



## **FNFNES**

**First Nations Food, Nutrition and Environment Study**

# **Summary of Findings and Recommendations**

**for eight Assembly of First Nations regions  
2008-2018**

University of Ottawa  
Université de Montréal  
Assembly of First Nations

OCTOBER 2021

Thank you to all the participants and contributors!

For more information and the  
Full Comprehensive Summary Report:

**[www.fnfnes.ca](http://www.fnfnes.ca)**

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## FNFNES PARTICIPATING COMMUNITIES

Kitsumkalum First Nation  
 Hagwilget Village  
 Tahltan First Nation  
 Iskut First Nation  
 Witset First Nation  
 Tsay Keh Dene Nation  
 Tl'azt'en Nation  
 Lake Babine Nation  
 Fort Nelson First Nation  
 Prophet River First Nation  
 Doig River First Nation  
 Sauteau First Nations  
 Skidegate Nation  
 Nuxalk Nation  
 Namgis First Nation  
 Tla'amin Nation  
 Samahquam First Nation  
 Douglas First Nation (Xa'xtsa)  
 Lil'wat Nation  
 Lower Nicola Indian Band  
 Splat'sin First Nation  
 Swan Lake First Nation  
 Sandy Bay Ojibway First Nation  
 Pine Creek First Nation  
 Chemawawin Cree Nation  
 Sagkeeng First Nation  
 Hollow Water First Nation  
 Cross Lake Band of Indians  
 Sayisi Dene First Nation  
 Northlands Denesuline First Nation  
 Asubpeeschoseewagong Netum  
 Anishinabek (Grassy Narrows)

Wauzhushk Onigum Nation  
 Kitchenuhmaykoosib Inninuwug First  
 Nation (Big Trout Lake)  
 Kingfisher Lake First Nation  
 Webequie First Nation  
 Fort William First Nation  
 Marten Falls First Nation  
 Batchewana First Nation of Ojibways  
 Sagamok Anishnawbek First Nation  
 Atikameksheng Anishnawbek  
 Fort Albany First Nation  
 Attawapiskat First Nation  
 Moose Cree First Nation  
 Garden River First Nation  
 Aamjiwnaang First Nation  
 Munsee-Delaware Nation  
 Six Nations of the Grand River  
 Mohawk Nation at Akwesasne  
 Dene Tha' First Nation  
 Little Red River Cree Nation  
 Horse Lake First Nation  
 Driftpile First Nation  
 Mikisew First Nation  
 Whitefish Lake #128 (Goodfish Lake)  
 Wesley First Nation  
 Chiniki First Nation  
 Louis Bull First Nation  
 Ermineskin Cree Nation  
 Woodstock First Nation  
 Saint Mary's First Nation  
 Eel Ground First Nation  
 Esgenoôpetitj First Nation

Elsipogtog First Nation  
 Pictou Landing First Nation  
 We'koqma'q First Nation  
 Potlotek First Nation  
 Eskasoni First Nation  
 Membertou First Nation  
 Miawpukek First Nation  
 Fond du Lac Denesuline First Nation  
 Black Lake Denesuline First Nation  
 Lac La Ronge Indian Band  
 Pelican Lake First Nation  
 Onion Lake Cree Nation  
 Ahtahkakoop Cree Nation  
 Shoal Lake Cree First Nation  
 James Smith Cree Nation  
 The Key First Nation  
 Muskeg Lake Cree Nation  
 Beardy's and Okemasis First Nation  
 Mosquito, Grizzly Bear's Head, Lean Man  
 First Nation  
 White Bear First Nation  
 Naskapi Nation of Kawawachikamach  
 Whapmagoostui First Nation  
 The Crees of Waskaganish First Nation  
 Montagnais de Unamen Shipu  
 La Nation Anishnabe du Lac Simon  
 Cree Nation of Mistissini  
 Mohawks of Kahnawá:ke  
 Odanak First Nation  
 Micmacs of Gesgapegiag  
 Listuguj Mi'gmaq First Nation



# 1 TITLE AND METHODS

The first comprehensive study to address gaps in knowledge about diet, traditional food and environmental contaminants.

## Why was FNFNES undertaken?

This is the first comprehensive study to address gaps in knowledge about the diet, traditional food and environmental contaminants to which First Nations are exposed.

There has been a gap in our understanding of dietary patterns, nutrition and exposure to contaminants from food because of the exclusion of the First Nations population on reserve from other national studies.

Key objectives included determining:

- ▶ patterns of use of traditional and store-bought foods and nutrient intake among adults living on reserve
- ▶ food security status of households
- ▶ exposure to chemical contaminants in traditional food and tap water
- ▶ kinds and amounts of agricultural, veterinary and human pharmaceuticals present in surface water bodies on reserve

## FNFNES: a community-based participatory research project

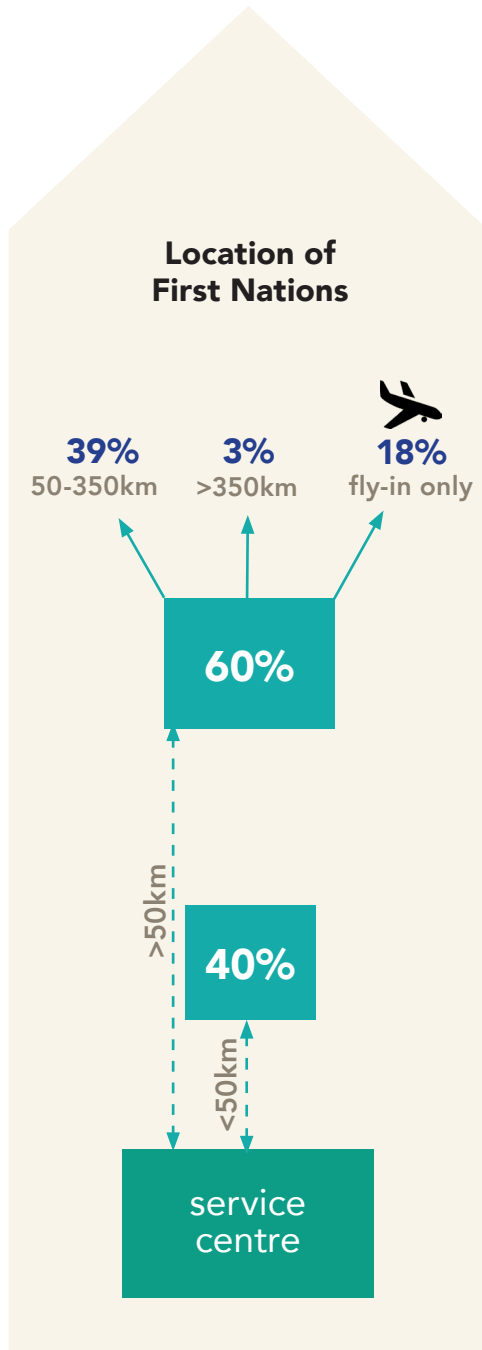
FNFNES is the largest nutrition, food security and food safety study conducted in Canada with First Nations. FNFNES used a standard approach, with identical tools and methodology to conduct a survey of First Nations adults living on reserves in each of the eight AFN regions south of the 60<sup>th</sup> parallel in Canada. To ensure the study assessed and represented the diversity of First Nations' diets, a random sampling strategy was adopted, based on an ecosystem framework that included 11 ecozones.

Participating First Nations were involved in the planning and implementation of data collection for the five principal study components:

- ▶ household interviews
- ▶ tap water sampling for metals
- ▶ surface water sampling for pharmaceuticals
- ▶ hair sampling for mercury
- ▶ traditional food sampling for contaminants





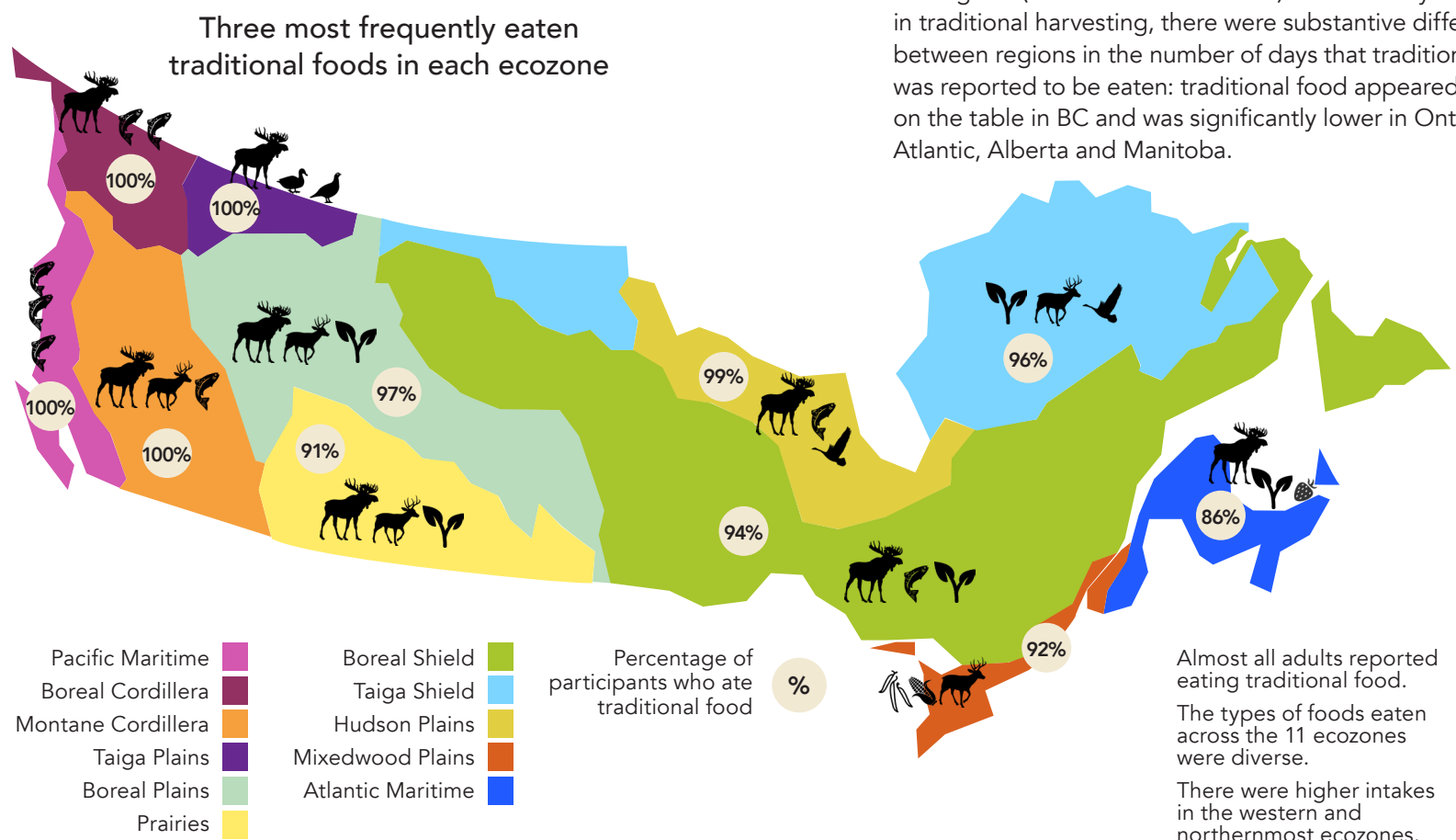


AFN regions	# of FNs	# of households	data collection	community reporting back	DTW*	regional report release
BC	21	1103	2008-09	2010	2011	2011
MB	9	706	2010	2012	2012	2012
ON	18	1429	2011-12	2013	2014	2014
AB	10	609	2013	2015	2016	2016
NB NL NS PEI (Atlantic region)	11	1025	2014	2016	2017	2017
SK	13	1042	2015	2017	2018	2018
QC & LAB	10	573	2016	2018	2019	2019

\*Data training workshop



### 3 TRADITIONAL FOOD DIVERSITY AND COMMON FOODS



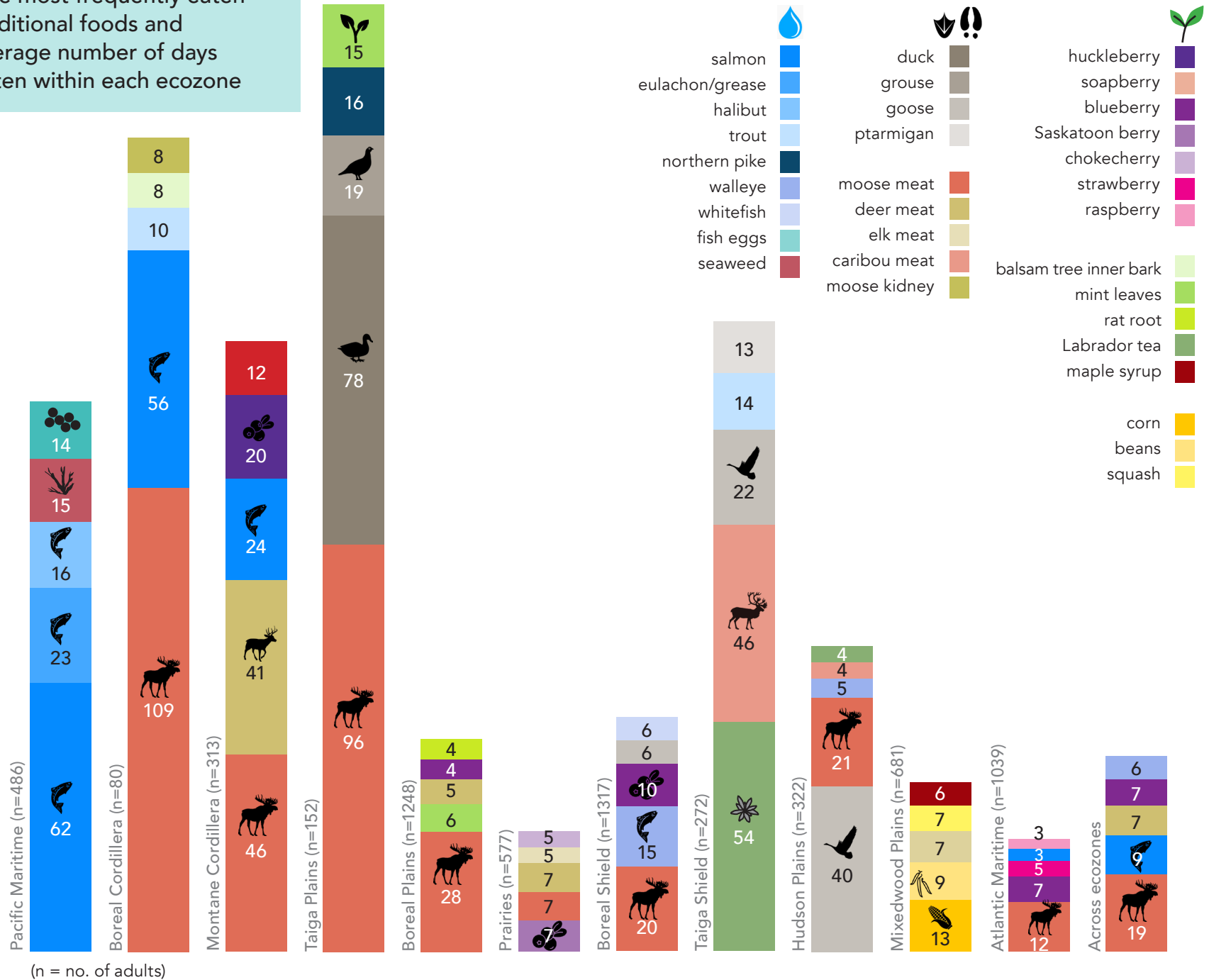
Diverse patterns of traditional food use were seen across regions and ecozones. Higher intakes were seen in the western and northernmost ecozones. While most households across the regions (between 62% and 79%) were actively engaged in traditional harvesting, there were substantive differences between regions in the number of days that traditional food was reported to be eaten: traditional food appeared more often on the table in BC and was significantly lower in Ontario, the Atlantic, Alberta and Manitoba.

Almost all adults reported eating traditional food. The types of foods eaten across the 11 ecozones were diverse. There were higher intakes in the western and northernmost ecozones.





Five most frequently eaten traditional foods and average number of days eaten within each ecozone

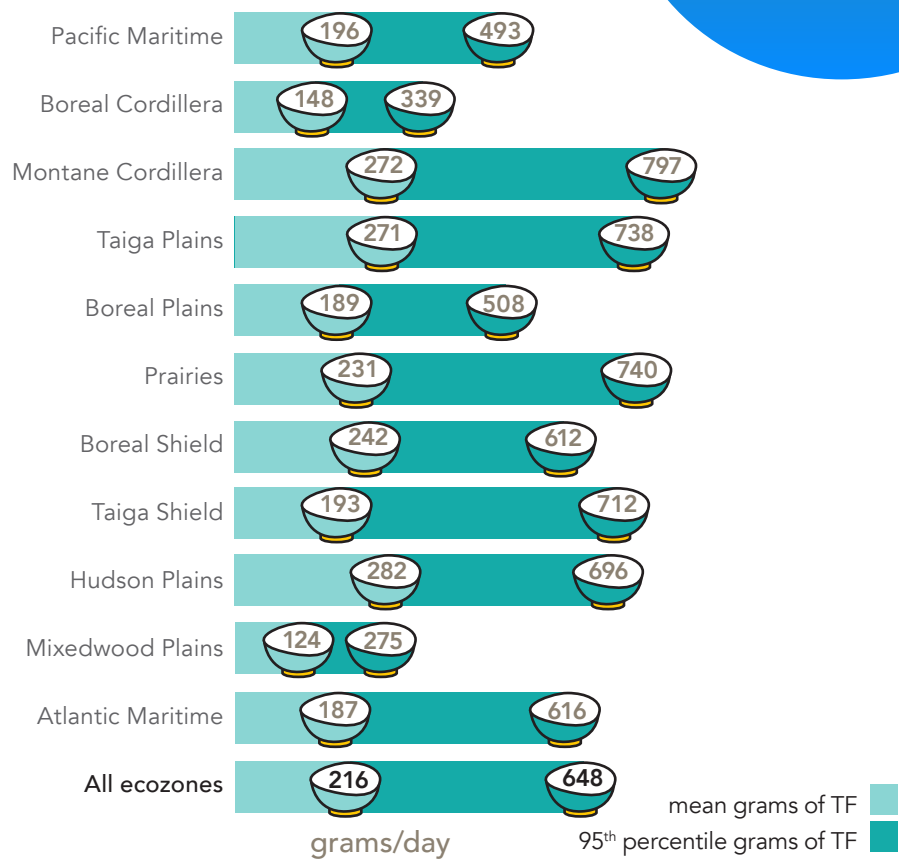


The results presented on this page are taken from the 24-hour recall, a snapshot of all food and beverages consumed on a day in the fall.

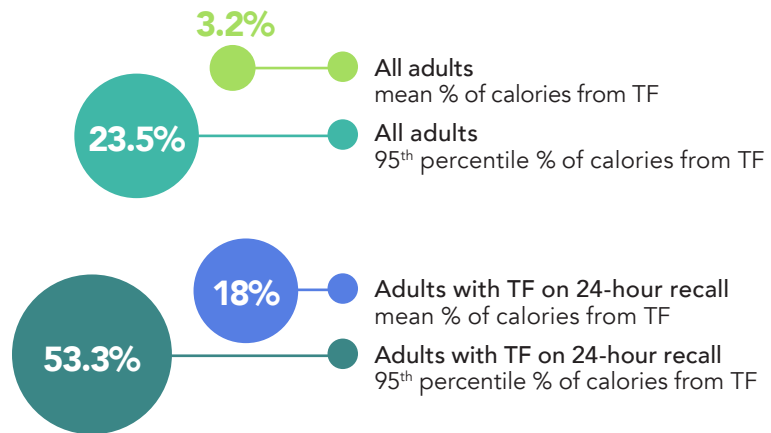
### Daily intake of traditional food (TF) for those adults with TF on their 24-hour recall

Average daily intake of traditional food was **39 grams** (2½ tbsps) while some adults reported eating almost **800 grams** (3¼ cups).

On days traditional food (TF) was eaten, the **intake of almost all nutrients was significantly higher** while the intake of saturated fat was lower.



### Calories from traditional food



## 4 TRADITIONAL FOOD GATHERING

Traditional food use was associated with location, household participation in traditional food harvesting activities, age group, gender and education. Structural level barriers to harvesting were industrial activities and government regulations while household level barriers included insufficient resources to purchase/operate equipment, a lack of a hunter and time.

### Traditional food gathering barriers



#### external

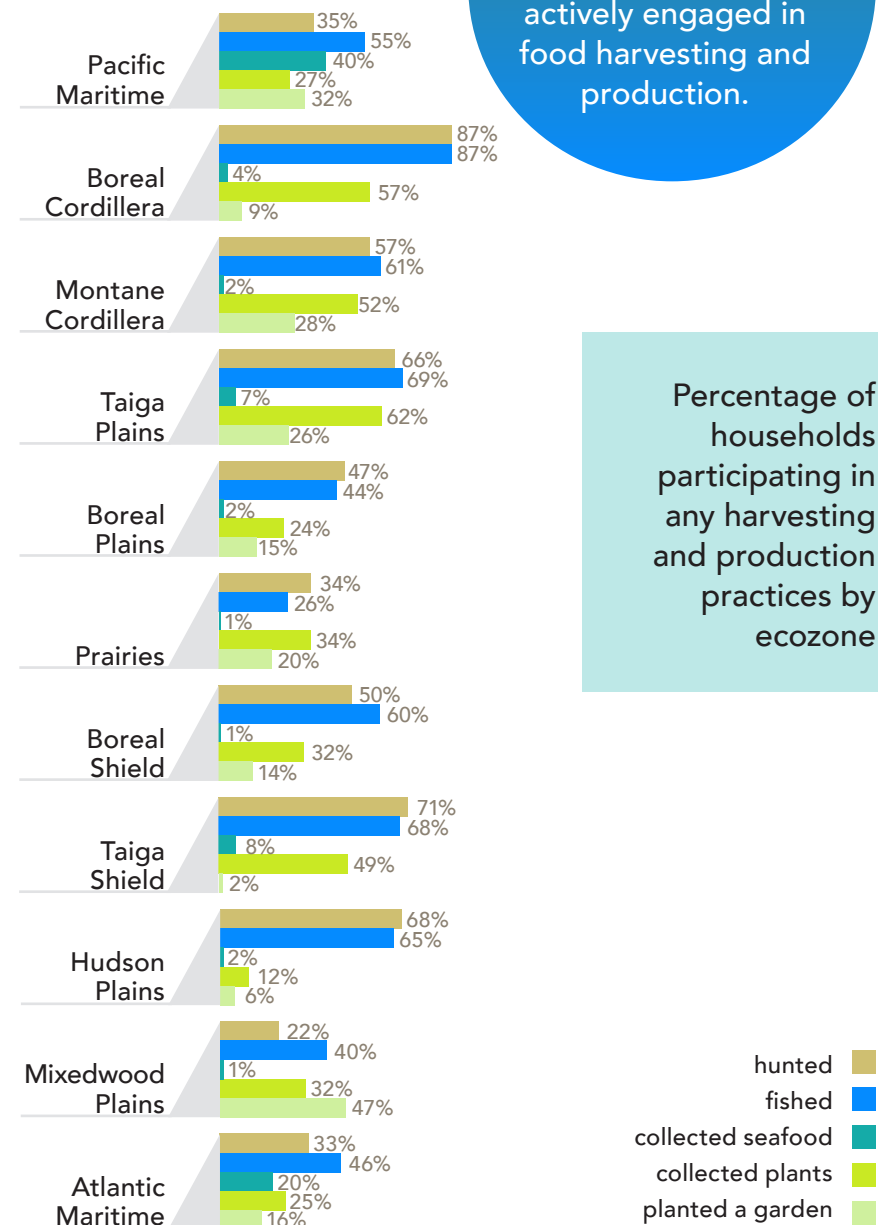
- industrial activities (forestry, farming, mining, hydro)
- recreational activities (non-Indigenous harvesters)
- government regulations
- climate change (impacting availability and lifecycle)
- access issues
- availability of traditional food



#### household level

- insufficient resources to purchase/operate equipment
- lack of a hunter
- time

Across the regions and ecozones, most households were actively engaged in food harvesting and production.



Percentage of households participating in any harvesting and production practices by ecozone

11








## 5 WELL-BEING, FOOD SECURITY AND DIET

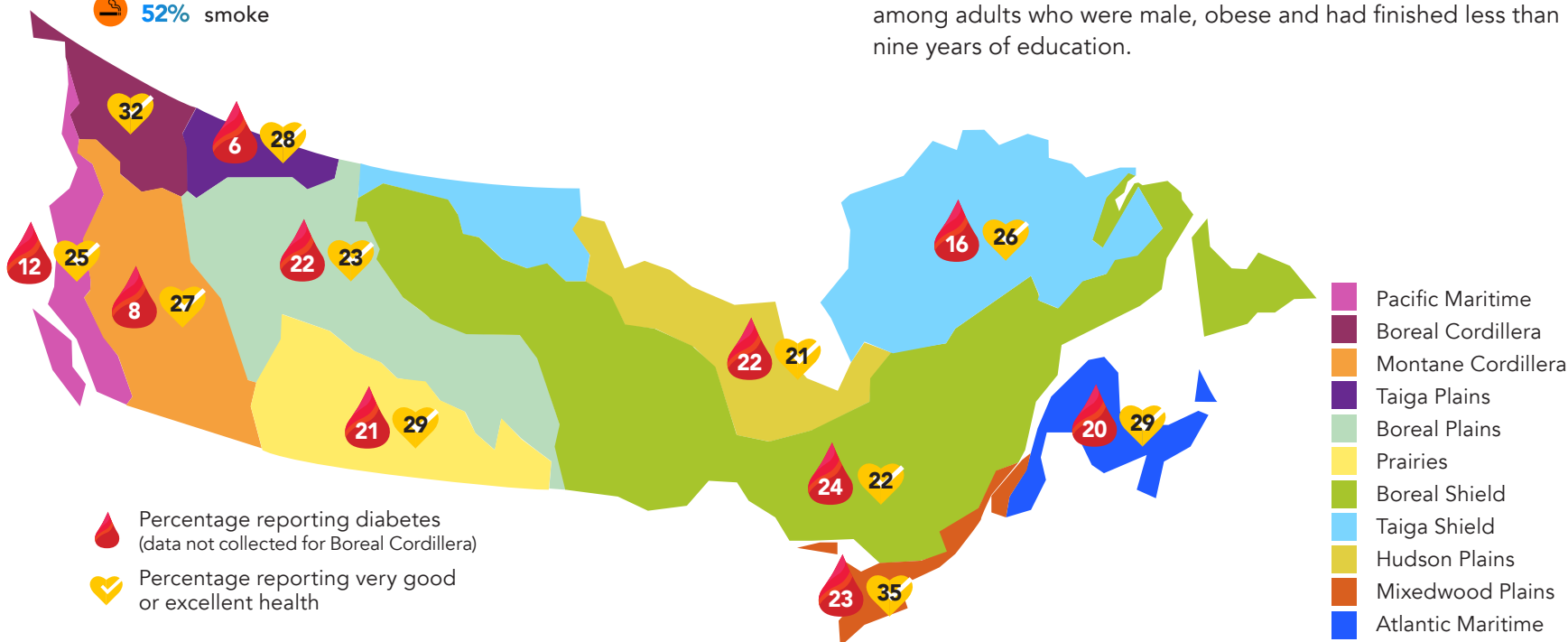
### Well-being

Measures of health and well-being continue to show that there remain large inequities between First Nations and the non-Indigenous population.

#### Overall well-being across regions

-  **26%** said health was very good or excellent
-  **37%** physically active
-  **17%** at a healthy weight
-  **19%** have diabetes (type 2 diabetes more common)
-  **52%** smoke

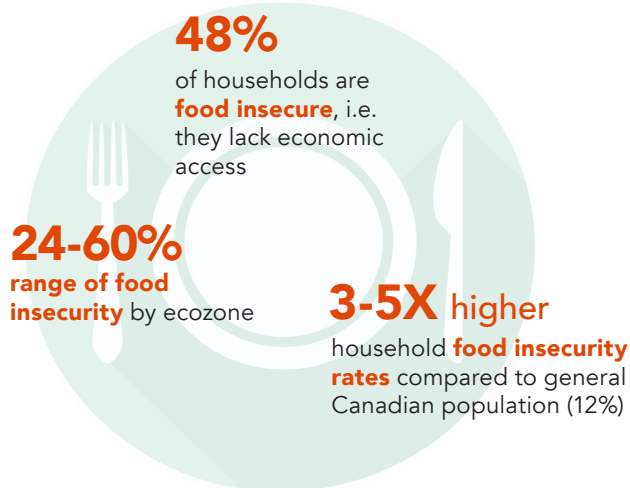
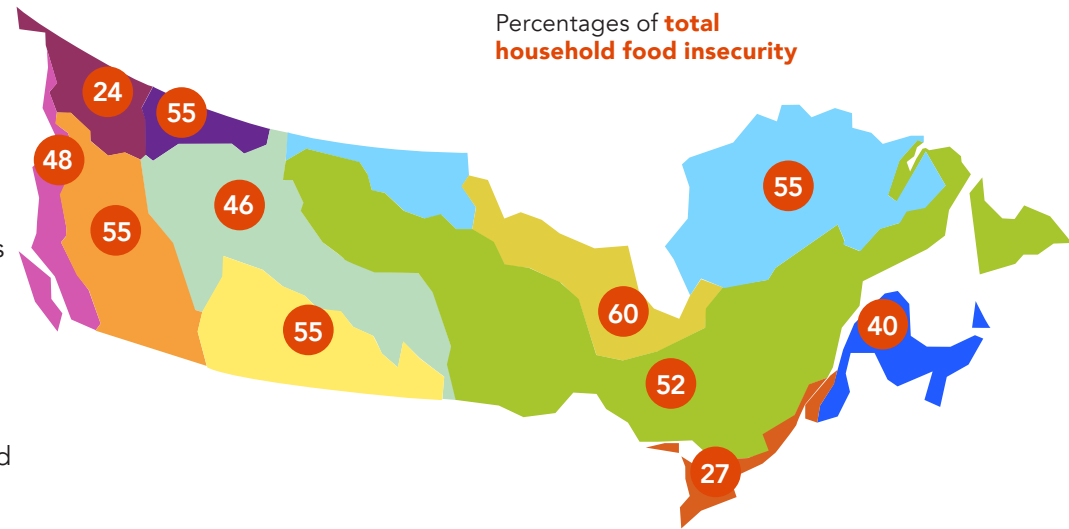
Health status perceptions were influenced by location, gender, education, income, weight and diabetic status of participants, and participation in harvesting activities. There were significantly lower rates of self-reported good health in three regions (Manitoba, Saskatchewan and Ontario), in one ecozone (the Boreal Shield), and in households reporting no traditional food activity. Self-reported health was also significantly lower among adults who were male, obese and had finished less than nine years of education.



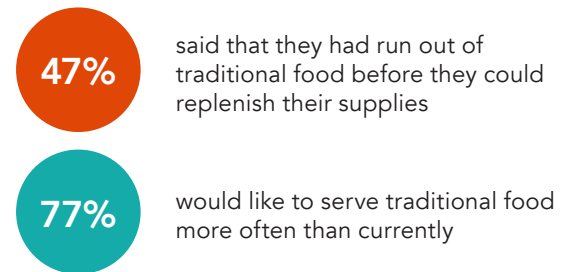
## Household food security

FNFNES measured the financial ability of households on-reserve to purchase store-bought food. Access to traditional foods was captured through questions about **harvest practices**, **barriers to traditional food use** and **adequacy and availability** of traditional food supplies.

The prevalence of food insecurity is very high in First Nations communities (48%). The highest rates of food insecurity were found in Alberta (60%) and in remote communities. By ecozone, the lowest rate of food insecurity (23.7%) was found in the Boreal Cordillera (northern BC). Food insecurity was lower in households with two or more individuals working full-time, among older adults (71+), in males and in those with self-reported good health and non-smokers. Rates of obesity and diabetes are higher than reported for the general Canadian population. 82% of all adults were considered overweight or obese. The age-standardized diabetes rate was 19% for all adults.



Foods from the traditional food system are currently also out of reach for many families.



## Diet

The diet of First Nations adults does not meet nutrition recommendations. Intake of vitamins A, D and C, folate, calcium and magnesium are inadequate.

Intakes of many nutrients were significantly **higher** for those able to include some traditional food in their diet compared to those who only ate store-bought food.



Game meat was a key source of iron



Fish was a key source of vitamin D

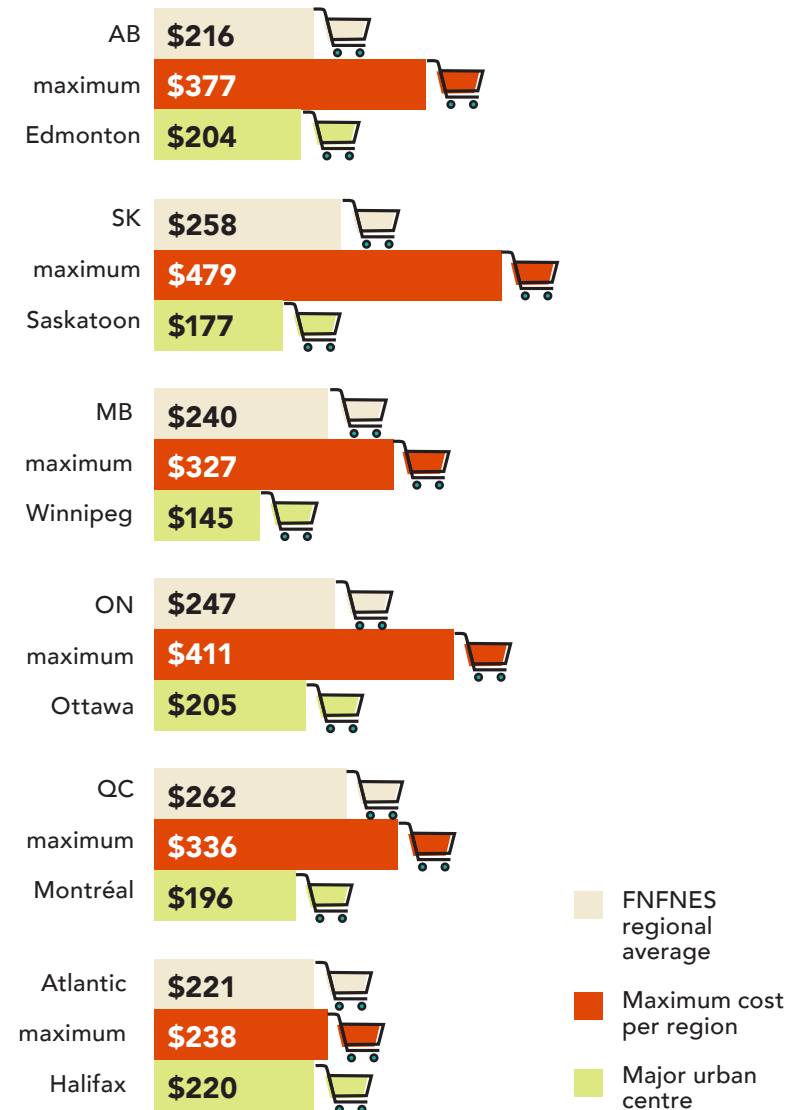
Similar to the general Canadian population, intake of sodium were **above** recommended levels. Reducing sodium intake has the potential to decrease the risk of chronic disease. Canned soup was a major source of sodium.

## Food costs

In all regions, **food costs were higher** for communities outside major urban centres. A healthy food basket remains far out of reach for many communities with food costs often two to three times higher in communities more than 50 km away from a major urban centre. Costs were even higher in fly-in communities.

Insufficient employment and wages relative to food costs, and insufficient availability or access to traditional food systems are key contributors to high levels of food insecurity.

## Grocery costs for a family of four



Grocery costing only undertaken after data collection in BC was completed

## 6 ENVIRONMENTAL CONCERNS

### Drinking Water Quality and Safety

This study provides a snapshot of the levels of metals typically found in tap waters of houses in First Nations communities.



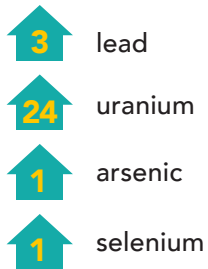
households that had drinking water tested



exceedances for metals that affect taste and colour



exceedances for metals of human health concern



High quality acceptable drinking water is a basic need and important for limiting use of sugar-sweetened beverages.

Taste and colour of water are two common reasons that limit the use of drinking water, despite the quality of drinking water being satisfactory for those metals that can impact human health.



avoided using tap water for drinking because of the taste and other aesthetic values

The common issues identified are usually associated with the aesthetic or taste of the water. Regular maintenance and improvement of the water treatment and/or delivery system need to be implemented to improve the quality of the drinking water supply. Some First Nations communities need to continue flushing their water before use to reduce the lead levels. Lead pipes need to be replaced in households with elevated lead levels in drinking water.

## Pharmaceuticals in surface water



**432** samples collected  
**302** sampling sites



unique pharmaceuticals found in surface water in **83%** of communities

These pharmaceuticals were found in surface water in 10% or more of communities.

### Pharmaceutical

### no. of communities



## Pharmaceutical guidelines

Currently, there are no Canadian Drinking Water Quality Guidelines for pharmaceuticals. British Columbia has set an ambient water guideline level for 17 alpha-ethinylestradiol. Results from this study were compared to existing guidelines from British Columbia (BC), Australia, California and New York.



In three First Nations in Ontario and one in Quebec, **caffeine** levels were present at surface water sites in amounts exceeding Australian and Californian guideline levels.



In two First Nations in Ontario, **17 alpha-ethinylestradiol** exceeded the BC guideline set to protect aquatic life. Levels found could affect the fertility of some fish.


These pharmaceutical results point to potential sewage contamination. The concentrations of other pharmaceuticals in the FNFNES study would not pose a threat to human health or the aquatic environment. One would have to drink hundreds of glasses of water per day from these surface water sites for a prolonged period to experience health effects.

Most FNFNES results are lower than those found in other surface waters and wastewater studies in Canada, the United States, Europe, Asia and Central America.



This is the biggest dataset of contaminant levels in traditional foods across Canada and can be used to estimate the range of "typical" concentrations found in each food within each ecozone. The results are useful for other First Nations in the ecozone that had not participated in FNFNES.



  
trace elements

  
metals of human health concern

  
persistent organic pollutants

**2,062**  
food samples collected\*  
representing  
**250**  
foods

### Traditional food contaminant analyses

To evaluate if there was any health risk of exposure at the levels of the contaminants found in traditional food, contaminant intake was compared to Health Canada guidelines for the protection of health.

Based on current consumption patterns, the risk of exposure to contaminants through traditional food is negligible for most adults.

At the ecozone level, adults eating at the upper level of intake (95<sup>th</sup> percentile) may have an elevated risk of exposure to cadmium, lead and mercury.

Where some traditional samples were not collected from a community, contaminant levels in traditional food found in the same ecozone or region were used instead.

\*by local hunters or fishermen and/or obtained from household freezers and analysed.

Higher concentrations of cadmium were found in organ meats compared to muscle tissue. Some samples had higher concentrations of lead, likely as a result of contamination from lead-containing ammunition. Higher concentrations of mercury were found in fish and seafood. Between 1% and 5% of consumers exceeded the provisional tolerable daily intakes for metals of human health concern. For lead, the provisional daily intake was exceeded by 4% of all consumers and 3% of women of childbearing age. 2% of women of childbearing age exceeded the provisional tolerable daily intake for mercury. There were no exceedances for persistent organic pollutants.

**Elevated risk of exposure**

**Ecozones**

**Key traditional food high in metals**

Cadmium

Boreal Cordillera  
Taiga Plains

Organ meats<sup>1</sup>  
(kidney, liver)

Lead

Boreal Plains  
Prairies  
Montane Cordillera

Animals and birds contaminated with lead-containing ammunition<sup>2</sup>

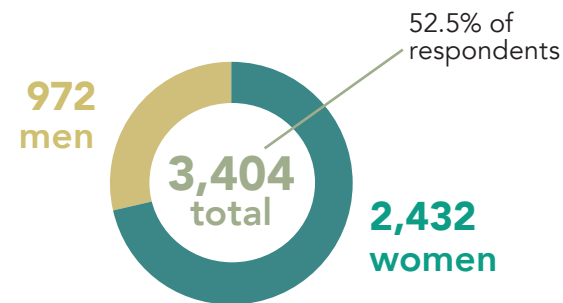
Mercury

Boreal Shield  
Taiga Shield

Walleye, Northern pike, trout<sup>3</sup>

1. Adults who are heavily reliant on organ meats may have an elevated risk of exposure, especially among those who are also smokers.
2. An elevated risk of exposure, due to lead-containing ammunition, was estimated for adults who are heavily reliant on traditional food.
3. An elevated risk of exposure to mercury from traditional food was seen among some women of child-bearing age.

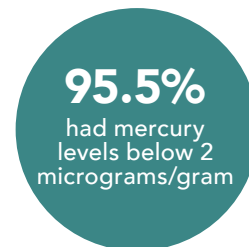
**Mercury in hair analyses**



Adults who volunteered to have hair sampled and tested for mercury

**Health Canada mercury guideline**

**2 micrograms/gram** in hair for women of childbearing age  
**6 micrograms/gram** in hair for adult males and women aged 51+



Mercury body burden is below established guidelines of 6 micrograms/gram in hair in all regions except Québec

Women of childbearing age and older individuals (51+) living in northern ecozones tend to have a higher mercury exposure that exceeds Health Canada's guidelines.

Community-based/intervention studies in northern ecozones may be beneficial to investigate the prevalence of higher mercury exposures and to provide coherent risk communication and nutrition advice on the importance of traditional food and on how to reduce mercury exposure.

The findings suggest that sources of mercury include both locally harvested fish as well as commercial fish.



## 7 SUMMARY OF KEY FINDINGS

**1** This study offers for the first time a body of coherent evidence on the **human dimension of the ongoing environmental degradation** affecting First Nations citizens and communities.

**2** Traditional food systems remain foundational to First Nations.

**3** Traditional food has multiple core values for First Nations. These include cultural, spiritual and traditional values, along with enhanced nutrition and health, food security, ways of knowing and an ongoing connection to land and water.

**4** **Traditional food access does not meet current needs.** Over half of all adults reported that harvesting traditional food is impacted by industry-related activities, as well as climate change.

**5** Generally preferred to store-bought food, **traditional food is of superior nutritional quality**, and its inclusion significantly improves diet quality.

**6** Traditional food is safe for consumption, with two primary exceptions:

- ▷ Large predatory fish (such as walleye and northern pike) in some areas have higher levels of mercury, and some women of childbearing age have elevated levels of exposure, particularly in the northern parts of Saskatchewan, Manitoba, Ontario and Quebec.
- ▷ The use of lead-based ammunition resulted in very high levels of lead in many harvested mammal and bird samples. As a result, there is an elevated risk of exposure to lead for some adults and women of childbearing age. **Use of other forms of ammunition can eliminate exposure to lead.**



**7 Many First Nations face the challenge of extremely high rates of food insecurity.**

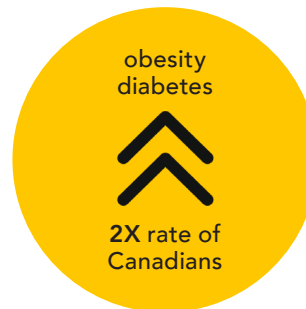
Overall, almost half of all First Nations families have difficulty putting enough food on the table. Families with children are affected to an even greater degree.

**8** The price of healthy foods in many First Nations communities is much higher than in urban centres, and is therefore beyond the reach of many families.



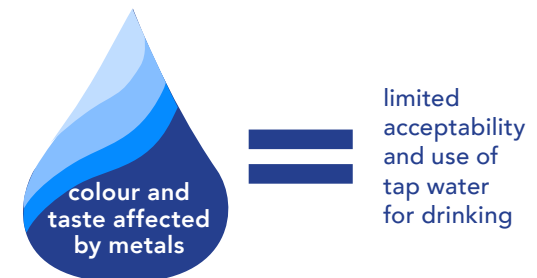
**9 The current diet of many First Nations adults is nutritionally inadequate,** which is strongly tied to food insecurity and limited access to healthy food options.

**10** The health of many First Nations adults is compromised with very high rates of smoking, obesity (double the obesity rate among Canadians), and with one-fifth of the adult population suffering from diabetes (more than double the national average).



**11** There continue to be issues with water treatment systems in many communities, particularly exceedances for metals. **Metals can affect colour and taste, which limit the acceptability and use of tap water for drinking.**

**12** Pharmaceutical residues were found in surface waters in and around many communities, indicating potential sewage contamination.



## 8 STUDY RECOMMENDATIONS

The Principal Investigators of this study call on decision-makers to urgently address systemic problems relating to food, nutrition and the environment affecting First Nations, and to do so in a manner that supports First Nations-led leadership and solutions.

A workshop was held in Ottawa on November 5-6, 2019 to review the FNFNES results with participating communities. The following recommendations were developed with direct input from the 280 workshop participants from across the country, including leaders and technical staff from First Nations health authorities, health centres and Indigenous health organizations, as well as representatives of 80 First Nations communities, 60 of which participated in the FNFNES.

THE FINDINGS OF THIS STUDY highlight the need to continue to build upon current efforts at the community, regional, provincial and national levels to improve food security and nutrition in First Nations.

Indigenous priorities and values need to be recognized and included within relevant frameworks that affect decisions around land use, conservation, habitat protection, and access to high quality and sufficient traditional food.

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## 1 SUPPORT INITIATIVES that promote Indigenous rights, sovereignty, self-determination, values and culture.

### a. Support communities to make their own informed decisions regarding food security and food sovereignty.

- i. Support the promotion of good health, access to healthy foods and general well-being as a human right.
- ii. Maintain or enhance access to and availability of high quality traditional food by addressing local land, water and fishing rights issues, including increased access to hunting grounds and resources needed to acquire traditional foods.
- iii. Recognize and include Indigenous values and priorities in all federal, provincial and local government decisions with respect to land use, development, conservation and habitat protection.
- iv. Recognize, protect and enforce First Nations priority rights to harvest in preferred areas to meet food needs, and to minimize and compensate any potential infringements on these priority rights to harvest.

### b. Take an approach to policymaking that recognizes regional differences and needs.

- i. Create funding opportunities and policies that address the different needs of each region, within regions (e.g. north to south), and within different communities (no one solution/recommendation).
- ii. Increase community eligibility for subsidy programs to reduce food price differences between major urban centres and local First Nations.

- iii. Provide financial support to increase First Nations owned and operated food production and distribution businesses/ organizations.
- iv. Promote environmental health and nutrition in communities by increasing access to community dietitians and other experts or Knowledge Keepers, and develop incentive programs to bring local scientists, doctors, dietitians, biologists, chemists and other specialists back to their home communities.

### C. Recognition/education of traditional ways of knowing.

- i. Create strategies to decolonize bureaucratic processes (e.g. change format of funding procedures to be flexible and meet the needs of First Nations).
- ii. Develop Traditional Knowledge (TK) curricula.
- iii. Integrate Indigenous Knowledge Systems (IKS) into nutrition programming, not only as an afterthought with reference to a “vulnerable group” but fully incorporating TK into these standards.

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## 2 PRIORITIZE THE PROTECTION of the environment— First Nations lands, waters and territories.

### a. Improve measures that protect local ecosystems, mitigate against the negative impacts of pollution and climate change, and prevent further environmental damage.

- i. Improve environmental protection legislative frameworks and address regulatory gaps to ensure that environmental protection aligns with Indigenous rights and concerns, including First Nations' priority rights to access and use conservation areas, parks and other protected zones for food gathering (e.g. Indigenous Protected and Conserved Areas).
- ii. Acknowledge and address the impacts of a changing environment—climate change and other forms of environmental degradation—on food (in)security, nutrition, health and habitat loss (e.g. species loss and associated implications).
- iii. Increase funding to support initiatives that decrease pollution (land, air, water), including First Nations-specific monitoring and data collection.
- iv. Provide increased support for efforts/initiatives to reduce the impacts of climate change on First Nations food security/sovereignty.

### b. Promote the consumption of traditional foods.

- i. Support the development of First Nations-led and Indigenous value-based public health communication efforts, with the aim of promoting the importance of continued reliance on traditional foods as a healthy food source while decreasing potential exposure to environmental contaminants.

- ii. Develop regional and ecozone-specific guidance for fish consumption that both highlights the importance of fish in diets and informs sensitive populations about decreasing exposure to mercury (e.g. women of childbearing age).

### C. Reduce the levels of contaminants in natural and built environments through enhanced research, education, regulation and communication.

- i. Establish stronger partnerships with government and industry to better regulate the release of environmental contaminants, including strategies to eliminate/reduce the contamination of First Nations' traditional territories from external sources.
- ii. Provide better public education and awareness on the importance of traditional foods and to support healthy lifestyle choices (e.g. cadmium exposure from organ meats together with smoking, lead from ammunition).
- iii. Develop national programming for the safe and affordable replacement of lead-based ammunition and fishing weights.
- iv. Improve the communication of existing funding opportunities for programs that measure and mitigate levels of contamination.
- v. Develop a long-term nation-wide traditional food contaminant monitoring program.

- d.** Ensure good drinking water quality and trust in the safety of public water systems.
- i. Provide infrastructure upgrades to support the production and delivery of potable drinking water.
  - ii. Promote the consumption of tap water for drinking—the preferred option over sugar- and artificially-sweetened beverages for health reasons and over bottled water as a source of plastic pollution.
  - iii. Address concerns about the taste and/or appearance of drinking water to support tap water as a preferred option.
  - iv. Provide resources to support regular drinking water monitoring, inspection and maintenance programs to improve the safety, taste and appearance of drinking water supplies.
  - v. Replace lead pipes with a safer alternative to prevent elevated lead levels in drinking water.
  - vi. Develop effective long-term strategies to prevent water pollution and to protect watersheds.

- e.** Ensure that pharmaceuticals are not present at levels potentially harmful to humans or animals.
- i. Develop a national pharmaceutical monitoring program with guidelines for the protection of aquatic and terrestrial environments to avoid unnecessary exposure to these and other contaminants.
  - ii. Develop detailed planning for appropriate sewage waste treatment and disposal.
  - iii. Provide proper Integrated Solid Waste Management infrastructure, including support programs for the return or proper disposal of unused or expired prescription drugs and medications as an alternative to flushing medications down the toilet or throwing them into regular garbage.
  - iv. Address regulatory/legislative gaps with respect to pharmaceuticals and enhance monitoring and surveillance systems in this regard.



## 3 BUILD CAPACITY to eliminate barriers to proper nutrition and to reduce food insecurity.

- a. Incorporate a holistic approach to food and nutrition that involves addressing social issues and socioeconomic factors such as poverty, unemployment and education that contribute to food insecurity.
  - i. Establish a culturally appropriate First Nations School Food program to ensure that every First Nations child has access to healthy foods based on local criteria.
  - ii. Increase access to affordable high-quality market foods.
  - iii. Support sustainable and healthy lifestyles that contribute to disease prevention.
  - iv. Implement strategies to modify the built environment to help promote physical activity and overall well-being (e.g. walkability, recreational opportunities).
  - v. Provide easy access to culturally relevant/safe health services.
  - vi. Improve families' financial ability to engage in local harvesting and food production activities and to purchase healthy market foods, accounting for increases in the cost of living/inflation.
  - vii. Provide additional resources to support culturally appropriate and safe primary prevention, including acute and chronic disease management.
  - viii. Increase funding, education, and access to social programs and policies that address economic disparities through culturally relevant and/or land-based forms of employment (e.g. fishing, trapping).
- b. Support communities to increase reliance on traditional food systems and build resilience against threats to food security/sovereignty, including extreme climate events/disasters (e.g. flood, drought, wildfire) and pandemics (COVID-19).
  - i. Improve local availability and access to healthy foods, independent of imports (e.g. gardens, greenhouses, hydroponic units, agricultural activity and animal husbandry when appropriate).
  - ii. Promote the sharing and preserving of harvested traditional foods at the local level (e.g. community freezer), and improve access to traditional food systems through a combination of subsidies that support harvesting, growing, sharing and preserving traditional foods.
  - iii. Support knowledge transfer/exchange and skills acquisition regarding food (e.g. hunting, food preservation, food preparation, budgeting).
  - iv. Increase economic support/household income to support living/hunting costs.
  - v. Increase funding from all levels of government to monitor, protect and ensure local ecosystems are healthy and can support First Nations' ability to access sufficient traditional foods.

## 4 IMPROVE PARTNERSHIPS, collaboration and communication between First Nations and all levels of government, as well as partnerships between First Nations to support sharing information about food, nutrition and the environment.

- i. Create networks between First Nations, governments and the private sector to address food insecurity.
- ii. Build partnerships with governments to better communicate jurisdictional responsibilities and to help navigate bureaucratic processes (e.g. create a toolkit about bidirectional communication with government, including cultural safety).
- iii. Identify opportunities and support community partnerships and collaboration between neighbouring communities (e.g. better intercommunity communications to enable sharing of initiatives and resources).
- iv. Increase collaborations with government and industry to regulate the release of environmental contaminants by involving First Nations in discussions early on in the process, including the identification of alternatives.



## 5 SUPPORT CONTINUING RESEARCH, education and public awareness.

- i. Use FNFNES data to support communities in confirming the need for programming and planning, intervention and mitigation.
- ii. Disseminate information in ways that are relevant, appropriate and meaningful to First Nations by applying collaborative and community participatory methods.
- iii. Highlight how positive outcomes and examples can be used to contribute to the development of tools beyond the level of the community, region or country (e.g. share lessons learned internationally).



## 6 CREATE A JOINT TASK FORCE or committee to plan how to implement/ operationalize these recommendations.

- i. Form a First Nations-led task force consisting of First Nations rights holders, along with multi-level and cross-sector stakeholders, to broadly review recommendations, identify priorities at the local, regional and national levels, lead consultations/engagement, and facilitate the operationalization of recommendations.
- ii. Create an action plan with deadlines for the implementation of action items/objectives, recognizing that the nature of implementation will vary from region to region.
- iii. Include grassroots/community-based and Indigenous knowledge-based initiatives/solutions in an action plan, including the implementation of policies by First Nations at the local level.
- iv. Monitor and evaluate the effectiveness of existing food access programs for First Nations in curbing food insecurity and revamp programs based on feedback from First Nations.
- v. Facilitate engagement to develop multi-level interventions and identify/guide future research needs and priorities.
- vi. Continue to monitor nutrition and food insecurity, and create appropriate mechanisms to establish accountabilities in progress and transparency in reporting.

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