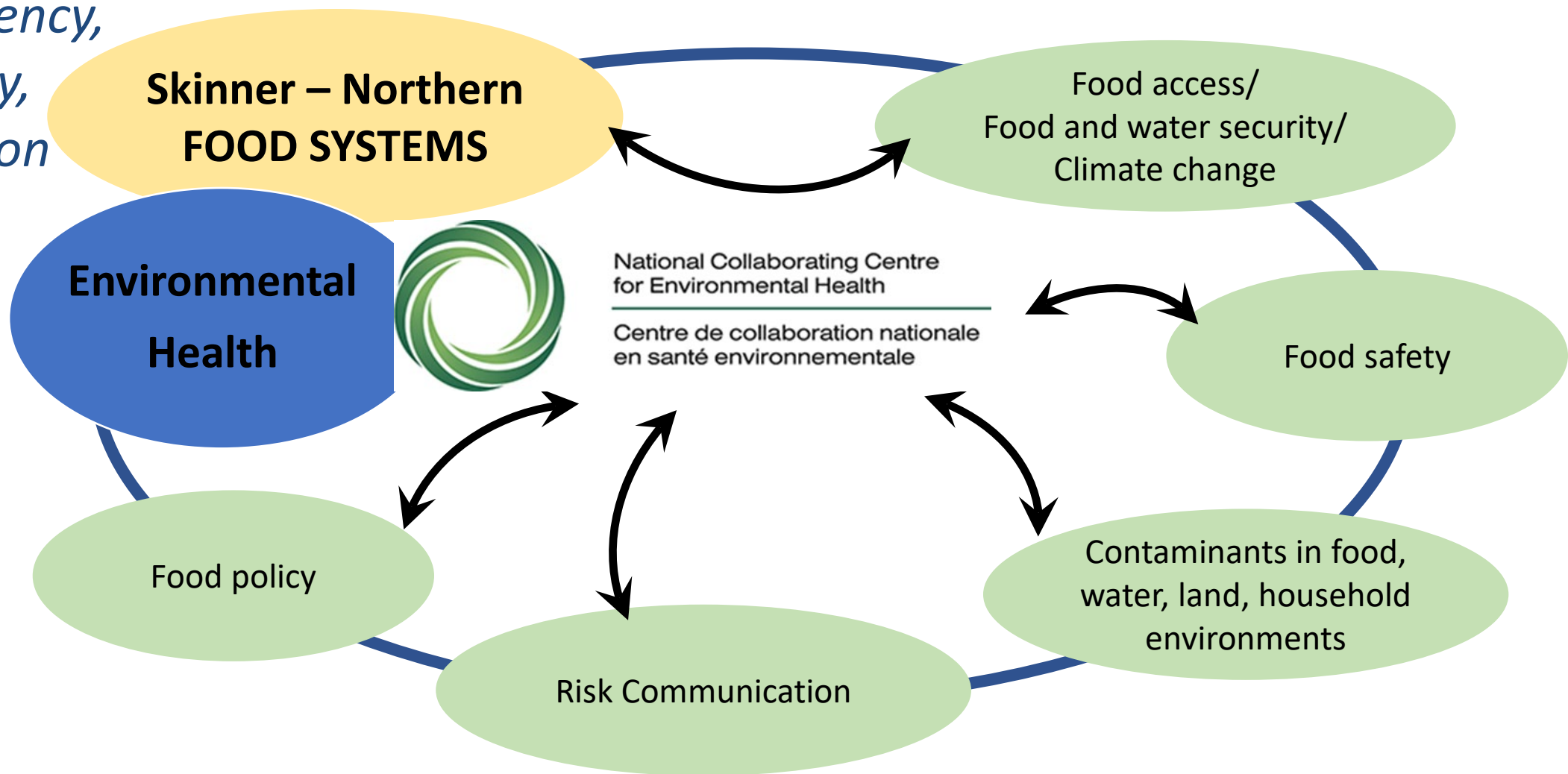
# POLL

What type of knowledge mobilization do you think has the most impact in your work?

- Academic journal articles
- Reports
- 1-3 pagers
- Infographics
- Presentations to your specific audience
- Webinars to a broad audience
- Workshops/training
- Policy briefs
- Engaging/communicating in person – one to one

# Principles and Connections of Research to NCCEH

*equity, resiliency,  
sustainability,  
decolonization*







Community freezer, Paulatuk, NWT, 2022