

Cultural Identity, Continuity, and Wellbeing: Exploring the Sociocultural Significance of
Traditional Foods for Northern Indigenous Food Security

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ABSTRACT

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Naomi Trott

Food insecurity is one of the most pressing and challenging issues facing northern Indigenous populations in Canada. Widespread lack of adequate, affordable, and accessible food is, in part, attributed to the displacement of land-based traditional foods which represent a key component of Indigenous diets and nutrition. Unlike store-bought market foods, traditional foods are intimately connected to place, while practices associated with their use reflect, reinforce, and reproduce Indigenous knowledge and cultural values, (re)asserting Indigenous food sovereignty. However, participation in harvesting and consumption of traditional foods is in decline, with negative implications for individual and community health and wellbeing. In this thesis, I explore the role and contribution of traditional foods in supporting northern Indigenous food security and food sovereignty, focusing in particular on sociocultural elements embedded within traditional food systems. The first manuscript presents the results of a scoping review of literature located at the intersection of traditional foods and northern Indigenous food security, with a focus on studies that address the sociocultural dimensions of food. A total of 22 articles were selected for review, coded thematically, and analyzed to identify trends, emphases, and gaps in this body of literature. The second manuscript emerged from a community-based partnered research project with Waskaganish Cree First Nation, where local fishing practices have been disrupted due to hydroelectric projects diverting key waterways, and socioeconomic and cultural lifestyle changes. I conducted 18 semi-structured interviews with 23 elders and knowledge holders to better understand the significance of fish for Waskaganish Crees, and how community members have adapted to continue accessing fish in the context of change. Collectively, this thesis establishes the need to support Indigenous-centered approaches for sustainable access to traditional foods in order to address northern Indigenous food crises and uphold Indigenous food sovereignty.

Keywords: Indigenous food security; Indigenous food sovereignty; traditional foods; cultural food security; fish; Eeyou Istchee; Waskaganish Cree Nation; wellbeing; cultural identity; traditional knowledge

Territorial Acknowledgement

I would like to begin this thesis by acknowledging that Concordia University is located on unceded Kanien'kehá: ka territory, and is a gathering place today to a diverse population of Indigenous and other peoples. The Kanien'kehá: ka Nation is recognized as the custodians of the lands and waters of Tiohtià:ke, which has, and continues to provide me with the spaces and resources to live, work, and learn. This research is also rooted in and took place on the Cree territory of Eeyou Istchee. I am grateful to have been welcomed and to have had the opportunity to listen, learn, and share in their commitment to the ongoing stewardship of their lands, waters, and fish.

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Contribution of Authors

I, Naomi Trott, am the author of all chapters presented in this thesis. Dr. Monica Mulrennan is a co-author to the manuscripts presented in Chapters 4 and 5. Through regular discussions and conversations, Dr. Mulrennan provided substantive intellectual contributions related to the development of research design, methodological approaches, and analysis. I am responsible for writing this thesis in its entirety, to which Dr. Mulrennan also provided insight related to its organization and framing, and technical support as a thorough reviewer and editor.

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CHAPTER 1: Introduction

1.1. Research Problem

Indigenous populations in Canada are disproportionately at risk of food insecurity. The most recent results of the 2021 Canadian Community Health Survey found that nearly one third of Indigenous households living off-reserve in the provinces are food insecure (Tarasuk et al., 2022). Similarly, the First Nation Food, Nutrition and Environment Study concluded that almost half (48%) of on-reserve First Nations households experience food insecurity, rates that are 3 to 5 times higher than non-Indigenous counterparts (FNFNES, 2021). Food insecurity is consistently most acute among northern Indigenous populations (CCA, 2014). For example, over 75% of Inuit households in Nunavut experience food insecurity (Furgal et al., 2021).

Food security is commonly defined as existing “when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life” (FAO, 2014, p. 50). The appropriateness of this definition for Indigenous contexts has however been questioned, in part because contemporary Indigenous food systems are comprised of both local foods acquired through land-based practices, and store-bought market foods (Kuhnlein & Chan, 2000). Elaine Power (2008), for example, argues that due to the dualistic nature of traditional food systems, mainstream definitions and conceptualizations of food security have limited application in Indigenous contexts because of their failure to recognize the significance of traditional foods, and their lack of attention to factors influencing access to, availability, use, and stability of traditional foods.

Access to traditional foods has been identified as a major determinant of food security (Ford & Berrang-Ford, 2009). According to Phil Loring and Craig Gerlach (2015) this issue represents the single most significant challenge to addressing food insecurity in northern Indigenous communities. High rates of northern Indigenous food insecurity have been attributed to dietary changes (Kuhnlein et al., 2004), environmental changes (Chan et al., 2006; Ford et al., 2010; Royer & Hermann, 2011), and high costs associated with purchasing store-bought foods and harvesting traditional foods (Beaumier & Ford, 2010; Kenny et al., 2018; Batal et al., 2021). Colonial and assimilatory processes further undermine Indigenous Peoples’ ability to access land, and have disrupted knowledge systems which inform traditional food practices. These interconnected and compounding challenges have contributed to a global trend among Indigenous peoples in settler-states of declining participation and consumption of traditional foods (McCartan et al., 2020), with implications for health, wellbeing, and cultural continuity.

In 2009, in partnership with McGill University’s Centre for Indigenous Peoples’ Nutrition and Environment (CINE), the FAO published its first report dedicated to Indigenous peoples’ food systems, exploring their relationship between culture, environment (land), health, and wellbeing (FAO, 2009). Chief Bill Erasmus of Dene First Nation, former research partner with CINE, and contributor to the 2009 report wrote that Indigenous Peoples’ food systems must be protected “because of the many benefits they offer to physical health and the continuity of Indigenous cultures... and are an important foundation of food security for Indigenous Peoples in their home regions” (FAO 2009, p. x). Traditional foods are known to be a critical source of energy, protein and nutrients (Lemire et al., 2015; Blanchet et al., 2020), represent a significant proportion of

northern Indigenous diets (Ratelle et al., 2020; Receveur & Kuhnlein, 1998; Tait, 2001), and are a preferred food choice among Indigenous peoples (Lambden et al., 2007; Batal et al., 2021). Further, traditional food systems are deeply entangled in Indigenous relationships to land and to one another, and serve as a major vector through which place-based practices and processes regenerate Indigenous knowledge, values and beliefs. Traditional food systems are also central to Indigenous notions of wellbeing (Hanemaayer et al., 2020), identity (Gombay, 2005) and cultural continuity (Willows, 2005). In recognition of these connections, food security in Indigenous contexts must include consideration of cultural components embedded in the harvesting, preparation, processing, sharing, and consumption of traditional foods (Power, 2008).

In research related to food security in northern Indigenous contexts, traditional foods are primarily analyzed from a health science perspective, emphasizing their significance in relation to supporting nutritional security, diet quality, and physical health. Despite sociocultural aspects of traditional foods being integral to northern Indigenous food security, this has been given less attention. Moreover, while there is much research related to challenges and significance of traditional food harvesting and sharing, less attention has been given to their preparation and processing; practices that are also culturally significant and support traditional food use. There is a growing body of literature that suggests improving access to traditional foods, by revitalizing traditional food systems, is increasingly being pursued as an effective approach to appropriately alleviate food insecurity in line with the needs, priorities, and self-determination of Indigenous communities (Elliot et al., 2012; Rudolph & McLachlan, 2013; Richmond et al., 2021; Robidoux et al., 2021). Community-based and culturally informed food initiatives connect addressing food insecurity within broader movements of Indigenous food sovereignty by (re)asserting and (re)affirming Indigenous control, ownership, and autonomy over their land, knowledge, and food systems.

This thesis explores the role and contribution of traditional foods in support of northern Indigenous food security, focusing primarily on sociocultural elements embedded within traditional food systems. Foregrounding sociocultural elements embedded at all points of traditional food use and access provides a deeper and more balanced understanding of cultural food security that better aligns with the complexities associated with upholding and promoting traditional food systems. The first manuscript presents the results of a scoping review of literature located at this particular intersection. A total of 22 articles were selected for review, coded thematically, and analyzed to identify trends, emphases, and gaps in this body of literature. This review provides an overview and lays the contextual groundwork to situate the second manuscript.

As part of a large-scale multidisciplinary project, *FISHES: Fostering Indigenous Small-Scale fisheries for Health, Economy and food Security*, the second manuscript contributes to research undertaken in partnership with Cree communities of Eeyou Istchee as part of Activity 5 (Genomics and TEK to enhance food security and socioeconomic development) of the FISHES project (see section 1.3). A study was co-designed and co-developed as part of a community-based partnered research project with Waskaganish Cree Nation, where local fishing practices have been disrupted due to hydroelectric projects which have diverting key waterways, and socioeconomic and cultural lifestyle changes. Cree knowledge and experiences shed light on how community members have adapted in order to continue accessing fish in the context of change, and reflect embodied actions to maintain individual and community fisheries in support

of wellbeing and cultural continuity, and in line with the principles of Indigenous food sovereignty. Collectively, this thesis establishes the need to support Indigenous-centered approaches for sustainable access to traditional foods in order to address northern Indigenous food crises and uphold Indigenous food sovereignty.

1.2. Positionality

Consistent with Indigenous methodologies and practices of allyship, it is necessary to situate myself in relation to the proposed research project. My academic experiences are that of a white woman, a settler, and a member of a colonial institution. I inevitably embody the subjectivities granted from these privileged positions, which affect my access to processes, products and spaces of research and knowledge production. It is from these locations that I enter this research.

My interest in engaging with Indigenous research emerged from my undergraduate degree, during which I became interested in human-environmental relations and turns to local knowledges and ontologies as sources of resistance and alternatives to environment injustices. Additionally, I became more aware of injustices imposed on Indigenous Peoples, and their intersections with settler colonialism and environmental degradation. In the Canadian context, the place and space where I (and my ancestors) have lived and made home, I feel these manifest in turns to Indigenous knowledges and ontologies as sources of reconciliation and resurgence - what I believe to be an equitable and productive approach to environmental issues in Canada and Indigenous self-determination.

Academic research legacies of extraction and misappropriation of Indigenous knowledge are troubling. In relation to the proposed project, I understand my role to use my privilege to support - to the extent I am able - creating spaces in discussion to foreground Indigenous voices on issues that are of immediate concern, relevance, and importance to them. This is not something I take lightly, and I have tried to honour the knowledge and experiences shared with me, keeping in mind the research priorities and desired outcomes for Waskaganish. This is something I see as fundamental to being accountable and responsible.

Beyond academic theorizing, Wilson (2019) (and others) remind us that decolonizing research is fundamentally a grounded process of reflexivity and interactive networks of relationships. This process is ongoing and imperfect, but I have striven to honour these relationships and to produce purposeful and relevant research that is meaningful for all those involved.

1.3. Organization of Thesis

This is a manuscript-based thesis consisting of six chapters. Chapter 1 presents the research problem, my positionality in relation to this research problem, outlines the FISHERS research project and my particular objectives and lines of inquiry within this scope, and introduces Waskaganish Cree Nation. Chapter 2 provides an overview of the concepts and trends found in the main bodies of literature that provide context and the basis of this research, including: Indigenous food security, traditional foods and food systems (and their various benefits to Indigenous health and wellbeing), and Indigenous food sovereignty. This literature provides a foundational understanding of the complex and interrelated factors the shape northern

Indigenous foodscapes, while highlighting the centrality of access to traditional foods, particularly fish, as a promising entry point to support Indigenous food systems by virtue of their interrelation with land- and place-based knowledge, values, and customs. Chapter 3 describes my methodology, grounded and guided by Indigenous methodologies, which informed the methods and research process, particularly for interviews conducted with members of Waskaganish Cree Nation. Chapter 4 presents the first manuscript, a scoping review of relevant literature located at the intersection of traditional foods and northern Indigenous food security, with a focus on studies discussing socio-cultural dimensions of food. This manuscript is intended for publication in the journal, *Societies*. Chapter 5 presents the second manuscript, which provides Cree perspectives related to community fishing in Waskaganish, and links individual and community strategies to maintain fishing to larger movements towards Indigenous food sovereignty. This manuscript is intended for publication in *Canadian Food Studies – La revue Canadienne des études sur l'alimentation*. Chapter 6 offers concluding reflections on the role of community in Indigenous food security research, provides a summary of the thesis, and discusses areas for future research.

1.4. Research Design (FISHES)

This thesis supports a larger project entitled FISHES (Fostering Indigenous Small-scale fisheries for Health, Economy, and food Security), which aims to develop and apply genomic approaches in concert with Traditional Ecological Knowledge (TEK) to address critical challenges and opportunities related to food security and fisheries conservation/development for northern Indigenous communities in Canada. The FISHES team comprises eight academic researchers, four with background training in fish biology (genomics/ecology), and four with GE³LS (G = Genomics and its E3 = Ethical, Environmental, Economic L = Legal and S = Social Aspects) related training and experience, and includes partnerships with Inuit, Cree, and Dene in the Northwest Territories, Nunavut and Nunavik, and Eeyou Istchee.

The FISHES program of research comprises five interrelated research activities, led by: Dr. Louis Bernatchez (Department of Biology, Université Laval - Activity 1 and 4); Dr. Jean-Sébastien (Department of Biology, Université Laval - Activity 2); Dr. Dylan Fraser (Department of Biology, Concordia University - Activity 3); and Dr. Stephan Schott (School of Public Policy and Administration, Carleton University - Activity 5). The GE³LS activities (Activity 5 – Genomics and TEK to enhance food security and socio-economic development) are intended to guide the genomics work (Activity 1-4) by ensuring the science responds to the needs of our Indigenous partners. This reflects a foundational commitment of FISHES to work closely with Indigenous partners to create an ethical, responsible, and culturally-appropriate space for greater dialogue and shared learning for fisheries genomics research. This is to be achieved through a knowledge co-evolution framework that fosters trust and long-term learning to support community-driven application of research results to enhance stewardship of fishery resources, strengthen food security, and assist in preserving cultural identity and the transfer of TEK.

The community-based research in this thesis is part of the GE³LS activities of FISHES in Eeyou Istchee, led by Dr. Monica Mulrennan (Department of Geography, Planning and Environment, Concordia University). The FISHES project (as it relates to Eeyou Istchee) has been developed in partnership with the Cree Nation Government, Niskamoon Corporation, the Eeyou Marine Region Wildlife Board, the Cree Trappers Association, the Cree First Nation of Waswanipi, and

the Cree Nation of Mistissini, who are formal partners to the project and contributors of more than \$1.4M, mostly in in-kind support.

FISHES is governed by a Research Oversight Committee (ROC) established by Genome Canada, comprised of external scientific experts, which steers and evaluates research progress and protocols, to whom FISHES researchers report twice a year. The interviews and fieldwork conducted for the second manuscript of this thesis, similar to all FISHES projects conducted in Eeyou Istchee, was overseen by a Research Advisory Board (RAB), comprised of representatives from: Concordia University, Carleton University, and Université Laval; Project partners from Cree Nation Governments, Eeyou Marine Region Wildlife Board, and the Cree Trappers' Association; and local CTA-EMR officers in from partnered communities. The RAB oversees all aspects of the integration and use of Cree TEK and meets on a roughly monthly basis in order to provide guidance and input on the research. Further, a Research Collaboration Partner Agreement was developed and signed which addresses many considerations relevant to how the research was conducted.

Positioned within the established FISHES governance structure, the community-based research involved in the second manuscript adheres to the accountability frameworks put in place. It emerged in response to community priorities, and was developed in collaboration with the RAB and Waskaganish community members, including Natasha Louttit (CTA-EMR Wildlife Liaison Officer) and Sanford Diamond (Waskaganish CTA-EMR Local Officer). A more detailed account of this process is outlined in Chapter 3.

1.5. Research Objectives and Questions

Broadly, the purpose of this thesis is to contribute to a better understanding of the role and significance of traditional foods for northern Indigenous cultural food security in Canada. The first manuscript (Chapter 4) presents the results of a scoping review of literature on this topic, in order to define the academic landscape, which informed the development of the second manuscripts, and wherein it is located. Specifically, the objectives of the scoping review are:

- i. To develop an overview of themes related to traditional food research in northern Indigenous communities in Canada
- ii. To identify trends and gaps in this literature to be addressed in future research

In order to achieve this, the scoping review seeks to answer:

- i. What is the breadth and depth of research related to traditional foods and cultural food security in northern Indigenous communities in Canada?

In relation to the FISHES research agenda in Eeyou Istchee, this thesis aims to document the contribution and significance of fish to Cree culture, identity, and food security. The second manuscript (Chapter 5) contributes to ongoing regional efforts of FISHES researchers and partners to sustain and strengthen access to fish and fishing in support of food security, by elaborating on interconnections between sociocultural elements of food security embedded in fish harvesting, processing, preparing, sharing, and consumption. Through partnered research, I

sought to engage community members who are knowledgeable and/or involved in fishing activities to address the following objectives:

- i. To understand recent changes to individual and community fishing practices and attitudes towards fishing
- ii. To gain insights into the importance of fisheries for food security that incorporates sociocultural and human wellbeing dimensions
- iii. To understand challenges and opportunities related to access to, and availability of, fish for food security at the community level
- iv. To understand how Crees have adapted their fishing practices to mitigate and cope with socioeconomic and environmental changes

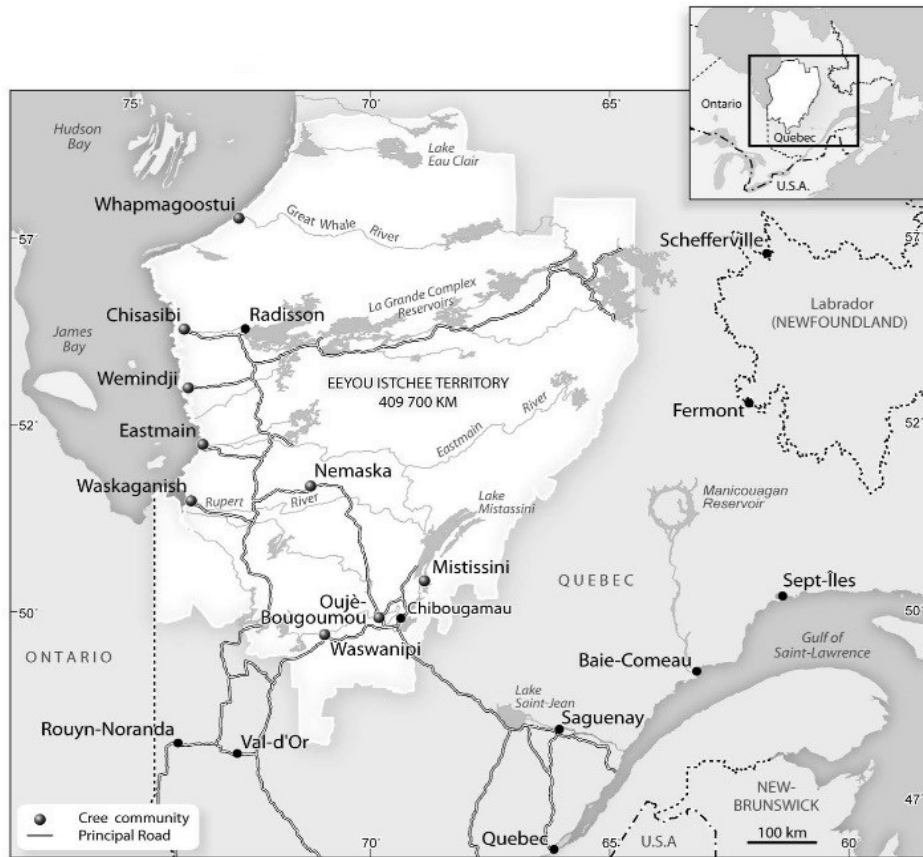
In order to achieve this, research conducted for the second manuscript was guided by the following questions:

- i. What is the significance and contribution of traditional fishing and fish consumption to Cree wellbeing and cultural continuity in Waskaganish?
- ii. What challenges, barriers, and opportunities exist for members of Waskaganish Cree Nation to consume fish and participate in fishing activities?

1.6. Waskaganish Cree Nation: Community Context

The traditional Cree territory of Eeyou Istchee spans over 400 000 square kilometers to the east of James Bay, in northern Quebec. The coastal Nation of Waskaganish is one of 10 communities that reside in Eeyou Istchee, and is located along the southeastern shore of James Bay, at the mouth of the Rupert River, with a population of about 2500 people. Today, almost 75% of the populations of Eeyou Istchee participate in the wage economy (ISQ, 2021), employed primarily in: agriculture, forestry, fishing, and hunting; public administration; educational services; health and social services; and construction (Cree Human Resources Development & Cree Regional Authority, 2009). On average, the median annual income of Crees in Eeyou Istchee is twice that of other on-reserve First Nations (ISQ, 2021; Stats Canada, 2016).

Figure 1. Eeyou Istchee territory (Royer & Herrmann, 2011)

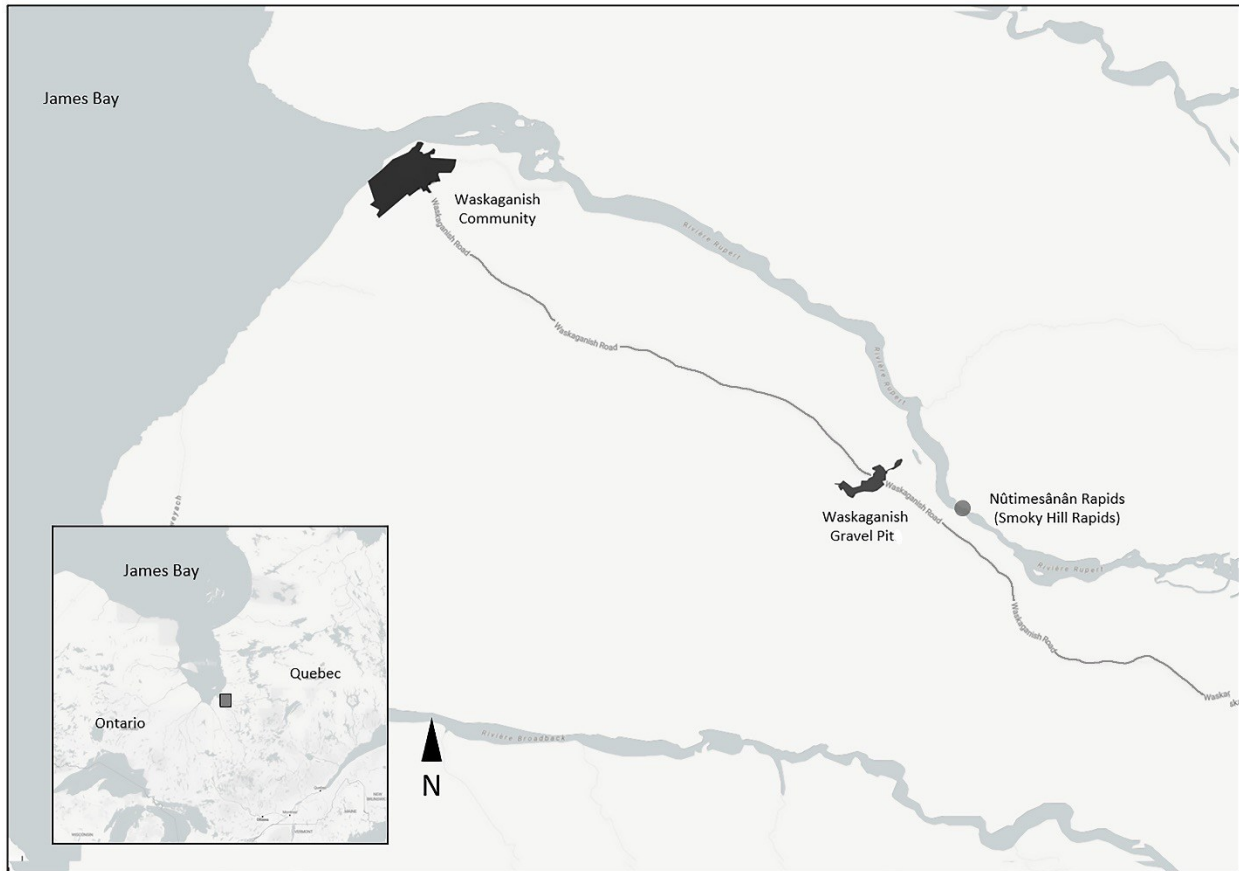


Eeyouch have survived for generations on seasonal subsistence harvesting activities, including hunting, trapping, and fishing of local wildlife (Berkes & Farkas, 1978). Historically, Cree lived in semi-nomadic kinship-based groups, in accordance with the seasons and animal migration patterns, with traditional foods consumed regularly. Traditional diets consisted primarily of meat and fish, and harvested plant foods (Berkes & Farkas, 1978). However, contemporary diets also include increased consumption of store-bought market foods, with negative implications for health and diet quality (Johnson-Down & Egeland, 2013; Willows et al., 2018). Consumption of traditional foods varies among Cree. Generally, traditional food consumption increases with age (Laberge Gaudin et al., 2014; Willows et al., 2018), and is lower among younger generations, who more frequently avail of store-bought or restaurant foods (Downs et al., 2009).

As a coastal community, fish are especially significant in Waskaganish, representing an integral component of local diets and culture. For most of the year, large catches of cisco, walleye, trout, pike, whitefish, and sturgeon are harvested by net in Rupert Bay and along the Rupert, Nottaway, Broadback, and Pontax Rivers (Waska Resources & GENIVAR, 2009). In Winter too, ice fishing with nets or hooks provides subsistence food, supplementing harvests from hunting and trapping (Waska Resources & GENIVAR, 2009). Family and kinship-based groups spend considerable amounts of time on the land, harvesting fish which are then distributed and shared. *Nûtimesânân* (Smokey Hill Rapids), located upstream from the community on the Rupert

River, marks a particularly significant traditional harvesting site, where anadromous cisco have been harvested using traditional net and dip-net techniques for generations (Strangway et al., 2016). At the end of the summer, youth and elders gather at the site for fall fish harvest, where anadromous cisco spawn at the rapids (Waska Resources & GENIVAR, 2009). The significance of this site is illustrated by extent to which Smokey Hill is bound to Waskaganish, marking the border of the community. Many elders spend a considerable amount of time, or live year-round, at a small semi-permanent settlement known locally as Gravel Pit, located near the rapids, where the fish are cleaned, cooked, shared, and eaten (Waska Resources & GENIVAR, 2009).

Figure 2. Map of Waskaganish and *Nûtimesânân*¹

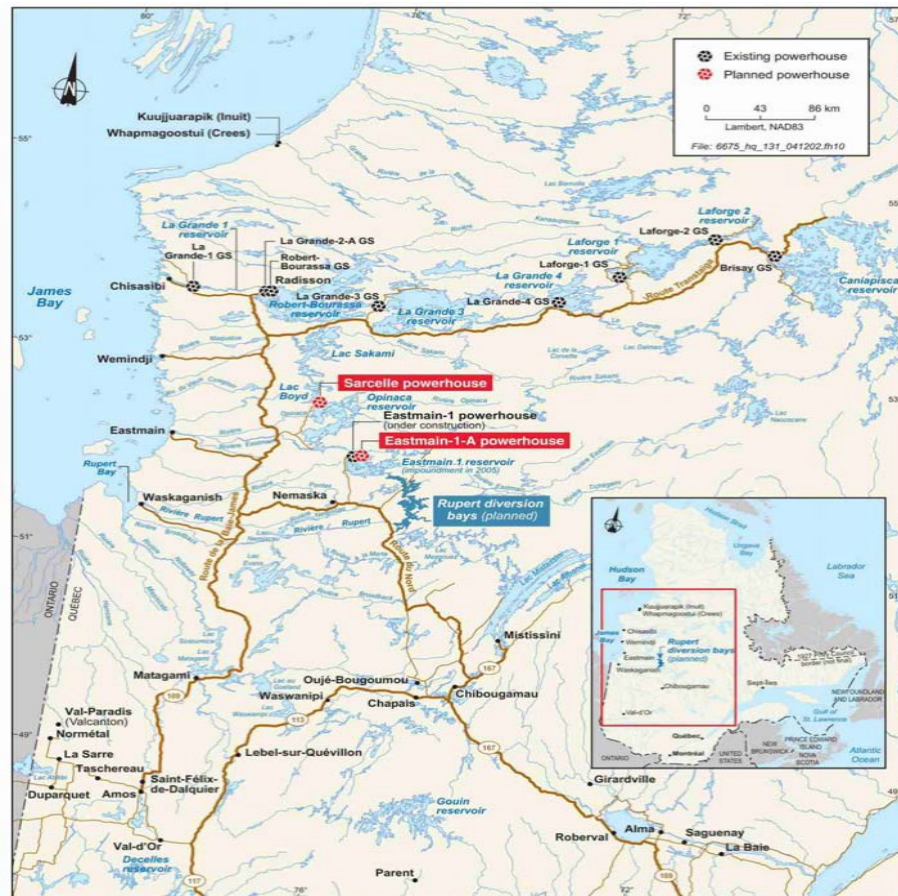


Regional hydrological and ecological systems have been disrupted by hydroelectric development projects, with implications for waterways, fish populations and community fishing practices. In the 1970s, construction of reservoirs and powerhouses began on the La Grande River as part of Phase 1 of the James Bay Hydroelectric Project on the La Grande River to build reservoirs and powerhouses (Gupta, 1992). Phase 2 was proposed in 1989 to build powerhouses in the Great Whale river basin, and divert waters from the Nottaway, Rupert, and Broadback Rivers (Gupta, 1992). Following opposition from Cree, including legal actions and domestic and international

¹ Map created by McGurk, T. (2023). Map data copyrighted OpenStreetMap contributors and available from <https://www.openstreetmap.org>"

campaigns, Cree successfully suspended the Great Whale project in 1994 (Scott, 2020). In 2007, Hydro-Quebec obtained approval to begin Phase 3 of the La Grande hydroelectric project, focused on the Eastmain-1-A, and Sarcelle Powerhouses, and Rupert Diversion. Most significantly for Waskaganish, the Rupert Diversion consists of a series of dams and dykes which diverted 70% of the flow from the river northwards to support the construction of the EM-1 Reservoir and Eastmain-1 and Eastmain-1A powerhouses (Hydro Quebec, 2008). As a result, water flow was drastically altered within the James Bay watershed, posing a risk to the contamination of water sources, and altering the distribution and abundance of fish populations (Berkes, 1982; DesLandes et al., 1996; Hornig, 1999). Due to increased exposure to contaminants, particularly methylmercury, the James Bay Mercury Committee began monitoring elevated concentrations of mercury in fish, including longnose sucker, lake whitefish, northern pike, and walleye (Roebuck, 1990). Between 2005-2009, the Cree Board of Health and Social Services of James Bay carried out *Nituuchischaayihititaa Aschii*: Multi-Community Environment-and-Health Study with nine communities in Eeyou Istchee to investigate health effects of environmental contaminant exposure and diet, and linked between environment and human health. In Waskaganish, this study found mercury levels to be low, and the benefits of consuming fish outweighed potential risks. However, hydroelectric development continues to be associated with higher levels of methylmercury in fish (Moriarity et al., 2020).

Figure 3. Eastmain 1-A and Sarcelle powerhouses and Rupert Diversion project (Hydro-Quebec, 2008)



Beginning in 1973, these various phases of development have involved the Crees of Eeyou Istchee in negotiations with proponents of the James Bay project over terms of the development. The James Bay and Northern Quebec Agreement (JBNQA) signed in 1975, outlines compensation to Cree communities in exchange for development to proceed, and also established land rights and management systems. Eeyouch territory is, as a result, subject to a three-tiered land regime designating land rights, use and control over land and resources in the region. The JBNQA also established governance structures such as the Cree Trappers' Association, the Cree Regional Authority, and the Cree Board of Health and Social Services, implemented the Cree Income Security program to compensate and support subsistence activities, introduced an environmental monitoring framework, and created a Cree fund for long-term economic development (Gagnon & Rocher, 2022). In 2002, the signing of the *Paix de Braves* agreement modified sections of the JBNQA, increasing Crees administrative power and autonomy and consenting to the construction of the Eastmain 1-A project and Rupert Diversion (Baba et al., 2016).

Through negotiations between the Cree leadership and Hydro-Quebec, mitigation measures were agreed to reduce impacts from the Rupert Diversion. At the insistence of Cree, these included a commitment from Hydro-Quebec's to maintain an ecological upstream flow which would preserve fish stocks and river habitat, to implement measures to support traditional fish harvesting at Smokey Hill, and to establish conditions to support the ongoing involvement of Crees, especially tallymen, in the project (Schiehll & Raufflet, 2013). Since the Eastmain 1-A Project began in 2002, tallymen and Cree businesses were awarded contracts worth over \$1.2 billion, and hundreds of jobs were created for Cree workers (Baba et al., 2016).

The Bouhounan Agreement was created in 2002 to address the impacts of the Eastmain 1-A, Rupert River Diversion and La Sarcelle project, and included the creation of funds aimed to facilitate the continuation of traditional activities and community led projects (Niskamoon, 2021). In 2012, the Grand Council of the Crees and Hydro-Quebec signed the Agreement Concerning the Re-Appropriation of Territory affected by Phase 3 hydro-development, in which Hydro-Quebec further committed funds to enhance traditional Cree land use (Niskamoon, 2021). These funds are administered through Niskamoon Corporation, created in 2004 to provide a framework for cooperation and implementation of agreements between Crees and Hydro-Quebec. Today, community fishing in Waskaganish is partly supported by various Niskamoon funded projects intended to promote and sustain traditional harvesting activities. This includes efforts to support and sustain traditional fishing activities at Smokey Hill, including the construction of scooping weirs, the reconstruction of fishing sites at the rapids, programs targeted at training youth in the harvesting, cleaning, preparing, and cooking of fish, and facilitation of the annual gathering during the cisco harvest (Niskamoon, 2021). It also supports community voluntary catch registries of key fish species, including cisco and sturgeon (Niskamoon, 2021).

However, concerns remain surrounding the health of fish and the maintenance of traditional fishing activities in the community. In 2016, the Eeyou Marine Region Wildlife Board (EMRWB) conducted a series of consultations with coastal communities, in which Waskaganish Cree representatives identified interest in prioritizing research related specifically to changes to fish, and impact of developments (EMRWB, 2019). Further, members have noted changes in

fish, such as in taste and size, and some are reluctant to consume them for this reason (EMRWB, 2019). Moreover, Waskaganish Cree have expressed concern over youth spending less time on the land and insufficient opportunities to transmit Cree knowledge to younger generations (Eeyou Planning Commission, 2017).

CHAPTER 2: Literature Review

The literature review is organized in five sections. The first section presents results, primarily of large-scale surveys, which report the rates of food insecurity experienced by Indigenous Peoples in Canada, and northern Indigenous populations in particular. The second section provides an overview of key concepts that shape discourse related to food crises in northern Indigenous contexts: food security, traditional food systems, and Indigenous food sovereignty. These two sections position food security as a crucial and critical issue for researchers and policymakers to address in order to improve northern Indigenous health and wellbeing, and positions traditional foods squarely at the center and as an entry point to sufficiently take into account the complexities and nuances specific to Indigenous contexts.

The third section focuses on literature related to traditional foods, which is organized following two themes that emerge in this scholarship related to: 1) significance for Indigenous health and nutrition, and 2) significance for Indigenous cultural identity and wellbeing. This is followed by an overview of challenges, issues, and factors influencing access to and use of traditional foods, and the implications of trends indicating declining harvesting and consumption of traditional foods on Indigenous health, wellbeing, and cultural food security. Finally, community-based food strategies, programs, and initiatives of traditional food revitalization, restoration, and reassertion are reviewed. These three sections merge to create a context to identify trends and gaps in existing literature on food security and traditional foods, wherein I can situate my thesis. Whenever possible and applicable, studies that focus on northern and remote Indigenous communities are highlighted, with particular attention to studies involving Cree, and/or in Eeyou Istchee. Any discussion of fish within the reviewed literature is likewise highlighted.

2.1. Rates of food insecurity

National assessments of food insecurity across Indigenous communities in Canada have relied primarily on quantitative data collected through health surveys at the household level. National data on food insecurity in Canada is collected through the Canadian Community Health Survey (CCHS), a household-level cross-sectional survey administered by Statistics Canada. Since 2004, the CCHS has used the internationally recognized Household Food Security Survey Model (HFSSM); an 18-question survey to monitor and document household experiences of food insecurity over the previous 12 months, and classify them as marginally, moderately, or severely food insecure (Egeland, 2010; Tarasuk & Mitchell, 2020). Since 2018, the Canadian Income Survey (CIS), administered by Statistics Canada, has been added to the HFSSM to provide annual monitoring of food insecurity as an indicator of poverty. In a comparative analysis of results from the 2004 CCHS between non-Indigenous and off-reserve Indigenous households, Willows et al. (2009) found that 33% of Indigenous households were food insecure and were over four times more likely to be severely food insecure than their non-Indigenous counterparts. Further, when controlled for socioeconomic factors such as number of children, single-parent households, education, and income-level, Indigenous households were 2.6 times more likely to experience some level of food insecurity (Willows et al., 2009). Lone-parent households headed by women were especially at risk, with mothers “tend[ing] to sacrifice their own diet so that children will not be hungry” (Willows et al., 2009, p. 1154). Since 2011, PROOF, an interdisciplinary research team at the University of Toronto led by nutrition scientist Valerie

Tarasuk, has provided analysis of CCHS, and more recently CIS data, and publishes reports in an effort to identify policy interventions to reduce household food insecurity in Canada. In PROOF's most recent report from CIS data collected from 2019-2021, Tarasuk et al. (2022) found that nearly one third of off-reserve Indigenous peoples were food insecure. However, "the true prevalence of [Indigenous] food insecurity is underestimated", as data from the territories and on-reserve populations are omitted (Tarasuk et al., 2022, p. 9). Scientists from University of Ottawa, the Université de Montreal and the Assembly of First Nations, conducted the First Nations Food, Nutrition and Environment Study (FNFNES), a 10-year project from 2008-2018 in collaboration with 92 First Nations on-reserve across Canada examining food security issues. Results from the FNFNES report that nearly half of on-reserve First Nations households experience food insecurity and are at greater risk than their non-indigenous counterparts (Batal et al., 2021).

Large-scale household surveys have been conducted specific to northern First Nations and Inuit communities in Canada such as the First Nations Regional Health Survey (FNRHS), the Nunavik Inuit Health Survey, and the International Polar Year (IPY) Inuit Health Survey (2007-08). The FNRHS includes a cross-sectional survey of over 200 First Nations communities in 10 First Nations regions across all provinces and territories, using a similar model to the HFSSM to monitor household food security (FNIGC, 2012). The 2015-16 FNRHS found that over half of the First Nations surveyed were food insecure and 14% severely food insecure, largely due to lack of money for food (FNIGC, 2018). However, FNRHS measures do not "incorporate cultural indicators of food security, such as levels of traditional food knowledge, access to traditional food systems, and the safety of traditional foods" (FNIGC, 2018, p. 83). Similarly, findings from the 2004 Nunavik Inuit Health Survey of Inuit households revealed that "one person in four found that they had lacked food during the month before the survey", and those with lower income, single-parent households, and larger households are more likely to be food insecure (Blanchet & Rochette, 2008, p. 76). In 2017, 13% more individuals surveyed were food insecure (Furgal et al., 2021). According to the IPY Inuit Health Survey of 36 Inuit communities across Inuvialuit Settlement Region, Nunavut, and Nunatsiavut, 62.5% of adults lived in food insecure households, attributed in part to unemployment, low income and high food costs (Egeland et al., 2011; Egeland, 2011).

2.2. Concepts and definitions

2.2.1. Food security

Various conceptualizations, definitions, and emphases within food security discourses have emerged since the term was first coined in the early 1970's in response to a global food crisis that became an international concern. "Food security" was first introduced at the 1974 World Food Summit and was defined as the "availability at all times of adequate world food supplies of basic foodstuffs... to sustain a steady expansion of food consumption and to offset fluctuations in production and prices" (UN, 1975, p.14). This definition conceives "food security" as related primarily to issues of *availability* in the context of global concerns over volatile food prices and food supply (Jones et al., 2013).

Nobel Laureate Amartya Sen's 1981 thesis, "Poverty and Famines: An Essay on Entitlement and Deprivation", identified limitations in defining food deprivation solely through supply-side

deficits at the international and national level, and argued adequate food supply is not sufficient to ensure *access* to food. Sen's work has been credited (Webb et al., 2006; Pinstrup-Anderson, 2009; Jones et al., 2013) as instigating a reconceptualization of food security, and as spurring a shift in food security discourse from availability and supply-side issues, to access to food and demand-side issues. To incorporate these issues (Jones et al., 2013), a revised definition was put forth at the 1983 World Food Summit stating food security involves "ensuring that all people at all times have both physical and economic access to the basic food that they need" (FAO, 1983, p. 14). Webb et al. (2006) note that this shift towards food access also included a move in food security analysis towards individual and household level measurement. Jones et al. (2013) further note that this iteration emphasizes caloric intake as a metric of food security.

The most current and widely accepted definition of food security was presented at the 1996 World Food Summit and adds further multidimensional components of food security to be considered. In this definition, food security exists "when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life" (FAO, 2014). This definition includes two further components of food security: *utilization* (healthy and appropriate use of acceptable food) and *stability* (food security over time) (FAO, 2014). Jones et al. (2013) discuss utilization as representing a shift from emphasis on caloric intake, to overall diet quality, thus encompassing a more complex standard of nutrition, and accommodating inequitable access within households (e.g. across gender). According to Pinstrup-Anderson (2009) and Jones et al. (2013), the inclusion of food safety, nutritional status, and socially and culturally acceptable food preferences in this definition further refines the meaning and evaluation of access within food security studies. Today, food security is widely recognized as being founded on the four interrelated and nested pillars of availability, access, utilization and stability (FAO, 2014).

2.2.2. Traditional food systems

According to health and gender studies scholar Elaine Power (2008), the four pillars of food security require the addition of sociocultural considerations to be relevant to Indigenous contexts. Contemporary Indigenous food systems comprise both land-based traditional foods (sometimes referred to as "country" or "cultural" foods) acquired through harvesting and/or sharing, and store-bought market foods (Council of Canadian Academies, 2014). According to Kuhnlein and Chan (2000), traditional foods are "all of the food species that are available to a particular culture from local natural resources" (p. 596). Traditional foods, along with "the accepted patterns for their use within that culture" in which place-based values, beliefs and knowledge are embedded, comprise traditional food systems (Kuhnlein & Chan, 2000, p. 596). As described by the Indigenous Food Systems Network (2018):

Indigenous food systems are inseparable and ideally function in healthy interdependent relationships [and are] best described in ecological rather than neoclassical economic terms. [Indigenous foods are] cultivated, taken care of, harvested, prepared, preserved, shared, or traded within the boundaries of our respective territories based on values of interdependency, respect, reciprocity, and ecological sensibility. As the most intimate way in which Indigenous peoples interact with our environment, Indigenous food systems are in turn maintained through our active participation in traditional land and food systems.

In 2008, Power introduced the concept of “cultural food security” as an additional level of food security relevant to Indigenous contexts, in an effort to recognize the importance of traditional foods, and to explicitly account for factors influencing traditional foods and related practices which are excluded in mainstream applications and analysis (p. 95). Similarly, Shukla (2015) argues for “community food security” in Indigenous contexts, where food security needs and priorities align with, and emerge from localized place-based knowledge and community interests. More recently, Richmond et al. (2021) argues for responses to food insecurity to adopt an “Indigenous foodways” approach, which “build[s] on the concept of food security by considering how Indigenous relationships with food are supported by local imperatives that reflect Indigenous knowledge systems” (p. 107). Overall, the goal of these approaches is to recognize the cultural dimensions inherent to achieving food security in Indigenous contexts, by foregrounding Indigenous cultural values, knowledge, and accounting for relationship between identity, land, food, and wellbeing.

2.2.3. Indigenous food sovereignty

First introduced in 1997 as a grassroots, rights-based movement and framework, food sovereignty politicizes food security and confronts power inequities that permeate and shape food systems, and calls for the (re)localization of ownership, control and autonomy over them. IFS recognizes contemporary Indigenous food issues in the context of histories of colonial violence, and argues for Indigenous-defined and led restoration and revitalization of their food systems (Coté, 2016). According to Grey & Patel (2014) food sovereignty in Indigenous contexts must account for the particular ways in which Indigenous food systems have been, and continue to be disrupted by ongoing processes of colonial dispossession. Food sovereignty is recognized internationally as “the right of nations and peoples to control their own food systems, including their own markets, production modes, food cultures and environments” (Wittman et al, 2010, p. 2). Dawn Morrison of Secwepemc First Nation founded the British Columbia Food Systems Network Working Group on Indigenous Food Sovereignty (BCFSN-WGIFS), identifies four guiding principles of IFS: 1) food is sacred; 2) participation in food systems; 3) self-determination; and 4) supportive legislation and policy (Morrison, 2011, p. 100-101). Integral to IFS is a foundation of fostering healthy, reciprocal relationships amongst people and all living things (Wittman et al., 2010), and that food is “core to self-determination” (Morrison, 2011). In practice, IFS is more elusive. According to Morrison (2011) IFS describes any place-based “present-day strategies that enable and support the ability of Indigenous communities to sustain traditional hunting, fishing, gathering, farming and distribution practices” (p. 97).

2.3. Significance of traditional foods

2.3.1. Diets, health, and nutrition

Data has been collected to document and assess rates of traditional food consumption, reflecting the centrality of traditional foods as a food source for northern Indigenous peoples. Receveur and Kuhnlein (1998) found that traditional foods represent up to 33% of total energy intake for Dene and Métis communities in Yukon (p. 220). In surveys with Inuit communities, Tait (2001) reported that traditional food represented half of the protein consumed in a majority of households. Food Frequency Questionnaires (FFQ) administered to Dene and Métis (Ratelle et al., 2020), and Vuntut Gwitchin and Tlingit First Nations in Yukon (Schuster et al., 2011) similarly express the contribution of traditional foods to northern diets.

Survey results also indicate that traditional foods are a preferred food source of Indigenous peoples. Results from the 2004 Nunavik Inuit Health Survey report that participating Inuit prefer traditional foods due to their taste, healthiness, and association with Inuit cultural practices (Blanchet & Rochette, 2008). More recently, preference for traditional foods was reiterated and indicated in results from the FNFNES (Batal et al., 2021). Nakano et al. (2005) determined that 79% of Dene/Métis women preferred traditional meat over store-bought market meat. Further, surveys and interviews conducted by Lambden et al. (2007) with Yukon First Nations, Dene, Métis and Inuit women demonstrate a preference for traditional foods due to their perceived health advantages and attributes.

Disaggregated data specifically reflecting the importance of particular traditional food sources is rare. Though, results from the FNFNES and FNRHS found fish were the second highest consumed traditional food after land animals (Batal et al., 2021; FNIGC, 2018). To capture its importance in First Nations' diets, the FNFNES analyzed data specific to fish consumption, and found that “95% of all participating FN adults reported consuming at least one locally harvested traditional food in the prior year, while fish/seafood was consumed by about 71%” (Marushka et al., 2021, p. s68). In emphasizing the importance of fish consumption for food security, they conclude that “individuals with limited availability and access to health store-bought foods tend to rely more on traditional foods, particularly fish, for their subsistence”, though men consume twice as much fish as women (Marushka et al., 2021, p. s76).

In northern Indigenous contexts in Canada, much of the research related to traditional foods has focused on identifying and assessing their nutritional and dietary benefits from an epidemiological and/or health perspective. Increased consumption of traditional food, such as fish, land animals, birds, and plant species, is widely associated with an elevated intake of protein, vitamins and other micronutrients in Dene and Metis adults (Receveur & Kuhnlein, 1998) and children (Nakano et al., 2005). The same is true for Inuit; data from the 2007-08 Inuit Health Survey suggest traditional foods, particularly caribou and fish, are a major source of protein, iron, and vitamins D, B12, and B6 (Kenny et al., 2018). Specific to fish, Slater et al. (2013) found that in Northlands Denesuline First Nation in northern Manitoba, fish represent a major dietary source of vitamin D. The FNFNES also identified fish as a critical source of several vital nutrients and vitamins (Marushka et al., 2021), and is inversely related with the prevalence of type 2 diabetes (Marushka et al., 2017a; 2017b). Dewailly et al. (2002) noted that the consumption of fish provided eastern James Bay Cree with nutrients, such as fatty acids, that are difficult to get from other food sources, and reduces risk of cardiovascular diseases. Higher traditional food consumption among eastern James Bay Cree has also been found to improve dietary quality through the intake of protein, vitamin D, iron, magnesium, and zinc (Johnson-Down & Egeland, 2013).

2.3.2. Cultural identity and wellbeing

In a review of literature related to determinants of healthy eating for First Nation, Metis and Inuit populations in Canada, Willows (2005) concluded that in addition to being perceived as healthy and nourishing, traditional food is an “anchor to culture and personal wellbeing, and is an essential agent to promote holistic health” (p. s33). In contrast to dominant understandings of health, Indigenous notions of wellbeing generally comprise spiritual, emotional, mental, physical, and social dimensions, and are understood through relationship with others, including

other-than-human beings. For example, Adelson (1998) brought attention to the Cree concept of *miyupimaatisiun* (“being alive well”) as a more holistic conception of health that is place-based and derived from cultural and historical contexts, in which connection to land - including food acquired from it - and traditional knowledge and practices are integral in supporting. Therefore, wellbeing is framed in connection to identity and “being Cree” (Adelson, 1998, p. 16).

More recently, notions of wellbeing are being adopted to describe the significance of traditional foods. For example, Dennis and Robin (2020) argue that holistic concepts of wellbeing are more representative of Indigenous experiences than Western ideas of health, and better positioned to convey how relationships to land and non-human others inscribed in traditional food systems in particular, fulfill and uphold wellbeing.

Community-based research that has addressed traditional foods and food security has provided grounded perspectives which document the sociocultural significance of traditional foods in upholding cultural identity and supporting wellbeing (Baskin et al., 2009; Cidro et al., 2015; Shukla et al., 2019). For example, discussions about community food security with Fisher River Cree Nation revealed that food security was interpreted as access to land, identity, and culture (Shukla et al., 2019). Urban Indigenous populations in Winnipeg “described a spiritual connection to [traditional] food” which is associated with knowledge relevant to food practices, and “connected to a larger understanding of the relationship between the environment, spirituality and people” (Cidro et al., 2015, p.33-34). Likewise, Indigenous women in Toronto describe traditional food as an avenue to facilitate knowledge transmission to youth (Baskin et al., 2009).

Practices associated with the harvesting, preparation, sharing and consumption of traditional foods have been found to strengthen interpersonal relationships, community cohesion and facilitate intergenerational knowledge transmission (Myers et al., 2005; Gombay, 2009; Thompson et al., 2012; Skinner et al., 2013; Hanemaayer et al., 2020). Interviews with Haudenosaunee female youth reveal that community events and social gatherings are times when traditional food is often consumed and is therefore associated with strengthened social and cultural connection (Hanemaayer et al., 2020). Households and community events were also places where youth learn from elders about harvesting and preparation of traditional foods (Hanemaayer et al., 2020). Traditional food practices, grounded in Indigenous knowledge and values, support food security and wellbeing within Indigenous communities (Myers et al., 2005; Gombay, 2009; Thompson et al., 2012). Myers et al. (2005) found that sharing traditional foods within Inuit communities in Nunavut functions to strengthen relationships and community and social relationships. According to Gombay (2009) sharing practices for Inuit in Puvirnituk, Nunavik, are embedded “into how Inuit perceive themselves in relation to the world they inhabit” and are associated with values of reciprocity and responsibility to land (p. 121). For western James Bay Cree communities, participating in a Sharing-the-Harvest program facilitated intergenerational knowledge transfer, mitigated barriers to accessing traditional foods, and fostered feelings of wellness by being on the land (Tsuji et al., 2020). Food sharing has also been identified as a practice that enables food security. In assessing food security programs in northern Manitoba communities, Thompson et al. (2012) found that food sharing programs were the most successful interventions for alleviating food insecurity. Similarly, knowledge holders from Fort Albany First Nation identified food sharing as a key coping strategy for reducing food insecurity among community members (Skinner et al., 2013).

Less attention has been given to exploring the ways in which fish specifically, uphold cultural identity and wellbeing in relation to food security. Berkes (2010) claims that research related to fish and food security is limited by a tendency to treat fish from a market-based, “resourcist” perspective, thus excluding the community and cultural value and contribution of fish and fisheries. An exemption is the work of Bolton and Davidson-Hunt (2014) who found that for Iskwewaizaagegan Anishnaabeg of Shoal Lake, fishing practices, including harvesting, preparing, and sharing fish remain important avenues for knowledge transmission and social cohesion in support of cultural identity and wellbeing. Surveys and interviews conducted with the Cree community of Norway House in northern Manitoba also underscored the importance of fisheries, and fish sharing as practices that alleviate rates of food insecurity (Islam & Berkes, 2016). More recently, Levkoe et al. (2017), and Lowitt et al. (2020) argue for a more integrative approach, and claim small-scale fisheries must be considered from a food systems framework, to account for social, ecological, and cultural dimensions, and power structures which influence access and support for fisheries.

2.4. Decline and disruptions of traditional foods systems

2.4.1. Trends of decline

In a review of literature focused on settler colonial nations (Canada, United States, Australia), McCartan et al. (2020) identified a trend in decreasing traditional food intake. Kuhnlein and others have documented that northern Indigenous populations have undergone significant dietary change, referred to as a “nutrient transition”, in which the proportion of traditional foods consumed has decreased in favour of imported market foods (Kuhnlein & Chan, 2000; Kuhnlein et al., 2004; Kuhnlein & Receveur, 2007; Kuhnlein et al., 2013). In a recent synthesis and review of literature related to dietary changes among Inuit residing in the Canadian Arctic, Little et al. (2021) reported that studies indicate a trend of declining traditional food consumption in favour of market foods. Inuit Health Surveys and harvesting data indicate declining rates of consumption of traditional foods among Inuit across the Canadian Arctic. Blanchet and Rochette (2008) analyzed the food and nutrient intake of Inuit who participated in the Nunavik Inuit Health Survey (2004) conducted by Santé Québec. Despite traditional foods such as fish, caribou, birds, and whale comprising an important part of Inuit diets, nutrient and energy intake from traditional food was being overtaken by increasing market food consumption (Blanchet & Rochette, 2008). In line with these trends, comparison of survey results across Inuit communities from 1998-99, and 2007-08 indicate that energy intake from traditional foods declined significantly while intake from market foods increased, especially for women (Sheikh et al., 2011). Based on results from the 2007-08 IPY Inuit Health Survey, Rosol et al. (2016) found a decline in consumption of traditional foods, and that respondents experienced traditional foods, such as caribou, fish, seal, whale, and birds, as being less available and abundant.

Participation in harvesting activities is also declining. Through comparative analysis of harvest studies conducted by the Nunavut Wildlife Management Board (1996 - 2001) and the Baffin Regional Inuit Association (1980 - 1984), Wenzel et al. (2016) concluded that Inuit had experienced reduced availability and accessibility of traditional foods for Inuit over these time periods. Comparison results from the 2002-03, 2008-10, and 2015-16 FNRHS indicate declining participation in hunting, trapping and fishing activities (FNIGC, 2018). Further, the composition of traditional foods harvested and consumed seems to be changing. Schuster et al. (2011) compared frequency of traditional food consumption with data from 1992 and 2007-08, and

conducted interviews with Vuntut Gwitchin and Teslin Tlingit First Nations, and found households are consuming different kinds of traditional foods in response to environmental and socioeconomic challenges. For example, fish consumption in Vuntut Gwitchin increased as a result of irregular availability of other protein sources such as caribou, whereas fish consumption decreased in Teslin due to declining salmon populations (Schuster et al., 2011).

Some research has demonstrated variation in the consumption of traditional foods and participation in harvesting and related activities across gender and age. Kuhnlein and Chan (2000) found that Dene, Métis, and Inuit adult women in Yukon consume less traditional foods than men of the same age group, while Sheikh et al. (2011) found a decline in traditional food consumption between 1999 and 2008 was more significant among women. Results from the 2007-08 Inuit Health survey suggest that women generally consume less and eat different types of traditional foods than men (Blanchet & Rochette, 2008). Further, the total intake of traditional foods among women is decreasing over time (Blanchet & Rochette, 2008). Tait (2001) identified a gap in harvesting activities, with young women participating less in harvesting activities compared to men. The FNRHS found that First Nations men are more likely to participate in hunting, trapping, and fishing, while women are more likely to participate in other forms of harvesting (i.e. food gathering/berry picking) (FNIGC, 2018). The FNFNES also found that traditional food intake was highest for older individuals and men (Batal et al., 2021). Regarding age, Schuster et al. (2011) found First Nations youth in Yukon consumed traditional food less frequently than adults. Intercultural contexts of Indigenous people living in urban centres has resulted in youth being less likely to engage in traditional food practices, despite expressing a willingness to learn and practice (Elliot et al., 2012).

2.4.2. Barriers and determinants of access to traditional foods

The transition towards market foods has been attributed to numerous complex and compounding factors. Ford and others have documented the impacts of environmental changes on the accessibility and diversity of local food sources, and transmission of food harvesting knowledge for Inuit populations in northern Canada (Ford, 2009, Ford & Pearce, 2010; Ford & Beaumier, 2011). Ford et al. (2010) identify climate change, and environmental contamination and degradation as drivers of the nutrition transition and exacerbating food insecurity. Guyot et al. (2006) note that Beaver Creek (YK) and Deh Gah Hot'ie First Nations (NWT) have had to alter traditional food acquisition strategies to adapt to climate change impacts. Other environmental changes, such as environmental contamination, and impacts of large-scale development projects and infrastructure have been documented as reducing the availability of traditional foods, increasing dependence on market foods, and exacerbating food insecurity (Kuhnlein et al., 2004; Chan et al., 2006). The construction of the James Bay hydroelectric megaproject caused elevated levels of mercury in fish in Eeyou Istchee, and resulted in a hesitation to consume fish (Roebuck, 1999). Members of the Cree Trappers Association witnessed changes in geese and caribou habitat, populations and behaviour due to changes in climatic and environmental conditions from the James Bay project and other infrastructure developments, resulting in altered hunting habits and increased consumption of market foods (Royer & Herrmann, 2011).

Various socioeconomic factors have also been identified as enabling or limiting access to traditional foods. High costs associated with food acquisition undermines access to traditional foods (Chan et al., 2006). Gwich'in First Nations and Dene across the Northwest Territories

identified high costs and inaccessibility of hunting and fishing equipment as barriers to participating in land-based activities (Kuhnlein et al., 2013). Willows et al. (2009) identified socioeconomic factors including high rates of poverty and unemployment as limiting accessibility and availability for Indigenous households to purchase healthy market food alternatives. Similarly, in Eeyou Istchee, Laberge-Gaudin and others conducted cross-sectional surveys and interviews with Cree in Mistissini (2015), and Eastmain and Wemindji (2014) and identified interactive determinants of traditional food consumption at the individual (e.g. food preference, income), interpersonal (e.g. familial relations, presence of hunter), community (e.g. food and knowledge programs), and environmental (e.g. contaminants, development projects) levels.

Challenges in accessing traditional foods, northern food insecurity, and negative health outcomes of Indigenous peoples can be linked directly to settler colonial policies and assimilation practices that have used food as a tool to undermine Indigenous existence. Turner and Turner (2007) claim the imposition of European foodstuffs and agrarian systems, the creation of reserve lands, and restrictive legislation have alienated and impeded Indigenous people's ability to access their land and harvesting sites, and represent barriers to the transmissions of traditional food knowledge. Further, industrialization, development, and contamination of Indigenous Peoples' lands and resources has degraded traditional food systems and Indigenous control and governance over them (Turner & Turner, 2007). Burnett et al. (2016) link the nutrient transition and “the manufacturing of food insecurity” in northern Indigenous communities from the 1940s onwards to the imposition of neo-colonial federal assimilative food policies that seek to erase Indigenous food systems and ultimately create dependence on southern/Euro-Canadian foods and food systems (p. 2). As previously mentioned, Indigenous notions of wellbeing are supported through relationship with land. According to Dennis and Robin (2020), colonial impacts undermining traditional food systems have disrupted these relationships and created barriers for Indigenous peoples' to be holistically healthy on their own terms. The legacy of residential schools has had far reaching impacts for traditional foods and related knowledge (Turner & Turner, 2007; Dennis & Robin, 2020). Accounts of First Nation Elder women's relationships and perspectives with food illustrate that cultural loss stemming from residential school experiences and impacts contribute to food insecurity and adverse health effects (Neufeld et al., 2020).

2.4.3. Implications

Much of the research related to the nutrition transition focuses on the implications of dietary changes for nutritional and physical health. Trends of declining rates of traditional food consumption and factors contributing to decreased access to traditional food practices have been linked directly with declining health of northern Indigenous peoples (Kuhnlein et al., 2004; Receveur & Kuhnlein, 1998). For example, increased consumption of market foods has been correlated with onset of type 2 diabetes, obesity, and cardiovascular disease (Batal & Decelles, 2019; Haman et al., 2010; Kuhnlein & Receveur, 1996; Kuhnlein et al., 2004). Receveur et al. (1997) note that a shift away from traditional food in Dene and Métis communities resulted in less intake of nutrients such as calcium, vitamin A and folic acid. Rosol et al. (2016) suggest a 50% reduction in fish consumption for Inuit in Nunavut would significantly reduce vitamin D and zinc intake. Similarly, data from the FNFNES reports projected that a decline in seafood consumption related to climate change would lead to nutritional deficiencies among coastal First Nations groups in British Columbia (Marushka et al., 2019). In Eeyou Istchee, a cross-sectional

study from 2005-2009 involving 7 Eastern James Bay Cree communities found dietary changes away from traditional foods and low fish intake causes increased instances of vitamin D deficiencies (Riverin et al., 2013).

A significant body of research has addressed food safety concerns related to exposure to contaminants through the consumption of traditional foods. Donaldson et al. (2010) suggested that consumption of traditional foods, especially in northern regions, can lead to exposure to contaminants, particularly mercury. In Nunavik, Lemire et al. (2015) found that childbearing-age women are particularly at risk of exposure to methylmercury through the consumption of traditional foods, and such threats must be included when assessing the benefits of traditional foods. Laird et al. (2018) further found that in some instances, mercury exposure from some fish species in the Dehcho Region in the Northwest Territories outweighed nutritional benefits. Results from the FNFNES related to fish also indicate risk of other contaminants, contributing to adverse health impacts (Marushka et al., 2017). Studies of fish species significant for Cree communities of Eeyou Istchee present potential risk of methylmercury exposure linked to their consumption (Moriarty et al., 2020), and other toxic pollutants (Liberda et al., 2014). However, Moriarty et al. (2020) note these risks must be balanced against health benefits associated with fish consumption.

2.5. Supporting access to traditional foods

Efforts to improve food security in Indigenous communities have recently focused on improving local networks and local food procurement, in attempts to centre community priorities, knowledge, and traditional food systems. Some attention has been given to evaluating the potential and feasibility of “country food markets” in northern Indigenous communities to improve access to traditional foods and reduce food insecurity pressures (Ford et al., 2016; Searles, 2016). However, Inuit in Nunavut expressed concern over commodification of country foods undermining sharing networks (Ford et al., 2016). Loukes et al. (2021) suggest that country food markets should be developed in ways which centre Indigenous sovereignty and uphold cultural traditions. There is also interest in improving access to traditional foods through the development of land-based programming. For example, urban Indigenous women suggest community gardens and knowledge programs as initiatives to improve traditional food knowledge (Richmond et al., 2021). In partnership with Oji-Cree First Nation, Thompson et al. (2018) found that a small-scale gardening project supported local food production and access to traditional foods, while incorporating local knowledge and engaging youth in traditional food skills.

Some researchers have situated the restoration of Indigenous food systems in larger struggles for self-determination, resonating with an Indigenous Food Sovereignty (IFS) framework (Rudolph & McLachlan, 2013; Cidro et al., 2015; Kamal et al., 2015; Shukla et al., 2019; Domingo et al., 2021; Blanchet et al., 2021). In interviews, members of Grand Rapids and Misipawistik Cree Nation in northern Manitoba identified revival of country food traditions and local gardens as preferred solutions to food challenges resulting from hydroelectric dam developments (Rudolph & McLachlan, 2013). According to Rudolph and McLachlan (2013), “this need for local control indicates that food sovereignty plays a fundamental role in shaping how northern Indigenous residents prioritise and experience solutions to the food crisis” (p. 1092). According to Cidro et al. (2015) urban Indigenous people in Winnipeg understand access to traditional food as

contributing to IFS, and claim “access to [traditional] food is about alleviating food security, but also about a larger reclamation and connection to food and food production” (p. 37). Despite not using the term explicitly, Shukla et al. (2019) likewise found that Fisher River Cree Nation (FRCN) interpret their food system in line with Morrison’s IFS principles, with strategies to improve food security revolving around “control” over food systems and community empowerment (p. 86). For example, FRCN suggests supporting food security by introducing programs that promote education (based in traditional teachings and values), culture and identity, sharing, and self-production (Shukla et al., 2019). Similarly, according to Domingo et al. (2021) food sovereignty was an underlying theme in Williams Treaties First Nations’ perspectives of food security, who expressed interest and priorities in “actions that can support reclamation of access to land, revitalization of local food systems, reconnection with culture, traditional food and ways of knowing, and having greater control over ways to obtain healthy food within local food environments” (p. 11). In response to hydroelectric projects which undermined cultural and livelihood rights, O-Pipon-Na-Piwin Cree Nation in northern Manitoba initiated a food program, *Ithinto Mechisowin* (“food from the land”) (Kamal et al., 2015). Kamal et al. (2015) contend that local food harvesting programs, such as this one, challenge contemporary colonialism, and are an example of Indigenous food sovereignty in practice through reconnection with land and revitalization of Indigenous cultural values. In partnership with Syilx Okanagan First Nation, Blanchet et al. (2021) analyzed a salmon reintroduction initiative and identified increased harvesting as a proxy for food sovereignty, by enhancing feelings of cultural connectedness and wellbeing, and contributing to “the reinstatement of relationships between First Nations, their traditional land and watersheds, and the natural world” (p. 7).

2.6. Conclusion

This chapter has presented an overview of themes, topics, and trends found within literature relevant to food security in Indigenous contexts in Canada, with a focus on discussions related to traditional foods in particular. Beginning by introducing key concepts, and the prevalence of food insecurity among Indigenous populations in Canada, the literature review then highlighted the various ways in which traditional foods are central to Indigenous food systems by contributing to both health, and holistic notions of wellbeing due to their interconnections with Indigenous relationships with land, knowledge, and culture. The final subsection sheds light on community-based and driven efforts to address food insecurity by promoting and supporting access to traditional foods.

Sections of this literature review have been adapted and consolidated in Chapter 4 and Chapter 5, to provide context and an overview of relevant scholarship for each manuscript. More specifically, Chapter 4, section 4.1.1. Northern Indigenous food security and food systems, summarizes rates of northern Indigenous food security, trends of declining participation and consumption of traditional foods, and factors contributing to this displacement. Further, there is some overlap between the literature presented in this Chapter, and the articles that meet the inclusion criteria in the scoping review in Chapter 4 (Chan et al., 2006; Ford & Beaumier, 2011; Guyot et al., 2006; Islam & Berkes, 2016; Lambden et al., 2007; Loukes et al., 2021; Rudolph & McLachlan, 2013; Skinner et al., 2013; Tsuji et al., 2020). Chapter 5, section 5.1.1. Food security, food sovereignty, and fish, again presents an overview of northern Indigenous food security, (re)introduces the concepts of traditional foods and Indigenous food sovereignty, and

likewise highlights research related to the nutritional and sociocultural contribution of fish to Indigenous wellbeing.

CHAPTER 3: Methodology

3.1. Indigenous methodology

The research design for this project is grounded in decolonizing methodologies informed by the works of Indigenous scholars Smith (2013), Kovach (2009), and Wilson (2009; Wilson & Hughes, 2019).

Maori scholar Linda Tuhiwai Smith frames decolonizing methodologies as political practices that must be situated within a broader agenda towards Indigenous self-determination. According to Tuhiwai Smith (2013) community research processes are “expected to lead one small step further toward self-determination” (p. 128). This involves a critique and decolonization of dominant knowledge systems, and supporting Indigenous ownership, control, and benefits over Indigenous knowledge (Smith, 2013). Margaret Kovach is of Plains Cree and Saulteaux ancestry and a member of Pasqua First Nation located in southern Saskatchewan. She has written that “upholding Indigenous methodologies is about Indigenous cultural sustainability...cultural longevity depends on the ability to sustain cultural knowledge” (Kovach, 2021, p. 11). According to Kovach (2021) doing Indigenous research (research concerned with indigenous matters), is not *doing* Indigenous methodologies. Rather, Indigenous methodologies emerge from, centre, and make space for Indigenous knowledge systems. Kovach (2021) asserts that research processes and practices must be relevant to place, people and their needs.

Opaskwayak Cree author Shawn Wilson (2009) claims, in contrast to dominant research paradigms, that Indigenist research methodology is grounded in relational values and practices that underlie Indigenous epistemologies and ontologies. According to Wilson and Hughes (2021) Indigenist research paradigms, through their attention to “restoring healthy relationships” and “relational accountability” are consistent with practices of reconciliation (p. 17). Relationality extends not just to everyone involved in the research process, but to knowledge too, which he asserts is co-created and shared among those involved in its production (Wilson, 2009). Wilson and Hughes (2019) explain that knowledge “represents a system of relationships that encompass worldviews and cultures that arise from their Place” (p. 10).

These methodological principles of amplifying Indigenous voices, and upholding reciprocal relationships at all points of the research process and outcomes, inform practical steps researchers can take when engaging in community-based research with Indigenous Peoples. Carmen Wong, a settler working for Parks Canada, and others including Mary Jane Johnson, an elder from Kluane First Nation, and Lawrence Ignace, an Anishinaabe researcher recently published a paper identifying 10 Calls to Action for natural scientists to incorporate and embody when pursuing partnered and reconciliatory research with Indigenous Peoples. These calls include actions for researchers to take in order to ensure meaningful outcomes for researchers and partners, such as seeking and creating opportunities for collaboration and knowledge sharing, and for research to meet the interests and priorities of Indigenous communities. These calls resonate with key principles for community-based partnered research identified by Drs. Monica Mulrennan and Colin Scott, and former Chief of Wemindji Cree Nation, Rodney Mark. They call for Indigenous research partnerships to be driven by: 1) a community-defined research agenda; 2) collaborative research process; and 3) meaningful research outcomes (Mulrennan et al., 2012).

This research is guided by this spirit of relationship-building and sharing of knowledge. This process began from the outset of FISHES, including researchers with established relationships with the communities with whom they are working and commitment to partnered research, which has been formalized through various FISHES mechanisms and protocols. In joining this project, I was able to build on these partnerships, particularly those of my supervisor, Monica Mulrennan, with Eeyou Istchee community members. This project is a result of expressed interest from community members and representatives on the RAB to prioritize research related to fishing in Waskaganish. The specific objectives of this research respond to these priorities, and were defined and refined through ongoing conversations with research partners. In addition to being attentive to community priorities, ongoing relationships and conversations also enabled us to learn about and build on previous research conducted with Crees in Waskaganish, in order to develop a relevant research agenda. The community-based research in this project is intended to privilege and amplify Indigenous knowledge and experiences shared with me through the approach and methods I used (see section 3.4.). This research also intends to be generative for Waskaganish in its design and contributions, for results and products to be shared and purposeful for the community as they see fit. Cree knowledge shared during interviews and used to develop the second manuscript (Chapter 5) is subject to review and approval of participants and research partners, and will be made available to them for ownership and use. The following sections in this chapter provide further details on the ethical protocols this project adhered to, and an overview of methods used in each of the two manuscripts.

3.2. Research ethics

The FISHES project negotiated and signed a Research Collaboration Partnership Agreement with the Cree Nation Government, Niskamoon Corporation, the Eeyou Marine Region Wildlife Board, and the Cree Trappers Association in November, 2020, which addressed partnerships between FISHES researchers and communities, including Waskaganish. In addition to determining the role of the RAB, the Partnership agreement outlines provisions related to consent, confidentiality of TEK, dissemination of data, and research protocols that were adhered to at all points during the research process. I also have ethics approval from Concordia University's Research Ethics Unit and my research adheres to Chapter 9 of the *Tri-Council Policy Statement: Ethical Conduct of Research Involving Humans*. Participants were asked to provide their written or recorded oral consent to be recorded and identified prior to conducting interviews (see Appendix A). As outlined in the Partnership Agreement, participants will be contacted prior to submission of manuscripts for journal publication to confirm their consent to share their testimonies, knowledge, and personal information, and allow for revisions to be made. Moreover, publications will be subject to review by the RAB, and if required, submitted to Waskaganish for approval.

The interviews of consenting participants were recorded and stored on a password protected personal laptop. In accordance with the Partner Agreement, and in adherence with the principles of OCAP (FNIGC, n.d.), data collected and produced during the research process will be shared with community partners for them to access and possess for future use and collective ownership. Further, prior to publication, participants will have the opportunity to individually review and validate how their knowledge is being used, revise any statements, and confirm their willingness to be identified. As this is ongoing process, interview data presented in Chapter 5 has been anonymized until all participants have had the opportunity to do so. All materials emerging from

interviews will be made available to Natasha and Sanford, including recordings, transcripts, summaries, and publications.

3.3. Research methods

3.4.1. Scoping Review

In order to identify and establish the academic research context, I conducted a scoping review of literature related to northern Indigenous food security and sociocultural elements of traditional foods which is presented in the first manuscript (Chapter 4). The purpose of this review was to familiarize myself with prevalent themes, and identify trends and gaps to be addressed in future research. The review provides a research landscape that the subsequent research specific to fish, and the community of Waskaganish contributes to, and is situated within.

The RAB underscored the need to build upon work that has already been done by others, for future work to be relevant and responsive to community and research priorities. Options for in-person engagement were limited, as travel to Waskaganish was restricted due to COVID-19 until April, 2022. A scoping review presented a means to respond to this call, to define the research context and build on previous work related to traditional foods in northern Indigenous contexts. Specifically, the review builds on work done by Skinner et al. (2016) who identified and reviewed literature related to food security in urban Indigenous contexts in Canada. Using similar methods and procedures, the topic, search, and article selection was refined to focus on traditional food and cultural food security in northern Indigenous contexts. For further details, including search parameters and terms, inclusion/exclusion criteria, and analysis of articles, see Chapter 4, section 4.2.

3.4.2. Interviews

TEK interviews are part of phase 2 of FISHES research activities in Eeyou Istchee, and were conducted as part the second manuscript of this thesis (Chapter 5). Relationship building with Waskaganish began in September, 2020, when I started my graduate studies, with introductions and communications with RAB and researcher partners in Waskaganish, particularly Natasha Louttit (CTA-EMR Wildlife Liaison Officer) and Sanford Diamond (CTA-EMR Local Officer). The timeline of this project was impacted by the COVID-19 pandemic, which made earlier visits to Waskaganish impossible due to community and regional lockdowns, travel restrictions, and distancing measures in place. While visiting was delayed, I developed a research plan in consultation with Natasha and Sanford with regular meetings on Zoom, with input from other RAB members working for the Eeyou Marine Region Wildlife Board, to be relevant and respond to research priorities related to fish in Waskaganish.

In 2019, a TEK workshop/interview guide was co-created by Monica Mulrennan, Katherine Scott (McGill University) and Natasha Louttit, with input from other members of the RAB, and centres on 7 themes fundamental to GE3LS sub-activities. These initial workshops/interviews are being conducted with Wemindji Cree, by Dr. Monica Mulrennan and Katherine Scott. The interview guide I used in interviews builds on this work, and elaborates primarily on Theme 4 (Contribution of Fish to Food Security and Cultural Continuity). The primary aim of these interviews was to facilitate conversations engaging with Cree TEK, in order to document the knowledge, experiences and perspectives of Waskaganish Cree and gain insights into the

sociocultural contributions of fish and fishing for knowledge transmission, identity, and wellbeing. A copy of the interview guide is available in Appendix B.

Traveling to Waskaganish from Montreal was limited to essential travelers and residents until April, 2022. I subsequently visited the community in June, 2022 for two weeks, when I met with Sanford and community leaders, and conducted interview with 23 community members. Sanford was an invaluable resource in facilitating and organizing my visit. Prior to my arrival, he contacted key community members including active fishers and elders who would be willing and able to participate in the project. Further details on the interview process and information about participants can be found in Chapter 5, section 5.3. Community members were asked to share their knowledge and experiences related to:

1. Changes in fishing practices and community fishing
2. The importance/benefits of eating fish and fishing practices (i.e. sharing)
3. Teaching and transmission of knowledge about fish and fishing
4. Challenges in accessing fish and sustaining fishing practices
5. Strategies to improve access to fish and adaptation to changes

Initially, these interviews also sought to elaborate on gendered knowledge, experiences, and roles and responsibilities related to fishing. However, over the course of conducting interviews, this focus became incongruent with how community members expressed knowledge about family and community fishing.

Interviews were transcribed in their entirety, and then analyzed thematically (Braun & Clark, 2012). After familiarizing myself with the interview data, initial descriptive codes were developed based on recurrent and common topics expressed throughout the interviews, and relevant to the research topic and questions. These were then clustered and grouped into broad, interrelated themes, which served as the basis for in-depth analysis, including: Changes to harvesting and eating fish (harvesting, time/place, methods of preservation); barriers to harvesting and eating fish (cost, time, age, environmental changes, contamination, availability, youth); benefits to harvesting and eating fish (health/wellbeing, Cree food/tradition, time on land); sharing fish (inter/intra-community, knowledge sharing); knowledge (intergenerational learning/transmission, youth); and sustaining access to fish (community programs, suggestions). Considerable overlap and connections exist across themes. In the interest of reflecting this interconnectedness across perspectives shared with me, and avoiding falsely delineating between topics discussed, the results provided in Chapter 5, section 5.4. are directed by community voices and excerpts.

The data and findings from interviews will be shared in the form of this thesis, journal publication, and will also be made available to Waskaganish. As mentioned above in section 3.2., FISHERS research is subject to a review from the RAB prior to being made available to public audiences. In accordance with this, an embargo will be placed on the thesis once it is submitted to Concordia University's depository until September, 2023, by which time the RAB

and participants will have had the opportunity to review, comment, and approve its contents. Likewise, submission to potential journals for publication will only occur after review and approval has been received. Ongoing discussions will be had to determine the form and content of findings to be shared in the community, to be as meaningful, responsive, and relevant as possible. Primary data (e.g., interview transcripts and recordings) will be shared following directions from the RAB and community partners.

The scoping review method and findings are presented in the following chapter. While not a method that engages directly with Cree community members, in the context of COVID-19, a scoping review was a feasible option to undertake to advance the research in a direction that aligned with Waskaganish research priorities and RAB directives. The findings and results of the interviews are presented in Chapter 5. As much as possible, I have attempted to centre Cree voices and knowledge, to bring relevant, culturally appropriate, and community-driven understandings of fish and wellbeing to the forefront of discussions.

CHAPTER 4: “Part of who we are...”: A Review of the Literature on Traditional Foods and Food Insecurity for Indigenous People Living in Northern Canada

Word count: 7000

Journal for submission: *Societies*

This article builds on the work of Skinner et al.’s scoping review of literature related to food insecurity and Indigenous Peoples living in urban spaces in Canada, which was published in *Societies* in 2016. This journal was selected for submission to respond directly to Skinner et al. (2016) by drawing on their methodology and extending our understanding of Indigenous food insecurity by focusing on northern Indigenous contexts, with specific inclusion of the significance and contribution of traditional foods.

Abstract

Indigenous people in northern Canada have relied on sustained and safe access to traditional foods for millennia. Today, however, they experience higher rates of food insecurity than non-Indigenous people or Indigenous peoples living in urban settings. Changing socioeconomic and environmental contexts in the Canadian north have altered traditional food acquisition and consumption patterns, with implications for health and wellbeing, food security, and cultural continuity. We undertook a scoping review of cultural food insecurity and traditional foods for Indigenous people living in northern Canada. The literature reviewed showed that traditional foods remain vital and central to supporting food security for northern Indigenous populations. Findings highlight the complex sociocultural nature of Indigenous food systems and suggest the need for more community-based and intersectional research related to the various dimensions that determine northern Indigenous food security and access to traditional foods.

Keywords: cultural food security; traditional food; Indigenous People; northern Canada; health; wellbeing; cultural continuity

4.1. Introduction

Northern Indigenous food systems are unique in constituting a mixed-diet of store-bought market food and land-based traditional foods acquired through place-based practices (CCA, 2014). The contribution of traditional foods to northern Indigenous food security has come into focus in the last couple of decades. Traditional foods have been shown to constitute a significant and nutritious part of Indigenous diets (Kuhnlein et al., 2004; Kuhnlein & Receveur, 2007, Kuhnlein et al., 2013). They also carry sociocultural significance as a medium to reflect and reproduce Indigenous cultural values, customs and knowledge. Harvesting, processing and sharing of traditional foods are recognized for their roles in supporting intergenerational knowledge transmission, promoting cultural continuity, and fostering wellbeing (Myers et al., 2005; Gombay, 2009; Thompson et al., 2012; Hanemaayer et al., 2020). In the Canadian north, the ongoing displacement of traditional foods in favour of more expensive and less healthy market foods, known as the “nutrient transition” (Kuhnlein et al., 2004), contributes to inequitable

adverse health outcomes for northern Indigenous populations, with implications for food security. This phenomenon is evident in Arctic and subarctic communities alike (Johnson-Down & Egeland, 2012; Kuhnlein et al., 2013). According to Loring and Gerlach (2015) access to traditional foods represents the most significant challenge to addressing food insecurity in northern Indigenous contexts.

The United Nations' Food and Agriculture Organization's (FAO) widely adopted 1996 definition of food security states that food security exists "when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life" (FAO, 2014). This definition is founded on the four nested and interrelated pillars of availability, access, utilization, and stability (FAO, 2014). According to Power (2008) this definition fails to adequately capture the realities of food (in)security for Indigenous food systems, wherein traditional foods, in addition to providing sustenance, are critical to the fostering of cultural identity, wellbeing, and connections to land (Willows, 2005; Shukla et al., 2019; Hanemaayer et al., 2020). Skinner et al. (2016) argue for food security to "incorporate race, ethnicity, and culture" (p. 2). In Indigenous contexts, this demands for recognizing traditional foods, and related place-based food practices, as key components, and determinants of food security (Skinner et al., 2016). Existing studies have examined the state of northern Indigenous food insecurity in Canada broadly (CCA, 2014), and from the perspective of health implications (Little et al., 2021) and market food prices (Kenny et al, 2020), however no scan of the literature has been conducted that explicitly addresses the sociocultural role of traditional foods in northern Indigenous food security.

Following the approach taken in Skinner et al.'s (2016) review of urban Indigenous food security, this article presents the results of a scoping study of literature on both traditional foods and food insecurity to assess the breadth and depth of knowledge on traditional food(s) for Indigenous people living in northern Canada. Bearing in mind the refinements to food security in Indigenous contexts outlined above, we focus specifically on sociocultural dimensions inherent to traditional food(s), in an attempt to better align with assessment of literature with Indigenous understandings of food and wellbeing. In line with the rationale put forward by Skinner et al. (2016), our focus on northern environments acknowledges the multifaceted and particular factors that place-based food environments have on food security and health outcomes.

We begin with a brief overview of northern Indigenous food insecurity in Canada, including rates of food insecurity, declining traditional food harvesting and consumption, and implications, in order to provide context for the scoping review. From there, a description of the methods and the results of the scoping review is provided, organized by five major themes revealed in the 22 articles selected for review: 1) availability of and access to traditional foods; 2) health and wellbeing; 3) cultural identity and continuity; 4) food sharing; and 5) strategies to improve traditional food security. The paper concludes with a discussion of gaps and trends in the research, and suggestions for future avenues of inquiry.

4.1.1. Northern Indigenous food insecurity and food systems

In a prominent report released in 2014, the Council of Canadian Academies (CCA) defines "northern Indigenous peoples" as First Nations, Metis and Inuit living in "the land and ocean-based territory that lies north of the southern limit of discontinuous permafrost" (p. xxvi).

Despite significant place-based distinctions among northern Indigenous populations, they face common challenges, threats and opportunities related to their food systems that allow for comparison across their experiences.

Northern and remote Indigenous households are consistently reported to be more at risk than their non-Indigenous or southern counterparts (Tarasuk & Mitchell, 2020; Tarasuk et al., 2022). Rates of Indigenous and northern food insecurity are measured at national (e.g., CCHS), regional (e.g., First Nations Regional Health Survey; *Qanuilirpitaa?* Nunavik Inuit Health Survey; International Polar Year Inuit Health Survey), and community level scales with inconsistencies in distinguishing on/off-reserve and urban Indigenous populations, making the full extent of food insecurity across Indigenous populations difficult to capture. Despite this, recent reports from the First Nations Food, Nutrition, and Environment Study (FNFNES) show that nearly half of on-reserve First Nations households surveyed experience food insecurity and are at greater risk of adverse health effects than their non-indigenous counterparts (Batal et al., 2021). Results from the 2017-18 Canadian Community Health Survey indicate that food insecurity is most prevalent across the Territories (Tarasuk & Mitchell, 2020). In Nunavut, for example, 57% of households reported some level of food security, of which nearly 24% were severely food insecure; more than double the rate found within southern provinces. Further, 70% of households in Fort Albany First Nation in northern Ontario were food insecure (Skinner et al., 2014), indicating a variation across northern communities. Moreover, studies suggest levels of northern Indigenous food insecurity are worsening. Comparative results from the 2004 and 2017 *Qanuilirpitaa?* Health Survey revealed that household food insecurity among Inuit in Nunavik increased by 12.5% (Furgal et al., 2021).

At the same time, participation in harvesting activities and consumption of traditional foods has declined across northern Indigenous populations (Batal et al., 2021; Blanchet & Rochette, 2008; FNIGC, 2018; Kuhnlein & Chan, 2004; Sheikh et al., 2011). Declining consumption of traditional foods in favour of market foods has been linked to adverse health impacts such as diabetes, obesity, and cardiovascular diseases (Batal & Decelles, 2019; Haman et al., 2010; Kuhnlein et al., 2004), and a reduction of essential vitamins and nutrients (Receveur et al., 1997; Riverin et al., 2013; Rosol et al., 2016). The displacement of traditional food systems has been attributed to colonial processes which have undermined Indigenous ways of life. The relocation of traditionally nomadic groups to permanent settlements, the legacy of the residential school system, and the imposition of western governance systems have altered the ways in which Indigenous food systems have been sustained for millennia (Burnett et al., 2016; Dennis & Robin, 2020; Neufeld et al., 2020). Challenges in accessing traditional foods are further compounded by other factors including income level (Batal et al., 2019; Willows et al., 2009), gender (FNIGC, 2018; Sheikh et al., 2011), the high cost of harvesting (Chan et al., 2006; Kuhnlein et al., 2013) and environmental changes (Ford et al., 2010). Importantly, northern regions are especially at risk to the impacts of climate change, which in turn impacts access to and availability of local foods. Increased industrial and economic activities in the north contribute to further environmental changes and contamination and pollution of land and water territories on which Indigenous peoples rely for safe, locally harvested foods (Royer & Herrmann, 2011; van Luijk et al., 2022). Despite these challenges, traditional foods remain a critical pathway to support Indigenous food security, representing a preferred and central component of Indigenous diets (Batal et al., 2019), contributing to holistic wellbeing (Willows et al., 2009), and fulfilling an important function in supporting and maintaining the continuity of

Indigenous knowledge and cultural identity (Cidro et al., 2015; Shukla et al., 2019; Thompson et al., 2012).

4.2. Methodology

A scoping review (as defined by the Canadian Institute of Health Research - CIHR) was conducted of online peer-reviewed journal articles, following the approach used by Skinner et al. (2016, p. 3-4) in their review of urban Indigenous food security in settler states (Canada, United States, Australia). The application of a similar method focused on traditional foods and northern Indigenous populations in Canada allows us to refine and build on current understandings of food security, and to identify biases, emphases and trends within the literature, while producing comparative and reproducible results. As described by Munn et al. (2018) a scoping review for this topic was appropriate in order to “determine the scope or coverage of a body of literature on a given topic and give clear indication of the volume of literature and studies available as well as an overview (broad or detailed) of its focus” (p. 2). As outlined by Skinner et al. (2016) the methods used “were adapted from the first five stages of the framework outlined by Arksey and O’Malley (2005) and refined by Levac et al. (2010), omitting the sixth optional stage” (p. 3). Briefly, these stages include: 1) identifying the purpose of the study and research question, 2) identifying relevant studies, 3) iteratively selecting and analyzing studies, 4) charting the data, and 5) summarizing and reporting the implications of results (Arksey & O’Malley, 2005, p. 22-34; Levac et al., 2010, p. 4-8).

A search of peer-reviewed journal articles was conducted in order to address the research question: *What is the breadth and depth of knowledge on traditional food(s) in relation to remote/northern Indigenous cultural food security?* The selection of articles was limited to those published between January 1997 (chosen because it marks the enshrining of FAO’s definition of food security as mentioned above) and December 2021, conforming with Skinner et al. (2016).

For feasibility, this scoping review was limited to articles indexed in Scopus and Web of Science. The list of search terms is detailed in Table 1. Keywords and combination of keywords related to four topics were employed: 1) food security, 2) traditional food, 3) Indigenous and 4) northern. Keywords under the topics “food security” and “traditional foods” are adapted from those used by Skinner et al. (2016), though delineated as two separate topics. Keywords associated with “Indigenous” similarly draw from the terms used by Skinner et al. (2016), though adapted to apply exclusively to northern Canadian contexts (e.g., “Inuit”). A hand search was conducted of reference lists of articles that were selected for review to include relevant studies that were not captured in the search. This resulted in the inclusion of two articles (Stroink & Nelson, 2012 and Wesche et al., 2016), which are not indexed in Scopus or Web of Science. All articles were initially screened by title and abstract. Those not excluded in the initial screening were selected for full article review, where they were examined for adherence to the specific inclusion and exclusion criteria.

Table 1. Search protocol and inclusion and exclusion criteria.

Food Security	Traditional Food	Indigenous	Northern	Inclusion Criteria	Exclusion Criteria
"food security" "food insecurity" hunger	"traditional food*" "traditional diet" "country food" food	Aborigin* Indigen* "First Nation*" Inuit Metis Dene Cree "Indigenous people*"	north* Arctic Subarctic remote	- Location was northern Canada - Minimum one paragraph on northern Indigenous food security - Minimum one paragraph on traditional food	- Only statistical information - Studies on*: <ul style="list-style-type: none"> • diabetes • health promotion • diet • nutrition/nutrition security • pollutants, pathogens and/or contaminants • climate change <p>*unless there was a focus on traditional food and food security as it relates to these topics</p> <p>- Two articles from the same study (most relevant one was chosen)</p> <p>- National and regional level studies that have not been published in peer-reviewed journals</p> <p>- Studies that did not distinguish northern/remote within data sources</p>

4.2.1. Inclusion/Exclusion criteria

A full list of inclusion and exclusion criteria is provided in Table 1. These were adapted from the criteria used by Skinner et al. (2016). However, only articles that focused on northern Indigenous populations in Canada were included in the search. The article had to have a minimum of one paragraph that discussed an aspect of northern Indigenous food security, one paragraph that

discussed traditional food, and included some primary research. Any study that took place in northern Canada (or Arctic or subarctic) was included.

Articles that focused on off-reserve or urban locations were excluded. Studies that took a regional (at times, international) or national level approach to northern Indigenous food security were excluded, unless there was at least one paragraph addressing the northern context in Canada exclusively. Articles that focused on urban centres in northern regions (e.g. Iqaluit) were also excluded. Studies that were focused exclusively on health (including diabetes, nutrient intake, diet quality, obesity), pollutants/contaminants, and climate change were also excluded unless they included discussion of these topics in relation to traditional foods and food security.

4.2.2. Content analysis and synthesis

For the articles that met the inclusion criteria, qualitative content analysis was conducted. Similar to Skinner et al. (2016), because a range of methodologies were found through the review (including ethnographic, mixed methods and quantitative surveys/questionnaires), we followed their approach of conducting a narrative synthesis, following an iterative process (p. 5). Each of the 22 selected articles were read in its entirety, and topics relevant to traditional foods (including harvesting, sharing, and food programs) and cultural food security were identified in each article and coded. A second reading of each article was conducted to extract additional data and to group topics into major themes. Topics were then synthesized in relation to one another, highlighting commonalities and differences across selected articles, and identifying emphases and gaps in the articles.

4.3. Results

The literature search resulted in the selection of 22 articles. Given the extent of academic literature relevant to traditional foods or food security in northern Indigenous contexts in Canada, this is lower than expected. These articles represent studies conducted across northern Canada, half ($n=11$) in the territories, six in Ontario, two in Manitoba, and two in Labrador. The earliest published article was in 2006, however 10 of the studies were published since 2016, and 7 of those in the past two years (2020 and 2021), suggesting interest and attention is increasingly being given to the role and significance of traditional foods in relation with northern Indigenous food security. Table 2 outlines, for each article, the authors, location of study, methodology, and main purpose of the study. Figure 4 presents the study areas of each of the selected articles (Lambden et al., 2007 is omitted as they do not identify the communities involved in their survey study). Of the articles selected, all but 3 used qualitative methods consisting of: interviews, observation s/ethnography, focus groups, photovoice, community mapping. Three articles used surveys or questionnaires for quantitative analysis, to complement qualitative findings.

Table 2. Summary of articles included in the review

Author/Date	Place	Purpose	Methods
Beaumier <i>et al.</i> , 2015	Arviat, Nunavut	"...examines the role played by climate-related risks and change in affecting the food security of Inuit women" (p. 550)	Photovoice, semi-structured interviews, focus groups, key informant interviews, participant observation
Chan <i>et al.</i> , 2006	Kugluktik; Cambridge Bay; Rankin Inlet; Chesterfield Inlet; Pond Inlet; Clyde River, Nunavut	"...understand community perceptions about the factors associated with the availability and accessibility of traditional foods and nutritious market foods" (p. 417)	Focus groups
Douglas <i>et al.</i> , 2014	Old Crow, Yukon	"...address community concerns regarding food security and supply in Old Crow and develop adaptation strategies to ameliorate their impact on the community" (p. 21)	Focus group/workshop
Ford & Beaumier, 2011	Igloolik, Nunavut	"...characteris[es] the nature and experience of food insecurity among Inuit community members and examining the conditions and processes that limit the access, availability, and quality of food" (p. 45)	Semi-structured interviews, focus groups
Gilbert <i>et al.</i> , 2021	Cambridge Bay, Pond Inlet, Nunavut	"...1) describe the meaning or significance of country food to Nunavummiut, 2) define and characterize common determinants of a low-yield harvest for country food as compared to a typical period, 3) examine impacts of a low-yield period on health and wellbeing, 4) identify coping strategies, and 5) gather suggestions for enhanced community and harvester support during these times (p. 158)	Semi-structured interviews
Guyot <i>et al.</i> , 2006	Deh Gah Got'ie First Nation, NWT Beaver Creek First Nation, Yukon	"...document local traditional knowledge and observations of change in the local environment and traditional food harvest...record current adaptive strategies...and, finally, to explore what affects the observed changes in climate may have on the diet of the people living in these communities" (p. 404)	Focus groups

Harder & Wenzel, 2012	Clyde River, Nunavut	"...extend the analyses that already exist on Inuit resource sharing by adding further depth regarding the structural intricacies of contemporary resource sharing" (p. 306)	Participant observation, recall interviews
Islam & Berkes, 2016	Norway House Cree Nation, Manitoba	"...address food security as related to fish and local fisheries of an Indigenous community, and to develop an integrated approach to analyze the role of these fisheries" (p. 817)	Surveys, semi-structured interviews, focus groups
Lambden <i>et al.</i> , 2007	Yukon First Nations, Dene/Metis, Inuit	"...to gain insight into these Arctic food security issues that largely remain undocumented: local observations about changes in traditional food systems, perceived advantages and health benefits and traditional food preferences" (p. 310)	Interviews; surveys
Loukes <i>et al.</i> , 2021	Kasabonika Lake First Nation; Moose Cree First Nation; Wunnunim Lake First Nation; Wapekeka First Nation, Ontario	"...explor[e] insights around the barriers hunters and community members face in accessing traditional food, the initiatives that are working to improve access, and the potential development of a traditional food market model in this region" (p. 159)	Semi-structured interviews
Newell <i>et al.</i> , 2020	Chesterfield Inlet, Nunavut	"...seeks to address the mechanism that links food security, cultural continuity and health and well-being at the community level in Chesterfield Inlet" (p.3)	Semi-structured interviews, community meeting consultations
Organ <i>et al.</i> , 2014	Nain, Nunatsiavut, Labrador	"...explore how a community freezer in one Inuit community in northern Canada influenced contemporary wild food access in the context of Indigenous food security (and more broadly, food sovereignty) in the Arctic" (p. 252)	Interviews, focus groups, participant observation, document analysis
Pal <i>et al.</i> , 2013	Wapekeka First Nation; Kasabonika First Nation. Ontario	"...analyze the extent to which traditional dietary practices persist in two remote First Nations in northwestern Ontario, and the costs associated with maintaining such a lifestyle" (p. 133)	Participant observation, semi-structured interviews
Randazzo & Robidoux, 2019	Wapekeka First Nation, Ontario	"...documents what is involved in land-based food procurement in the Wapekeka First Nation, and the costs incurred getting food from the land"	Participant observation, semi-structured interviews
Robidoux <i>et al.</i> , 2021	Wapekeka First Nation, Ontario	"estimate [Wapekeka First Nation's] total food requirement and the amount of food needed to sustain yearly food intake...for policy makers to put into perspective the amount of wild food needed to have an impact on food security rates and ultimately improve dietary related disease" (p. 1171)	Participant observation, formal and informal interviewing, description

Ross & Mason, 2020	Fort Providence, Dehcho Region, NWT	"...identifies the multiple barriers to engaging in local food procurement and recognizes how they are related to current food insecurity challenges" (p. 369)	Participant observation, semi-structured interviews,
Rudolph & McLachlan, 2013	Grand Rapids Crew Nation; Misipawistik Cree Nation, Manitoba	"...describe and explore the implications of northern Indigenous community conceptualisations of the northern food crisis as they relate to environmental and food justice" (p. 1082)	Semi-structured interviews
Skinner <i>et al.</i> , 2013	Fort Albany First Nation, Ontario	"...determine participants' perceptions of food security and the range of adaptive strategies they use at an individual and household level" (p. 2)	Survey (HFSSM), semi structured interviews
Snook <i>et al.</i> , 2020	Rigolet, Nunatsiavut, Labrador	"...documents Inuit knowledge to: (1) characterize Rigolet Inuit relationships with Mealy Mountain Caribou; (2) understand Inuit perspectives on how these caribou have been managed; and (3) identify opportunities for sustaining the Mealy Mountain Caribou population, while at the same time promoting Inuit wellbeing" (p. 3)	Interviews, participatory mapping, community open houses
Stroink & Nelson, 2012	Ginoogaming First Nation; Aroland First Nation; Eabametoong First Nation, Ontario	"...better understand food behaviour, including the acquisition of both market-based and local food, from the perspective of First Nation community members" (p. 68)	Survey
Tsuji <i>et al.</i> , 2020	Mushkegowuk Territory, Ontario	"...examine the food sharing networks of the Sharing-the-Harvest Programs; and [...] to explore other benefits associated with the harvest program" (p. 4)	Semi-directed interviews
Wesche <i>et al.</i> , 2016	Fort Resolution; Fort Providence, NWT	"...(a) highlight the links between observed environmental changes and wild food procurement in two Indigenous communities in the southern Northwest Territories, (b) compare and discuss the implications of two collaboratively developed, community-based programs to improve capacity for wild food procurement, and (c) identify lessons learned and productive ways forward for communities" (p. 25)	Semi-structured interviews; participant observation

Figure 4. Location of study areas of reviewed articles



ID#	Author/Date	Place	ID#	Author/Date	Place
1	Beaumier <i>et al.</i> , 2015	Arviat, Nunavut	10	Newell <i>et al.</i> , 2020	Chesterfield Inlet, Nunavut
2.1	Chan <i>et al.</i> , 2006	Kugluktut, Nunavut	11	Organ <i>et al.</i> , 2014	Nain, Nunatsiavut, Labrador
2.2	Chan <i>et al.</i> , 2006	Cambridge Bay, Nunavut	12.1	Pal <i>et al.</i> , 2013	Wapekeka First Nation, Ontario
2.3	Chan <i>et al.</i> , 2006	Rankin Inlet, Nunavut	12.2	Pal <i>et al.</i> , 2013	Kasabonika First Nation, Ontario
2.4	Chan <i>et al.</i> , 2006	Chesterfield Inlet, Nunavut	13	Randazzo & Robidoux, 2019	Wapekeka First Nation, Ontario
2.5	Chan <i>et al.</i> , 2006	Pond Inlet, Nunavut	14	Robidoux <i>et al.</i> , 2021	Wapekeka First Nation, Ontario
2.6	Chan <i>et al.</i> , 2006	Clyde River, Nunavut	15	Ross & Mason, 2020	Fort Providence, Dehcho Region, NWT
3	Douglas <i>et al.</i> , 2014	Old Crow, Yukon	16	Rudolph & McLachlan, 2013	Misipawistik Cree Nation, Manitoba

4	Ford & Beaumier, 2011	Igloodik, Nunavut	17	Skinner <i>et al.</i> , 2013	Fort Albany First Nation, Ontario
5.1	Gilbert <i>et al.</i> , 2021	Cambridge Bay, Nunavut	18	Snook <i>et al.</i> , 2020	Rigolet, Nunatsiavut, Labrador
5.2	Gilbert <i>et al.</i> , 2021	Pond Inlet, Nunavut	19.1	Stroink & Nelson, 2012	Ginoogaming First Nation, Ontario
6.1	Guyot <i>et al.</i> , 2006	Deh Gah Got'ie First Nation, NWT	19.2	Stroink & Nelson, 2012	Aroland First Nation, Ontario
6.2	Guyot <i>et al.</i> , 2006	Beaver Creek First Nation, Yukon	19.3	Stroink & Nelson, 2012	Eabametoong First Nation, Ontario
8	Islam & Berkes, 2016	Norway House Cree Nation, Manitoba	20.1	Tsuji <i>et al.</i> , 2020	Mushkegowuk Territory, Ontario
9.1	Loukes <i>et al.</i> , 2021	Kasabonika Lake First Nation, Ontario	20.2	Tsuji <i>et al.</i> , 2020	Mushkegowuk Territory, Ontario
9.2	Loukes <i>et al.</i> , 2021	Moose Cree First Nation, Ontario	21.1	Wesche <i>et al.</i> , 2016	Fort Providence, NWT
9.3	Loukes <i>et al.</i> , 2021	Wunnunim Lake First Nation, Ontario	21.2	Wesche <i>et al.</i> , 2016	Fort Resolution, NWT
9.4	Loukes <i>et al.</i> , 2021	Wapekeka First Nation, Ontario			

4.4. Findings from the Literature

The selected articles were reviewed in relation to five major themes derived from analysis of the reviewed studies: 1) availability of and access to traditional foods; 2) health and wellbeing; 3) cultural identity and continuity; 4) food sharing; and 5) strategies to improve traditional food security. A summary of the articles that addressed these themes is presented in Table 3.

Table 3. Articles cited by theme

Theme	Articles Cited
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Availability of and Access to Traditional Foods	<p>Beaumier <i>et al.</i>, 2015 Chan <i>et al.</i>, 2006 Douglas <i>et al.</i>, 2014 Ford & Beaumier, 2011 Gilbert <i>et al.</i>, 2021 Guyot <i>et al.</i>, 2006 Islam & Berkes, 2016 Loukes <i>et al.</i>, 2021 Newell <i>et al.</i>, 2020 Organ <i>et al.</i>, 2014 Pal <i>et al.</i>, 2013 Randazzo & Robidoux, 2019 Robidoux <i>et al.</i>, 2021 Ross & Mason, 2020 Rudolph & McLachlan, 2013 Skinner <i>et al.</i>, 2013 Stroink & Nelson, 2012 Wesche <i>et al.</i>, 2016</p>
Health and Wellbeing	<p>Gilbert <i>et al.</i>, 2021 Lambden <i>et al.</i>, 2007 Newell <i>et al.</i>, 2020 Organ <i>et al.</i>, 2014 Robidoux <i>et al.</i>, 2021 Ross & Mason, 2020 Snook <i>et al.</i>, 2020 Stroink & Nelson, 2012 Tsuiji <i>et al.</i>, 2020 Wesche <i>et al.</i>, 2016</p>
Cultural Identity and Continuity	<p>Gilbert <i>et al.</i>, 2021 Lambden <i>et al.</i>, 2007 Newell <i>et al.</i>, 2020 Pal <i>et al.</i>, 2013 Ross & Mason, 2020 Snook <i>et al.</i>, 2020 Tsuiji <i>et al.</i>, 2020 Wesche <i>et al.</i>, 2016</p>
Food Sharing	<p>Beaumier <i>et al.</i>, 2015 Chan <i>et al.</i>, 2006 Ford & Beaumier, 2011 Gilbert <i>et al.</i>, 2021 Harder & Wenzel, 2012 Islam & Berkes, 2016 Loukes <i>et al.</i>, 2021 Newell <i>et al.</i>, 2020 Organ <i>et al.</i>, 2014 Skinner <i>et al.</i>, 2013 Snook <i>et al.</i>, 2020 Tsuiji <i>et al.</i>, 2020</p>

Strategies to Improve Traditional Food Security	<p>Chan <i>et al.</i>, 2006 Douglas <i>et al.</i>, 2014 Gilbert <i>et al.</i>, 2021 Loukes <i>et al.</i>, 2021 Organ <i>et al.</i>, 2014 Randazzo & Robidoux, 2019 Ross & Mason, 2020 Rudolph & McLachlan, 2013 Skinner <i>et al.</i>, 2013 Snook <i>et al.</i>, 2020 Wesche <i>et al.</i>, 2016</p>
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4.4.1. Availability of and access to traditional foods

A major focus of most ($n=18$) of the papers addressed the availability of traditional food, and challenges and determinants facilitating or undermining access to traditional foods. Many Indigenous people have expressed concerns about a decline in the availability of country foods (Douglas *et al.*, 2014; Gilbert *et al.*, 2021; Ross & Mason, 2020). Many elders claim that they eat less traditional food than they did when they were younger (Newell *et al.*, 2020). Much of this decline is associated with impacts of climate change or other environmental changes (Chan *et al.*, 2006; Ford & Beaumier, 2011; Gilbert *et al.*, 2021; Guyot *et al.*, 2006; Loukes *et al.*, 2021; Newell *et al.*, 2020; Ross & Mason, 2020). Of particular concern in northern environments, is changing ice conditions and changes in the timing of spring melt. For example, Inuit in Cambridge Bay and Pond Inlet describe how climate change is reducing the availability of traditional foods by contracting hunting periods, as times when it is safe to go hunting on the ice are shorter and more unpredictable (Gilbert *et al.*, 2021). Indigenous perspectives also highlight common impacts of climate change - such as changes in migration patterns, habitats, behaviour and abundance of some species, including the introduction of new species - with significant implications for the availability of traditional food harvests (Guyot *et al.*, 2006; Loukes *et al.*, 2021; Newell *et al.*, 2020; Ross & Mason, 2020). Rudolph and McLachlan (2013) note that access to traditional foods has been altered for Misipawistik Cree Nation and Grand Rapids Metis since the construction of a hydroelectric dam and generation station and other extractive industries in northern Manitoba. Potential contamination exposure from mining activity in Fort Resolution has led to concerns among community members around the safety of fish consumption (Wesche *et al.*, 2016). Similarly, Stroink and Nelson (2012) found that perceived contamination of land and waterways resulted in shifts in where and how often community members of Ginoogaming First Nation harvested and consumed local foods. Robidoux *et al.* (2021) also attribute declining availability of traditional foods in Wapekeka First Nation in northwestern Ontario to more sedentary lifestyles, which has led to more intensive harvesting activities on nearby environment and wildlife surrounding the community.

A common barrier impacting access to traditional foods is costs associated with hunting and harvesting activities (Chan *et al.*, 2006; Douglas *et al.*, 2014; Ford & Beaumier, 2011; Gilbert *et al.*, 2021; Loukes *et al.*, 2021; Skinner *et al.*, 2013). For example, Gilbert *et al.* (2021) identified the cost of transportation equipment (e.g. ski-doo) as a concern. During times when traditional foods are not readily available, Douglas *et al.* (2014) observed that hunters in Old Crow, Yukon,

travelled further from the community, at greater cost, and with no guarantee of success. Pal et al. (2013) and Randazzo and Robidoux (2019) calculated total hunting costs with First Nations in northern Ontario, and determined that local food procurement can be more expensive to access than market foods due to the considerable economic, time, and physical demands required to carry out harvesting activities. As such, they suggest local food procurement must be promoting in concert with other initiatives and supports that alleviate some of these costs in order to incentivize the harvest and consumption of traditional foods over less-nutritious market foods (Randazzo & Robidoux, 2019).

Some studies identified other social, economic or cultural factors related to issues of access. An increased presence of non-local harvesters for instance, can add pressure to already stressed species populations (Ross & Mason, 2020). Differential access can also be experienced within communities. For example, receiving traditional foods provided by an open-access community freezer in Nain inadvertently privileged friends and family of those organizing or contributing to the freezer, who were able to take advantage of food sharing before other community members (Organ et al., 2014). Food choice and preference can also impact access and the extent to which traditional foods contribute to alleviate food insecurity (Robidoux et al., 2021). For example, Inuit youth in Chesterfield Inlet, Nunavut, were found to have a greater preference for store-bought food (Newell et al., 2020).

Loukes et al. (2021) linked access issues related to traditional food systems among First Nations in northern Ontario to colonial histories and structures such as residential schools, specifically through resulting disruptions to intergenerational knowledge transmission, which were responsible for loss of food knowledge and skills. A particular concern, noted in several studies, is the lack of food knowledge, skills, and language related to hunting and preserving traditional foods among youth (Beaumier et al., 2015; Douglas et al., 2014; Newell et al., 2020; Ross & Mason, 2020). According to Inuit women reported in Beaumier et al. (2015) the training of young hunters is challenging due to rapid population growth and the numbers of youth outnumbering elders and experienced harvesters.

4.4.2. Health and wellbeing

The perceived benefits of traditional foods are addressed in the literature from the perspective of physical health and nutrition, as well as holistic notions of wellbeing encompassing mental, spiritual and community health. The significance of traditional foods as a staple and stable food source was a common theme across northern Indigenous communities (Newell et al., 2020; Robidoux et al., 2021). In Wapekeka First Nation in northern Ontario, Robidoux et al. (2021) noted that sustaining access to and consumption of traditional foods is critically important to meet individual and community energy requirements through a healthy and nutritious diet. Likewise, Newell et al. (2020) report that Inuit in Chesterfield Inlet include traditional foods in at least 50% of their meals.

Traditional foods were often perceived as healthy by northern Indigenous communities included in the selected studies (Gilbert et al., 2021; Lambden et al., 2007; Robidoux et al., 2021; Ross & Mason, 2020; Snook et al., 2020). Beyond subsistence, Inuit in Cambridge Bay and Pond Inlet express “craving” country foods, and feeling “sick”, “weak” or “sad” when going without it

(Gilbert et al., 2021, p. 164). Access to traditional foods was linked to spiritual and emotional wellbeing. In Ginoogaming First Nation and Aroland First Nation in Northern Ontario, participation in hunting and fishing activities was correlated with “life satisfaction” and a “sense of purpose” (Stroink & Nelson, 2012, p. 71). Inuit in Chesterfield Inlet reported traditional foods as contributing to a balanced “mind, body and soul” (Newell et al., 2020, p. 7). Similarly, Inuit in Nain also reported traditional foods as being “good for the soul” (Organ et al., p. 256). Relatedly, individuals are able to satisfy their personal preference for food choices when they can consume traditional foods (Gilbert et al., 2021; Lambden et al., 2007; Ross & Mason, 2020; Snook et al., 2020). In addition to the consumption of traditional foods, related practices, such as the harvesting and processing of food are also identified as contributing to emotional, mental and community wellbeing. Ross and Mason (2020) noted that traditional food harvesting fosters spiritual connection and relationship with land. Opportunities to be on the land are associated with feelings of wellness, through the fostering of social relationships (Tsuji et al., 2020). Moreover, food programs in Fort Resolution and Fort Providence, Northwest Territories, facilitated relationship building across generations and between harvesters and youth (Wesche et al., 2016). The benefits of these practices are often expressed regardless of whether a harvest is successful or not (Newell et al., 2020; Tsuji et al., 2020).

4.4.3. Cultural identity and continuity

Many of the studies discussed the connections between harvesting and other practices associated with traditional foods and the maintenance of Indigenous identity and cultural continuity. Traditional foods are described as being an essential part of northern Indigenous culture (Lambden et al., 2007). Inuit refer to hunting food as “part of who we are” (Snook et al., p. 7), and “core to [our] lifestyle” (Gilbert et al., 2021). Newell et al. (2020) similarly explain the sharing of traditional foods as the “mechanism” that connects food security, wellbeing, and cultural continuity among Inuit. According to Ross and Mason (2020) the ability to maintain and pass on knowledge supports cultural and linguistic continuities, and is a source of cultural resiliency. Conversely, Inuit reported in Snook et al. (2020) described a hunting moratorium on caribou as inhibiting their ability to pass on traditional knowledge and thereby contributing to cultural erosion.

Indigenous perspectives brought forth in several studies often highlighted the significance of traditional food systems as pathways for knowledge transmission to younger generations (Newell et al., 2020; Pal et al., 2013; Ross & Mason, 2020; Snook et al., 2020; Tsuji et al., 2020; Wesche et al., 2016). According to Wesche et al. (2016) local food programs create “linkages between Elders and youth” and are “an effective way to bridge the existing knowledge transmission gap” (p. 41). Harvesting practices, for example, allow youth access to land for experiential learning (Newell et al., 2020). Sharing practices are also associated with cultural benefits, such as strengthening interpersonal relationships and community cohesion (Newell et al., 2020; Tsuji et al., 2020). Pal et al. (2013) identify preparation of traditional foods as a particularly “important time for older women to share their [...] skills with younger generations of women” (p. 140). First Nations women take pride in their knowledge and skills related to preparing, processing, and cooking traditional foods to share with their community (Pal et al., 2013).

4.4.4. Food sharing

Most of the studies ($n=12$) highlight cultural practices and values related to food sharing. Sharing of traditional foods is identified as a critical adaptive and coping strategy to alleviate food insecurity and support access to traditional foods (Chan et al., 2006; Gilbert et al., 2021; Harder & Wenzel, 2012; Islam & Berkes, 2016; Loukes et al., 2021; Skinner et al., 2013; Tsuji et al., 2020). Indeed, with respect to Norway House First Nation in Manitoba, Islam and Berkes (2016) attributed the unusually high level of food security reported in the community, in part, to the extensive fish sharing practices from subsistence and commercial fisheries. In assessing the impact of a Sharing-the-Harvest program in Mushkegowuk Territory in northern Ontario, Tsuji et al. (2020) report 76% of households received geese from the initiative, both individually and through community gatherings or events. Inuit women rely on family connections, especially for food provision, when needed (Beaumier et al., 2015). Sharing has been found to be common both inter- and intra-community (Ford & Beaumier, 2011; Gilbert et al., 2021), highlighting the extent of connectedness between northern communities. In addition to being a means of access to traditional foods, Newell et al. (2020) identify food sharing as a mechanism connecting “community health and well-being, food security and cultural continuity” (p. 10). Similarly, Loukes et al. (2021) report that First Nations in Ontario regard food sharing as a source of community “pride” and “signified a resurgence in cultural practices and community unity” (p. 167).

Sharing practices are not uniform within or between communities. Harder and Wenzel (2012) describe how traditional food sharing is organized and structured through social dynamics and capital. For example, sharing among Inuit living in Clyde River, Nunavut, is related to *ilagitt* (kin) units, with implications for individual and household food security (Harder & Wenzel, 2012). Distribution of traditional foods is further characterized by differences in individual or household needs. Those who are not able to harvest traditional foods themselves, such as some elders, single-parent households (especially those headed by women), low-income individuals, and widows are often prioritized within Indigenous communities when allocating food resources (Gilbert et al., 2021; Islam & Berkes, 2016; Organ et al., 2014). However, as noted by users of a community freezer in Nain, limited availability can lead to the exclusion of some priority groups (Organ et al., 2014).

Concerns have been raised by some northern Indigenous communities about a decline and/or changes in food sharing practices (Beaumier et al., 2015; Ford & Beaumier, 2011; Islam & Berkes, 2016; Snook et al., 2020). Inuit women report changes in sharing ethics away from one founded on reciprocity, towards an assumption of “free” country food (Beaumier et al., 2015). As sharing is dependent on wildlife availability (Ford & Beaumier, 2011), a decline in sharing is also associated with decreasing abundance of certain species, such as walrus (Ford & Beaumier, 2011) or caribou (Snook et al., 2020). As a result, hunters and harvesters may be less inclined to share with those outside their immediate family (Snook et al., 2020). Ford and Beaumier (2011) also attribute declines in traditional food sharing among Inuit in Igloodik with sociocultural and lifestyle changes, such as rapid population growth diluting sharing networks, and increased hunting costs which make it difficult for hunters to offer food without monetary compensation (Ford & Beaumier, 2011). However, according to Skinner et al. (2013) the prevalence and persistence of food sharing in Fort Albany First Nation indicates that it continues to be a critical adaptation strategy to food shortages, contrary to trends elsewhere that might indicate otherwise.

4.4.5. Strategies to improve traditional food security

Community-based strategies to improve food security was a common topic in the reviewed articles, with many focusing on efforts that support access to traditional foods. A common suggestion made by community members is to provide greater support to local hunters and hunting organizations to increase the availability of traditional foods within the community (Chan et al., 2006; Gilbert et al., 2021; Skinner et al., 2013. Randazzo & Robidoux, 2019). In addition to supporting direct access to food, support for hunting activities was also understood to contribute to cultural continuity, by offering experiential learning opportunities for knowledge and skills to be transmitted to and sustained for younger generations (Snook et al., 2020; Wesche et al., 2016).

Other studies focused on land-based local initiatives, such as community gardens and agriculture (i.e. greenhouses) (Douglas et al., 2014; Rudolph & McLachlan, 2013; Skinner et al., 2013). However, there are challenges to these options, such as the limited growing season of northern regions and conserving land for habitat for wild game and plants (Rudolph & McLachlan, 2013). A common concern identified was that approaches to addressing food security be developed and implemented in collaboration with communities and in line with Indigenous values and knowledge (Douglas et al., 2014; Loukes et al., 2021; Gilbert et al., 2021; Organ et al., 2014; Skinner et al., 2013; Snook et al., 2020). First Nations in northern Ontario and Old Crow, Yukon, and Inuit in Cambridge Bay, Nunavut, expressed the need for local food initiatives to include and engage with youth (Douglas et al., 2014; Loukes et al., 2021; Gilbert et al., 2021). Several other studies underscored the importance of these efforts being community driven and led, prioritizing Indigenous knowledge and practices (Organ et al., 2014; Skinner et al., 2013; Snook et al., 2020; Wesche et al., 2016). According to Wesche et al. (2016) “the community-directed nature of local food procurement programs [in Fort Providence and Fort Resolution] provides a foundation for the successes achieved in each community” (p. 41).

As discussed by Rudolph and McLachlan (2013) the northern food crisis and displacement of traditional food systems is deeply political, rooted in Canada’s colonial history and purposeful attempts at eradicating Indigenous ways of being. As a counter to this, Indigenous people favour initiatives that are local in scale, that legitimize and prioritize their ownership, control and decision-making, aligning with the concept of Indigenous food sovereignty (Rudolph & McLachlan, 2013). Similarly, Loukes et al. (2021) propose that Country Food Markets could be “explored and piloted within Indigenous food sovereignty perspective[s]” to meet the needs and priorities of northern First Nations. Skinner et al. (2013) also observed that perspectives on food security shared by members of the Fisher River Cree Nation resonate with the principles of Indigenous food sovereignty, drawing connections between improved community and individual food security and the importance of building community capacity, engagement, and ownership in local food systems.

4.5. Discussion

Food insecurity among northern Indigenous populations in Canada has been researched extensively, resulting in increasing recognition of the critical role of traditional foods in ameliorating food security. The connection between traditional foods, food security, and health has received particular attention in Canada since the 1990s. Framed as a public health issue,

numerous studies have addressed the contribution and importance of traditional foods in supporting physical health and nutrition security (i.e. access to sufficient nutrients) of northern Indigenous communities (Kenny et al., 2018; Kuhnlein et al., 2013; Marushka et al., 2021). More recent research efforts have attempted to illuminate the relationships between traditional foods, cultural identity and cultural continuity (Kamal et al., 2015; Shukla et al., 2019; Robin & Cidro, 2020). At the same time, efforts have been made within and across disciplinary fields to extend notions of health and food security to better align with Indigenous knowledges and worldviews, and the needs of Indigenous communities. While this has resulted in more attention to relationships between food security, culture, and wellbeing, as Newell (2020) notes, “very few studies have explored the connection between all three concepts” (p. 3). Indeed, only 22 articles published over 15 years met the selection criteria for review. This suggests that food security research in Canada continues to be dominated by western perspectives on health and food security that sideline traditional foods rather than considering them as inextricable to Indigenous food security and wellbeing. While isolating traditional food or health as a single element of food security may facilitate capture of important data, this approach is incongruent with the holism and interconnectedness of Indigenous food systems and notions of cultural and individual wellbeing. In order to operationalize a conception of food security that acknowledges the cultural dimension inherent to Indigenous food systems and aligns with the priorities of Indigenous communities (Power, 2008), a more holistic, interdisciplinary approach to research is needed to identify the challenges and opportunities related to addressing northern food insecurity.

It is noteworthy that the majority of studies reviewed involved a single northern community or region, and used qualitative methods, with the expressed intention of meaningfully engaging with and foregrounding Indigenous perspectives and voices. Several authors noted how choosing qualitative research methods aligns with principles central to community participatory research and/or Indigenous methodologies (Loukes et al., 2021; Newell et al., 2020; Organ et al., 2014; Pal et al., 2013; Ross & Mason, 2020; Skinner et al., 2013; Snook et al., 2020; Wesche et al., 2016) and responds to efforts to produce research outcomes that are responsive to and respectful of local communities. Many studies were also conducted as formal partnerships with community organizations, governments, and/or members (Gilbert et al., 2021; Guyot et al., 2006; Loukes et al., 2021; Newell et al., 2020; Pal et al., 2014; Randazzo & Robidoux., 2019, Robidoux et al., 2021; Rudolph & McLachlan, 2013; Wesche et al., 2016). The Council of Canadian Academies (2014) calls for deeper engagement with Indigenous knowledge in order to better understand experiences of northern food insecurity and implement effective responses. The community-level research approach adopted in many of the reviewed studies amplifies Indigenous voices about the ways in which food systems and traditional foods are intimately connected and dependent on local place. However, relying exclusively on small-scale qualitative research risks overlooking larger trends and patterns across communities and regions. For instance, of the selected studies, 11 involved Inuit ($n=8$) and/or First Nations ($n=3$) communities in Nunavut, Nunatsiavut, Yukon, or the Northwest Territories. The other 11 articles involve First Nations in northern Ontario and Manitoba, 4 of which (Loukes et al., 2021; Pal et al., 2013; Randazzo & Robidoux, 2019; Robidoux et al., 2021) focus on partnered research with Wapekeka First Nation, Ontario. While this attention to Indigenous groups residing in the Arctic reflects the prevalence of food insecurity in these regions, engagement with other northern Indigenous communities is needed to more fully capture the extent and particularities of food insecurity across the Canadian north.

Previous research has identified Indigenous women as more vulnerable to food insecurity (Tarasuk & Mitchell, 2020; Willows et al., 2009), and less likely to participate in traditional food harvesting and consumption (FNIGC, 2018; Kuhnlein & Chan, 2000; Marushka et al., 2021; Sheikh et al., 2011), despite traditional food being a preferred food choice for many women (Lambden et al., 2007). In this review, only two studies had exclusively women participants, and only one (Beaumier et al., 2015) positioned itself as presenting a gendered analysis of traditional food security. The limited presence of Indigenous women in food security research, despite experiencing higher rates of food insecurity and poorer health outcomes than their male counterparts has been identified and explored elsewhere (Kuhnlein, 2017; Neufeld et al., 2020). While other subgroups, notably children and youth, have drawn scholarly attention in Indigenous contexts (Egeland et al., 2010; Jasmin et al., 2017), less attention has been given to the relationships between Indigenous women, traditional foods, and food security. In the case of this review, this may be attributed to women being less likely to participate in the direct harvest of traditional foods. However, as evidenced in Pal et al. (2013) women are integral to the preparation, processing and sharing of traditional foods. These are fundamental practices that constitute Indigenous food systems and support food security and wellbeing by supporting knowledge transmission among Indigenous communities.

An overemphasis in existing research on traditional food harvesting and consumption as an entry point to inquiry limits understandings of the significance of practices at other points in Indigenous food systems, and fails to consider challenges and opportunities they present for Indigenous food security. Further, doing so perpetuates the exclusion of Indigenous women's knowledge and perspectives on topics related to their food systems, security, and health. Focusing on the knowledge and experiences held by Indigenous women identifies and validates particular vulnerabilities. For example, in their exceptional gender-specific study, Beaumier et al. (2015) found that socioeconomic and historical factors were stronger determinants of Inuit women's food insecurity, despite "the rapid changes observed in Arviat and indeed the Canadian Arctic more generally" (p. 556), and in contrast to other studies in the region (Chan et al., 2006). Centering Indigenous women in research on these topics offers an opportunity for a more in-depth and nuanced understanding of the significance of traditional foods for Indigenous food security and wellbeing, while highlighting the roles and responsibilities of Indigenous women in food systems and communities. This could also include more research targeting specific vulnerable subgroups – such as low-income women, or single-parent households - to explore shared challenges, opportunities and experiences to revitalize and sustain traditional food systems, as well as focus on processes of food preparation and distribution to target populations excluded by harvest studies. Studies published beyond the timeframe of the scoping review have begun doing this, focusing for example on female Haudenosaunee youth (Hanemaayer et al., 2022) and urban Indigenous women (Phillipps et al., 2022).

Production, distribution, and consumption of foods is mitigated by colonial, historical, and political processes that have displaced and dispossessed northern Indigenous peoples from their traditional land and food. According to Loukes et al. (2021), food sovereignty can offer "a more appropriate framework to challenge the structural inequities that lead to limited access to food" (p. 160). Restoring, revitalizing, and reclaiming Indigenous food sovereignty (IFS) is fundamental to fostering healthy relationships amongst people and all living things (Coté, 2016), and is vital to broader movements towards Indigenous self-determination by reclaiming decision

making power (Morrison, 2011). The relationship between traditional foods and Indigenous food sovereignty is made clear by Secwepemc scholar and founder of the British Columbia Food Systems Network, Dawn Morrison, who describes IFS as including any place-based “present-day strategies that enable and support the ability of Indigenous communities to sustain traditional hunting, fishing, gathering, farming, and distribution practices” (p. 97). Indeed, several community-level responses documented in the reviewed articles address their food needs in a way that reclaims power and ownership over their foods systems, be it traditional mechanisms for coping with food shortages (i.e. sharing), or newly implemented programs (e.g. gardens, freezers). For Rigolet Inuit, harvesting caribou itself is an act of food sovereignty by reclaiming cultural food practices (Snook et al., 2021). More efforts are needed to explicitly situate food security in relation to the Indigenous food sovereignty movement. This would strengthen understanding of the connections between traditional food harvest and use, and community autonomy and contribute to a reorienting of decision-making processes and upholding of Indigenous autonomy and agency.

The scoping review reveals and reiterates the sociocultural significance of traditional foods. Repeatedly, community-level approaches are pursued or preferred to improve access to local foods and strengthen cultural connections to food, land, and learning. Notwithstanding this, changes to northern environments, livelihoods, and food systems have produced a mixed-economy wherein market foods will remain an important and necessary means for acquiring healthy food, and supporting food security. As postulated by Islam and Berkes (2015), this requires integrated approaches to food distribution and acquisition that account for sharing networks and store-bought foods. While market foods cannot replace the cultural importance of traditional foods (Stroink & Nelson, 2012), both need to be pursued to foster food security. Local food initiatives need to be coupled with efforts to make available market foods that are more affordable and nutritious (Douglas et al., 2014). The increasing reality of climate change and unpredictable environmental conditions underscores the need for diverse and resilient adaptation measures that also respond to the needs of the community. This includes both upholding ways in which Indigenous communities have and continue to sustain access to traditional foods, and exploring a range of integrated options.

4.5.1. Limitations

This scoping review was limited to a search of articles indexed in Web of Science and Scopus. As such, studies that are published in non-indexed journals, or available through other databases - included databases specific to the Canadian context - have not been considered. This may have resulted in the omission of studies that would otherwise have been included in the review. The search, inclusion/exclusion, and review of selected articles was done exclusively by the author, who recognizes the possibility of relevant studies being missed in the review. Future work by others may build on the collection of studies presented in this article, and include previously overlooked studies.

4.7. Conclusion

Supporting food security in Indigenous contexts requires consideration and understanding of the social and cultural elements inherent and integral to traditional food systems. Despite the

attention given in the literature to traditional foods, only a limited number of studies focus on their sociocultural contribution to cultural food security. Instead, research is skewed towards the biophysical and nutritional benefits of promoting traditional food harvesting and consumption, which reinforces the dominant discourse of food insecurity as primarily a supply-issue, with negative health implications. While this challenge remains true, it is only part of what needs to be addressed to resolve the northern food crisis. Research projects that take a holistic and interdisciplinary approach are needed for a more complete and balanced understanding of the role of traditional food systems, that aligns with and accounts for the distinct ways in which traditional foods contribute to Indigenous wellbeing. Foregrounding community perspectives and knowledge in traditional food systems research centres food needs and priorities as defined by Indigenous communities. Indigenous-led and driven research supports assertions of self-determination and sovereignty over their food systems by affirming community decision-making and autonomy. Further, the inclusion of gendered analysis and intersectional approaches, is needed to provide a more complete understanding of the challenges and opportunities of northern food insecurity.

CHAPTER 5: Towards Indigenous Food Sovereignty: Sustaining traditional fishing practices in Waskaganish, Eeyou Istchee

Word count: 10 000

Journal for submission: *Canadian Food Studies / La revue Canadienne des études sur l'alimentation*

This article is intended for publication in *Canadian Food Studies / La revue Canadienne des études sur l'alimentation* journal. This article meets the journal's scope and aim for publishing "critical perspectives on the ways in which humans, food, and the natural and built environments construct one another" in the Canadian context (Canadian Food Studies, n.d.). Similar studies highlighting grounded Indigenous perspectives and community-based research related to food security and food sovereignty have been published in recent years, and its review board comprises prominent scholars with expertise on these topics.

Abstract

Disruption and displacement of Indigenous food systems by climate change, imported market foods, and colonial legacies have resulted in a decline in the harvest and consumption of traditional foods, with implications for community health, wellbeing, and food security. Efforts aimed at supporting and revitalizing local food systems have received significant attention in recognition of their potential to improve food insecurity and reclaim Indigenous food sovereignty. However, despite the reliance of northern Indigenous people for millennia on fish as an abundant and reliable food source, the role and significance of small-scale fisheries in supporting Indigenous food security and cultural continuity is under-examined in the literature. To address this, we present findings from partnered research with members of Waskaganish Cree First Nation, Eeyou Istchee, located at the mouth of the Rupert River on the coast of James Bay. Despite significant socioeconomic and ecological changes and challenges, including major impacts on fish and fishing related to large-scale hydroelectric development, Waskaganish Crees are hoping to sustain traditional fisheries and fishing practices through a series of adaptive measures and community initiatives. Cree perspectives and experiences illustrate the centrality of fish and fishing to holistic wellbeing, intergenerational knowledge transmission, and community cultural identity. Community-driven approaches and choices to continue harvesting and consuming fish illustrate localized and embodied Indigenous food sovereignty, and provide insight into the possibilities of fish as an avenue to (re)affirm and (re)generate Cree cultural continuity and self-determination.

Keywords: Indigenous food security; Indigenous food sovereignty; Waskaganish Cree Nation; traditional food; fish; wellbeing; cultural continuity; self-determination

5.1. Introduction

It is widely acknowledged that the imposition of Western colonial food and political systems is responsible for the displacement of traditional food systems (Coté, 2016). The resulting “nutrient transition”, characterized in northern communities in Canada by increased consumption of less healthy store-bought market foods, coupled with exorbitant food prices, changing climate, poverty, and barriers to traditional harvesting, exacerbates food security issues and associated negative health outcomes (Ford et al., 2010; Kenney et al., 2018; Kuhnlein et al., 2004). Case studies involving Indigenous communities have provided insight into grounded, local perspectives on challenges and opportunities to promote traditional harvesting in support of food security and wellbeing (Elliot et al., 2012; Shukla et al., 2019; Skinner et al., 2013). Strategies to revitalize and support traditional food systems through community harvesting, sharing, and gardening programs have been found to alleviate food insecurity, as well as uphold relationships with the land, facilitate intergenerational knowledge transfer, and foster community and individual wellbeing (Kamal et al., 2015; Richmond et al., 2021; Thompson et al., 2018). At the same time, local food initiatives have been shown to foster a re-centering of place-based knowledge and practices and strengthen community leadership, ownership, and decision making over food systems. Such issues of control and community empowerment are central to Indigenous communities' understandings and perceptions of local food insecurity, underscoring food sovereignty as imperative for action addressing Indigenous food security (Cidro et al., 2015; Domingo et al., 2021; Rudolph & McLachlan, 2013; Shukla et al., 2019).

Despite representing one of the most abundant and reliable traditional foods available to northern Indigenous communities (Islam & Berkes, 2016), the significance of fish tends to be understated in scholarship on Indigenous food security, with greater attention given to the significance of cultural keystone species, such as caribou (Garibaldi & Turner, 2004; Snook et al., 2019). Those studies that include consideration of fish, particularly in Indigenous contexts within Canada, almost entirely represent fish in terms of their value and contribution as a healthy and nutritious food source (Marushka et al., 2021; Slater et al., 2013). This tendency reflects a narrow framing of food security primarily in terms of a public health issue, with fish reduced to their value as a staple food that can be relied upon for sustenance. As a result, the myriad, interconnected, and dynamic ways in which the harvesting and consumption of fish support and uphold Indigenous ways of knowing and being are not fully recognized. Food security in northern Indigenous communities is contingent on safe, reliable and continued access to traditional foods (CCA, 2014). However, beyond providing a nutritious, culturally appropriate, and preferred food choice (Batal et al., 2021; Blanchet et al., 2020), revitalizing traditional fishing can support Indigenous cultural continuity and promote Indigenous food sovereignty through autonomous and localized food systems.

This article, conducted as part of a large-scale partnered research project - entitled FISHES: *Fostering Indigenous Small-scale fisheries for Health, Economy, and food Security* - presents a case study from Eeyou Istchee of northern Indigenous food security through the lens of community fishing, by engaging the perspectives and knowledge of hunters and fishers from Waskaganish Cree Nation. Their experience is instructive; as a relatively food secure and affluent northern Indigenous community, common factors known to exacerbate food insecurity, such as household income, are a less salient indicator and driver of community-defined food

security needs. Instead, community priorities and strategies to sustain traditional food practices and support reliable access to fish and fishing activities are driven by the critical contributions they make to intergenerational knowledge transfer, community belonging, and cultural continuity. They are therefore illustrative of embedded sociocultural elements integral to upholding traditional food systems, and demonstrate the extent to which sustaining fishing practices goes beyond an issue of food insecurity, to be an assertion of individual and collective-level commitments to (re)affirm and (re)generate Cree identity for future generations.

Major hydrological and socio-economic disruptions related to large-scale hydro development projects and other large-scale shifts have impacted the health of, and access to, traditional fisheries in Eeyou Istchee. Community members have observed declining participation in harvesting and consumption of fish, particularly among youth, and changes to the river and fish populations, and concern has grown over the long-term impact this may have in regards to losing traditional fishing practices and knowledge. In response, Waskaganish Crees are committed to finding ways to sustain access to fish by adapting and adopting coping strategies, and through the use of community fishery programs. These sustained commitments to promote and uphold community fishing and related knowledge affirms local food sovereignty by asserting agency and self-determination over which foods they consume, and how they are accessed. We suggest that the Waskaganish experience can broaden and deepen understanding of the ways in which Indigenous community priorities and practices related to traditional foods, and particularly fish, are deeply entangled with community-level aspirations that extend beyond food security to a broader consideration of Indigenous food sovereignty in a northern Indigenous context.

In response to the underrepresentation of Indigenous voices in the food security literature (CCA, 2014), we aim to contribute to a growing scholarship that recognizes and amplifies Indigenous communities as holders of knowledge and stewards of food and land (Skinner et al., 2016; Shukla et al., 2019; Domingo et al., 2021; Richmond et al., 2021). Centering Indigenous perspectives and knowledge on traditional foods affirms the ways in which food security is defined and pursued by communities, in line with community needs and values. Moreover, aligns with calls by Indigenous scholars to decolonize research with Indigenous peoples and communities, and (re)centre Indigenous knowledge systems and voices (Kovach, 2021; Wilson & Hughes, 2019). As settler researchers, we recognize and have striven to uphold our responsibilities to ongoing relationships and to honour the knowledge shared with us, and to produce meaningful and relevant research for Waskaganish Crees.

We begin with a brief overview of relevant literature related to the prevalence of food insecurity among Indigenous peoples in Canada, uptake of the concept of food sovereignty, and the extent to which fish have been addressed in previous research on food security. The purpose of this overview is to provide the research context for the current study, and to identify gaps in the existing literature. Most of the literature included is authored by settler researchers working with Indigenous communities, but where available, Indigenous scholarship is highlighted. After providing community and regional context, and outlining our methodology, we present the main findings emerging from interviews conducted with Waskaganish community members. This includes documenting changes to fishing, the meaning and significance of fish for Waskaganish Crees, and individual and community-level coping strategies. We then discuss the sociocultural significance of these fisheries in the context of individual and community wellbeing, situate

adaptations in fisheries in Waskaganish within the food sovereignty discourse, and conclude with a call for recognition of community efforts to sustain traditional fisheries as embodied practices of self-determination.

5.1.1. Food security, food sovereignty, and fish

Indigenous communities and peoples in Canada experience higher rates of food insecurity than their non-Indigenous counterparts. Recently released reports from the First Nations Food, Nutrition, and Environment Study (FNFNES) found that nearly half of on-reserve First Nation households surveyed experience some degree of food insecurity (Batal et al., 2021). Likewise, food insecurity is pervasive and persistent among urban Indigenous populations (Cidro et al., 2015; Skinner et al., 2016). According to an earlier report by the CCA (2014) the most critical food challenges are experienced amongst northern Indigenous communities. Comparative analysis conducted by Willows et al. (2009) of data from the 2004 Canadian Community Health Survey (CCHS) involving non-Indigenous and off-reserve Indigenous households similarly revealed that 33% of Indigenous households were food insecure, and were over four times more likely than non-Indigenous households to be severely insecure. Though there is some variation between communities (Skinner et al., 2014), the 2017-18 CCHS confirms that difficulties in accessing adequate food supply is consistently and severely felt across northern regions in Canada (Tarasuk & Mitchell, 2020). Indeed, in Nunavut, 57% of households reported some level of food insecurity, of which nearly 24% were severely food insecure; more than double the rate of southern provinces (Tarasuk & Mitchell, 2020).

Food security is commonly defined as existing “when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life” (FAO, 2014). This well-established definition has been adopted by the Government of Canada and is founded on four nested and interrelated pillars: availability, access, utilization, and stability (FAO, 2014). Elaine Power, a settler scholar in the School of Kinesiology and Health Studies at Queen’s University, Ontario, argues that in Indigenous contexts, an additional level of “cultural food security” is required to adequately capture the ways in which traditional foods are impacted in relation to the strengthening or undermining of these pillars (2008, p.95). Numerous studies under the leadership of Harriet Kuhnlein, a nutritionist and founding director of the Centre of Indigenous Peoples’ Nutrition and Environment (CINE) at McGill University, shed light on the contribution of traditional foods to northern Indigenous food security (see Kuhnlein & Receveur, 2007; Kuhnlein et al., 2009; Kuhnlein et al., 2013; Kuhnlein, 2018). Kuhnlein and Chan (2000) underscore how Indigenous food systems, in contrast to dominant food systems, are comprised of both market-based store-bought foods and land-based traditional foods, acquired through harvesting and/or sharing (CCA, 2014), in which place-based values, beliefs, and knowledges are embedded. In the introduction to a report published by the FAO (2013) *Indigenous Peoples’ Food Systems and Well-being: interventions and policies for healthy communities*, Kuhnlein and Burlingame argue that upholding access to traditional foods, including the ability of individuals and communities to engage in associated food practices and knowledge, goes beyond an issue of subsistence. Noreen Willows, a professor in the Department of Agricultural, Food and Nutritional Science at the University of Alberta, articulates that in addition to being healthy and nourishing, traditional food is an “anchor to culture and personal well-being and is an essential agent to promote holistic

health” (2005, p. s33). Many other community-based researchers similarly affirm that promoting traditional foods strengthens interpersonal relationships and community cohesion, facilitates intergenerational knowledge transmission, and fosters relationships with land (Gombay, 2009; Hanemayer et al., 2020; Myers et al., 2005; Skinner et al., 2013; Thompson et al., 2012; Tsuji et al., 2020).

Increasingly, Indigenous food security scholars and activists are promoting efforts and initiatives that (re)center traditional foods and systems, converging with larger goals espoused by the growing Indigenous Food Sovereignty (IFS) movement (Elliott et al., 2021). First introduced in 1997 as a grassroots, rights-based movement and framework, food sovereignty politicizes food security and confronts power inequities that permeate and shape food systems, and calls for the (re)localization of ownership, control, and autonomy over them. According to Nuuchahnulth scholar Charlotte Coté (2016) IFS recognizes the displacement of Indigenous food systems in the context of histories of colonial violence and argues for Indigenous defined and led restoration and revitalization of their food systems. In Canada, IFS has been defined through contributions by Secwepemc scholar and founder of the British Columbia Food Systems Network Group, Dawn Morrison, who identifies four key principles of IFS: 1) food is sacred; 2) participation; 3) self-determination; and 4) legislation and policy reform (Morrison, 2011). Integral to IFS is a foundation of fostering healthy, reciprocal relationships amongst people and all living things (Wittman et al., 2010), and that food is “core to self-determination” (Morrison, 2011). In practice, IFS is more elusive. According to Morrison (2011), IFS describes place-based “present-day strategies that enable and support the ability of Indigenous communities to sustain traditional hunting, fishing, gathering, farming and distribution practices” (p. 97). In northern Manitoba, for example, a local-food harvesting and sharing program in O-Pipon-Na-Piwan Cree Nation affirms IFS through the reclaiming and restoring of cultural values and knowledge (Kamal et al., 2015).

Traditional foods in northern Indigenous contexts in Canada have been widely studied. In the food security literature, the bulk of this work has emerged from public health concerns related to reduced diet quality and declining harvesting activity, with particular attention to the documentation of the various nutritional benefits of promoting traditional food use (Blanchet et al., 2020; Kuhnlein et al., 2013; Lemire et al., 2015). Most studies focusing on the contribution of individual species tend to highlight land-based keystone species, with less attention given to fish, despite their significance as an abundant and widely available food source in contemporary Indigenous diets (Marushka et al., 2021), and a valuable pathway to food security (Islam & Berkes, 2016). In disaggregated data from the 2018 FNFNES, Marushka et al. (2021) identified fish as a particularly important source of protein and other nutrients. Interviews and surveys conducted with Iskatewizaagegan Anishinaabeg in Ontario illustrate that in addition to being an essential part of diets, fish are an avenue for knowledge transmission and social cohesion in support of cultural identity and wellbeing (Bolton & Davidson-Hunt, 2014). Notwithstanding these studies, a database search for literature addressing northern Indigenous community-based perspectives on fishing confirmed the underrepresentation of such studies in the literature². Likewise, Levkoe et al. (2017) pointed out that fishing communities have been overlooked in the food sovereignty literature. Drawing on earlier critiques by ecologist Fikret Berkes who posited

² (“food security” OR “food insecurity” OR hunger) AND (“Indigenous people*” OR Indigen* OR Aborigin* OR “First Nation*” OR Inuit OR Metis OR Dene OR Cree) AND (fish*) AND (north* OR Arctic OR subarctic OR remote))

that fisheries management was guided by production-oriented objectives for fish-as-commodity (Berkes, 2010), Levkoe et al. (2017) acknowledged a shift towards recognition of the “full range of values surrounding small-scale fisheries” through engaging the connections between fish and community food sovereignty (p. 65). Drawing on interviews with members of Batchewana First Nation and Saugeen Ojibway Nation, Ontario, Lowitt and others, including Levkoe, highlight the connection between fisheries governance and the promotion of Indigenous self-determination and food sovereignty (Lowitt et al., 2019). We build on this work by focusing on community perspectives, priorities, and actions related to sustaining access to traditional fishing and knowledge, as an entry point to explore place-based expressions of Indigenous food sovereignty and self-determination.

5.2. Area of Study

The traditional Cree territory of Eeyou Istchee spans over 400 000 square kilometers to the east of James Bay, in northern Quebec. The coastal Nation of Waskaganish is one of 10 communities that reside in Eeyou Istchee, and is located along the southeastern shore of James Bay, at the mouth of the Rupert River, with a population of about 2500 people. Today, almost 75% of the populations of Eeyou Istchee participate in the wage economy (ISQ, 2021), employed primarily in: agriculture, forestry, fishing, and hunting; public administration; educational services; health and social services; construction (Cree Human Resources Development & Cree Regional Authority, 2009). On average, the median annual income of Crees in Eeyou Istchee is twice that of other on-reserve First Nations (ISQ, 2021; Stats Canada, 2016).

Figure 1. Eeyou Istchee territory (Royer & Herrmann, 2011)

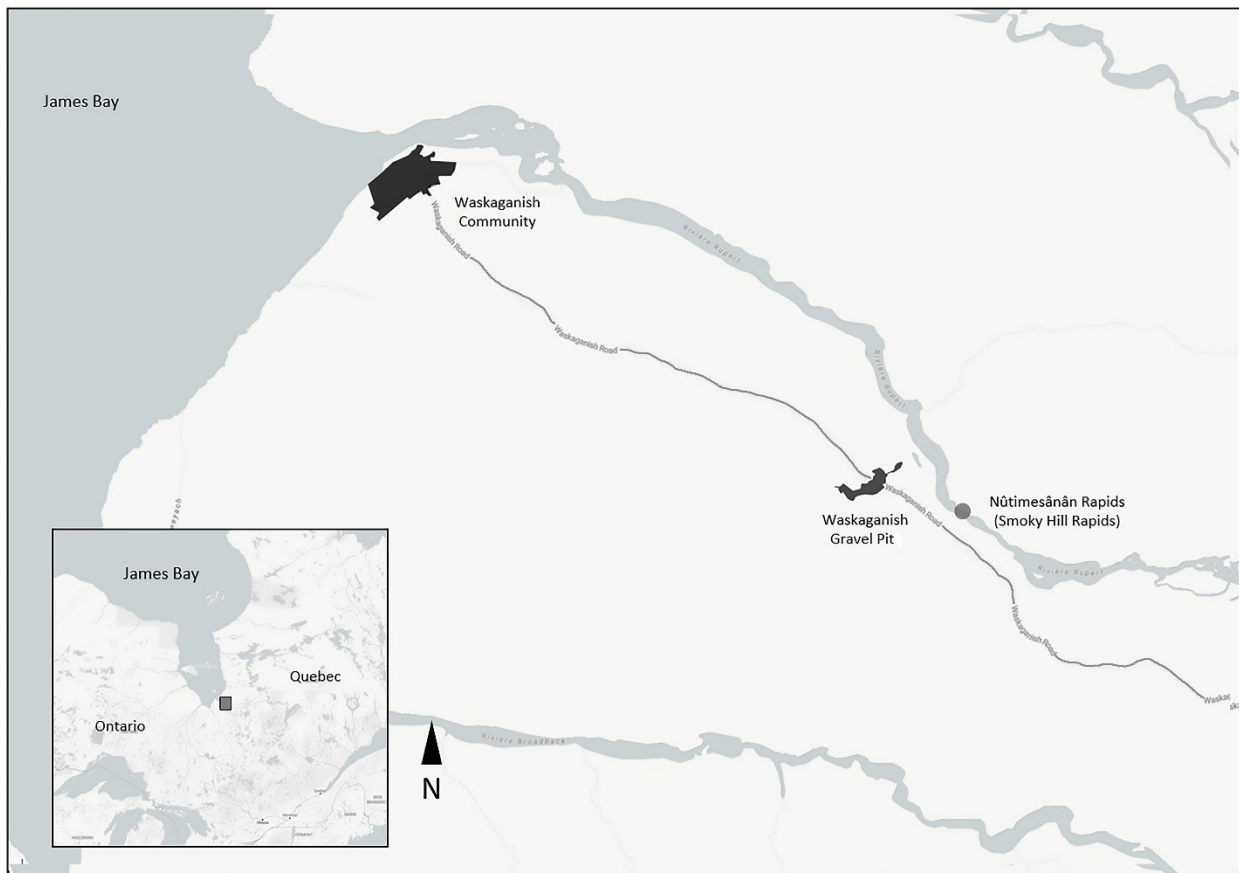


Eeyouch have survived for generations on seasonal subsistence harvesting activities, including hunting, trapping, and fishing of local wildlife (Berkes & Farkas, 1978). Historically, Cree lived

in semi-nomadic kinship-based groups, in accordance with the seasons and animal migration patterns, with traditional foods consumed regularly. Traditional diets consisted primarily of meat and fish, and harvested plant foods (Berkes & Farkas, 1978). However, contemporary diets also include increased consumption of store-bought market foods, with negative implications for health and diet quality (Johnson-Down & Egeland, 2013; Willows et al., 2018). Consumption of traditional foods varies among Cree. Generally, traditional food consumption increases with age (Laberge Gaudin et al., 2014; Willows et al., 2018), and is lower among younger generations who more frequently avail of store-bought or restaurant foods (Downs et al., 2009).

As a coastal community, fish are especially significant in Waskaganish, representing an integral component of local diets and culture. For most of the year, large catches of cisco, walleye, trout, pike, whitefish, and sturgeon are harvested by net in Rupert Bay and along the Rupert, Nottaway, Broadback, and Pontax Rivers (Waska Resources & GENIVAR, 2009). In Winter too, ice fishing with nets or hooks provides subsistence food, supplementing harvests from hunting and trapping (Waska Resources & GENIVAR, 2009). Family and kinship-based groups spend considerable amounts of time on the land, harvesting fish which are then distributed and shared. *Nûtimesânân* (Smokey Hill Rapids), located upstream from the community on the Rupert River, marks a particularly significant traditional harvesting site, where anadromous cisco have been harvested using traditional net and dip-net techniques for generations (Strangway et al., 2016). At the end of the summer, youth and elders gather at the site for fall fish harvest, where anadromous cisco spawn at the rapids (Waska Resources & GENIVAR, 2009). The significance of this site is illustrated by extent to which Smokey Hill is bound to Waskaganish, marking the border of the community. Many elders spend a considerable amount of time, or live year-round, at a small semi-permanent settlement known locally as Gravel Pit, located near the rapids, where the fish are cleaned, cooked, shared, and eaten (Waska Resources & GENIVAR, 2009).

Figure 2. Map of Waskaganish and *Nûtimesânân*³



Regional hydrological and ecological systems have been disrupted by hydroelectric development projects, with implications for waterways, fish populations and community fishing practices. In the 1970s, construction of reservoirs and powerhouses began on the La Grande River as part of Phase 1 of the James Bay Hydroelectric Project (Gupta, 1992). Phase 2 involved the construction of powerhouses in the Great Whale River basin, and diversion of the Nottaway, Rupert, and Broadback Rivers (Gupta, 1992). Following opposition from Cree, including legal actions and domestic and international campaigns, Cree successfully suspended the Great Whale project in 1994 (Scott, 2020). In 2007, Hydro-Quebec obtained approval to begin Phase 3 of the La Grande hydroelectric project, focused on the Eastmain-1-A, and Sarcelle Powerhouses, and Rupert Diversion. Most significantly for Waskaganish, the Rupert Diversion consists of a series of dams and dykes which diverted 70% of the flow from the river northwards to support the construction of the EM-1 Reservoir and Eastmain-1 and Eastmain-1A powerhouses (Hydro Quebec, 2008). As a result, water flow has been drastically altered within the James Bay watershed with implications to the distribution and abundance of fish populations, and concerns have risen over increased contamination of water and fish species (Berkes, 1982; DesLandes et al., 1996; Hornig, 1999). Due to increased exposure to contaminants, particularly methylmercury, the James Bay Mercury Committee began monitoring elevated concentrations of mercury in fish,

³ Author McGurk, T. (2023). Map data copyrighted OpenStreetMap contributors and available from <https://www.openstreetmap.org>"

including longnose sucker, lake whitefish, northern pike, and walleye (Roebuck, 1990). Between 2005-2009, the Cree Board of Health and Social Services of James Bay carried out *Nituuchischaayihitaaui Aschii*: Multi-Community Environment-and-Health Study with nine communities in Eeyou Istchee to investigate health effects of environmental contaminant exposure and diet and linked between environment and human health. In Waskaganish, this study found mercury levels to be low, and the benefits of consuming fish outweighed potential risks. However, hydroelectric development continues to be associated with higher levels of methylmercury in fish (Moriarity et al., 2020).

Figure 3. Eastmain 1-A and Sarcelle powerhouses and Rupert Diversion project (Hydro-Quebec, 2008)



Beginning in 1973, these various phases of development have involved the Crees of Eeyou Istchee in negotiations with proponents of the James Bay project over terms of the development. The James Bay and Northern Quebec Agreement (JBNQA), signed in 1975, outlined compensation to Cree communities in exchange for development to proceed, and also established land rights and management systems. Eeyouch territory is as a result subject to a three-tiered land regime designating land rights, use and control over land and resources in the region. The JBNQA also established governance structures such as the Cree Trappers' Association, the Cree

Regional Authority, and the Cree Board of Health and Social Services, implemented the Cree Income Security program to compensate and support subsistence activities, introduced an environmental monitoring framework, and created a Cree fund for long-term economic development (Gagnon & Rocher, 2022). In 2002, the signing of the *Paix de Braves* agreement modified sections of the JBNQA, increasing Crees administrative power and autonomy and consenting to the construction of the Eastmain-1 project and Rupert Diversion (Baba et al., 2016).

Through negotiations between the Cree leadership and Hydro-Quebec, mitigation measures were agreed upon to reduce impacts from the Rupert Diversion. At the insistence of Cree, these included a commitment from Hydro-Quebec's to maintain an ecological upstream flow which would preserve fish stocks and river habitat, to implement measures to support traditional fish harvesting at Smokey Hill, and to establish conditions to support the ongoing involvement of Crees, especially tallymen, in the project (Schiehl & Raufflet, 2013). Since the Eastmain-1 Project began in 2002, tallymen and Cree businesses were awarded contracts worth over \$1.2 billion, and hundreds of jobs were created for Cree workers (Baba et al., 2016).

The Bouhounan Agreement was created in 2002 to address the impacts of the Eastmain 1-A, Rupert River Diversion and La Sarcelle project, and included the creation of funds aimed to facilitate the continuation of traditional activities and community led projects (Niskamoon, 2021). In 2012, the Grand Council of the Crees and Hydro-Quebec signed the Agreement Concerning the Re-Appropriation of Territory affected by Phase 3 hydro-development, in which Hydro-Quebec further committed funds to enhance traditional Cree land use (Niskamoon, 2021). These funds are administered through Niskamoon Corporation, created in 2004 to provide a framework for cooperation and implementation of agreements between Crees and Hydro-Quebec. Today, community fishing in Waskaganish is partly supported by various Niskamoon funded projects intended to promote and sustaining traditional harvesting activities. This includes efforts to support and sustain traditional fishing activities at Smokey Hill, including the construction of scooping weirs, the reconstruction of fishing sites at the rapids, programs targeted at training youth in the harvesting, cleaning, preparing, and cooking of fish, and facilitation of the annual gathering during the cisco harvest (Niskamoon, 2021). It also supports community voluntary catch registries of key fish species, including cisco and sturgeon (Niskamoon, 2021).

However, concerns remain surrounding the health of fish and the maintenance of traditional fishing activities in the community. In 2016, the Eeyou Marine Region Wildlife Board (EMRWB) conducted a series of consultations with coastal communities, in which Waskaganish Cree representatives identified interest in prioritizing research related specifically to changes to fish, and impact of developments (EMRWB, 2019). Further, members have noted changes in fish, such as in taste and size, and some are reluctant to consume them for this reason (EMRWB, 2019). Moreover, Waskaganish Cree have expressed concern over youth spending less time on the land and insufficient opportunities to transmit Cree knowledge to younger generations (Eeyou Planning Commission, 2017)

5.3. Methodology

As part of a large-scale multi-university research project entitled FISHES: *Fostering Indigenous Small-scale fisheries for Health, Economy, and food Security*, this study adheres to research processes and protocols that were negotiated between FISHES researchers and community partners, including the Cree Nation of Waskaganish. A Research Collaboration Agreement was co-developed and signed at the outset of the project between researchers, the Cree Nation Government and Cree community partners involved in the FISHES program, which applied to this study with Waskaganish. The Collaboration Agreement outlines provisions for consent, confidentiality, dissemination of data, and research protocols. Research activities report to a regional Research Advisory Board (RAB), comprised of university researchers, community research partners and representatives from Cree governance organizations including the Cree Trappers' Association (CTA) and the Eeyou Marine Region Wildlife Board (EMRWB). All FISHES research activities and outcomes are reported to a Research Oversight Committee which steers and evaluates research progress.

Positioned within this framework, this study was designed to centre and amplify Indigenous knowledge and voices and situated to be relevant and responsive to larger agendas for Indigenous self-determination (Smith, 2012; Kovach, 2021). Initial conversations began in Fall, 2020, with Natasha Louttit (EMR Liaison Officer) and Sanford Diamond (EMR-CTA Waskaganish Local Officer), and other members of the RAB to gain an understanding of community perspectives and priorities related to fishing research, and of previous relevant research conducted in the community on which this project builds. Due to COVID-19, regular meetings were held on Zoom to elaborate on these priorities and directives for this study. Grounded in these conversations, an interview guide was co-developed and approved by the RAB for the documentation of Cree knowledge related to the FISHES project, was adapted for use in the current study.

Interview questions were designed to be flexible and adaptable, to facilitate conversations about local experiences, observations and knowledge about harvesting, preparing, processing and sharing fish. Sanford Diamond, the Local CTA-EMR Officer for Waskaganish, identified and contacted potential participants, and scheduled interviews which the primary author conducted in June 2022. A total of 18 in-depth semi-structured interviews were conducted with 23 community members who are knowledgeable and/or active fishers. All the interviews were with adults ranging from approximately ±40-80 years in age, of which 15 were men and 8 were women. Of the 18 interviews, 13 were conducted as one-on-one interviews, and 5 interviews involved a couple. Five were conducted in the Cree language, facilitated and translated by Sanford. In one instance the interview in Cree was translated by the interviewees' daughter. All knowledge holders were living in Waskaganish at the time of the interview. Nearly all of the interviews took place at the CTA offices, and in two instances were conducted at the participants' home due to accessibility needs. Interviews lasted one to two hours in duration, and consistent with community research protocols, participants were provided an honorarium for their time.

The research adhered to ethical and confidentiality guidelines agreed to between the researchers and research participants, as outlined in the Collaborative Agreement and approved by the RAB as well as by the Research Ethics Board of Concordia University. With the consent of knowledge

holders, interviews were audio-recorded, and then transcribed, coded thematically, and analyzed according to recurring themes related to: 1) changes to fisheries/fish, 2) benefits and barriers to accessing fish, and 3) sustaining and improving access to fish. In accordance with our consent process, participant names have been anonymized to protect their confidentiality.

5.4. Results

The results are structured around the themes of changes to fishing; significance and contribution of harvesting and consuming fish; barriers to accessing fish; and the continuation of community fishing. Knowledge holders spoke of changes to fish and fishing practices they have observed over time and as a result of changes to the river, and expressed concern over declining participation in fishing, particularly among youth. However, the interviews highlight the multiple ways that fish remain an integral and significant food source that contribute to individual and community wellbeing, and are interconnected with the continuity of Cree culture by maintaining relationships with territory and facilitating intergenerational knowledge transfer. In the interest of reflecting, as closely as possible, the experiences and knowledge shared throughout our interviews, themes are introduced by direct quotes from participants. The inclusion and integration of participant quotes throughout are meant to centre and honour the voices of participating Cree and community perspectives of fishing practices.

“When I got out of school...we had no choice because we had to go out to the bay and live off the fish. We couldn’t afford anything else. And, that was the best place for us to be.” (Adult man, personal communication, June 14, 2022)

The ways in which Cree in Waskaganish harvest, process, prepare, and share fish have shifted as they have responded to social, economic, and environmental change. Generally, community members in Waskaganish observed that fishing is not as dominant an activity nor as integral to life within the community as it was when they were young. Many adults and elders remembered spending summers with their family and friends out on the land harvesting fish, sometimes for weeks at a time. Spending extended periods of time as children fishing with parents and grandparents, was how some elders learned where to fish, how to set nets, and how to process and prepare the harvest. One elder woman recalled fond memories of harvesting fish during the winter. When the men would leave camp to go hunting and trapping, she and the other women would collect the fish from the nets, *“[we] were the ones doing all the [...] processing and harvesting”* (personal communication, June 14, 2022).

Today, however, they were in agreement that people in the community are harvesting less fish less often and harvesting fewer fish than before. According to many community members, fishing has become a concentrated activity around the fall cisco harvest at Smokey Hill, with fewer people harvesting from the bay or nearby rivers. As an elder woman shared, *“a lot of people don’t go out to the camps now...less and less people go out harvesting”* (personal communication, June 14, 2022). A similar sentiment was echoed by another elder woman, *“people hardly go out now to harvest fish...Back then, they used to go out into the bay, along the coastline to go set nets, and when they come back, they would bring their harvest back and share their harvest. Today it’s not as much as what it used to be”* (personal communication, June 22, 2022). One couple interviewed can no longer go fishing because of their age, and no longer see

people setting nets and drying fish along the river as they did when they were younger. This observed decline in harvesting fish is especially acute among youth. As one elder woman remarked, youth are more likely to catch fish by rod, rather than by traditional harvesting methods, or as noted by an adult male fisher, youth are only involved in fishing through community programs. Another adult man who continues to fish year-round, attributes fewer people fishing in the bay and setting nets with a “speeding up” of fishing, with people no longer going out for longer periods of time but preferring to go fishing for a day or two. Consequently, relatively fewer fish are caught at a time. He says, *“I think they forget how people used to go out there...They don’t know how many fish there are in the bay”* (personal communication, June 20, 2022)

“Before the diversion, there was one time we caught 1000... But after the diversion, [the fish are not] there anymore.” (Adult man, personal communication, June 21, 2022)

Cree in Waskaganish have noticed changes to the abundance and declining health of fish populations as a result of impacts from the diversion. One elder man has been fishing on the Rupert River since he was a boy, and has similarly observed significant changes to the water and fish, *“Comparing it to before the diversion happened it’s so different than what it was back then...Fish are really sensitive to the waters. They’ll know right away if there’s a change”* (personal communication, June 22, 2022). According to him, the water conditions and colour has changed, which is scaring the fish away from their traditional habitats. According to another man, warmer water temperatures due to lower water levels is affecting the number of fish in the river in the summer. Another elder and experienced fisher thinks that *“[There are] less and less fish throughout the years I’ve been fishing, say for the past 25 years. If you compared then and today, it’s less than 50% that we caught before.”* (personal communication, June 14, 2022). He believes changing water conditions have had a negative effect on the health of key fish species. As evidence to support this he mentions that it has been *“over ten year now, I still haven’t seen a healthy sturgeon. Every time I caught a sturgeon it’s dark, not enough fat on it. They’re very slim”* (personal communication, June 14, 2022). Similar accounts were shared that fish, especially sturgeon, are smaller, disproportionately sized, or taste differently on account of increased sediment in shallower water. Additional impacts from increased human activities around the river are also thought to affect the fish. For example, a few elders pointed out that the increased noise and pollution from motor boats and skidoos travelling across water, instead of dog teams and paddling canoes, disturbs the fish.

“As far as I can remember, as a little child, I’ve been fed fish. Fish was the menu.” (Elder woman, personal communication, June 16, 2022)

In the past, fish was a primary and central source of food for people in Waskaganish. As a source of sustenance, fish was available year-round; setting nets in the spring and summer, the annual scooping season at Smokey Hill, and ice fishing, supplied fresh fish in abundance. Preserved, dried fish was a critical source of sustenance when food supply was low at winter camps during hunting and trapping seasons. Indeed, as one elder woman recalled, fish “was [our] only means of survival” (personal communication, June 21, 2022). Dependence of Cree on fish for their survival has inscribed a level of respect for fish and fishing activities demonstrated through community and land-based values. For instance, some fishers shared that growing up, they

learned from their parents not to over-harvest fish, and not to waste any of the harvest. This feeling of giving respect expands beyond fish themselves, to the land, water and equipment implicated in the harvest of fish. An elder woman remembers during summers spent fishing with her grandmother the hours involved in cleaning her fish net, and being told not to go swimming where the nets are set so as not to disturb the fish.

“It’s healthy, it’s like medicine. It helps you, your body, when you eat fish.” (Adult man, personal communication, June 16, 2022)

The significance of harvesting, preparing, and consuming fish goes beyond being a food that provides necessary caloric intake for sustenance and survival. Cree people also identified other common benefits associated with fishing that speak to its value in supporting and upholding their health and wellbeing, including physical, mental, emotional, and spiritual dimensions. Most of those interviewed described fish as a healthy and nutritious food, especially when compared to fish bought from the store, or other market and restaurant foods. Fish are widely understood “to be good for you”, as a nourishing source of protein and energy. One man associated eating fish with having more energy and described eating fish as making a person feel “strong” and “live longer” (personal communication, June 15, 2022). Another fisher similarly made the connection between eating fish and gaining strong muscles. An elder man explained how fish keeps you feeling full for longer. How fish are prepared and cooked also contributes to physical health. Boiled or smoked fish are regarded as healthier options for those living with health conditions such as diabetes. Another elder man, for example, claims that drinking fish broth is “good for your arteries” (personal communication, June 17, 2022). It was noted by his wife, that fish broth is also beneficial for nursing mothers and is a healthy first food for their babies. Further, the lifestyle that accompanies being an active fisher - that is, extensive time spent on the land - is also associated with living a healthier life. One active fisher believes that in the past, Crees lived a healthier life because they were doing more traditional harvesting.

“what we need on our system, it’s been there for hundreds and hundreds of years” (Elder man, personal communication, June 14, 2022)

In addition to being seen as healthy, eating fish is often a preferred food, especially among elders. Having food preferences fulfilled contributes to their emotional and mental wellbeing. While all participants enjoyed eating fish, it was mentioned that this preference was based not just on taste, but also on an awareness of what their body “needs”, particularly for elders. When discussing the importance of having fish available within the community, one man explained that the elders’ “nutrition is based on traditional food...So, they got to have the fish” (personal communication, June 14, 2022). This preference for fish was often expressed in relation to traditional food “cravings”. As an elder man explained, when his seasonal cravings for fish, or other traditional foods that are in harvest, are met, he feels happy and satisfied. In this sense, an active fisher who runs a fishery program at the Kaachekaasuk traditional harvesting site, described fish as a “healing” food for Cree to eat (personal communication, June 20, 2022).

“I was really happy. It was my paradise to go with my grandma, to go in the bush with her and learn from her, fishing.” (Elder woman, personal communication, June 16, 2022)

Harvesting, preparing, processing, and sharing fish are times and spaces in which relationships with others, including particular places, are strengthened and maintained. A common answer among participants when asked about their favourite part of fishing, was spending time with family and friends. As evidenced by the above quote, passing time on the water while harvesting fish, or at camp cleaning and cooking fish was associated with feelings of happiness and peacefulness. Fishing continues to be linked to valuable quality time spent with others, particularly cross-generationally. Though time spent on the land, especially for youth, seems to be declining, fishing is a space for generations to gather, spend time together, and share knowledge. Being able to come together around fish can act as a bridge between elders and youth, who have had very different lifestyles. Fishing can be a time to build understanding and appreciation for the different social and economic realities that shape Cree culture today. One man believes fishing programs targeted at bringing different generations together would promote a “healthier community” and a “better relationship” between adults, elders and youth (personal communication, June 14, 2022)

In addition to fostering community relationships and cohesion, activities associated with fishing also support Cree relationships with the land. As mentioned above, learning how to harvest and clean fish instills values of respect and care for the tools, materials, and environment that make fish available. For some community members, respecting the fish you catch is positioned in relationship to the Creator. In this way, continuing to fish is understood to sustain a reciprocal relationship that has facilitated Cree survival. One man describes fish as a spiritual activity: “*You ask the Creator to catch the fish, and the fish you catch, you have to eat it, or give it to the animals. And you have to go check your net every morning, early in the morning, that’s what I do, used to do, but sometimes when it’s windy here, you can’t go catch your net. And if you catch the fish, you don’t just throw it away or, you have to eat it and clean it, and share the fish. And you say thanks to the fish.*” (personal communication, June 16, 2022). This sense of spirituality is linked to Cree identity. Similarly, an elder man who spends most of his time at the camp near Smokey Hill, and says, “*I am happy as a human being, to know that there’s a Creator that created the fish for us, for our ancestors, that survived from fishing way back*” (personal communication, June 16, 2022)

Harvesting, cleaning, cooking, sharing, and eating fish are times that are shared between family members, and across generations, and are important opportunities for teaching youth about traditional and cultural practices. Almost everyone interviewed shared stories of their past and what they learned from their parents or grandparents, including where to fish, how to set nets, and how to clean, cut, and prepare the fish. As one elder woman explains, “*it’s passed down from parent to children to grandchildren, that’s how it was done.*” Another elder also spoke of the importance of intergenerational learning, “*it’s not only just learning from a father, it’s also learning from a grandparent, his grandfather, his grandmother, learning [how] the traditional harvesting is done*” (personal communication, June 14, 2022). Active fishers and elders continue to assume a responsibility in engaging youth in fishing in order to “pass on the tradition”. Indeed, the participation of youth is a central concern and priority for many. One elder man takes young people out in the bay to teach them about fishing so they in turn can pass on the knowledge of what was taught, and fishing ‘continues’. However, he notices that the transmission of fishing knowledge and skills is less family-based than it was in the past and is increasingly facilitated through community fishing programs. He says it is good for young people to have these

opportunities to fish, “[they] *enjoy learning, participating in these types of fishery programs, because they learn a lot by preparing the fish, descaling, preparing, smoking them and everything*” (personal communication, June 15, 2022). As part of the Siibii fishery program, one man taught youth how to set nets, and his wife taught how to clean, prepare and smoke fish. He says, “*It’s been handed down, generation to generation to generation [...] It’s important to have it, and the youth to continue doing this*” (personal communication, June 15, 2022). Another man explained how the consumption of fish is also a practice that supports the continuity of Cree culture, “*We eat fish, you know, we’re Cree people. So, I think we need to keep eating fish for [the next] generation today that eats fish. We need to pass that to our youth, and our children, so they too can enjoy the fish, so it doesn’t stop.*” (personal communication, June 14, 2022).

Although many community members would like to fish more often than they do, the opportunities for community members to access fish in Waskaganish, be it through direct harvest (i.e. autonomously by net or rod) or receiving fish that was caught and shared by others, is mitigated by various socioeconomic and environmental factors. While some of these function at the individual level, others are indicative of larger-scale social, cultural, and environmental changes Cree experience in Eeyou Istchee.

“If I didn’t work I would fish right now.” (Elder man, personal communication, June 14, 2022)

One of the most common reasons put forward for not fishing more often was lack of time and other resources. Family and work commitments limit the time available to spend more than a day or two fishing. Not having access to a boat or fishing equipment was another common barrier identified by community members. One man remembers when he was young that his grandmother would spend hours making a fishnet by hand, whereas today, a fishnet can cost up to \$400 to purchase. Lack of access to a boat poses a particular challenge for youth and women, if they do not have a parent or partner with a boat to take them out on the water. As a result, it is common for youth and children to go linecasting with rods along the shore. Based on his experience running the youth fishing program at Kaachekeasuk, one man explains that he tries to prioritize including youth who have not had the opportunity to go fishing before. The increasing cost of harvesting has also impacted fish sharing networks, with some people opting to sell fish to cover their costs. An elder woman recalled that in the past, “*when people arrived on the shores of the community, people would right away share their harvest, [...] but now, today, that it changed. People are selling them more*” (personal communication, June 14, 2022). One man expressed sympathy to the need for some to sell fish to absorb the costs of harvesting, while others are saddened by this shift in values.

As explained to us by an individual involved in running the Kaachekeasuk fishery program, a loss of the knowledge and skills needed to navigate boats and access fishing locations has contributed to a decline in harvesting fish. To illustrate his point, he described how accessing the Kaachekeasuk traditional harvesting site requires travelling upriver over multiple rapids and shallow areas before reaching the fishing spot, and that expert knowledge of the waters is needed to reach it safely and without damaging your boat. For youth especially, not having a family member who can take them out denies them access to some of the experiential land-based learning needed to learn safety and navigation skills. According to an elder man, some of the most prized and privileged knowledge among experienced fishers is about fishing locations and

harvesting spots. For him, this is “the most important” thing he learned from his father and can be lost if it is not taught to youth. Several participants suggested that fishing programs be expanded to include taking youth out fishing on the bay, rather than just on rivers. Others mentioned that fishing spots may also become inaccessible due to changes in the environment. For example, one elder couple recalled when an area where they used to camp with their family that is now completely eroded away.

“One of the favourite foods was fish, right now their favourite food is poutine” (Adult man, personal communication, June 16, 2022)

Several informants expressed concerns about youth and younger generations not eating fish as often as their parents or grandparents. For the most part, this perceived decline in the youth consuming fish was attributed by the adults and elders not to an outright disinterest of youth in fish as food, but more to the increased access and availability of store-bought and restaurant foods. With increased exposure and availability of market-based food at grocery stores, and the arrival of restaurants in the community, informants have observed youth in particular, and Cree in Waskaganish more generally, as more inclined to eat and prefer these foods. Not having parents or other adults to expose children and teach young people how to harvest, prepare and cook fish is believed to contribute to them disliking the taste and smell of fish. An elder woman, explained, *“I can’t even cook fish to eat here in the house, because they say it smells.”* (personal communication, June 21, 2022). These days there are many alternative food options available to youth, and as a result there is not the same need to eat fish as there was in the past. As stated by an elder man, *“the younger generation now is not harvesting fish that much, because of the food source, what’s available”*. For other community members too, changes to food systems and the prevalence of market foods has created a context where fish are not necessary to eat for survival. When one elder woman was young, fish was, *“[our] only means of survival, and [I] grew up eating fish all the time [...] There was no cornflakes...no eggs either”* (personal communication, June 21, 2022). One man also notes how increased availability and access to food and goods outside of the community has lessened the need for people to go fishing, *“Since the road opened up everyone went to the South to buy groceries and stuff. You used to see lots of [...] fishing camps, people liked to have cabins, go there for the weekend sometimes, or some people would stay there for the summer. People used to go out all the time, but not anymore.”* (personal communication, June 15, 2022).

The influence of store-bought foods and the fact that fish are no longer needed for survival has also influenced how fish are processed, prepared, and shared. For instance, several elder women described a process of drying and processing fish for subsistence during winter hunting and trapping when other food was scarce. *“There was this way of saving the fish for longer. They used to really, really dry them, and then they would pound the fish so it was powdery. That’s what [my] mum used to do.”* (personal communication, June 21, 2022). One remembers her grandmother preserving fish the same way, *“She dried the fish, she smoked the fish and dried it up really dry, and then put it in a cloth, and she would pound [it], and it became like powder. And she put goose grease on it, and a little bit sugar, and she told us, ‘Taste it, you’re going to like it.’ So, we taste it and we liked it.”* (personal communication, June 16, 2022). One man recounted how his mother would preserve fish this way for men going out trapping, *“when you go out trapping [for] a long time ago, but you don’t have much food, that’s something you would carry. Dry, dry fish in the bag and have grease... that’s the thing they would just take for a snack*

when they run out of energy.” (personal communication, June 20, 2022). Now, with food available in grocery stores year-round, fewer people spending winters on the land, and as a result of the option to store fish in freezers, this method of preservation is rarely done. He says, *“They just cook them and eat them.”* (personal communication, June 20, 2022).

“People have been adjusting. Adjusting to the change to our river, and the water level, they have been adjusting to that, okay. But, we still fish, we still can fish, we still do that, we enjoy doing that.” (Adult man, personal communication, June 14, 2022)

As described in the above quote, despite changes to and barriers in harvesting and accessing fish, Crees in Waskaganish are finding ways to continue traditional fishing activities. At the individual level, some fishers in Waskaganish have shifted and adopted new practices to overcome barriers to accessing fish. One man spoke of coping with time constraints, for example, by going out for shorter trips, or spending less time on the land. Another couple explained that their children tend to go to harvesting spots located closer to town rather than travelling out into the bay or to rivers further away.

“You have to share with the people what you kill, what you have, and in turn when you need help they’re going to do the same to you.” (Elder woman, personal communication, June 16, 2022)

Sharing remains a strong value and ethic associated with fishing in Waskaganish. It represents a crucial avenue through which people continue to have access to fish. For example, elders who can no longer go fishing themselves rely on receiving fish from younger family members, or community food programs. Some elders rely on receiving fish from their sons. According to one, *“it doesn’t look good”* when you do not share (personal communication, June 14, 2022). Elder community members viewed sharing as a way of teaching younger generations and continuing the tradition. One man explains, *“If we don’t do that...the next generation won’t do that”* (personal communication, June 15, 2022). Sharing is a large part of why another man continues to fish, *“It was the fish that brought us here, where we are now. Surviving. ... And you know, you cherish your traditions...And that’s the reason why I’m still going out and eating fish and setting my nets. I’m able to bring that fish to my grandparents now, because they can’t go out anymore. I love doing that, I always bring fish back to elders, different relatives. I love doing that, not just to them, but to the community as well”* (personal communication, June 20, 2022). As a result of the various barriers to fishing and resulting declines in the numbers of people harvesting fish, an elder man observed that harvesting and sharing has shifted from being primarily family-based to more community oriented.

“Mostly everybody’s been receiving fish all summer, especially on those programs” (Adult man, personal communication, June 14, 2022)

The introduction of community-supported initiatives and programs has become a significant mechanism through which Crees in Waskaganish continue to share and access fish. For example, one elder women explained how fish are processed and given away as part of the fall fishing program at Smokey Hill, *“...the participants are taught how to scale the fish, clean it, smoke it, cook it, and then they prepare it in [packages of] 5 ... And people can go and get fish whenever they want...Because it seems the younger generation don’t have the time to go and fish, so that’s*

what happens.” (personal communication, June 21, 2022). Active fishers have been hired to harvest fish to be shared with elders. In the fall, fishers bring the harvest back to be cooked and shared from the community teepee, to provide to those who are working or cannot go out anymore. As part of the Kaachekaasuk fishery program he runs, one man brings surplus fish back to the community, and announces on the radio or Facebook that there are fish available for those who want some.

With the perceived decline, noted by several participants, in adults harvesting fish, community programs are increasingly regarded as an important way for fishing skills and knowledge to be transmitted youth. One elder woman described the connection as follows, *“Nowadays they talk about not giving up, the old way of life...the Cree way of life, that is. They don’t want to let go of that, completely, because it’s changed over the years. Now, there’s a lot of programs that teach them, you know, they know a lot. The young people, they can be teachers now. So, I know it will continue, hopefully, I think it’s very important that they don’t give that up, because it’s traditional food, and everything, life.”* (personal communication, June 17, 2022). One fisher explained how many youth are exposed to fishing at Smokey Hill, where they can learn how to harvest, clean, cook and dry they fish, *“it’s just important to see how they used to fish, long time ago. Catch fish with nets and everything, try to teach them how to set nets, at the right spots, it’s important for them to learn that.”* (personal communication, June 20, 2022). The leader of the Kaachekaasuk fishery explained his dedicated efforts to involve youth to foster their interest and excitement about fishing.

“Now, as we have an access road, now we see a lot of people coming in, so we have more requests for cisco and whitefish all over the communities. Like Nemaska, Wemindji, Eastmain, even in Montreal, Washaw Sibi, all over.” (Adult man, personal communication, June 16, 2022)

Cree are taking advantage of increased accessibility within Eeyou Istchee to share knowledge and fish across communities to cope with changes and loss of fisheries. This is facilitated by roads and increased travels between neighbouring communities. One man noted that some fish are sent to community members receiving medical treatment in Montreal. In the quote above, one man has observed Crees travelling from Washaw Sibi, Nemaska, Wemindji and Eastmain during the Smokey Hill harvest to participate in scooping activities. Another elder man has also noticed Crees coming in from other communities that can no longer access their own traditional fishing spots, he sees *“older people that are beginning to re-learn how to do the fisheries again... Other communities, when they’re impacted, when they lose the fisheries, those types of camps, they’ve forgotten how to prepare... So, they come here to re-learn”* (personal communication, June 22, 2022).

Generally, community members are supportive of the ways in which community programs engage with youth and provide opportunities for the community to access fish. As one man says, *“It’s a very good [the program] ... They learn how to cut fish, cook fish, how to prepare it, especially to the youth”* (personal communication, June 14, 2022). Moreover, are in favour of increasing support and creating new programs that bridge generational gaps and bring youth and elders together to share fishing knowledge. An elder woman suggests, *“They should try to make a camp, a fishing camp, for the elderly that can go there, so they can fish and the young people would visit, and the elderly people would teach them, show them what to do. Maybe there’s some*

kids that never went out, those that never went out, go to bring them there, to go see what the elders are doing, how they're dealing with the fish.” (personal communication, June 16, 2022) While existing programs such as Smokey Hill are successful in engaging youth, one fisher believes more needs to be done to encourage fishing in other locations in the bay, *“There’s some people that don’t have boats, they cannot even go out. There’s some people that spend most of their time traveling down south, rather than going out in the bay. They could set a program, if somebody’s interested to go out... The younger generation has to go out.”* (personal communication, June 21, 2022).

5.5. Discussion

The ways Cree engage with their traditional food systems has been altered by the introduction of market foods, high costs associated with the equipment and fuel used to harvest traditional foods, increased participation in the wage economy, and decreasing or shifts in participation in harvesting activities. The experiences and perspectives shared by community members in Waskaganish point to the importance of harvesting and sharing fish, and traditional foods more broadly, in meeting their food needs and priorities. While fishing is no longer a means of survival, it continues to contribute to food security by supporting the transmission of intergenerational knowledge, skills and practices, and maintaining connections to land and others. Rather than representing a risk to food security - in the sense of having sufficient access to nutritious food - socioeconomic and environmental disruptions that have impeded participation in fishing activities undermine the ways in which traditional food systems reinforce and uphold Cree wellbeing, identity, and continuity. Thus, through adaptations to methods of accessing fish that Crees are adopting in response, and their expressed desire to sustain fishing practices and knowledge for youth, Cree are exerting agency and self-determination over the future of their food systems, and (re)asserting local food sovereignty.

Traditional foods, and fish in particular, are known to be a nutrient rich food source, supporting northern Indigenous health and diets (Marushka et al., 2021; Ratelle et al., 2020; Receveur & Kuhnlein, 1998). Unlike dominant understandings of health, Indigenous notions of wellbeing generally comprise spiritual, emotional, mental, physical and social dimensions, and are understood through relationship with others, including other-than-human beings. Adelson (1998) describes the Cree concept of *miyupimaatisiun* (“being alive well”) as a more holistic notion of health that is place-based, and derived from particular cultural and historical contexts, in which connection to land - including the food acquired from it - and traditional knowledge are practices integral to its support. Wellbeing is thereby framed in connection to identity and “being Cree” (Adelson, 1998, p. 16). In conversations centered on community food security with Fisher River Cree Nation, Skinner et al (2016) conclude that the cultural value inscribed to traditional foods affirm that they are “integral to one’s identity and overall physical, mental, emotional and spiritual health” (p. 90). This too is evident in Waskaganish, where fish are commonly understood as being a healthy food choice that helped Cree survive, but that the benefits and advantages of having continued access to fish extend to the ways in which fishing is interconnected with Cree relationships to other community members, to territory, and ultimately Cree identity. Place-based intergenerational knowledge necessary to harvest fish and other local foods is acquired through experiential and embodied learning. Fishing represents a time and space where generations can come together and reaffirm these relationships, and is dependent on having a place to gather. This is exemplified in the significance of traditional fishing sites,

particularly Smokey Hill, where fishing has been maintained despite the disruptions of hydroelectric development, and is deeply entangled with Waskaganish's sense of community. Although fishing at Smokey Hill has shifted to rely more on the organization and implementation of fishery programs, the willingness and desire to continue to participate in the harvest, processing, preparing, sharing, and eating of fish demonstrates a commitment to (re)generate traditional fishing knowledge and skills through youth engagement, upholding relationships that underpin Cree wellbeing and cultural identity.

Importantly, discussions related to the significance of and challenges to accessing fish is not limited to the point of harvest. In addition to elders sharing stories about setting nets with their parents and grandparents, many also highlighted practices associated with the processing, preparing, and cooking of fish. Repeatedly, the fishing program at Smokey Hill was promoted as a space for youth to be involved in catching fish and learning how to process and cook them. The knowledge and skills needed to support the sharing and consumption of fish are transmitted at all points of engagement. Despite this, research has tended to focus primarily on barriers to the harvest of traditional foods, such as high costs (Pal et al., 2013; Randazzo & Robidoux, 2019), conflicts around management (Snook et al., 2019), and declining harvest (Wenzel et al., 2016). Less attention has been given in the literature to post-harvesting practices associated with traditional foods. Because men are often the primary hunters and harvesters, with women more likely to be responsible for tasks involved after direct harvest, their knowledge and roles in traditional food systems tends to be overlooked. However, in the interviews it was clear that women, and practices of processing, preparing, and cooking fish, are culturally significant elements integral to fishing. For instance, as expressed above, in the past, Cree women were responsible for making nets, cutting and cleaning fish, and cooking fish. Today, women continue to assume an important role by teaching these practices to younger family members and youth. Exceptionally, Todd (2016) spotlights the role of Inuit women in local food provisioning, and particularly in fishing. She calls for research to address this gap that "better captures the gendered dimension of food provisioning and responses to food insecurity" (Todd, 2016, p. 209). Exploring ways for targeted research that captures challenges and opportunities present for particular subgroups, including but not limited to gendered elements of food systems, is an important way forward for more complete, inclusive, and intersectional approaches be taken.

Previous community-based studies have explored how place-based traditional food practices support notions of Indigenous food sovereignty by (re)asserting Indigenous ownership and control over local food systems (Cidro et al., 2015; Richmond et al., 2021; Shukla et al., 2019). According to Kamal et al. (2015) "[traditional food] practices are primary determinants of food sovereignty and community well-being" (p. 568). Some studies have grounded Indigenous food sovereignty in local food initiatives such as traditional food programs and community gardens (Blanchet et al., 2021; Domingo et al., 2021). Indeed, Rudolph and McLachlan (2013) contend that responses to food crises must be community-driven to effectively work towards food sovereignty. Robin (2019) identifies four elements of Indigenous food sovereignty that emerged from her research on Indigenous food programs across western Canada, which resonate with Cree efforts to sustain access to traditional fishing in Waskaganish. These include: history; connection to the land, relationships; and cultural identity. According to Robin (2019) reclaiming Indigenous food sovereignty involves revitalizing traditional food practices that have been handed down over generations, which is done by nurturing and upholding relationships with land

and others which provide the foundation through which cultural identity and place-based knowledge are continuously (re)established.

To many Cree in Waskaganish the importance of fishing is rooted in its past significance as a means of survival when other food was not available. Continuing to harvest, prepare, share, and consume fish honours this history, and perpetuates the centrality of these practices to Cree identity and wellbeing. Fishing today, and fishing programs, are contingent on accessing culturally significant fishing spots that have been used for generations, such as at Smokey Hill. In Waskaganish, a relatively food secure and affluent community, sharing continues to be an important way to receive and distribute traditional foods. While it is often a means for those who cannot harvest fish themselves to access fish, its prevalence suggests its importance for maintaining relationships and strengthening a sense of community belonging. Sharing also involves the teaching and sharing of knowledge and food skills, which further strengthens relations between elders and youth, and other community members. Fish therefore represent an integral part of local foods system, and are a critical means through which Cree are able to (re)affirm and (re)generate cultural identity and knowledge in changing contexts. The continued responses to ensure the continuation of fishing activities exhibits Crees' commitment to assert power over their food system. In adopting coping strategies to mitigate challenges in accessing fish, such as shifts in methods, sharing mechanisms, taking advantage of nearby harvesting spots, as well as strategies to support fishing through community programs, and particularly the promotion of Smokey Hill, Cree in Waskaganish are asserting community food priorities that are driven by a motivation and desire to sustain Cree cultural food practices, preferences, skills, and knowledge. These represent assertions of place-based food sovereignty by (re)claiming and restoring the significance of fish within local food systems for upholding Cree wellbeing, identity, and cultural continuity.

5.5.1. Limitations

Over the two years prior to visiting Waskaganish, in-person research activities were greatly limited and restricted due to COVID-19. The availability of researchers and participants was constrained due to conflicting commitments, and institutional and funding deadlines, which limited opportunities for in-person research. While the findings presented in this article are the result of rich conversations, qualitative interviews and community-based research are greatly supported by continued engagement and follow-up. Subsequent interviews to elaborate on topics discussed, would provide a more nuanced and in-depth account of community fisheries and their significance. Participants in this study were limited to adults, of which adult men made up the majority. Given the expressed significance of engaging with and teaching youth traditional food practices, this study lacks the inclusion and representation of youth voices and perspectives. The inclusion and representation of Cree women is also absent, and discussions is therefore missing the distinct experiences and knowledge held by Indigenous women related to fish processing and preparing.

5.6. Conclusion

Traditional food systems across Eeyou Istchee have been disrupted by socioeconomic and environmental factors which have altered the ways in which Cree can access and use locally harvested foods. In Waskaganish, the testimonies of community members shared in this study

underscore the historical and cultural significance of fish as more than a food for survival. Rather, participation in fishing practices contributes to upholding holistic notions of wellbeing, within individuals and across the community. As practices rooted in place, and informed by place-based knowledge, harvesting, processing, preparing, cooking, and sharing fish reassert and reinforce relationships and cultural values, and facilitate knowledge transmission that is integral to supporting the continuity of Cree way of life. Cree in this study explicitly expressed a desire to sustain fishing practices and knowledge for future generations for these reasons, and are doing so by adopting, adapting, and finding new ways to participate in the harvest, sharing, and consumption of fish. These choices and actions constitute local enactments of food sovereignty by asserting self-determination over individual and community food systems.

Many of the challenges and barriers identified in this study are shared across remote and northern Indigenous populations in Canada. Exploring the ways in which local communities are responding by engaging with and privileging Indigenous knowledge and experiences gives communities voice to define the impact these challenges have had on their food systems and to identify culturally appropriate and relevant ways forward. Moreover, it acknowledges place-based and distinct responses that Indigenous Peoples are undertaking that (re)claim and (re)affirm and (re)generate local food sovereignty. The continuation of fishing and fishing knowledge in Waskaganish is contingent on the participation, engagement, and teaching of youth. The need to bridge intergenerational gaps and promote opportunities for youth to learn about fish was repeated by community members, though the perspectives reflected in this study are limited to those held by adults and elders in the community. To ensure the development of effective youth-centered programs and approaches, consultations that engage specifically with youth in Eeyou Istchee, and across remote and northern Indigenous communities more broadly, are needed to provide grounded perspectives of challenges, opportunities and priorities related to participation in harvesting and consumption of fish among youth.

In the context of large-scale and localized disruptions, Crees in Waskaganish have demonstrated flexibility and resourcefulness in prioritizing support for fishing programs as strategies to maintain and sustain access to fish and fishing practices. Since the 1970s, Crees in Eeyou Istchee have negotiated their rights to harvest fish and carry out traditional practices on their territories. In relation to the Rupert River diversion, Crees fought for the inclusion of conditions to ensure the protection and restoration of fishing activities, including a guarantee of monitoring and funding to support this. While access to fish, and northern Indigenous food systems more broadly, continues to be undermined by development projects and changing climate, Crees are working hard to safeguard place-based food practices, knowledge, and identity, and asserting self-determination over the future of local foods systems. Similar strategies may not be available to other northern or more remote communities who may be more acutely affected by food insecurity, have challenges in securing resources, wield less negotiating power, or other immediate challenges.

Centering local empowerment and community-identified priorities related to food systems ensures place-based approaches that support access to traditional foods in ways that uphold Indigenous self-determination and food sovereignty.

CHAPTER 6: Conclusion

Indigenous Peoples' survival and wellbeing has depended on locally harvested traditional food for millennia. The confluence of compounding factors that undermine and threaten access to traditional foods, and the extent of food insecurity in northern Indigenous communities, requires community-driven and place-based approaches that respond to and reflect community priorities. Exploring the ways in which Indigenous communities are making sense of, and adapting to socioeconomic and environmental change, while continuing to find ways to support and promote traditional food practices highlights the degree to which these food practices are central to community cultural identity. With this research, I have attempted to demonstrate the interconnections and interdependencies between Indigenous foods, Indigenous culture, and ultimately Indigenous ways of life.

Food insecurity continues to be framed predominantly as a public health issue. Indeed, the correlation between lack of adequate nutrition and increased risk of infectious and chronic diseases, mental illness, worsening of existing health issues, and the resulting burden on public health systems is deserving of immediate and critical concern. However, the often less visible sociocultural implications of lack of access to culturally relevant and appropriate foods are also deserving of attention and redress. Extending notions of food security to be inclusive of sociocultural elements in Indigenous contexts results in a reframing of food insecurity as a systemic issue of rights, power, and colonization, and aligns it with broader movements towards Indigenous food sovereignty. In doing so, it supports calls for reconciliatory research and policy responses that acknowledge historic and socioeconomic realities, and validates Indigenous communities' assertions of authority over land and food.

The scoping review reveals a lack of studies that address the relationship between food, culture and wellbeing in Indigenous contexts (Newell et al., 2020). Through the case study of Waskaganish, fish and fishing practices are shown to contribute to holistic individual and community wellbeing. Fish are nutritious and healthy as a food source, and also contribute to mental, spiritual, and emotional wellbeing derived from being on the land, spending time with others, satisfying cravings, and teaching children, grandchildren, and youth. Likewise, the maintenance of traditional fishing practices can facilitate and uphold cultural continuity. As a land-based and traditionally intergenerational activity, fish are an avenue through which food knowledge and skills are (re)generated, and the cultural tradition and identity of Waskaganish Crees, as a community that has survived through fish, is passed on.

Changing lifestyles and environmental conditions, have required Crees in Waskaganish to experiment and adapt their strategies and methods of harvesting, processing and sharing fish. Common barriers to fishing are met with attempts to find new ways or modify old ways of harvesting and accessing fish. For example, the adoption of new techniques (e.g. rod and reel) and technology (e.g. freezers) has allowed individuals and families to accommodate time constraints. Increased accessibility between communities in Eeyou Istchee has extended sharing networks to include Cree outside of the community. This has also allowed for intra-community knowledge sharing and exchange, for Cree in Waskaganish to (re)teach fishing practices and share local fishing knowledge with visitors. In Waskaganish, shifting practices has been facilitated through the creation and promotion of fisheries programs that target youth and provide

fish to the community, often through compensatory funding programs negotiated with Hydro-Quebec. The meaning and contribution of fish, support for these programs, and the desire expressed by many Crees of Waskaganish for fishing practices to be sustained illustrates local and place-based expressions of Indigenous food sovereignty.

These efforts and ongoing engagements in fishing demonstrate a defining and determining of food systems informed by place-based knowledge and values, that is community-driven, and aligned with community priorities. At the same time, many Crees in Waskaganish express concern that participation in and reliance on fishing practices is declining. Adaptation inevitably comes with loss and reconfiguration, and the consequence of changes in practices for long-term cultural health are difficult to predict. Shifts towards more conventional processing and preparation techniques, for example, can displace traditional practices and knowledge of cutting, drying, and smoking fish. Similarly, improved access to the territory of Waskaganish, and within Eeyou Istchee, facilitates a renewal of Cree relationships with land and waterways, but also brings increased recreational tourism, with related threats. In the same way, the introduction and embrace of competition fishing derbies across the region has been applauded by some for engaging children and youth in fishing, but met by concern from others for the shift in values and practices some derbies represent and perpetuate. Another dilemma involves a recognition of the value and necessity of community fishery programs, at the same time as some Crees express a wariness of the implications of shifting from family-centred to more structured and monetized arrangements for fishing. In this complex, rapidly changing sociopolitical, economic, and environmental context, Crees are having to make trade-offs across competing community priorities and aspirations in order to sustain fishing as central to local food systems, cultural practices, knowledge, and values.

While fish has tended to be overlooked in food security research, the case study with Waskaganish provides a nuanced account of the contribution of fish in a northern Indigenous context, and highlights the benefits of focusing on sociocultural significant food sources for a more relevant and complete account of food systems at the local level. However, participants in this study were limited to Cree adults and elders. Given the expressed importance of engagement and participation of youth in fishing for the future, this study would greatly benefit from future work that focuses specifically on the perspectives and knowledge held by Waskaganish youth. Sociocultural contributions of fish are evident at all points of use, including the processing, preparing, and cooking of fish. Other research has also identified that Indigenous women are primarily responsible for these traditional food practices, though both tend to be overlooked. Greater efforts in future research to elaborate on the significance of practices of processing, preservation and cooking of fish or other traditional foods, and engage with knowledge held by women to address this gap, would allow for richer understanding and significance of traditional foods, and account for gendered roles within traditional food systems.

Throughout this research, I have attempted to highlight community perspectives, both through the inclusion and review of previous community-based research, and Cree voices from Waskaganish. Unanga scholar Eve Tuck (2009) reminds us to avoid over-simplifying the realities of large-scale impacts on Indigenous communities to damage-centred narratives of oppression, and instead calls for researchers to adopt “desire-based research frameworks [that] are concerned with understanding complexity, contradiction, and the self-determination of lived

lives” (p. 416). Likewise, Tabitha Robin Martens, a Cree Indigenous food systems researcher at the University of British Columbia, points out that “food issues facing Indigenous communities continue to be presented in negative ways” (2019, p. 86). Amplifying Indigenous voices and knowledge, as an alternative approach, presents an opportunity to create space for “good news stories”, which allows for Indigenous peoples and communities to direct narratives and food futures that are reflective and representative of themselves (p.86). At the same time, to unpack the challenges that persist in these realities and through advancing their aspirations. I hope that the reflections and perspectives of Cree in Waskaganish in this thesis can contribute to more grounded and nuanced understandings of (re)assertions over food systems.

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Appendix A: Information and Consent Form

Study Title: Eeyou Traditional Ecological Knowledge (TEK) Component of FISHES: Fostering Indigenous Small-scale fisheries for Health, Economy, and Food Security

Cree Women Knowledge, Experiences and Perspectives on Fish and Fishing in Waskaganish, Eeyou Istchee

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Source of funding for the study:

The study is funded by the following partners, among others, through in-kind and/or financial contributions: Genome Canada; Genome Quebec; Concordia, Laval, and Carleton Universities; the Cree Nation Government; Niskamoon Corporation; the Eeyou Marine Region Wildlife Board; the Cree Trappers Association; the Cree Nation of Waswanipi; and the Cree Nation Mistissini.

You are being invited to participate in the research study mentioned above. This form provides information about what participating would mean. Please read it carefully before deciding if you want to participate or not. If there is anything you do not understand, or if you want more information, please ask the researcher.

A. PURPOSE

The purpose of the Cree TEK component of the FISHES Research Project is to use fisheries science and Cree TEK to better understand the behaviour of certain fish populations, to help make these fisheries more sustainable, to increase opportunities for fisheries development, and to ensure that the importance of fish in Cree culture and for Cree well-being is safeguarded. This part of FISHES is focused exclusively on Cree TEK; no human or fish tissue will be collected for DNA analyses. This project is a component of FISHES Cree TEK research specific to fish and food security in community. The purpose of this sub-project is to better understand the ways in which fish and fishing support community-level food security in terms of its significance for cultural identity and holistic wellbeing.

B. PROCEDURES

If you participate, you will be asked to share TEK relevant to the purpose of the FISHES Research Project in a 1.0-2.0 hour interview setting. If you are interested and willing, this could involve a

follow-up interview to elaborate on relevant topics. Interviews will be held at a venue of your choosing, such as your home or a public venue within the community. Subject to your agreement, interviews will be audio and/or video recorded

C. RISKS AND BENEFITS

While this research is not intended to benefit you personally, potential benefits to participating in this research include: contributing to a better understanding of fish populations in Eeyou Istchee, which could inform decisions about fisheries management, conservation and development. Sharing your knowledge through FISHES is also a good way to ensure that your knowledge, along with that of other knowledgeable community members, is carefully documented, protected and available for future generations of Crees. Risks to participants are considered low, however it is possible that discussions of the past could trigger sadness and nostalgia linked to memories of the past. If a medical emergency were to occur, the researcher would call the Clinic: 819 978-0225 (or 819 978-3911) for an ambulance.

D. CONFIDENTIALITY

We wish to document your Traditional Ecological Knowledge (T) as part of the FISHES Research Project.

We recognise that Cree TEK is the exclusive property of the Crees of Eeyou Istchee. We will not allow anyone to access the information, except those directly involved in conducting and overseeing the research. We will only use the information for purposes of the FISHES Project.

The information gathered will be identifiable. That means it will have your name (and other identifying information, such as your trapline Number on it). However, we will protect the information by storing it in password protected digital files (including the recordings). Fieldnotes will be stored in a locked Lochby Field Journal case.

Please indicate below your preference regarding the recording of interviews by placing a check mark [✓] in the answer box that corresponds to your response:

- I accept to have my interview audio recorded only:

- I accept to have my interview video recorded:

- I do not wish to have my interview audio or video recorded:

We intend to publish and give presentations based on the findings of the research. **Please indicate below your preference for how you wish be identified in publications or presentations by placing a check mark [✓] in the answer box that corresponds to your response:**

- I accept to have my name and the Traditional Ecological Knowledge I provide appear in publications and presentations of the results of the Research Project:

- I do not wish to have my name linked to the Cree Traditional Ecological Knowledge that I provide in the context of the Research Project:

Please indicate below your preference for how you wish your image to be used in publications or presentations by placing a check mark [✓] in the answer box that corresponds to your response:

- I agree to allow my image to be shared in research presentations and publications for the purpose of communicating the findings of the FISHES Research Project:
YES NO

Any use of your information and knowledge in a publication or presentation will require your prior permission. You will also have an opportunity to reconsider if and how you wish to be identified at that stage. Publications and presentations will also be reviewed and approved by a Research Advisory Board that includes Cree representatives.

All information gathered through this project will be returned to the Cree Nation Government at the end of the FISHES project

E. CONDITIONS OF PARTICIPATION

You do not have to participate in this research. It is purely your decision. If you do choose to participate you can stop at any time. If at any time you decide you don't want us to use your information, please let us know as soon as possible, but the latest opportunity will be when you have a 60 day period to review any document using your material that is intended for publication or presentation.

As compensation for participating in this research, you will receive \$100 with a minimum payment of \$100 (for all interviews less than 1 hour), and rounded up to the nearest half-hour (e.g. \$150 for an interview that lasts 75 minutes and \$200 for an interview that lasts 100 minutes).

There are no negative consequences for not participating, stopping in the middle or asking that your information not be used.

F. PARTICIPANT'S DECLARATION

I have read and understood this form. I have had the chance to ask questions and any questions have been answered. I agree to participate in this research under the conditions described. I understand that I will still receive and keep the financial incentive even if I decide to discontinue

my participation or withdraw from the project. I also understand that I can withdraw or amend my data at any time up to and including a 60-day period during which I will have the opportunity to review any proposed publication that includes my data.

I am signing this form in three (3) copies, one (1) for the Project Researchers, one (1) for the Cree Nation Government and one (1) for me.

Signed in _____ on _____ 20_____

Name: _____

Cree trapline No.: _____

Signature: _____

Project Researcher: _____

If you have questions about the scientific or scholarly aspects of this research, please contact the researcher. Their contact information is on page 1. You may also contact their faculty supervisor.

If you have concerns about ethical issues in this research, please contact the Manager, Research Ethics, Concordia University, 514.848.2424 ex. 7481 or oor.ethics@concordia.ca.

Appendix B: Interview Guide

This interview guide has been designed to support Traditional Knowledge interviews in Waskaganish as part of the FISHERS research project. This project seeks to engage with knowledge held by Cree knowledge holders and land-users to understand the contributions of fishing and consuming fish in support of food security in Waskaganish in terms of Cree culture, identity, and wellbeing. Particular attention is given to the involvement of women, in recognition of the particular role(s) and knowledge they hold in relation to harvesting, preparing, processing, and sharing of fish.

In addition to being a central and culturally significant food source, fish and fishing in Waskaganish have undergone changes as a result of industrial development and changing climatic conditions, which has altered fish species, habitat, and attitudes towards fishing and eating fish. In response to expressed desire for better understanding of these changes, this project aims to provide insight towards more in-depth assessment of factors undermining and supporting access to fish, to contribute to sustainable and sustained fishing practices in the future.

The following interview guide aims to answer the questions:

- 1. To what extent does fishing contribute to food security, knowledge transmission, and health and well-being?*
- 2. What challenges, barriers and opportunities exist for Cree (particularly Cree women) to consume fish and participate in fishing?*

The first set of questions (**Part 1**) focuses on fishing activities (i.e. harvesting, preparing, processing), and aims to better understand the roles and responsibilities of women involved in fishing, and observed changes to fishing over time. The second set of questions (**Part 2**) focuses on fish consumption, and aims to better understand how and why people eat fish, challenges to eating fish, and ways to improve access to fish.

Part 1: Fishing (harvesting)

1. *What do you enjoy most about fishing?*
2. *Can you tell about your involvement in fishing?*
 - a. *What roles and responsibilities do women usually have in fishing?*
 - b. *Are there any tasks that are more often left to women? Are there any that women are usually not involved in?*
 - c. *Has the role or involvement of women in fishing changed over time (for example, since you were a child)?*
 - d. *What about children? How involved are children/youth in helping with fishing activities?*
3. *How did you learn what you know about fishing?*
 - a. *Who taught you what you know?*
 - b. *What was some of the most important advice you were given about how to fish?*
 - c. *Are there things you were taught to do or avoid doing to respect the fish and ensure a good catch?*
 - d. *How does the younger generation learn about fishing today? Are youth interesting in fishing these days?*
 - e. *Do you think it's important for them to be interested and active in fishing?*
4. *Have you noticed any changes to how people are fishing over the years?*
 - a. *Are people fishing at the same time of year? In the same places? Using the same methods/nets?*
 - b. *Are there years when there are not as many fish? Are there years when there are lots of fish? Why do you think this is the case?*
5. *Are women fishing as much as they used to? Spending more or less time fishing than they used to? Why or why not?*
 - a. *What is the main reason women don't/can't participate in fishing? (e.g. age/health, time, work commitments, lack of interests, lack of knowledge, income, access to transportation/harvesting spots, changing climate...)*
 - b. *What about youth? Are youth participating in fishing as much as they used to? Why/why not?*
 - c. *Are people generally fishing as much as they used to? Why/why not?*
6. *Do you participate in fishing derbies? Why (or why not)?*
 - a. *What do you like/dislike about fishing derbies?*

- b. *I've heard that there are derbies held just for women. Do you participate in these? What do you think of them?*
- c. *Are there changes you would like to see in the way derbies are run?*

Part 2: Eating fish (accessing fish, preparing, processing consumption)

1. *What is your favourite fish?*
 - a. *What is your favourite part about eating fish?*

2. *How often do you eat fish in your household?*
 - a. *Daily, 2 to 3x a week, once a week, less than once a week?*
 - b. *Do you eat fish throughout the year, or just during certain seasons?*
 - c. *Do you only eat fresh fish or do you sometimes freeze it?*
 - d. *How often did you eat fish as a child?*

3. *Have you noticed any changes to how fish are eaten over the years?*
 - a. *Are fish being prepared and eaten the same way as when you were young? Are people eating the same types of fish?*
 - b. *Have you noticed any changes over time in the abundance, quality, appearance or taste of different fish species?*
 - c. *Do you think the taste of fish has changed over the years? If so, why do you think that is?*

4. *Why do you eat fish?*
 - a. *What is your favourite fish to eat? Why?*
 - b. *What is your favourite way of cooking fish?*
 - c. *What do you think are the benefits of eating fish?*
 - d. *Do you have any (health) concerns about eating fish? (i.e. allergies, contamination, fish being less healthy)*

5. *Are you eating less fish than you used to/want to? Why/why not?*
 - a. *What factors prevent you from eating more fish?*
 - b. *What do you think is the main reason for not eating enough fish? What stops you from eating more fish? (e.g. age/health, concerns about contamination, allergies to fish, income...)*
 - c. *Do you think women should eat more fish? What is the main reason don't eat more fish?*

6. *I've heard that fish is often the first food children are given, can you tell me about the importance of fish to Crees in the past, as well as today?*
 - a. *Do you think youth eat enough fish? Do they enjoy eating fish? Why/why not?*

7. *Can you tell me about the sharing of fish?*
 - a. *Are all kinds of fish shared? When? With whom? By whom?*
 - b. *Can you tell me about expectations /obligations around the sharing of fish?*
 - c. *Are there expectations around sharing fish during community events?*
 - d. *What happens if/when people don't share fish?*
 - e. *Is there a special ceremony when children catch their first fish (similar to their first goose)?*
 - f. *Do people share fish as much as they used to? Why or why not?*
 - g. *How important is sharing fish for you and your family?*

8. *What do you think can be done to make it easier for people in Waskaganish to fish/eat fish?*
 - a. *Do you have suggestions that would encourage people to fish more? To eat more fish?*
 - b. *Are there community programs that support traditional activities, including fishing (e.g. Cree knowledge program, youth programs, community fisheries)? If so, how?*

9. *Is there anything you would like to add about the importance of fish or fishing?*