

FOR OUR FUTURE

Indigenous Resilience Report

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The digital interactive version of the report is available at www.ChangingClimate.ca/indigenous-resilience.

The report is also available at: adaptation.nrcan.gc.ca

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Table of contents



Key Messages	6
1.0 Preface	8
2.0 Opening words	9
3.0 About this report	10
3.1 Our approach to writing this report	10
3.2 Citations, evidence and Indigenous methodologies	14
3.3 Report context and significance	15
3.4 Recognizing the impact of colonialism	16
3.5 How to read this report	20
3.6 COVID-19 and three exceptional years	20
4.0 Introduction	22
5.0 Indigenous Peoples have unique strengths for responding to environmental and climate changes	24
5.1 Introduction	24
5.2 Intersecting impacts: colonialism and climate change on Indigenous Peoples	26
5.3 Indigenous Peoples are actively responding to environmental change	26
Case Story 1: Indigenous Climate Atlas: Digitally weaving Indigenous Knowledge, climate science and storytelling to support climate change adaptation and resilience	29
5.4 Indigenous Peoples are responding to the climate crisis with strengths-based approaches	31
Case Story 2: SevenGen: Empowering Indigenous youth to shape a sustainable energy future	33
6.0 Climate change is one of many crises that First Nations, Inuit and Métis face	36
6.1 Introduction	36
6.2 Interconnected disruptions to environment, economy, culture, language, health and more	37
Case Story 3: Intersections of climate change and traditions: the Northern Tutchone People of the Selkirk First Nation	38

6.3	Connections between climate change impacts, infrastructure and the multiple crises facing First Nations, Inuit and Métis	39
	Case Story 4: Intersections of environmental displacement and health: Pictou Landing First Nation (PLFN)	41
7.0	Indigenous Knowledge Systems and lived experiences are essential components of climate action	42
7.1	Introduction	42
7.2	Indigenous observations, knowledge systems and lived experiences	43
	Case Story 5: Anishinaabe perspectives on climate change impacts and research	44
7.3	Inclusion of Indigenous observations, knowledge systems and lived experiences in climate change research and decision making	45
	Case Story 6: “The Eyes and Ears for the Land and Water”—The Rising Tide of Indigenous Guardians Programs and Expansion of Indigenous Protected and Conserved Areas in Canada	47
7.4	Decolonizing climate change research and policy	48
	Case Story 7: Decolonizing climate policy: An Indigenous Climate Action project	49
7.5	Indigenous indicators, methods and practices for observing, monitoring and assessing change	50
	Case Story 8: Tracking change in the Mackenzie River Basin	51
8.0	The food, water and energy nexus is central to First Nation, Inuit and Métis climate leadership	52
8.1	Introduction	52
8.2	Food sovereignty, security, safety and management	53
	Case Story 9: Reflections on weather, Inuit food systems and our way of life	55
8.3	Indigenous leadership at the nexus of water and energy sovereignty	57
8.4	Climate change impacts on Indigenous economic systems and regenerating meaningful economies	61
9.0	Self-determination is critical to Indigenous-led climate action	64
9.1	Introduction	64
	Case Story 10: Indigenous law in action: The Listuguj Mi’gmaq Fishery	65
	Case Story 11: The connection between climate action and the protection of Métis rights	66
	Case Story 12: Research by Inuit for Inuit	67
	Case Story 13: Indigenous-led stewardship and research: Yunesit’in First Nation fire stewardship	68

9.2 Indigenous governance, self-determination, law and legal systems69

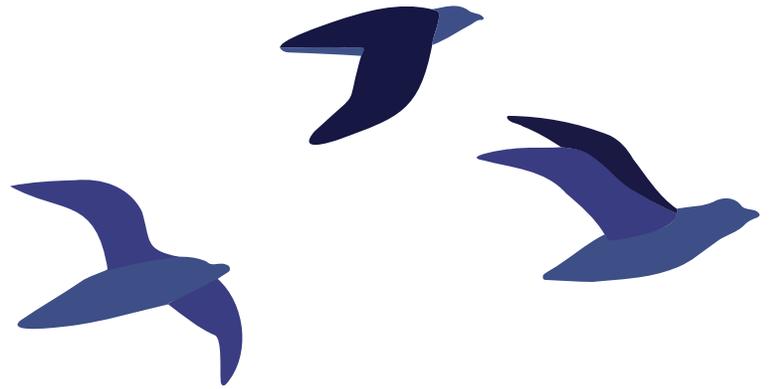
9.3 Impacts of climate change on Indigenous governance70

9.4 Adaptive Indigenous governance in the face of a changing climate72

 Case Story 14: Enhancing the reintroduction of plains bison in Banff National Park
 through cultural monitoring and traditional knowledge74

10.0 Moving forward.....76

11.0 References78



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A note on the design

The creation of the artwork, illustrations, and design was led by a team of Indigenous artists and designers who ensured that the overall design was grounded in the Land. They ensured the work did not focus on particular cultural references or stereotyped icons that could exclude any nation, group or person. The artwork depicts various subjects, from berries to birds and landscapes. The colours and lines of the work bring to life the intricate and diverse relationships between people and the Land, highlighting the importance of the future.



Key Messages

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This report is structured around five key messages. While the interpretation of each message might vary slightly across our various homelands based on our unique backgrounds and histories, they were identified and developed collaboratively to find commonality across our experiences. These messages are central to conveying our knowledge and our calls to urgent action on climate change. They are supported by examples and case stories that highlight Indigenous-led initiatives in climate change adaptation.



Indigenous Peoples have unique strengths for responding to environmental and climate changes

First Nations, Inuit and Métis have responded to the impacts of environmental and climate change before, are actively responding today, and will continue to do so in the future. Our communities have unique strengths to address the climate crisis, despite facing disproportionate impacts from climate change and challenges related to the ongoing legacy of colonization.



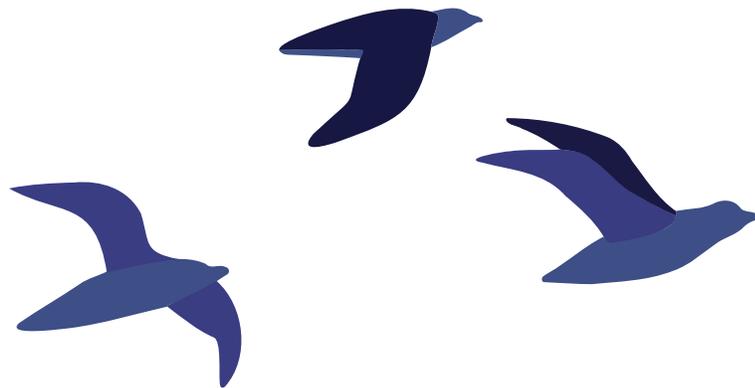
Climate change is one of many crises that First Nations, Inuit and Métis face.

Climate change causes serious disruption not just to the environment and economy, but also to culture, language, knowledge transfer, ceremony, identity, health and well-being. These impacts are interrelated and intersect with other crises that First Nations, Inuit and Métis face.



Indigenous Knowledge Systems and lived experiences are essential components of climate action

To effectively address the impacts of climate change, it's crucial to include Indigenous observations, knowledge systems and diverse lived experiences, especially those of gender-diverse individuals, women and youth, in all aspects of climate change research, strategies and decision-making processes. First Nations, Inuit and Métis have unique and diverse indicators and methods for observing, monitoring and assessing change.



The food, water and energy nexus is central to First Nation, Inuit and Métis climate leadership

Food sovereignty is at the heart of First Nation, Inuit and Métis cultures. The nexus of food, water and energy sovereignty is a key priority for First Nations, Inuit and Métis. In each context, reasserting authority and decision-making is enabling a redistribution of power towards First Nations, Inuit and Métis. The revitalization of meaningful Indigenous economies based on relationships with the Land, Water and Ice are central to this redistribution and to Indigenous-led climate action.



Self-determination is critical to Indigenous-led climate action

Self-determination and governance are key rights and aspirations for First Nations, Inuit and Métis in the face of climate change. We must recognize and address how the impacts of climate change affect our ability to determine our own futures, govern ourselves and adapt our governance structures to the impacts of climate change.

1.0 Preface

While Indigenous Peoples have been urgently and consistently voicing concerns to warn of the irreversible impacts of climate change for decades, our perspectives and expertise have often been constrained within non-Indigenous frameworks of climate change policy and research.

The *For Our Future: Indigenous Resilience Report* is the first, stand-alone report that discusses climate change impacts, experiences and approaches to climate change from the perspectives of First Nations, Inuit and Métis living in what is currently known as Canada. This report acknowledges the distinct Knowledge Systems and perspectives of Indigenous Peoples, and the importance of self-determination in understanding and addressing climate change. This knowledge and these perspectives are credible and valid on their own, without the need for integration into other processes and frameworks.

The key messages of the report are intended to be broad enough to reflect various homelands, based on the distinct backgrounds and histories of First Nations, Inuit and Métis. They draw from a set of shared principles rather than attempting to represent all Indigenous Peoples and regions across Canada. The report aims to offer a wide range of examples from existing research, community experiences, stories and case studies to foster inspiration and ongoing dialogues for the future. We have made every effort to reference specific Indigenous Peoples and their associated communities wherever possible.

As we have heard from Elders and Indigenous leaders, it is crucial to read this report with a sense of urgency. The impacts of climate change are accelerating as we approach an ecological and relational tipping point (Whyte, 2019). However, we can avert the most severe climate impacts if we take pause and listen to the wisdom of First Nations, Inuit and Métis. We urge policymakers, academics, and business leaders at all levels—local, territorial, national and international—to act now on the key messages and insights presented in this report.

We invite you to join us on this journey—urgent action on these messages is vital for our future.



2.0 Opening words

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“The Earth is alive and climate change is really nature releasing its forces to clean the Earth, to bring us back into balance. We shouldn't look at climate change as a negative thing. It is because of how we have behaved as human beings that we have to feel the impact of what we have done to the Earth. Ultimately it will be Mother Earth that will correct us as humanity, because of the love she has for us.”

– Elder Dave Courchene-baa (Nii Gaani Aki Inini – Leading Earth Man), Anishinaabe Knowledge Keeper (Turtle Lodge Central House of Knowledge, 2019, p. 13)

“We're finding in the Inuit world that the solutions to our problems, to addressing the trauma and the health and social issues, lie very close to home and within ourselves.... The world that is seeking a better and more sustainable way, the Indigenous belief that we are all connected, it's the medicine the world seeks. If we can address our problems this way, we can contribute greatly to solutions.... It's a time of great pause and a change of great perspectives. A new way of doing things is coming.”

– Siila Watt-Cloutier (quoted in Kelsey, 2022)

“The teaching of the seventh generation and kinship are so interrelated, it is that we are all interconnected. And so, we are all future ancestors and we all share a common responsibility. So how are we going to be responsible future ancestors? ... I envision Indigenous Nations leading the way in meaningful climate action and I see our young people taking charge and designing a future that restores balance.”

– Mihskakwan James Harper
(Excerpt from SevenGen2022: The Power of Kinship, Indigenous Youth Energy Summit)

“It's essential for Métis youth to not only be heard, but [be] at the forefront of this issue.... I wish that in academia, more attention was brought to what it means to truly be on the Land and what it means to be Indigenous to the Land. And the connection between the two, I think, has really strengthened my understanding of climate change, and makes me want to fight for it even more.”

– Taylor Goodon, Métis
(Excerpt from Métis Knowledge and Climate Change)

3.0 About this report

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3.1 Our approach to writing this report

This is the first comprehensive report on climate change impacts, experiences and approaches written from the perspectives of First Nations, Inuit and Métis living in what is currently known as Canada. The objective of this report is to recognize, highlight and elevate Indigenous Knowledge, rights, expertise, issues, perspectives and experiences concerning climate change and its impacts within Canada. We aim for this report to be useful in research and policy domains as well as within communities themselves. It acknowledges the diversity of Indigenous Peoples in Canada in terms of culture, capacity, governance and geography, and marks a unique opportunity for the direct inclusion of Indigenous Knowledge and experiences into Canada's National Knowledge Assessment process.¹

Central to our approach is a focus on rights- and responsibilities-based approaches to uplift the work of First Nations, Inuit and Métis in driving climate action at local, regional, national and international levels. This approach has gained increasing recognition and support from the Government of Canada as it advances work on Indigenous climate leadership.

Our author team, comprising over twenty authors and reviewers, is diverse and includes Indigenous academics, leaders, students, women, men, harvesters and youth from across the country. We are affiliated with universities, national Indigenous organizations, community-led organizations and Indigenous non-governmental organizations (INGOs) and are all deeply committed to caring for and maintaining strong connections to our families and communities. All members of our author team and reviewers are Indigenous, with two exceptions: Shari Fox and Anne Kendrick, both of whom have several decades of experience working with Indigenous Peoples.



1 The National Knowledge Assessment reports are referenced using a specific short form format, where each citation is followed by the corresponding chapter number. This format is designed to direct readers to specific chapters for more information. Readers are encouraged to utilize these chapter-specific citations for more precise referencing where appropriate.

CCCR: *Canada's Changing Climate Report*

NIR: *National Issues Report*

RPR: *Regional Perspectives Report*

HCCC: *Health of Canadians in a Changing Climate*

IRR: *For Our Future: Indigenous Resilience Report*

We initiated the development of this report with a face-to-face meeting of the author team on Anishinaabe Algonquin Aki (also known as Ottawa) in February 2020. This meeting was crucial for establishing personal connections and focused on the co-development of broad key principles (see Box 1) and key messages to guide our work. While we initially planned multiple in-person author meetings on the Land and in our communities throughout the report's development, the global pandemic necessitated a shift to virtual collaboration (see Section 3.5).

The authors co-developed sections of the report based on our unique experiences, expertise and professional training, consistently revisiting and reflecting on the key principles and values established early in the process (see Box 1). Additionally, we sought external input; for example, we conducted a virtual write-shop to strengthen specific text areas and to collectively develop the Moving Forward section, which addresses knowledge gaps and emerging issues (see Section 10.0).

To enhance the rigor of our approach, the report underwent peer review by First Nation, Inuit and Métis scholars. This diverse group of experts ensured the appropriate expression of Indigenous perspectives, identified strengths and weaknesses and contributed to better regional representation.

Collaboration was fundamental throughout the development of this report—the key messages, key principles and content were developed iteratively by the author team and refined over time. The broad and engaged approach used to develop this report reflects the collaborative spirit that exists and is needed to understand the impacts of climate change from First Nations, Inuit and Métis perspectives.



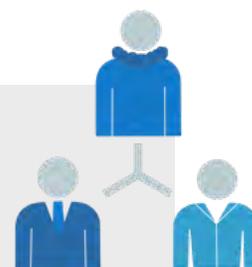
BOX 1: Key principles underlying this report

At the outset, the author team recognized the importance of establishing key principles to guide our work in a good way. We asked ourselves: What are the values that guide our thinking and writings about Indigenous Knowledge, expertise, wisdom, perspectives and experiences regarding climate change? What principles should guide the development and communication of our messages? Across our diverse Nations, languages and cultures as Indigenous Peoples, and informed by the teachings of our Elders and Knowledge Keepers, we identified the common principles in Table 1. These have been continually revisited to guide our work substantively and methodologically.

TABLE 1: KEY PRINCIPLES

Agency

First Nations, Inuit and Métis have agency within our societal systems and we must be able to exercise this agency as leaders and equal participants in mainstream systems. As rights- and title-holders, we play an integral role in research and climate policy decision-making. We have always held and continue to hold critical knowledge and expertise necessary for observing, understanding, assessing and responding to climate change. We are leaders in research, monitoring and developing comprehensive approaches to address climate change, despite experiencing disproportionate impacts.



Diversity

We honour and seek all opportunities to clarify and celebrate the diversity of languages, histories, governance, gender and cultures among First Nations, Inuit and Métis living in what is currently known as Canada.

Hope and love

Aligned with Indigenous Knowledge and laws, we strive to instill messages of hope and love to honour the teachings that direct us to choose life and draw on our Ancestors' strengths in support of life and future generations.



Indigenous Knowledge and lived experience

We recognize and honour the knowledge and lived experience of our Peoples, handed down over millennia, as equal to academic training. We seek every opportunity to elevate Indigenous expertise, wisdom and knowledge systems to a level equal to western science. This includes recognizing our Indigenous languages as carriers of our knowledges, and we seek every opportunity to honour, preserve, revitalize and promote Indigenous languages.

Indigenous-led approaches

We acknowledge that First Nations, Inuit and Métis are active drivers, leaders and innovators in approaches to addressing climate change.





Legacy of colonization and dispossession

The capacity of First Nations, Inuit and Métis to respond to urgent crises should be understood in the context of the ongoing impacts of colonialism, land dispossession, assimilation policies, various inequities, and chronic underfunding. We acknowledge that bold action is crucial to address justice and equity issues for First Nations, Inuit and Métis. It is also vital to provide the necessary tools and support to advance decolonization and decarbonization.

Natural Laws

We prioritize lessons from our Natural Laws, which teach us to rebalance our relationship with the Earth. Natural Law is a set of laws that originate directly from the Creator, and directly from the Land, rooted in our diverse languages, oral histories and ceremonies. These laws govern our interactions with the Land, Water and more-than-human relatives.



Relationships

We recognize that relationships are central to our systems and ways of life. While technocratic approaches are commonly used in addressing climate change, we understand that true change stems from realigning relationships and values. It is important that we realign our relationships with the Land, Water and Ice, with our more-than-human relations and each other. This realignment involves moving from values of accumulation, scarcity and competition to those of abundance, cooperation and reciprocity.

Rights-holders and Lands

First Nations, Inuit and Métis have rights and responsibilities within the context of our own systems (e.g., Indigenous laws, legal orders, legal traditions, customs, etc.). There are also complex constellations of rights expressed in mainstream systems, including provincial, territorial, federal and international laws. We acknowledge this plurality of laws to ensure that these systems are appropriately considered in all that we do. The rights of First Nations, Inuit and Métis over Lands are increasingly recognized, affirming our role as decision-makers in climate change.



Self-determination and governance

While diverse, Indigenous governance systems are founded on long-standing, place-based relationships with the Land, Water and Ice, as well as with human and more-than-human relations. We honour these relationships and recognize the interconnectedness between ourselves and the Land, Water and Ice as one entity. Self-determination is our ability to freely determine our political status and pursue our economic, social and cultural development.

Urgency

We recognize that the impacts of climate change compound existing, interrelated crises, contributing to states of emergency that First Nations, Inuit and Métis face daily. These crises are wide-ranging, from failing physical infrastructure, such as clean drinking water and housing, to ongoing colonization, marginalization and racism. Urgent and significant action, with long-term considerations, is needed to address these crises.



Valuing Youth

We acknowledge the unique contributions and knowledge that Indigenous youth bring to addressing climate change. We have sought opportunities to meaningfully include them in the production of this report.

In developing this report, we encountered challenges, including the tensions in creating an “Indigenous report” that reflects diverse perspectives, experiences, and knowledge of Indigenous Peoples across Canada, and defining what “Indigenous” means. For this report, we define “Indigenous” as encompassing the three distinct groups in Canada: First Nations, Inuit and Métis. We acknowledge the distinct cultures within the “Indigenous” umbrella, the diversity between and within these groups, and that our experiences of climate change impacts and adaptation are inseparable from the wide and diverse set of cultures, histories, experiences and languages of First Nations, Inuit and Métis across the country. This also extends, as much as possible, to First Nations, Inuit and Métis living in urban areas, who make up more than half of all Indigenous Peoples in Canada.

Out of respect and a commitment to recognizing this diversity as central to our work, we must acknowledge our limitations in fully capturing the complexity of knowledge systems, and the climate change impacts and adaptation experiences of First Nations, Inuit and Métis across Canada. Instead, this report and its five key messages aim to provide a framework to guide the consideration and inclusion of Indigenous Peoples and Indigenous Knowledge Systems in climate-related discussions. These discussions must continue directly with rights- and title-holders. We view this report as an initial and essential step for future Indigenous-led climate change assessments, as well as measures and policy changes at local, provincial, national and international levels that incorporate First Nations, Inuit and Métis, along with Indigenous Knowledge Systems, experiences and perspectives.

3.2 Citations, evidence and Indigenous methodologies

Citation is a practice of valuation that prioritizes certain forms of impact, relevance and importance (Ahmed, 2013). In this report, our author team strived to advance Indigenous ways of knowing within a practice often rooted in extractive and predominantly non-Indigenous ideologies. These ideologies prioritize knowledge production and, in academic contexts, peer-review for tenure and promotion (Todd, 2016; Lewis, 2012). More directly, citations and their associated politics can reproduce “...the popular myth that research is done by English-speaking, white, cis men” (Liboiron, 2020, p.97). Additionally, hierarchies reproduced within academia often favor human-generated and written knowledge, reflecting the entrenchment of settler colonial knowledge and practices (Burgess et al., 2021; Younging, 2018; Simpson, 2017). As a result, the richness of oral and visual traditions and the intergenerational knowledge held within communities and with our more-than-human relations are frequently overlooked (Kimmerer, 2013).

This report draws on and cites published and peer-reviewed literature but also includes quotations from Elders, case studies, references to videos, multimedia, online works and integrates art and personal stories. In doing so, we adopt a decolonial methodology that actively provides space for Indigenous Peoples and voices (Ferrazzi et al., 2019; Zavala, 2013; Smith, 2012). Our work is broadly situated within an Indigenous research paradigm to empower Indigenous Peoples’ research that is culturally relevant and accountable (Kovach, 2021; Chiblow, 2020; Inuit Tapiriit Kanatami [ITK], 2019a, 2019b; Smith, 2012; S. Wilson, 2008). This research paradigm broadly informs our understanding of “evidence.”

By drawing on and embodying Indigenous ontologies (the nature of being) and epistemologies (theories of knowledge), we underscore that relationships within and between humans and the natural world are based on principles of reciprocity, non-exploitation and respectful coexistence (Coulthard, 2014). We prioritize the 5 “Rs” of Indigenous Land-, Ice- and Water-first research: relationships, respect, relevance, reciprocity and responsibility (Styres and Zinga, 2013). Overall, our author team aimed to deconstruct dominant assumptions underlying colonial systems of climate change solutions by centering Indigenous sovereignty in the design, implementation and writing of this report² (Neville and Coulthard, 2019).

3.3 Report context and significance

Given the history, context and the dangerous trajectory of current global climate inaction (Carr, 2022), it is “...not rational for Indigenous [P]eoples to rely on these global, national and regional economic and political frameworks for climate justice and a sustainable future” (McGregor et al., 2020, p. 36). Therefore, the *For Our Future: Indigenous Resilience Report* stands as a unique, independent document that acknowledges Indigenous Peoples, our knowledge systems and our distinct perspectives. This is crucial for several reasons.

First, Indigenous Knowledge, perspectives and experiences with environmental crises and change are often overlooked in mainstream climate dialogues and assessments. This oversight leads to persistent failures in addressing the concurrent crises of colonization and dispossession (Zurba et al., 2022; McGregor, 2019; Watt-Cloutier, 2015; Downing and Cuerrier, 2011). This neglect is frequently evident in government approaches to policy and analysis, which are entrenched within specific social and ecological frameworks (e.g., Indigenous Climate Action, 2021a). The *2022 Working Group Report II on Impacts, Vulnerability and Adaptation of the Intergovernmental Panel on Climate Change* (IPCC, 2022) was the first global climate change assessment to acknowledge colonialism (*see also* Section 3.4). Our report, in contrast, emphasizes Indigenous place-based approaches to addressing climate change and the frameworks of knowing, being and doing that inform them.³

Second, there has been only incremental progress in recognizing Indigenous Peoples’ knowledge systems as equally valid and in promoting equitable and open involvement of Indigenous Peoples in western science and policy dialogues (Expert Panel on Climate Change Adaptation and Resilience, 2018).



- 2 Resources on Indigenous ontologies, epistemologies and methodologies are readily available (e.g., Kovach, 2021; McGregor et al., 2018; Wilson, 2008).
- 3 Indigenous Peoples continue to challenge state notions and policy debates in various historical and contemporary ways. For instance, Nunavut, a Canadian territory with a public government, often experiences federal top-down policy approaches due to its power structure. However, Inuit, forming the majority population in Nunavut, also exert significant bottom-up influence as rights- and title-holders. While the top-down policy approach applies universally to all citizens, the bottom-up approach is more targeted, addressing specific policy issues.

Third, when Indigenous Knowledge Systems have been considered in western science and policy debates, it has often been done primarily by non-Indigenous scholars, who in specific circumstances have marginalized, misinterpreted, or misappropriated systems of knowledge that are not their own.

Now is the time for Indigenous leadership and authorship—and by extension, the more appropriate inclusion of our knowledge systems in climate change assessments, research and policy discussions. It's time to create our own space where our knowledge systems are not merely included but are given priority, actively embodied, and effectively communicated, as seen in initiatives like *Climate Science 2050: Advancing Science and Knowledge on Climate Change* (Climate Science 2050) (Government of Canada, 2020a).

This framing aligns with other key Indigenous approaches to climate change, such as the *National Inuit Climate Change Strategy* (ITK, 2019a), *Assembly of First Nations' National Climate Strategy* (Assembly of First Nations, 2023), *Métis Nation Climate Change and Health Vulnerability Assessment* (JF Consulting, 2020) and *Inuvialuit Settlement Region Climate Change Strategy and Climate Change Action Map* (Inuvialuit Regional Corporation, 2022). Indigenous Climate Leadership was explicitly acknowledged in the Government of Canada's strengthened climate plan, *A Healthy Environment and A Healthy Economy* (Government of Canada, 2020b), which recognizes the importance of self-determination by and for Indigenous Peoples, and in Canada's first *National Adaptation Strategy* (Government of Canada, 2023). This strategy upholds Indigenous rights as one of its guiding principles and includes a dedicated annex for Indigenous climate change strategies and action.

3.4 Recognizing the impact of colonialism

It cannot be overstated how the broader historical and ongoing inequities and injustices resulting from settler colonialism, along with imposed policies, governance and laws, compound the impacts of climate change for Indigenous Peoples (Funes, 2022; Huntington et al., 2019; Arsenault et al., 2018; Collins et al., 2017). It wasn't until 2022, more than three decades after its establishment, that the IPCC acknowledged colonialism as a driver of climate change: "Vulnerability of ecosystems and people to climate change differs substantially among and within regions (very high confidence), driven by patterns of intersecting socio-economic development, unsustainable ocean and land use, inequity, marginalization, historical and ongoing patterns of inequity such as colonialism and governance (high confidence)" (IPCC, 2022, p. 12).

This context is crucial for understanding each key message in our report, particularly the one on the unique strengths of Indigenous Peoples to respond to environmental and climate change (see Section 5.0). Settler colonialism and its manifestations, such as extractivism, structural racism and discrimination, have led to the estrangement, exclusion, displacement and forcible removal of First Nations, Inuit and Métis from our traditional territories and, by extension, of our caretaking and decision-making related to those territories. This has limited our ability to exercise authority in our lived environments and overlooked the concerns we have raised about ecosystem destruction since the arrival of Europeans in the Americas over five centuries ago. There are many elements and layers to this context that we are unable to address within the scope of this report. Climate change must be seen

as “intimately connected to the ideologies, systems and practices of colonialism” and the dynamics of “intensified forms of patriarchy, western scientific imperialism and aggressive neo-liberalism that marginalize Indigenous Knowledge and practices as relevant only to the Indigenous Peoples who hold them” (Lewis et al., 2020, p. 898). Without analyzing historical and ongoing colonialism, we risk perpetuating approaches that continue to fail (McGregor, 2019; Cameron, 2012). Essentially, settler colonialism has undermined Indigenous Peoples’ right to live well. Most mainstream assessments of climate change and the natural environment overlook colonialism in their analyses (Cameron et al., 2022, 2019; Cameron, 2012).

Indigenous Peoples are reasserting authority over a range of issues, including governance and control of our education, health care, research, food systems, water and energy resources. This work is complex, and Canada’s constitutional authority divisions of power and jurisdiction over Indigenous Peoples affect First Nations, Inuit and Métis in different ways (see Box 2). A distinctions-based approach, recognizing the specific rights, interests, priorities and concerns of First Nations, Inuit and Métis, while respecting our unique cultures, histories, rights, laws and governments, is increasingly used (Government of Canada, 2018; Government

of British Columbia, n.d.). Indigenous women, in particular, have worked for generations to overcome the unique impacts of colonial patriarchal structures on their lives and communities, striving to restore their relationships with the natural world and participate in governance and political decision-making, including climate action (Asselin and Basile, 2018).

The implementation of the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) and the multiple calls to action by Canada’s Truth and Reconciliation Commission focus on Indigenization and decolonization processes, with implications for climate change research and action. Decolonized climate change research and action are anchored in place-based knowledge systems, where Indigenous perspectives, knowledge and methodologies are rooted. It has been increasingly recognized that Indigenous Peoples’ governance, knowledge systems and legal orders are central to supporting and enabling adaptive capacity in the face of climate change (Deranger et al., 2022; Reed et al., 2021b; McGregor et al., 2020; Cameron et al., 2019; McGregor, 2017). This report aims to offer a decolonizing lens to the current climate change dialogue in Canada by centering Indigenous Knowledge, perspectives and realities.

BOX 2: Overview of First Nations, Inuit and Métis rights and governance in Canada

The contemporary framework for Indigenous rights, governance and authority across the country is complex. In 1982, the Canadian Constitution was patriated, and included Aboriginal and treaty rights. These rights are also protected and recognized by the Canadian Charter of Rights and Freedoms, which guarantees equal protection and benefit of the law to all individuals, including First Nations, Inuit and Métis. Section 35 of the Constitution ensures that “the existing aboriginal and treaty rights of the aboriginal peoples of Canada are hereby recognized and affirmed,” with subsection (2) defining “aboriginal peoples of Canada” as including “Indian” (i.e., First Nations), Inuit and Métis peoples of Canada. Nevertheless, each Indigenous group has a distinct history and governance arrangement.

First Nations

First Nation rights are the most diverse and there are more than 630 distinct First Nations in Canada and more than half of First Nations peoples live off reserve. The reserves are technically on Crown land and subject to the Indian Act—a colonial piece of legislation put in place in 1876. The Indian Act outlines the legal status of First Nations and their communities in Canada and has been amended several times to address issues of self-government and land rights. Through the Royal Proclamation of 1763, the Crown confirmed the existence of First Nations’ title over their lands and that title could only be ceded through treaty. Treaties between the Crown and First Nations, such as the treaties signed in the late 1700s and early 1800s, are recognized as legal agreements under the Canadian Constitution. These treaties can be separated into three categories, although many First Nations have not signed treaties with Canada:

- **Pre-confederation:** Before Confederation in 1867, First Nations signed treaties with the Crown (representing the British government) to “share” large portions of their ancestral territories in exchange for certain guarantees and promises, such as the right to hunt and fish on the lands, annuity payments and the provision of goods and services. Notable pre-Confederation treaties include the Peace and Friendship Treaties (1760/1761), Treaty of Niagara (1764), the Treaty of Fort Pitt (1870) and the Treaty of Medicine Lodge (1867).
- **Numbered treaties:** After Confederation, the Canadian government continued to negotiate treaties with First Nations across the country to open up new territories for settlement and resource extraction. Known as the “Numbered Treaties,” these cover a vast area of Canada and were signed between 1871 and 1921. They include, for example, Treaty 1 (1871), Treaty 2 (1871), Treaty 4 (1874), Treaty 6 (1876), Treaty 7 (1877) and Treaty 8 (1899).
- **Modern treaties:** In recent decades, the Canadian government has entered into negotiations with First Nations to reach modern treaties that provide greater self-government and control over their lands and resources. These treaties often include provisions for lands, resources, governance and economic development, and are designed to address the ongoing issues of treaties that were not fully implemented in the past. Some of the notable modern treaties include the James Bay and Northern Quebec Agreement (1975), the Nisga’a Treaty (1998), and the Tsawwassen First Nation Final Agreement (2009).

It is important to note that while these treaties and agreements provide some recognition of First Nations rights, First Nations continue to face ongoing challenges regarding the implementation and enforcement of their treaty rights.

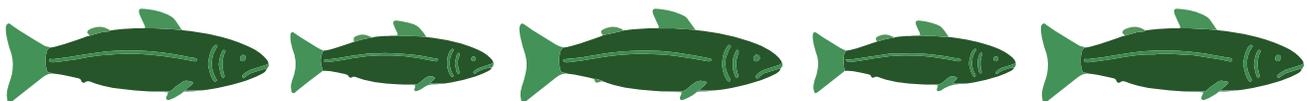
Inuit

The majority of Inuit live in 51 communities spread across the Canadian Arctic, though one in four Inuit live outside of Inuit Nunangat (Inuit homelands) and half of those individuals live in urban centres, primarily Ottawa/Gatineau, Edmonton, and Montreal. Inuit governance includes land claim organizations and regional associations. These systems in the four regions that make up Inuit Nunangat—Nunavik (northern Québec), Nunatsiavut (northern Labrador), Nunavut and the Inuvialuit Settlement Region (the Northwest Territories)—are recognized and protected in land claim agreements, some of which have been in place for a long time (over three decades). These land claim agreements provide extensive surface, subsurface, onshore and offshore rights in the Arctic, making space for Inuit to participate in decision-making related to the management of lands and waters.

Métis

The Métis emerged as a distinct Indigenous Peoples and nation in the historic Northwest during the late 18th century. The historic Métis Nation Homeland encompasses the Prairie Provinces of Manitoba, Saskatchewan and Alberta and extends into contiguous parts of Ontario, British Columbia, the Northwest Territories, and the northern United States. The legal recognition and protection of Métis rights and governance in Canada has been a complex and evolving issue. Historically, the Métis People, who are descendants of First Nations and European settlers, pushed for their unique recognition. For example, through the Manitoba Act, the Government of Canada promised to recognize Métis land rights in Manitoba and provide 1.4 million acres of land for Métis people. This commitment went unfulfilled and contributed to the displacement of Métis people from the Red River area.

There have been several court cases, such as *R. v. Powley* (2003), that have clarified the legal test for the recognition of Métis rights, and the Constitution Act, 1982 confirmed their rights as Indigenous Peoples in Canada. In terms of governance, Métis have historically had their own distinct governance structures, including the Métis National Council, which supports its four governing members: the Métis Nation of Alberta, the Métis Nation of Ontario, the Métis Nation British Columbia and the Métis Nation-Saskatchewan. The Manitoba Métis Federation serves as the government of the Red River Métis, also known as the Manitoba Métis, representing their claims, rights, and interests. The North Slave Métis Alliance is a non-profit society that represents the Aboriginal rights-bearing Métis People of the Northwest Territories, who primarily exercise their Aboriginal rights north and east of Great Slave Lake. There is only one legislated regime that recognizes Métis land and local governance: the Métis Settlement legislation in Alberta, which created eight Métis settlements. Recognition of these governance structures by the Canadian government has been limited, and Métis People continue to work towards greater self-determination and recognition of their rights and governance structures.



3.5 How to read this report

The *For Our Future: Indigenous Resilience Report*, like the rest of the National Knowledge Assessment, is based on existing work. Drawing on this foundation and further supported by words, stories, multimedia and case stories showcasing current and ongoing work in many communities, we aim for the *For Our Future: Indigenous Resilience Report* to be useful in research and policy domains as well as within communities themselves. We use specific case stories from the perspectives and experiences of First Nations, Inuit and Métis to provide concrete examples, following a consistent structure in each section. Each begins with a reiteration of the key message, followed by an accessible takeaway paragraph summarizing the essence of the message. This is followed by an introduction and several subsections exploring supportive evidence.

3.6 COVID-19 and three exceptional years

The profound impact of the global COVID-19 pandemic on our communities cannot be overstated or overlooked in the context of this report (Richmond et al., 2021; ITK, 2020a; United Nations Department of Economic and Social Affairs, 2020). COVID-19 has overwhelmed First Nations, Inuit and Métis governments and communities who have struggled with active cases, hospitalizations and deaths. We extend our deepest respect to those who have worked tirelessly in our communities, and we offer our support and condolences to all who have been affected by the virus—we acknowledge your hardships and loss.

The unique experiences that First Nations, Inuit and Métis have faced and continue to face due to COVID-19, is exacerbated by colonialism and its structural impacts on our communities. These include forced removal from our Lands, Waters and territories; lack of access to clean water and sanitation; overcrowded and substandard housing; food and water insecurity; disruptions in essential community services; and chronic underfunding of medical services, facilities and transportation. These factors directly affect health (physical, mental, spiritual and emotional), impact the availability of time, and reduce the capacity to respond and engage with everyday work demands, outside activities and other ongoing critical issues such as climate change (Bowers et al., 2021; Kenny, 2020). Despite these challenges, First Nation, Inuit and Métis governments have reasserted jurisdiction over the past three years by implementing borders, strict quarantines, testing rules for returning community members and mobilizing mutual-aid and care economies within urban centres.

Throughout the pandemic, we have witnessed a continued emphasis on and active facilitation of increased industrial and extractive activities that continue to impact the inherent, Treaty and constitutionally-protected rights of First Nations, Inuit and Métis. The concept of “building back better” and “re-opening the economy” may not adequately address the structural legacy of colonization on our infrastructure, governance and ways of life for First Nations, Inuit and Métis (Busby, 2021). The pandemic has underscored the need for distinctions-based data to understand and respond to the unique health and economic needs of Indigenous Peoples (Obed, 2020), with implications for addressing future crises and climate impacts.

In the context of developing this report, the combined impact of events during 2020–2023—including the COVID-19 pandemic, the increasing number of extreme climate events (especially the atmospheric river event in British Columbia and the wildfires in British Columbia, Yukon, Quebec and Alberta) and the “discovery” of unmarked graves at Indian Residential Schools across the country—were acutely felt by the author team and are reflected in the report’s key messages. Many on our team were affected by the stresses and upheavals in work, family life or health that necessarily took precedence over meetings and writing. Our authors, who are parents, grandparents, community leaders, artists, educators, caregivers, entrepreneurs and also fill many other roles, all of which were disrupted due to the COVID-19 pandemic and the exceptional events of the past few years, with those in northern, rural and remote communities being particularly affected.

Despite these challenges, we consider this report to be illustrative of a broad perspective on the unique impacts of climate change and adaptation approaches that First Nations, Inuit and Métis face in Canada. It is not, however, intended to be a comprehensive representation of all the climate leadership activities undertaken by First Nations, Inuit and Métis citizens, governments and organizations across the country. A thorough survey of this climate leadership must be done in full partnership with First Nations, Inuit and Métis.

4.0 Introduction

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Indigenous Peoples have already experienced changes in the Lands, Waters and Ice, sounding the alarm about climate change for decades (Indigenous Climate Action, 2021a; ITK, 2019a; Watt-Cloutier, 2015; Bolton et al., 2011; Inuit Circumpolar Council Canada [ICC], 2005; ITK, 2005). Drawing on knowledge and observations shared by Elders and Knowledge Keepers, and their reciprocal relationships with the natural world, Indigenous Peoples have been urgently and consistently voicing concerns about the irreversible impacts of climate change. For instance, the 2005 *Inuit Petition to the Inter-American Commission on Human Rights to Oppose Climate Change Caused by the United States of America* opened a global dialogue on the ties between the violation of human rights and impacts caused by climate inaction.

Specific impacts experienced by First Nations, Inuit and Métis are discussed throughout this report but generally include observed changes in wildlife and species migrations, shifting water levels, more variable weather patterns, increased intensity and frequency of forest fires, changing sea ice and freshwater ice conditions, impacts on health and well-being, effects on built infrastructure, and changes in vegetation, coastal processes, permafrost and more (see HCCC; NIR; RPR; Deranger et al., 2022; Galway et al., 2022; Reed et al., 2021b; McGregor et al., 2020; Cunsolo Willox, 2012; Arctic Climate Impact Assessment, 2005; Krupnik and Jolly, 2002).

Western science is now beginning to recognize what Indigenous Peoples have long known, and Indigenous Peoples are not passive witnesses to climate change (ITK, 2019a). As highlighted in this report, Indigenous Peoples are leaders, advancing our own climate measures and strategies at various scales based on our knowledge systems and continue to urgently call for action to protect the Land, Water and Ice (Gobby, 2020; ITK, 2019a). Our collective knowledge and action send a clear message: we are in a rapidly accelerating global climate crisis, already causing irreversible biophysical changes.

The first report from the current National Knowledge Assessment cycle, *Canada's Changing Climate Report* (2019), revealed that Canada had already warmed by 1.7 °C since 1948 and is projected to continue warming at twice the global rate, with Northern Canada warming over three times the global rate (Bush and Lemmen, 2019). Subsequent Assessment reports (see NIR; RPR; HCCC) assess the range of climate impacts Canada is currently experiencing and projected to face in the future, as well as adaptation approaches. These reports indicate disproportionate impacts for First Nations, Inuit and Métis, given our unique climate risks due to our lives and livelihoods being tied reciprocally with the Land, Water and Ice. Our livelihoods, especially concerning food, water and energy insecurity, are at risk and are compounded by a colonial history that irrevocably impacts Indigenous political, cultural, social and environmental systems (Human Rights Watch, 2020; Chisholm Hatfield et al., 2018; Whyte, 2017b; Ford et al., 2012; Tsosie, 2007).

Climate change impacts are exacerbated by the ongoing legacy of colonialism (see Section 3.5 and Section 5.2) and how this, combined with capitalism, has influenced where Indigenous Peoples live, our socio-economic conditions, and how we maintain our relationships with Mother Earth (Whyte 2017b; 2016). These impacts often lead to maladaptation, leaving Indigenous Peoples to bear disproportionate impacts from mainstream approaches to addressing climate change (Penney and Johnson-Castle, 2021).



5.0 Indigenous Peoples have unique strengths for responding to environmental and climate changes

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First Nations, Inuit and Métis have responded to the impacts of environmental and climate change before, are actively responding today, and will continue to do so in the future. Our communities have unique strengths to address the climate crisis, despite facing disproportionate impacts from climate change and challenges related to the ongoing legacy of colonization.

We have consistently faced and adapted to change, including impacts from environmental and climatic changes. Today, we continue to respond and are increasingly taking leadership in climate research, policy and solutions. We recognize the need to move away from deficit-based approaches that view our communities through lenses of vulnerability and risk, towards strengths-based approaches that recognize our knowledge, skills, actions and abilities. Our response to climate change is continuous. While much of the past work has been led by others, we are now seeing Indigenous women, youth, scientists, researchers, activists, leaders, Elders and advocates stepping into leading roles to address climate change, drawing on their knowledge, laws, language and culture. However, our efforts in climate action cannot be detached from our ongoing endeavours to address the ongoing legacy of colonization.

5.1 Introduction

“Over history, we have not had it easy. With colonial pressures from the government and mining companies, the harm done through the [Indian] Residential School System, our forced removal from our traditional communities and Lands, along with many other influences that exist in our lives today, we have an uphill battle. But our Elders fought and died for our Land and we have a duty to continue to protect it. There is strength and resilience in our people and in our community when we come together. We have the wisdom. We are the original land stewards.”

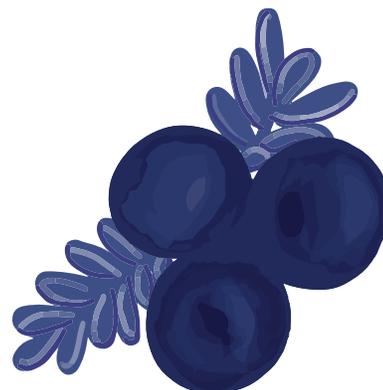
– Excerpt from Ross River Dena Council and The Arctic Institute of Community-Based Research, 2019, p. 8.

Impacts from the climate crisis are inextricably linked to ongoing processes of colonialism, dispossession and rights violations, but these connections are often overlooked in climate-related analyses such as research, policy and governance. Failing to apply this lens results in an incomplete understanding of the depth, scope and effects of the environmental and climate crisis on Indigenous Peoples (Deranger et al., 2022; Cameron, 2012). Over the past five decades, numerous public commissions and inquiries have documented

the impacts faced by Indigenous Peoples due to colonization (e.g., Missing and Murdered Indigenous Women and Girls, 2019; Truth and Reconciliation Commission of Canada, 2015; Qikiqtani Truth Commission, 2013; Royal Commission on Aboriginal Peoples, 1996; Berger, 1977). In several of these reports, the impacts have been described as genocidal (Truth and Reconciliation Commission of Canada, 2015; Missing and Murdered Indigenous Women and Girls, 2019) and are inseparable from the lived realities of Indigenous Peoples as well as the impacts of climate change we face today. Historical and ongoing colonial laws, policies and practices have led to significant social, spiritual, cultural, political, economic and environmental changes.

Given this reality, Indigenous Peoples, including Indigenous Elders and Knowledge Keepers, have called for a re-evaluation of the framing of climate change towards one focused on how human values are at the root of the climate crisis: a world out of balance (Cameron et al., 2021). These values (e.g., greed, consumerism) have driven a set of destructive human behaviours and activities that disrespect Natural Law and are at the root cause of the climate crisis (for more, refer to Figure 1 in Cameron et al., 2021). This has resulted in a system of knowledge that prioritizes advances in technology, markets and science at the expense of the natural balance of life. Dakota Knowledge Keeper, Katherine Whitecloud, describes this environmental crisis as a human crisis: “People don’t want to acknowledge the state of the Earth, where it’s at right now, because it’s a reflection of themselves. It’s a reflection of their homes, their personal space, where the spirit and the heart reside... And people don’t want to look at that” (Cameron et al., 2021, p. 43).

Addressing this imbalance requires reorienting the climate agenda towards meaningful approaches rooted in an understanding of and relationship with the Land, Water and Ice. Until recently, the influence of these perspectives on local, regional, national and international climate change responses was limited to the participation of Indigenous Peoples in non-Indigenous climate initiatives. However, this is changing as Indigenous Peoples increasingly develop our own climate change strategies, drawing on our knowledge systems, laws, governance and histories. This report draws on these experiences to shift from a deficit framing to an Indigenous-led narrative focused on strengths-based approaches. This shift is summarized in a 2019 report by the Council of Canadian Academies: “Indigenous Peoples have demonstrated a capacity for adaptation, resilience, and survival in the face of pervasive social, cultural, and environmental changes throughout colonial history. The multiplicative effects of climate change, combined with the impacts of colonialism, power differentials in Canadian society, marginalization, and loss of [L]and, may however affect adaptation success” (Council of Canadian Academies, 2019, p. xi).



5.2 Intersecting impacts: colonialism and climate change on Indigenous Peoples

Relatively new terms, such as “eco-grief” and “solastalgia” describe the loss, grief, and despair caused by unwanted environmental change, such as climate change (e.g., Cunsolo Willox and Ellis, 2018; Cunsolo Willox, 2012). However, these concepts and experiences are not new; they encapsulate the profound challenges, suffering, and trauma Indigenous Peoples have endured due to environmental loss and damage since the onset of colonization (Whyte, 2016). This includes the dispossession of First Nations Lands through the Indian reserve system. Other examples include the imposition of federal and international policies on Inuit, such as relocations to the High Arctic in the 1950s and the international movement preventing sealskin sales (Gombay, 2014; Tester and Kulchyski, 1994; Wenzel, 1991), as well as land scrip allocations for Métis families. In the late 1870s, the Canadian government issued documents (scrip allocations) to Métis people living in the West that were difficult to access and that entitled them to Lands often located hundreds of kilometers away from their homes and communities.

While not exhaustive, this combination of laws, policies and actions further impacts Indigenous Peoples’ adaptive capacity, limiting our governance, cultural and language practices, and restricting our movements, thereby affecting hunting, fishing and gathering practices (Menzies et al., 2022). The climate-related changes occurring now represent cultural threats similar to those experienced during the start of European settlement in the Americas (Whyte, 2017a; 2016). Therefore, for Indigenous Peoples, who often disproportionately bear the brunt of climate change impacts, these changes are not new but rather seen as “déjà vu” (Whyte, 2016).

5.3 Indigenous Peoples are actively responding to environmental change

Until recently, the most common approach to addressing climate change impacts for the lives of Indigenous Peoples involved our participation in the development of local, regional, national and international responses (e.g., accords, plans, research programs, policies and strategies).

However, more recently, Indigenous Peoples have been asserting our own climate change strategies and developing approaches to address climate change based on our own knowledge systems, governance structures and histories. For example, the *National Inuit Climate Change Strategy* (ITK, 2019a) illustrates how Inuit are tackling climate change issues on their terms, from local to global scales, and creating effective adaptation initiatives. These initiatives include supporting harvesting and sharing economies tailored to the needs and priorities of their communities (ITK, 2019a). Another instance is the *British Columbia First Nations Climate Strategy and Action Plan* (British Columbia Assembly of First Nations, 2022), co-developed and launched in 2021 by the British Columbia Assembly of First Nations, the Union of British Columbia Indian Chiefs and the First Nations Summit. At a national scale, the launch of the Indigenous Knowledges content on the Climate Atlas of Canada (see Case Story 1 and Figure 3) demonstrates an active Two-Eyed Seeing approach. This approach honours the diverse wisdom of Elders, Knowledge Keepers, community leaders and other experts from coast to coast to coast through videos, articles and climate maps at local, regional and national scales. During the final stages of this report, the Assembly of First Nations released their *National Climate Strategy*, identifying seven priority areas with over 100 strategies and actions (see Figure 1; Assembly of First Nations, 2023).



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 Figure 1: The seven priority areas outlined in the *Assembly of First Nations Climate Strategy (2023)*. Source: Adapted from *Assembly of First Nations, 2023*

Other examples of First Nations, Inuit and Métis-led initiatives responding to climate impacts often focus on engaging in land-based activities. These activities aim to decolonize climate change approaches and centre our own traditions and knowledge systems. This includes involving youth in multi-generational cultural and land camps to reconnect with the Land (e.g., McDonald, 2023; Lines et al.,

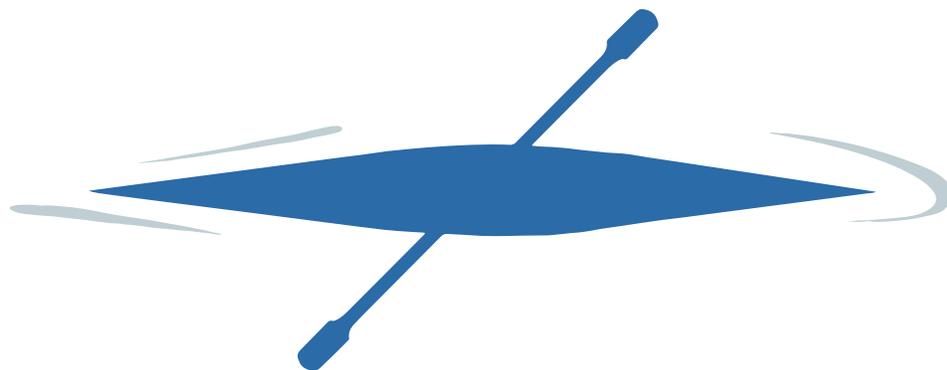
2019) and taking action to limit climate change impacts through land defense action (e.g., Pasternak, 2020). Examples of such initiatives are Indigenous resistance to carbon-intensive or environmentally unsustainable projects on Indigenous Lands. Community-based research and action-oriented initiatives continue to grow and highlight the strengths and advantages of Indigenous Knowledge and leadership. Inuit

hunters, for example, lead research in Nunavut communities by documenting and monitoring environmental changes, thereby enhancing knowledge and safety. The [Smart Ice Program](#) (see Figure 2) and [Ittaq Heritage and Research Centre](#) are notable examples. First Nations, such as the Anishinaabe have utilized seasonal

mobility (Whyte et al., 2019), and coastal First Nations have employed clam gardens to maintain biodiversity (Holmes et al., 2022), along with many other strategies to center approaches to addressing climate change in our traditions and practices.



Figure 2: Map of SmartICE technology and services that are used in 34 communities across Inuit Nunangat. Source: SmartICE, 2024



CASE STORY 1: Indigenous Climate Atlas: Digitally weaving Indigenous Knowledge, climate science and storytelling to support climate change adaptation and resilience

The Climate Atlas of Canada—the first national climate data portal—was launched in 2018 in partnership with Environment and Climate Change Canada. The tool was designed by the Prairie Climate Centre using climate data from the Pacific Climate Impacts Consortium that were interactively mapped with community-based climate films developed over many years by Dr. Ian Mauro and collaborators.

While the Climate Atlas was acclaimed as groundbreaking for combining science and storytelling (see Figure 3), the development team recognized its lack of sufficient data and resources for Indigenous communities. The team immediately set out to reimagine this interactive climate map in partnership with the Assembly of First Nations (AFN), Métis National Council (MNC) and Inuit partners and communities.

Gitksan author, artist and climate researcher Hetxw'ms Gyetxw (Brett D. Huson) led the development of Indigenous resources within the Climate Atlas. This included climate data for over 630 First Nation reserves, more than 50 Inuit communities and climate projects across the Métis Homeland. A series of distinctions-based Indigenous documentaries were also developed with Elders, Knowledge Keepers and Indigenous organizations and communities.

In spring 2022, the Indigenous Climate Atlas ([www.climateatlas.ca/indigenous](https://climateatlas.ca/indigenous)) was launched through an online event. This event featured speakers such as AFN Yukon Regional Chief Kluane Adamek, MNC President Cassidy Caron and Inuit Nobel Prize Nominee Siila (Sheila) Watt-Cloutier. This tool establishes a new standard for how to bring climate science and Indigenous Knowledge together to support community adaptation and resilience in the face of climate change.



Figure 3: Screenshot of the Indigenous Climate Atlas portal available at <https://climateatlas.ca/indigenous>. Source: Climate Atlas of Canada, 2024

Local, regional, national and international bodies, governments and civil society are beginning to recognize that approaches like the Indigenous Climate Atlas are central to addressing the impacts of the climate crisis. For instance, both the IPCC's *6th Assessment Report on Impacts, Adaptation and Vulnerability* (IPCC, 2022) and Canada's *Climate Science 2050* report (Government of Canada, 2020a) specifically recognize the importance of Indigenous Peoples' involvement in climate change dialogues, decision making and research (see Box 3). Despite this recognition, there often continues to be a lack of support for Indigenous-led, self-determined climate research, planning and policy in Canada (Deranger et al., 2022; Latulippe and Klenk, 2020; Huntington et al., 2019). The laudable development of an Indigenous Climate Leadership Agenda, funded through the Government of Canada Budget 2022, in partnership with First Nations, Inuit and Métis, began during the writing of this report, though the outcomes are not yet finalized.

Without robust financial and technical support to access, shape and guide climate change policymaking and decision making (Chisholm Hatfield et al., 2018), Indigenous Peoples are often left to defend our Lands, Waters and communities through court battles and/or direct action (Gobby et al., 2021). For example, a report by the Indigenous Environment Network and Oil Change International (2021) noted that Indigenous resistance has stopped or delayed greenhouse gas (GHG) emissions equivalent to at least one-quarter of annual emissions produced in the U.S. and Canada. Other examples of direct action include the Land Defenders at Wet'suwet'en, 1492 Land Back Lane in Caledonia and the Nuluujaat Land Guardians in Nunavut. These movements focus

not only on returning [L]and under Indigenous authority and jurisdiction but also embody the concept: "for the [L]and to be alive so that it can perpetuate itself, and perpetuate us as an extension of itself. That's what we want back: our place in keeping [L]and alive and spiritually connected" (Longman et al., 2020). This concept is captured in the framing of "Land Back", a concept that has been growing in prominence (Reed and Gobby, 2021; Longman et al., 2020; Pasternak et al., 2019).

First Nations, Inuit and Métis have raised concerns with the framing of climate change responses that focus exclusively on one question: "How do humans achieve a reduction in their emissions of greenhouse gases in the coming few decades?" (Chakrabarty, 2019). Instead, Indigenous Peoples have been calling for a climate agenda that recognizes meaningful approaches stem from understanding and addressing the foundational question of Land holistically (Behn and Baker, 2019). Deranger et al. (2022) operationalize this call by stating, "...seeing the real inclusion of Indigenous Peoples and the respecting of our rights as not just a matter of justice and equity (though of course that is crucial), but also as a matter of designing solutions actually capable of addressing the climate crisis" (p. 19).

The artificial separation between humans and nature has contributed to the paradigm of "progress," and the pursuit of economic growth has resulted in the failure of the last thirty years of climate policy (Stoddard et al., 2021). To understand Indigenous-led contemporary responses to the climate crisis, understanding this difference in worldviews is essential (Godwell and Nooh, 2022; Swiderska, 2021).

BOX 3: Indigenous-led science and research

Indigenous-led science and research are increasingly being recognized. For instance, under the ArcticNet Program, the Inuit Qaujisarnirmut Pilirijjutit is the first and only Inuit-led, governed and directed research program, supported and directed by the four Inuit regions (the Inuvialuit Settlement Region, Nunavut, Nunavik and Nunatsiavut). The Government of Canada is also beginning to recognize the importance of Indigenous-led science and research. The *Climate Science 2050* report (Government of Canada, 2020a) includes a dedicated section on Indigenous-led climate change science and knowledge. This section highlights the extensive knowledge and experiences of Indigenous Peoples in observing and understanding the impacts of climate change and states that incorporating this knowledge into Western scientific understanding of climate change is crucial. The report identifies specific actions to advance the inclusion of Indigenous-led strategies (p. 11):

- *Elevating opportunities for Indigenous leadership and participation in community-based monitoring;*

- *Aligning resources with research and climate change strategies and priorities of First Nations, Métis, and Inuit organizations, governments, and communities, for example, the National Inuit Climate Change Strategy (ITK, 2019a) and future plans as they are developed;*
- *Co-developing projects in which Indigenous Peoples are involved at all stages of [research, development and deployment] RD&D, that respond to Indigenous priorities, and that respect a distinctions-based approach;*
- *Seeking review and approval from the appropriate Indigenous leadership bodies prior to conducting research on Indigenous Lands, Waters, and Ice; and*
- *Formalizing partnerships with research agreements.*

The *Climate Science 2050* report concludes by recognizing that these contributions must lead decision making related to climate change science and knowledge.

5.4 Indigenous Peoples are responding to the climate crisis with strengths-based approaches

Indigenous Peoples have often been portrayed as passive victims or harbingers of climate change impacts in domestic and international dialogues (Indigenous Climate Action, 2021a; Belfer et al., 2017; Bunce et al., 2016; Cameron, 2012). However, this portrayal often overlooks the ways Indigenous Peoples have

been observing, adapting and living reciprocally with our Lands, Waters and Ice for millennia (McGregor et al., 2020; McGregor, 2019). Cultural, spiritual and social connections of our Peoples to the Land, Water and Ice may increase our exposure and sensitivity to climate change impacts, but they also provide unique sources of strength, knowledge, understanding and resilience (Deranger et al., 2022; Hernandez et al., 2022; Reed et al., 2022; Galway et al., 2021).

Canada's approach to including Indigenous Peoples in climate change discussions has evolved over the past seven years, largely due to constructive relationships built with First Nations, Inuit and Métis organizations through senior-level bilateral tables created in the wake of the Pan-Canadian Framework, as well as through Indigenous advocacy (e.g., emergency declarations, the Indigenous Guardians Program, Indigenous Protected and Conserved Areas) (Reed et al., 2022; Gobby et al., 2021). This evolution has led to progressive commitments to an Indigenous climate leadership agenda. This agenda focuses on "...investing in the agency of Indigenous peoples and communities, supporting Indigenous-led and delivered solutions, equipping Indigenous peoples with equitable resources, and ensuring appropriate access to funding to implement self-determined climate action" (Government of Canada, 2020b, p. 69).

5.4.1 Indigenous climate emergency declarations and "All My Relations"

First Nations, Inuit and Métis have been actively leading and engaging in a wide range of activities to address climate change. These activities include education, land-based learning and healing (e.g., Ljubicic et al., 2021; McClain, 2021; Morales et al., 2021; Ward et al., 2021; Donatuto et al., 2020; Métisse Redvers, 2020; Mearns, 2017), Indigenous clean energy development (e.g., L'Hommecourt et al., 2022; Paquet et al., 2021; Indigenous Clean Energy, 2020), development of Indigenous Knowledge and science strategies (e.g., Huntington et al., 2021a; Sawatzky et al., 2021; Assembly of First Nations, 2020; Ferguson and Weaselboy, 2020; ITK 2019a, 2018; Jones et al., 2018), co-production of knowledge (e.g., Fox et al., 2020), adaptation planning and implementation (e.g., Galway et al., 2022) and political action and diplomacy,

including treaty-based diplomacy (e.g., Callison, 2021, 2014; Kronk Warner and Abate, 2013; Grossman, 2008). A growing number of Indigenous Peoples have also released climate emergency declarations, calling for rapid de-carbonization to meet the targets of the Paris Agreement. For example, the declaration of the Vuntut Gwitch'in First Nation in Old Crow, Yukon, titled *Yeendoo Diinehdoo Ji'heezrit Nits'oo Ts'o' Nan He' aa* (After Our Time, How Will the World Be?), laid the foundation for First Nation Chiefs across Canada to declare a national climate emergency in 2019.

With support from the Vuntut Gwitch'in leadership, the First Nations-in-Assembly declared a First Nations Climate Emergency at the 2019 Assembly of First Nations, stating that "...climate change constitutes a state of emergency for our Lands, Waters, animals, and peoples" (Assembly of First Nations, 2019). The inclusion of more-than-humans in this declaration is emblematic of the relational approach that Indigenous Peoples have developed over millennia, also known as an ethic of "responsibility-based thinking" (Sioui and McLeman, 2014), which is broadly captured by the concept of "All My Relations" (or "sustainable relations" according to Ferguson and Weaselboy, 2020). This concept informs how Indigenous Peoples experience and understand the impacts of and approaches for adapting to climate change. Galway et al. (2022), in collaboration with Fort William First Nation Knowledge Holders, describe five sub-themes of their experiences with climate change organized using the "All My Relations" concept: 1) lack of care and respect for Mother Earth as a root cause; 2) (re)-connecting with Land and culture; 3) observations and experience of changes on the Land; 4) healthy Land, healthy people; and 5) Youth and future generations

(see Case Story 2). The concept of “All My Relations” (see Figure 4) also acknowledges that Indigenous Peoples benefit from the strengths of all members, including the vital and unique contributions of our women, men, youth, Elders

and 2SLGBTQQIA+⁴ (see Box 4; Longman et al., 2020; Viscogliosi et al., 2020; Women’s Earth Alliance and Native Youth Sexual Health Network, 2016).

CASE STORY 2: SevenGen: Empowering Indigenous youth to shape a sustainable energy future

SevenGen is a council composed of First Nations, Inuit and Métis youth from Nations and communities across Canada. They work to create equitable and sustainable pathways for Indigenous youth to engage, learn and grow as influential energy leaders in Canada.⁵ SevenGen envisions that kin for seven generations ahead shall enjoy empowering, culturally rich and prosperous livelihoods, where the stewardship of the Earth is honoured and protected. The organization is committed to empowering Indigenous youth with opportunities, resources and networks to build sustainable and equitable communities. These communities are designed by Indigenous youth for Indigenous youth. SevenGen creates opportunities for youth to contribute to a sustainable energy future.

SevenGen was founded in 2019 through the SevenGen Student Energy Summit, hosted in Treaty 7 territory. The summit brought together over 250 Indigenous youth from

across Canada, sparking a movement to empower Indigenous communities to lead and live sustainably through the intersection of energy, food, water and the transition to a sustainable economy. A second summit in 2022, hosted on Whitecap Dakota Nation, advanced these discussions by focusing on kinship. The SevenGen Council is maintained through summits and the addition of new programming, such as the ImaGENation: Indigenous Youth Mentorship Program. This program provides equitable opportunities for Indigenous youth aged 18–30 from across Canada to receive support in designing and implementing ten youth-led projects focused on energy, environment, food and water issues that impact biodiversity, climate change, Canadian and Indigenous economies, and the Land. SevenGen is committed to minimizing barriers for Indigenous youth to participate in the energy sector by increasing authentic and meaningful action within communities.

4 Two-spirit, lesbian, gay, bisexual, transgender, queer, questioning, intersex, asexual and all other sexual orientations and genders.

5 For more information, see the video *SevenGen 2022: The Power of Kinship* available at <https://www.youtube.com/watch?v=dwk4T59pnU8>



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 Figure 4: All Our Relations.
 Source: Galway et al., 2022

5.4.2 Indigenous rights and responsibilities

Central to strengths-based approaches is the recognition of the distinct status, roles and rights of Indigenous Peoples, affirmed in significant national and international human rights instruments, notably section 35 of the Canadian Constitution Act. Other instruments, such as the United Nations Declaration on the Rights of Indigenous Peoples (2007) and its subsequent adoption in provincial (British Columbia in 2019) and federal jurisdictions (Canada in 2021), affirm the rights of self-determination for Indigenous Peoples (Article 3 of the Universal Declaration of Human Rights). The concept of rights also considers the responsibilities that Indigenous Peoples carry

when interacting with the more-than-human world. These responsibilities, as underlined by the human values that inform them, are one of the many contributions that Indigenous Peoples bring to the rest of humanity (IPCC, 2022; Cameron et al., 2021; Townsend et al., 2021; Salmón, 2000). Such a perspective stems from an understanding that human beings must learn to live with the Land, Water and Ice (McGregor, 2014; McGregor et al., 2010; Cajete, 1999).

These rights—and those affirmed in Treaties, land claims, agreements and other constructive arrangements (see Box 1)—have enabled Indigenous Peoples to take our rightful leadership roles in environmental governance, thereby advancing co-management

BOX 4: Strengths of women, girls, Two Spirit, and gender-diverse people

Indigenous women, men, boys, girls and gender-diverse people experience unique vulnerabilities, resilience and lived experiences, including those related to climate change (National Collaborating Centre for Indigenous Health, 2022).

In Canada, studies examining climate change impacts on Indigenous Peoples have primarily focused on the knowledge and experiences of men, who tend to be the hunters and harvesters and are most directly and regularly in contact with the Land (Bunce et al., 2016; Dowsley et al., 2010). However, there is a growing body of research documenting the unique impacts Indigenous women face when activities central to their identity and well-being are affected by climate change. A study in Nunavut showed that while Inuit women share many of the same broad observations of environmental changes as men, they also

have specific observations and experiences unique to their gender roles, gendered work and roles in family and community (Dowsley et al., 2010). For instance, women have detailed knowledge of changes in seals due to their work with skin preparation and sewing.

Indigenous Peoples are also highlighting the unique and vital knowledge and contributions of diverse members of society, including Two Spirit and gender-diverse relatives (Lezard et al., 2021). This diversity of knowledge and experience strengthens our understanding of climate change, the interconnected environmental impacts and the unique adaptations needed in diverse social, family, wellness and cultural spheres (Zoledziowski, 2021; Delisle, 2020; Gournay, 2020; Viscogliosi et al., 2020; Amor, 2018; Basile, 2017).

arrangements and other stewardship activities (Cadman et al., 2022; Qikiqtani Inuit Association, 2021; Peacock et al., 2020; Snook et al., 2018a; Armitage et al., 2011). As a result, many Indigenous territories retain high levels of biodiversity and intact, critical and globally significant ecosystems (Schuster et al., 2019). Examples such as Indigenous Protected and Conserved Areas (IPCAs) (see Case Story 5.4 in NIR-5) and Indigenous Marine Protected Areas (Imappivut Nunatsiavut Marine Plan, 2022) demonstrate how Indigenous Peoples are increasingly assuming leadership positions in governance and climate change action, as stewards of our traditional territories since time immemorial (McDonald, 2023; Reed et al., 2021b). Indigenous “resurgence” paradigms—

where Indigenous Peoples are reclaiming our languages, ceremonies, teachings, governance and decision-making (Corntassel and Bryce, 2012)—draw on the strengths of traditional land-based culture and knowledge with regard to Indigenous leadership in land governance and stewardship (Alfred et al., 2015; Coulthard, 2014; Corntassel and Bryce, 2012; Simpson, 2011; Alfred, 2009; Alfred and Corntassel, 2005). Indigenous leadership in climate change policy, therefore, can ensure that the Indigenous right to self-determination is respected and upheld, allowing Indigenous Peoples to continue to carry out our cultural responsibilities to the Land for the benefit of all humanity (see Section 9.0; Powless, 2012).

6.0 Climate change is one of many crises that First Nations, Inuit and Métis face

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Climate change causes serious disruption not just to the environment and economy, but also to culture, language, knowledge transfer, ceremony, identity, health and well-being. These impacts are interrelated and intersect with other crises that First Nations, Inuit and Métis face.

Our deep relationships with our Lands, Waters and Ice mean we experience the impacts of climate change differently. Many of our communities practice livelihoods that are closely tied to the Land, like hunting and harvesting, but we also depend on the Land for maintaining our identity, cultural practices and passing this knowledge on to future generations. These connections and relationships vary not only between but also within our communities (e.g., between and amidst North, South, rural, urban and genders).

When the Land, Water or Ice changes, we change. We feel it. There are physical impacts and hazards that we face, like the loss of harvests or water resources, changes in wild food sources and increased risks of falling through unsafe ice. But there are emotional and spiritual impacts as well, as we grieve the loss of connection to our Lands and Waters and the loss of our ability to practice our life ways. The physical, mental, emotional and spiritual impacts that we feel from climate change are connected.

When you live with the Land in relationship and reciprocity, you see and experience the interconnectedness of things. You feel things in an interconnected way. The ways that we have responded to climate change include interconnected approaches, and this must continue as we find solutions to current and future changes.

6.1 Introduction

“Nuna (the Land; Inuktitut) is so core to our being that we conceive ourselves to be part of the Nuna – we are part of the Nuna and the Nuna is part of us. We know that when Indigenous Peoples are disconnected from the Land and cultural practices, our mental, physical, emotional and spiritual health declines.”

– Lori Tagoona (Authors’ Scoping Meeting, February 2020)

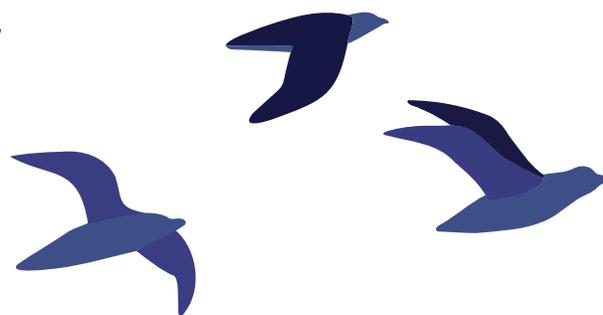
Climate change affects Indigenous Peoples and our ways of life that have been practiced for millennia (Council of Canadian Academies, 2019; Watt-Cloutier, 2015; Nickels et al., 2005). Indigenous Peoples often characterize the disruption from climate change in terms of our ability to practice, reclaim and revitalize our ways of knowing and being (Cameron et al., 2021), while also highlighting the already existing challenges of a complete disruption brought on by colonization (Whyte, 2018).

Much of the existing research related to climate change focuses on the realm of the biophysical, including direct impacts on health through injury or death, indirect impacts through changes to environmental systems that impact food, water and ice quality and availability, and changes to human systems that affect social and emotional well-being (Naylor, 2022; Marshall et al., 2020; Worden et al., 2020; Lynn et al., 2013; Tam et al., 2013; Jacob et al., 2010; Laidler et al., 2009; Guyot et al., 2006). Less is known about how complex and interconnected environmental changes also affect cultural practices, mental health and well-being (see NIR-2; RPR-6; Cunsolo Willox et al., 2015; Cunsolo Willox et al., 2012; Furberg et al., 2011; Berry et al., 2010). From the perspective of Indigenous Knowledge Systems, it is important to consider how emotional, physical, mental and spiritual health and well-being are interrelated and affected by environmental and climatic changes, as well as how such impacts are felt across gender, age and geography (Williams, 2018). Indigenous Peoples have been increasingly articulating the loss of this connection, largely due to climate and environmental change, through our own experiences, worldviews, sense of identity and in our languages (Lewis et al., 2021).

Despite these climate change impacts, many Indigenous Peoples remain strongly connected to the Land and continue land-based ways of life including in urban centres. The Land supports and maintains identity, socio-cultural and socio-spiritual systems, as well as physical, emotional, mental and spiritual health and well-being (Middleton et al., 2020; Petrusek MacDonald et al., 2015; Ford, 2012; Kral et al., 2011; K. Wilson, 2003; Adelson, 2000).

6.2 Interconnected disruptions to environment, economy, culture, language, health and more

Indigenous worldviews hold keys to adaptation and resilience in the face of climate change. However, this also means that Indigenous Peoples experience climate change impacts in the context of our long-standing reliance and ongoing relationships with the natural environment, particularly the Waters upon which they have depended for millennia (see Case Story 3; Arsenault, 2021; N.J. Wilson, 2019; Goldhar et al., 2014). For instance, Inuit have been observing and reporting changing sea ice conditions for decades (e.g., ITK, 2019b; Fox Gearheard et al., 2013; Ford et al., 2009; Laidler et al., 2008; Laidler and Ikummaq, 2008; Laidler and Elee, 2008). The changing ice conditions (see Box 5) disrupt the environment, as sea ice change is interconnected with changes in climate, weather and ocean conditions (K. Wilson et al., 2021; N. Wilson et al., 2021). These changes affect local ecology by impacting wildlife habitat, feeding, denning and health (Menziés et al., 2022; Reid et al., 2022). As access, safety, travel ability, harvesting success and other interactions are impacted by changing ice conditions, the cultural practices and traditions centered around these activities and relationships are at risk (Simonee et al., 2021). Knowledge is a practice—there is a risk of losing Inuit culture, including knowledge and language, if using sea ice becomes restricted or lost (Robertson and Ljubicic, 2019).



CASE STORY 3: Intersections of climate change and traditions: the Northern Tutchone People of the Selkirk First Nation

Changing conditions such as warming ocean temperatures and inshore waters becoming salinized and less oxygenated are severely impacting species important to Indigenous Peoples. Marine fish and invertebrates are projected to decline by up to 64% by 2050 (Weatherdon et al., 2016), posing serious implications for food security and health for Indigenous Peoples who rely on fish not only to eat but also to transfer culture and knowledge in our communities.

In the Yukon, a noticeable decline in salmon populations due to climate change poses a serious threat to the Northern Tutchone People of the Selkirk First Nation in passing down traditional knowledge and practices to young people (Selkirk First Nation and The Arctic Institute of Community Based Research, 2016).

In response, the community led a research project, “Keeping Our Traditions”, to answer the question: “What do we do at fish camp when there are no fish?” The findings highlighted the importance of holding fish camps even in the absence of fish, emphasizing being with youth on the Land. The role of the Northern Tutchone People of Selkirk First Nation remains critical in conservation. The presence of youth on the Land was just as important during the time of salmon fishing to maintain cultural connections to the Land, to practice traditions like drying fish and sharing stories, and to continue hunting, fishing and gathering other traditional foods and medicinal sources. Maintaining traditional practices ensures pathways to mental, physical, emotional and spiritual well-being, and assists in adapting to a changing climate.

BOX 5: The meaning of Ice: people and sea ice in three arctic communities

Excerpt from *The Meaning of Ice: People and Sea ice in Three Arctic Communities* (Fox Gearheard et al., 2013, p. 63):

“Sea ice is home in both a permanent and temporary sense. It is a permanent, integral part of who we are—we think about it, talk about it, dream about it and, as Jacopie Panipak said, we are homesick for it when we are away from it for too long. It also provides a temporary physical home sometimes, a place to set up our hunting, whaling and fishing camps over the seasons. In the past,

before settlements, we could live on it during certain times of the year. It is the sea ice that in the past was the ultimate source of warmth—a word that Elders today use frequently when they reminisce about their lives growing up and living on the ice. They remember life in the igloo, set on the sea ice for its superior warmth over the land, and the warm glow of the *qulliq/qulleq*—the oil of this lamp from the animals hunted from the sea ice. Sea ice means warmth, and the light of home.”

6.3 Connections between climate change impacts, infrastructure and the multiple crises facing First Nations, Inuit and Métis

The impacts of climate change on First Nations, Inuit and Métis extend beyond the Land, Water and Ice. The effect on natural and built infrastructure, for instance, is a key concern across the country. The *National Inuit Climate Change Strategy* identified infrastructure as one of five key priorities, recognizing the need to close the infrastructure gap in Inuit Nunangat through new climate-resilient builds, retrofits to existing builds, as well as through adaptation, assessments, building practices and codes that are Inuit-led and incorporate Inuit knowledge (ITK, 2019a). Similarly, the Assembly of First Nations *National Climate Strategy* has identified closing the natural and built infrastructure gap as one of seven priority areas.

Infrastructure is increasingly vulnerable to climate change impacts, including temperature and precipitation changes, permafrost degradation and coastal erosion (see NIR-2; NIR-3; ITK, 2019a). In the Arctic, thawing permafrost can damage drinking water and wastewater infrastructure, leading to sewage contamination in groundwater, drinking water and other surface waters (see RPR-6; IPCC, 2014, p. 726). Coastal erosion along all three of Canada's coastlines poses another threat to infrastructure, including drinking water systems. For example, in December 2010, Lennox Island, PEI, home to the Lennox Island First Nation of the Mi'kmaw, experienced a severe storm that resulted in a 36-hour storm surge, temporarily closing the roadway to the community (see Case Story 1.8 in RPR-1; Coldwater Consulting Ltd., 2016, as cited in Lewis and Peters, 2017) and threatening the sewage treatment plant and associated lagoons (Jardine, 2016, as cited in Lewis and Peters, 2017). The

Tsleil-Waututh Nation, located on Burrard Inlet, British Columbia, is experiencing the effects of sea-level rise, coastal flooding and shoreline erosion, impacting their Lands, infrastructure, ecosystems and historical sites of cultural value (see Case Story 2.5 in NIR-2; Kerr Wood Leidal Associates Ltd. (KWL) and Tsleil Waututh Nation, 2021). They have also partnered with the University of British Columbia's Coastal Adaptation Lab under the Living with Water project to explore how Indigenous Knowledge can contribute to coastal adaptation measures (Owen, 2020).

The health concerns arising from impacts on infrastructure are serious and varied. For instance, storm sewer drainage systems often cannot keep up with the volume of storm rainfall runoff, causing sewer backups that flood basements and result in contaminants such as raw sewage into homes, introducing pathogens harmful to human health (see HCCC-2; Horton and McKenzie, 2009, as cited in Lewis and Peters, 2017). Run-off during heavy precipitation can also carry hydrocarbons (components of gas or petroleum), including PAHs (polycyclic aromatic hydrocarbons from diesel fuel, gasoline or oil), and heavy metals (such as lead, cadmium and mercury) from roadways into groundwater systems, which is a significant concern near populated areas (Horton and McKenzie, 2009, as cited in Lewis and Peters, 2017). Salmonella and campylobacter are common waterborne bacterial pathogens that are known to be climate sensitive (IPCC, 2014). In fact, climate factors such as heavy precipitation have increased the risk of waterborne disease events caused by pathogens (ITK and ICC, 2021; ITK 2020b; Harper et al., 2020; Thomas, et al., 2007). Climate change severely impacts water resources and security through changes in precipitation patterns, increased frequency of extreme weather events and melting of

permafrost, leading to changes in the timing and volume of river runoff that also affects water quality (see RPR-6). Addressing these issues requires a range of measures, including the development of more effective water management and governance systems, investments in drinking water and wastewater infrastructure, and increased collaboration between northern communities, governments and Indigenous Peoples in the North (see RPR-6).

Drinking water infrastructure exemplifies the multiple and interrelated challenges that First Nations, Inuit and Métis face, which are amplified by climate change (ITK and ICC, 2021; ITK, 2020b; Castleden and Skinner, 2014). Drinking water systems in First Nations are often already in poor condition, heightening their risk of failure in the face of climate change. A national assessment of First Nations water and wastewater systems conducted in 2011 found that of the 807 water systems serving 560 First Nations, 314 (39%) were categorized as having high overall risk, 278 (34%) as having medium overall risk and only 215 (27%) as having low overall risk (Indigenous and Northern Affairs Canada, 2011, p. ii). In 2014, the United Nations Special Rapporteur on the Rights of Indigenous Peoples reported that the drinking water situation in First Nation and Inuit communities was troubling, with “more than half of the water systems posing a medium or high health risk to their users” (Anaya, 2009, p. 8). In 2015, the Government of Canada committed to ending all long-term drinking water advisories in First Nations within five years. By 2018, 40 advisories had been lifted, but 26 new advisories and 36 short-term advisories had been added (David Suzuki Foundation, 2018). The Mohawks of the Bay of Quinte, near Kingston, Ontario, for instance, have faced drinking water advisories for over

a decade due to fecal, bacterial and algae contamination (Alhmidi, 2021). This community is home to approximately 2,250 residents, with an additional 8,000 registered community members living off-reserve (Indigenous and Northern Affairs Canada, 2019). Neskantaga First Nation in northern Ontario has also been under a boil water advisory since 1995, the longest in any First Nation in Canada. In 2020, the First Nation evacuated community members to hotels in Thunder Bay, despite having a new water treatment plant built two years prior (Stefanovich, 2020).

Physical health impacts represent just one aspect of the multifaceted disruptions caused by climate change. There are also significant impacts on mental, emotional and spiritual health (see Case Story 4; NIR-3; RPR-6; HCCC-4). Individuals living in conditions where they cannot provide access to healthy water, food and safe shelter or environment for their families are likely to experience immense stress and trauma. The on-reserve housing crisis facing First Nations is a clear example. Estimates produced by the First Nations Information Governance Centre, using data from the Assembly of First Nations’ First Nations On-Reserve Housing and Related Infrastructure Needs survey, show that there is a deficit of approximately 85,700 housing units to meet current demands. Additionally, 34% of existing units need minor repairs and 31% require major repairs (Assembly of First Nations, 2018). The situation facing Inuit is similar, where over half (51.7%) of Inuit in Inuit Nunangat live in crowded housing, compared to 8.5% of non-Indigenous Canadians (Crown-Indigenous Relations and Northern Affairs Canada, 2019). In First Nations, a combination of government underfunding, rapid population growth, restrictive policies and other factors has led to various health and social issues. These include respiratory illnesses, mental

health problems and an increased risk of violence (Stout, 2018). Indigenous Peoples disproportionately suffer from these conditions, which are exacerbated by climate change. This report emphasizes the broader historical and ongoing inequities and injustices resulting from

settler colonialism and imposed climate policies, governance and laws, further compounding the impacts of climate change on Indigenous Peoples (Mercer, 2022; Arsenault, 2018; Collins et al., 2017).

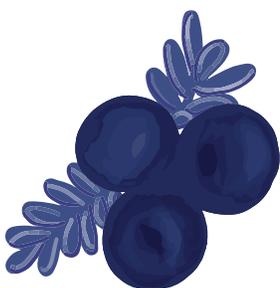
CASE STORY 4: Intersections of environmental displacement and health: Pictou Landing First Nation (PLFN)

From 1967 until January 2020, the Government of Nova Scotia permitted a local pulp and paper mill located near the Mi'kmaw community of Pictou Landing First Nation (PLFN) to pump 85 million litres of effluent per day into a wastewater treatment lagoon called the Boat Harbour Effluent Treatment Facility. This location was once a culturally significant tidal estuary, known to the community as *A'se'k* which provided food, medicine, berries, and recreation to the Mi'kmaw (Lewis et al., 2021; Pictou Landing Native Women's Group et al., 2016). *A'se'k* translates to 'the other room' in the Mi'kmaw language, reflective of the close connection PLFN residents had to the area (Lewis et al., 2021).

Like many Indigenous communities facing similar challenges, PLFN worried about losing its connection to *A'se'k*, especially in terms of implications this would have for their language, cultural practices, spirituality and traditions, which are important to their overall health and well-being (Lewis et al., 2021). Drawing on the wisdom of the Knowledge Holders in the community and literature on land displacement

and environmental dispossession from the perspective of Indigenous Peoples, Lewis et al. (2021) used concepts in the Mi'kmaw language, with English explanations, to guide thinking away from a western-centric analysis of how Indigenous Peoples are impacted. This method allowed for a more appropriate analysis, where Pictou Landing First Nation recognized the outcomes as relevant to their lived experiences. The researchers framed their approach as the Piktukowaq environmental health framework, using Mi'kmaw concepts to replace western constructs of worldview, epistemology, and ontology as conceptual tools. This method was particularly effective when western constructs are insufficient to bring the non-Indigenous reader to an understanding of how the Piktukowaq were affected by their sudden separation from *A'se'k* (Lewis et al., 2021).

Studying interconnected phenomena like those at *A'se'k* in the context of land displacement and environmental dispossession enhances our understanding of how environmental change impacts the health of Indigenous Peoples.



7.0 Indigenous Knowledge Systems and lived experiences are essential components of climate action

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To effectively address the impacts of climate change, it's crucial to include Indigenous observations, knowledge systems and diverse lived experiences, especially those of gender-diverse individuals, women and youth, in all aspects of climate change research, strategies and decision-making processes. First Nations, Inuit and Métis have unique and diverse indicators and methods for observing, monitoring and assessing change.

For too long, there have been studies on First Nations, Inuit and Métis, our homelands and our knowledge, without our direct involvement in the research process. This is now changing, through our rising leadership in research and policy, concrete actions and fostering of meaningful partnerships. This report is an example of this ongoing transformation of research and knowledge production in our communities and on our Land, Water and Ice.

We are the original researchers of our homelands. We have always relied on our knowledge systems to understand the world around us. We refer to these as “systems” because they encompass more than just a set of observations or information—they include all that we use to create, manage, apply and share our knowledge.

Our knowledge systems, transmitted through our languages and grounded in our protocols, encompass our worldviews and values. This is why our report (and our process for developing this report) started with recognizing shared key principles (see Box 1)—including hope, love, and respect for diversity, which guided our approach.

Moreover, our knowledge systems also embody highly detailed and technical methods, language, approaches and understandings. Our Elders, harvesters and other knowledge-holders are experts in observing, monitoring and assessing the world around us, including the changes in climate and environment.

7.1 Introduction

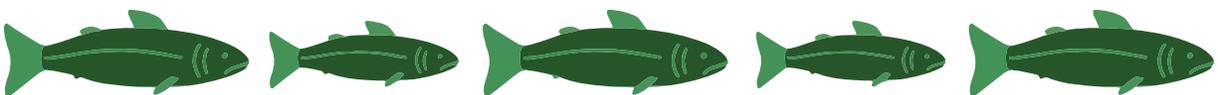
First Nations, Inuit and Métis have always relied on our own knowledge systems to understand the world around us. This includes our own reasons for inquiry, modes of inquiry, languages of inquiry, ways of knowing, ways of analyzing, and ways of sharing and mobilizing knowledge. The use of the term “systems,” rather than simply “knowledge,” acknowledges the educational, historical, governance and legal structures that exist in Indigenous societies, gives rise to knowledge, and ensures its functionality and continuity (McGregor, 2021). Indigenous Knowledge is not merely a

body of information, but rather encompasses all of the systems that generate, govern, manage, analyze, maintain, apply and transmit knowledge (Huntington, 2011; McGregor, 2004).

Although there is much knowledge being generated *about* Indigenous Peoples and climate change, little is *led by* Indigenous Peoples, which prioritizes our own knowledge systems, languages, values and experiences. A global assessment of Indigenous engagement in climate research found that 87% of studies pertaining to Indigenous Peoples use an extractive model (David-Chavez and Gavin, 2018). In Canada, First Nations, Inuit and Métis are actively pushing for changes in research governance processes, which is leading to emerging dialogues on self-determination in research—including the need for control over how research is carried out and ensuring that research partnerships reflect Indigenous priorities and build Indigenous research capacities (Perrin et al., 2021; Asselin and Basile, 2018; ITK, 2018). There is a great need to strengthen relationships and understanding between Indigenous and western science, and to find frameworks to meaningfully include Indigenous ways of knowing within decision-making policy and processes (Yua et al., 2022). Now is the time to move beyond inclusion. Indigenous Peoples have our own methods, decision-making processes and systems, and we are experts within those systems. These systems should be respected, acknowledged, supported and implemented.

7.2 Indigenous observations, knowledge systems and lived experiences

A worldview is a belief system that shapes a person's values, perceptions and actions. Although there are many ways to perceive or interpret the world and environment (Guba and Lincoln, 1994), colonial forces and associated power imbalances often prioritize certain worldviews and knowledge systems like Western or Eurocentric paradigms over others (Reid et al., 2021; McGrath, 2018). Indigenous Peoples have developed knowledge systems over millennia that understand how to live adaptively with the environment, leading to strong adaptive capacities throughout history (Kimmerer, 2018). Indigenous Knowledge Systems are place-based (Aikenhead and Michell, 2011) and defined as “cumulative bodies of knowledge, practice and belief evolving by adaptive processes and handed down through generations by cultural transmission, about the relationship of living beings including humans with one another and with their environment” (Berkes, 1999, p. 154). These systems are evolving over time in a living process that continues to this day (Yua et al., 2022, p. 33). Reflecting memories and knowledges through living heritages, Indigenous Knowledge Systems develop through stories, lessons, practice and extensive histories, enabling well-organized abilities to adapt to seasonal and inter-annual environmental changes since time immemorial (see Case Story 5; Thompson et al., 2019; Chisholm Hatfield et al., 2018; Makondo and Thomas, 2018; Whyte, 2017b; Alessa et al., 2016).



CASE STORY 5: Anishinaabe perspectives on climate change impacts and research

Indigenous Peoples in the Great Lakes region of Ontario have expressed concerns about the impacts of climate change on culture and ways of life (Chiblow, 2019; IPBES, 2019). Spurred by a desire to document and prioritize concerns related to climate change, a group of 37 environmental professionals, Elders and youth (ages 19–30) from 12 Anishinabek Nation communities in the upper Great Lakes region attended a workshop in the Magnetawan First Nation in 2019 to share knowledge and insights and to identify important regional research directions for action (Menzies et al., 2022; Gallant et al., 2020). During the workshop, the discussion focused largely on 1) the greatest climate change concerns regarding the environment; 2) the greatest climate change concerns regarding community and way of life; and 3) the most important climate change research directions.

The main concerns expressed by workshop participants were changes to animal and plant

life cycles and distributions, the water cycle, water quality, disease and parasite rates and occurrence as well as shifts in biodiversity. When discussions shifted to the greatest climate change concerns to community and way of life, many participants expressed that the impacts to the environment were also impacts to ways of life, as all things are connected. Participants were most concerned about the impacts of climate change to traditional and spiritual practices, but also indicated that the Land is becoming more unpredictable and difficult to read. The most important climate change research directions shared by participants were to develop research and policies that include both Indigenous and western knowledge and the need to prioritize more wholistic and ecosystem-based (as opposed to species-specific) approaches, especially in relation to animal and plant inventories and long-term monitoring.

While Indigenous Knowledge Systems are diverse, Indigenous worldviews share many philosophical and spiritual underpinnings that guide relationships with the natural world and are centered in environmental sustainability (Simpson, 2000; Whyte, 2018). Indigenous Knowledge Systems consist of cultural frameworks of respect, reciprocity and responsibility (Pierotti and Wildcat, 2000; Kimmerer, 1998) and “original instructions” for caring for and relating to the Land (Cajete, 2018). Indigenous philosophies recognize human dependence on the natural world, and

Indigenous cultures are often characterized as “cultures of gratitude” (Kimmerer, 2018). These systems understand that our relationships with the natural world must be founded on reciprocity to All Our Relations, human or more-than-human (McGregor, 2018). A common understanding is that all beings, human and more-than-human, are interrelated, and respect for All Our Relations is based on a philosophy of co-existence (McGrath, 2018; Karetak et al., 2017; Aikenhead and Michell, 2011; Bennett and Rowley, 2004).

The current global environmental crisis is predominantly caused by Western relationships with the natural world—a worldview that sees nature as a commodity to be dominated for human benefit (McGregor, 2018). Albert Einstein famously stated, “We can’t solve our problems with the same thinking we used when we created them.” Similarly, Kimmerer (2018, p. 47) notes that “[Western] science is a superb tool for answering true/false questions but does not have the capacity to address questions of right/wrong.” Many complex issues today lie at the intersection of nature and culture, and leaders, policymakers and scientists acknowledge that Western science alone is insufficient to address them.

7.3 Inclusion of Indigenous observations, knowledge systems and lived experiences in climate change research and decision making

Indigenous Knowledge Systems reflect worldviews and ways to interpret the world that are based on incredibly technical methodologies and understandings. Our knowledge systems include deep insights into complex systems such as plants and trees (Kimmerer, 2018), fisheries (Reid et al., 2021), and sea ice (Dawson et al., 2020; Fox Gearheard et al., 2013; Krupnik et al., 2010; Laidler et al., 2008; Laidler and Ikummaq, 2008; Laidler and Elee, 2008). Our Peoples

have always observed the environment and monitored conditions using key indicators (Ban et al., 2020; Kourantidou et al., 2020; Ban et al., 2018). This includes the knowledge and experience to provide leadership and rich contributions to documenting and understanding climate change impacts through direct knowledge and insights pertaining to weather, environment, wildlife and habitats, adaptation planning and modelling and through insights and wisdom related to alternate pathways and approaches to sustainable living (see Case Story 4; Case Story 5; Lim, ʔehdzo Got’Inę Gots’ę Nákedı [Sahtú Renewable Resources Board] and The Pembina Institute, 2014; Turner and Clifton 2009).⁶⁷⁸

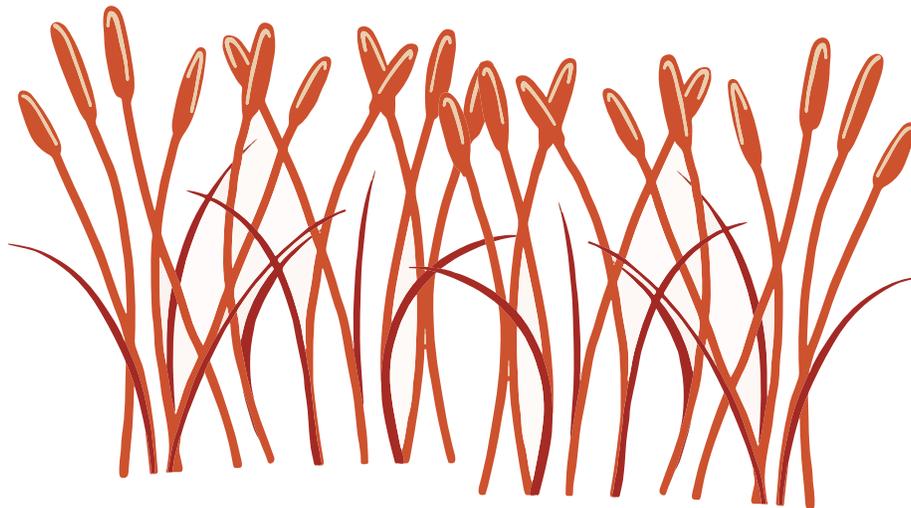
Although western science can describe the natural world, it does not speak to how to live with it (McGregor, 2018). Due to unique and holistic relations with the environment and an understanding of localized seasonal, cyclical and interdependent timing of events such as migrations, hibernations and blooming vegetation, Indigenous Knowledge Systems can identify changes undetected by western science (Chisholm Hatfield et al., 2018; Whyte, 2017a) and can provide more in-depth place-based understandings of changing environments over greater timescales than western scientific methods (Sawatzky et al., 2021; Sawatzky et al., 2020; Huntington, 2011; Gagnon and Berteaux, 2009).

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- 6 For more information, see the video *Two-Eyed Seeing in First Nation Conservation Practice* available at <https://www.youtube.com/watch?v=SS-JbEtEpqo>
- 7 For more information, see the video *Stories of Inuit-led Conservation* available at https://www.youtube.com/watch?v=gl2KTeL_ouM
- 8 For more information, see the video *Red River Métis IPCAs* available at https://www.youtube.com/watch?v=lpoAxRNYR_0

Approaches that braid Indigenous and western ways of knowing in environmental research and management have well-recognized benefits (Johnson et al., 2020; Alexander et al., 2019; Bartlett et al., 2012). Complex environmental issues like climate change can benefit substantially from multiple ways of knowing (see Case Story 6; Cuerrier et al., 2022; Tomaselli et al., 2022; Kimmerer, 2018; Alessa et al., 2016; Cuerrier et al., 2015). A co-produced or braided evidence-based approach supports complementarity of knowledge systems and values, while upholding the integrity of each system and without one being dominant over the other (Yua et al., 2022; Luby et al., 2021; Tengö et al., 2014). Etuaptmumk (Two-Eyed Seeing) is a concept described by Mi'kmaq Elder Albert Marshall as the process of bringing together multiple ways of knowing and a way of seeing from two eyes or lenses—an Indigenous eye or lens, encompassing Indigenous ways of knowing, and a western eye or lens, encompassing western ways of knowing (Bartlett et al., 2012). Indigenous

Peoples worldwide have developed similar frameworks or practices of knowledge co-existence, including “Two Row Wampum” or Kaswentha in Haudenosaunee; “Two Ways” or *Ganma* in Yolngu; “Double-Canoe” or *Waka-Taurua* in Māori (Reid et al., 2021); co-production of knowledge by the Inuit Circumpolar Council; and the qaggiq model of Inuktitut knowledge renewal based on late Inuk Elder Mariano Aupilaarjuk’s philosophical thinking (McGrath, 2018; McGrath, 2002). Through Two-Eyed Seeing and other practices for braiding multiple ways of knowing that support an ethic of knowledge co-existence, co-production, inclusive environmental co-research, monitoring, management and governance can be supported, and more holistic perspectives on socioeconomic, political and ecological changes are established (Harper et al., 2021; Reid et al., 2021; Dufour-Beauséjour and Plante Lévesque, 2020; Henri et al., 2020; Reed et al., 2020; Popp et al., 2019, 2020; Levac et al., 2018; Durkalec et al., 2015; Harper et al., 2012; McGregor, 2004).



CASE STORY 6: “The Eyes and Ears for the Land and Water”—The Rising Tide of Indigenous Guardians Programs and Expansion of Indigenous Protected and Conserved Areas in Canada

The Indigenous-led conservation movement in Canada has been growing over the last 40 years as Indigenous communities across the country are taking back our rightful places as land protectors and stewards. Across Canada, there are approximately 90 Indigenous Guardian programs (Baker, 2021), with early efforts dating back to 1981 with the establishment of the Haida Gwaii Watchmen off the west coast of British Columbia (Indigenous Leadership Initiative [ILI] 2019). Indigenous Guardians perform a variety of duties including species and harvest monitoring, patrolling protected areas, providing cultural interpretation, educating land users about cultural values and proper land use, developing land use plans, monitoring resource development projects, responding to climate change impacts, restoring forests, streams and other landscapes, training youth, working with Crown forestry and fisheries representatives and identifying areas for conservation and sustainable economic development (Indigenous Guardians Toolkit, 2021; ILI, 2020a, 2020b, 2020c; ILI, 2016). They are the “eyes and ears” on the Land (ILI, 2016).

Indigenous Guardians programs build capacity, strengthen nationhood and employ Indigenous Peoples (ILI, no date (b)). For example, the Innu Nation in Labrador employs 15 Indigenous Guardians who manage fisheries, caribou and forestry as well as monitor hydroelectric and mining operations. In addition to offering

employment, the program has strengthened leadership and capacity within the Innu Nation to enable negotiations of the historic Tshash-Petapen (New Dawn) Agreement with the Crown, which establishes an Innu Land Claim and Self-Government Agreement-in-Principle, settles past hydroelectric grievances with the Government of Newfoundland and Labrador and establishes an Impact and Benefits agreement for the Lower Churchill River Hydroelectric Generation Project (ILI, 2016; Innu Nation, 2010; Government of Newfoundland and Labrador, 2008; Olthuis, n.d.). In Nunavut, the Nauttiqsuqtiit (Inuit Stewards) are the “eyes and ears” of the Tallurutiup Imanga National Marine Conservation Area, where they monitor their environment and harvest for their communities (Qikiqtani Inuit Association, 2021; 2020). In the Ainslie Wood Conservation Area, the Métis Nation of Ontario has created a Guardians program focused on water quality monitoring.⁹

In the Northwest Territories, the NiHat’Ni Guardians of the Łutsël K’e Dene First Nation, who monitor caribou, respond to climate change impacts and co-manage one of the largest protected areas in the country, Thaidene Nënë, which spans 26,376 square kilometres of boreal forest (ILI, 2020c). Thaidene Nënë is one of three Indigenous Protected and Conserved Areas established in Canada since 2018 (ILI, no date (a)).

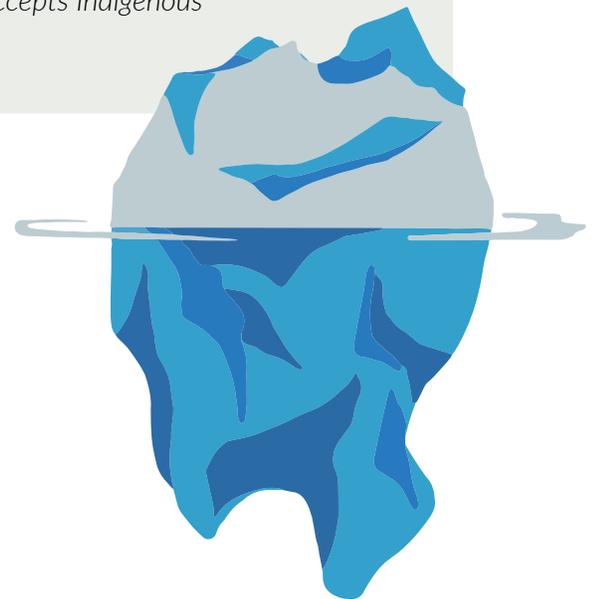
9 For more information, see the video Métis Nation of Ontario Water Guardians available at <https://www.youtube.com/watch?v=fqS1GTWB388>

7.4 Decolonizing climate change research and policy

Including Indigenous Knowledge in research, decision-making and actions must involve a decolonization process (see Case Story 7). A first step towards a decolonized process that supports Indigenous socioecological resilience to climate change is approaching policy change dialogue through an ethical space that equally values and accepts Indigenous Knowledge Systems and ways of knowing (Elliott et al., 2022; Hernandez et al., 2022; Fox et al., 2020; Pedersen et al., 2020; Huntington et al., 2019; Salomon et al., 2019; Elliott et al., 2012; Ermine, 2007). Supporting reconciliation in Canada is imperative, and Canada's Truth and Reconciliation Commission's 94 Calls to

Action (Truth and Reconciliation Commission of Canada, 2015) are beginning to be respected, implemented and prioritized by scientists (Wong et al., 2020). Approaches that balance and remedy existing power relations, uplift unique strengths and respect differences are critically needed (K.J. Wilson et al., 2020; Muller, 2012). We must recognize that our collective responsibility extends beyond collaboratively restoring the Land, Water and systems damaged by climate change to healing our relationships with the Land and Water through honouring covenants of respect, responsibility and reciprocity (Kimmerer, 2018). Together, our collective knowledge systems, values and ways of knowing can transform and restore our relationships with All Our Relations (see Section 5.4.1).

“A first step towards a decolonized process that supports Indigenous socioecological resilience to climate change is approaching policy change dialogue through an ethical space that equally values and accepts Indigenous Knowledge Systems and ways of knowing”



CASE STORY 7: Decolonizing climate policy: An Indigenous Climate Action project

Indigenous Climate Action, an Indigenous-led organization, launched the Decolonizing Climate Policy research project in 2018. The project aimed to examine Canadian climate policy's shortcomings and challenges while supporting and developing Indigenous-led climate policy.

In Phase 1 of the project, Indigenous Climate Action conducted an in-depth critique of the Government of Canada's climate policy through the lens of Indigenous rights, knowledge and perspectives. The analysis focused on the two previous federal climate plans: the *Pan-Canadian Framework on Clean Growth and Climate Change* (Government of Canada, 2016) and *A Healthy Environment, A Healthy Economy* (Government of Canada, 2020b). Released in 2021, the critique revealed that Indigenous Peoples were structurally excluded from the process of developing these climate plans, violating the right to self-determination and free, prior, and informed consent. Although the 2020 plan recognized the importance of self-determination by and for Indigenous Peoples, the structural exclusion conflicts with the Government of Canada's commitments to Nation-to-Nation, Inuit-Crown, and government-to-government relationships.

Additionally, some actions promoted in these plans did not adequately address the realities faced by Indigenous Peoples and overlooked structural inequities perpetuated through colonial relations and oppressive structures in Canada.

In response to these findings, Indigenous Climate Action initiated Phase 2 to explore what Indigenous-led climate policy might entail and released a summary report in 2022 (Indigenous Climate Action, 2022). This summary report employs the medicine wheel to identify four key areas of discussion, which will be elaborated upon in the full publication, once it is released (see Figure 5). During publication, [Part 1 of the Phase 2 report](#) was released (Indigenous Climate Action, 2023).

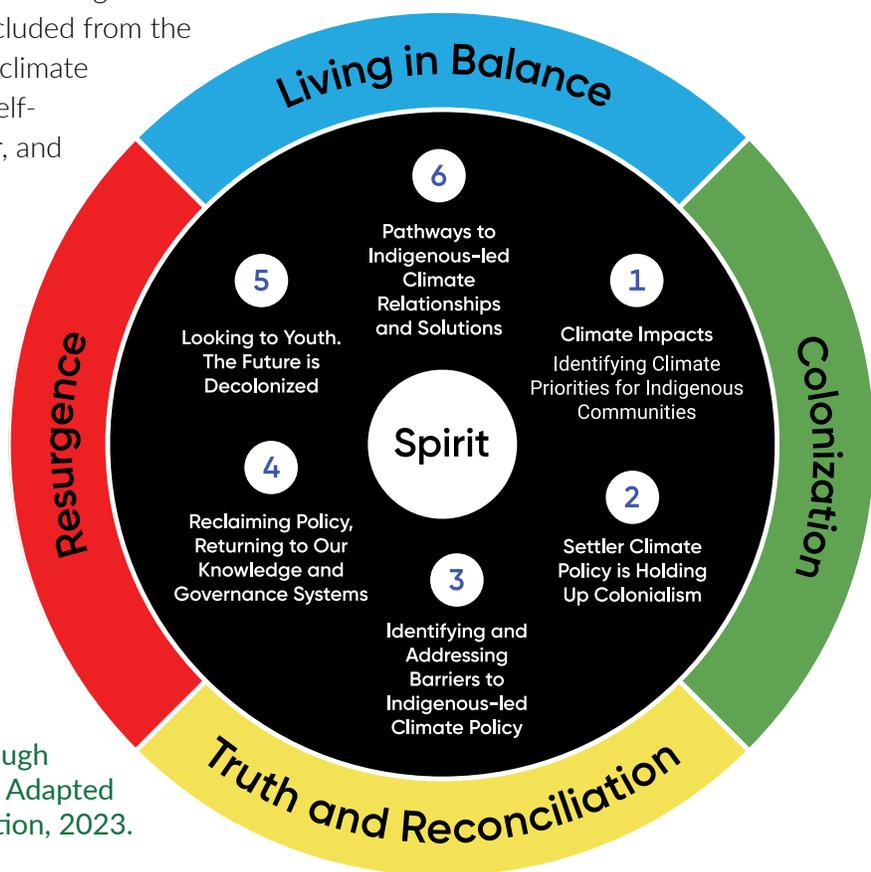


Figure 5: Colonialism and climate change, as seen through the medicine wheel. Source: Adapted from Indigenous Climate Action, 2023.

7.5 Indigenous indicators, methods and practices for observing, monitoring and assessing change

First Nations, Inuit and Métis have had our own methods for observing, monitoring and assessing environmental and climate change since time immemorial. Due to our close relationships with the Land, Water and Ice, knowledge keepers from these groups have a long history of adapting to seasonal and environmental variability through the use of indicators (Lede et al., 2021). However, the rapid pace and magnitude of recent climate changes are challenging our ability to utilize such indicators effectively in assessing environmental changes. Despite these challenges, several programs demonstrate the effectiveness of these methods, including the Haida Gwaii Watchman Program, the [Askîy Initiative](#) by the Métis Nation of Alberta (2020) and the [Qikiqtani Inuit Association's Community-based Monitoring Program](#) (see Figure 6; ICHAP, 2021). These initiatives provide valuable information about environmental health and well-being, support the restoration of traditional governance systems and show how First Nations, Inuit and Métis engage in observational and relational research.

Community-based monitoring initiatives, where Indigenous Peoples and other relevant stakeholders participate in the management and governance of environmental or social phenomena, are one way Indigenous Knowledge Systems are integrated into mainstream environmental governance (Ndeloh Etiendem et al., 2020; Lam et al., 2019; Johnson et al., 2016; Danielsen et al., 2014; Danielsen et al., 2009). While there are both benefits and challenges to community-based monitoring (Hovel et al., 2020; Conrad and



Figure 6: Community based monitoring in Pond Inlet, Nunavut. Source: Photo courtesy of Qikiqtani Inuit Association.

Hilchey, 2011; Danielsen et al., 2009), its popularity has significantly grown, especially among Indigenous Peoples (Ndeloh Etiendem et al., 2020; Kuokkanen, 2019) and in boreal and Arctic regions (Brunet et al., 2020; Heath and Arragutainaq, 2019; Whyte et al., 2016; Brunet et al., 2014a; Brunet et al., 2014b; Pulsifer et al., 2012).

Indigenous Guardian programs, also known as Rangers or Watchmen, is another example of community-based monitoring growing in popularity (see Case Story 8; Reed et al., 2021a). Indigenous Peoples have increasingly turned to these programs to address specific community needs and concerns related to resource development (Whiteman and Mamen, 2002) and climate change (Lam et al., 2019). Studies on Indigenous community-based

monitoring have characterized it as a tool for empowering communities (Danielsen et al., 2009), building trust and credibility among actors (Fernandez-Gimenez et al., 2008), monitoring activities on Indigenous Lands and territories (Dehcho First Nations et al., 2016), and supporting cultural revitalization and intergenerational knowledge sharing (Peachey,

2015). However, some scholars have raised concerns about Indigenous community-based monitoring, noting its potential to perpetuate the marginalization of Indigenous Peoples and our knowledge (Reed et al., 2020; Lane and Corbett, 2005), especially when Indigenous Peoples are not directly included in decision-making processes (Conrad and Hilchey, 2011).

CASE STORY 8: Tracking change in the Mackenzie River Basin

The Mackenzie River basin, covering one-fifth of the country's land area, is experiencing stress from climate change and is largely under researched by scientists and governments. First Nations, Inuit and Métis, who live and spend time on the Land throughout the basin, possess immense knowledge and experiences vital for understanding changes in the region.

A common indicator of change is water levels. During the decade from 2010 to 2019, Indigenous Peoples throughout the Mackenzie River Basin reported a prolonged period of decreased water levels and flows, accompanied by slower currents and eroding riverbanks. These changes may have been the result of warmer weather and reduced rainfall. This period was then followed by at least three years of high water and flooding throughout the basin. Such extreme variability in water levels, both high and low, complicates access to traditional fishing and hunting areas.

Water levels, among other indicators, are integral to Indigenous monitoring systems, which focus on watching, listening, learning and understanding change. These systems are deeply rooted in sociocultural practices like hunting, trapping, fishing, harvesting plants, and engaging in cultural and spiritual ceremonies. Indigenous approaches to monitoring yield unique observations and insights, arising from a profound relationship with the environment. As the late Dënesųłíné Elder Morris Lockhart of the Łutsël K'é Dene First Nation observed, "those who don't care would not notice the changes." People with a strong connection to the Land can often distinguish between natural ecological variability and changes that fall outside natural norms.

The initiative "Tracking change: The role of local and traditional knowledge in watershed governance", a network of 30 Indigenous-led projects in the Mackenzie River Basin (Tracking Change, n.d.) is addressing this issue.



8.0 The food, water and energy nexus is central to First Nation, Inuit and Métis climate leadership

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Food sovereignty is at the heart of First Nation, Inuit and Métis cultures. The nexus of food, water and energy sovereignty is a key priority for First Nations, Inuit and Métis. In each context, reasserting authority and decision-making is enabling a redistribution of power towards First Nations, Inuit and Métis. The revitalization of meaningful Indigenous economies based on relationships with the Land, Water and Ice are central to this redistribution and to Indigenous-led climate action.

Food is central to our ways of life. Our traditional foods have sustained us for millennia, not only through nourishment, but also by sustaining our culture, language, values and knowledge through the practices of harvesting, preparing and sharing food.

We have the right to food sovereignty and to access the foods we choose. Due to colonialism, our communities face food insecurity rates higher than other populations in our remote communities and in urban areas. We deserve equity and access to adequate, affordable and healthy foods.

Water and energy are key priorities for our communities. We need access to and protection of healthy water in both built and natural environments, for ourselves and for our more-

than-human relations. We need innovation, localization and security in energy sources, which benefit our communities and create meaningful economies.

The impacts of climate change bring new, compounding and serious challenges to our food, water and energy security. In response, we are reasserting our authority and decision-making to restore our systems of food, water and energy. Revitalizing our economies—grounded in our relationships with the Land, Water, Ice and all beings—is crucial to this process, as well as to broader efforts to transition to a low-carbon future.

8.1 Introduction

Despite developing highly complex food systems since time immemorial, colonization has significantly impacted the ability of First Nations, Inuit and Métis to access traditional foods (Willows et al., 2022; Robin et al., 2021; Lemke and Delormier, 2017; Kulchyski and Tester, 2007). Control of food, food sharing, harvesting, distribution and production by the federal government through various colonial, racist and detrimental laws and policies has oppressed Indigenous Peoples, leading to widespread food insecurity across First Nations, Inuit and Métis communities (First Nations Food Nutrition and Environment

Study, 2021; Gombay, 2005). Considering these challenges, First Nations, Inuit and Métis are resisting these systems of oppression by exercising autonomy over our Lands, Waters and traditional foods, and advancing Indigenous food sovereignty (Snook, 2021; Settee and Shukla, 2020; ITK, 2019a; ICC, n.d.).

Food serves as a lens for understanding and addressing climate change-related issues in our communities (Caughey et al., 2022). Climate change significantly impacts Indigenous food systems and food security, for example, through changing weather conditions and increasing costs associated with harvesting and accessing food, as well as affecting water systems (Lewis and Peters, 2017).

The nexus of food, water and energy sovereignty is a key priority for First Nations, Inuit and Métis (Huntington et al., 2021b). In each context, reasserting authority and decision-making powers has enabled a redistribution of power towards First Nations, Inuit and Métis governments and citizens. This movement towards self-determination and sovereignty is central to addressing the structural legacy of colonization by re-localizing control over food, water and energy systems (Elliott et al., 2022; Huntington et al., 2021b).

While climate change significantly impacts both Indigenous and non-Indigenous economic systems, Indigenous Peoples' perspectives on the economy offer valuable insights. Shifting organizing principles from scarcity to abundance opens the possibility of reframing global discussions on "just transitions" from a narrative of "winners and losers" to one of cooperation and reciprocity, grounded in a responsibility to care for the Land in its entirety.

8.2 Food sovereignty, security, safety and management

First Nations, Inuit and Métis have developed highly complex food systems since time immemorial. Sophisticated, sustainable and regenerative food production was evident from coast to coast to coast, supporting our existence "...for millennia on healthy diets of locally produced and gathered foods, which closely linked local communities with their diverse environments" (Beck, 2017, p. 1). In the Human Rights Watch report on food insecurity in First Nations (2020), Gitanyow Hereditary Chief Malii described how his grandfather referred to the animals and plants in their traditional diet as "dinner table" in his language. He recalled, "[My grandfather] described the moose, berries and fish like that. He also referred to it as [a] bank." Indigenous Peoples characterize a holistic and relational approach to food as "...rooted in land and water-based practices for food and lifeways that mark interdependent relations between humans, and between human and natural ecologies" (Pictou, 2018, p. 14).

These food ecosystems drastically changed with European contact (Pictou, 2017). Control of food sharing, harvesting, distribution and production were wielded as weapons, reinforcing colonial doctrines of violence, assimilation and dispossession (Nightingale and Richmond, 2022; Richmond et al., 2021). For instance, Daschuk (2014) describes how famine was deliberately used as a policy weapon by the Canadian government during Prairie expansion to coerce "uncooperative Indians" onto reserves and remove them from Lands coveted by white settlers. Other impacts have manifested in many ways, such as high rates of water- and food-borne disease (Thivierge et al., 2016; Harper et al., 2015a; Harper et al., 2015b; Goldfarb et al., 2013), lack of

affordable and accessible healthy food sources (Beaumier et al., 2015; Council of Canadian Academics, 2014), contamination of Land and Water (Traditional Ecological Knowledge Elders Group, n.d.) and a decline in the percentage of food harvested from traditional sources due to decreased access to Land, loss of harvesting skills, increasing costs, restrictions on hunting and increased access to store-bought foods (National Collaboration Centre for Aboriginal Health, 2013). The Traditional Ecological Knowledge Elders Group expressed concerns about the herbicide glyphosate, stating, “We are dependent socially, economically, spiritually and culturally on the health of the forest, including the wildlife, plants, water and soil. In many areas, we cannot trust that the medicines and foods we harvest are clean and uncontaminated. The aerial spraying of glyphosate violates our treaty rights to the water and to hunt, fish, and gather berries and plant medicines in our traditional territories” (Traditional Ecological Knowledge Elders Group, n.d.).

Data shows that 48% of First Nations households have difficulty putting enough food on the table (Chan et al., 2021) and Inuit are the most food insecure Indigenous Peoples in the developed world (ITK, 2019a; Rosol et al., 2011). For Métis, there is a lack of research on climate-related food insecurity impacts, but concerns have been raised about a shortened goose hunt, changes in the movement and location of fish and their habitat, changes to the health, behaviour and distribution of caribou and moose, changes in the availability and quality of certain types of berries and the impacts of warmer weather on food preservation methods (Métis Nation British Columbia, 2022; North Slave Métis Alliance community members et al., 2017; Guyot et al., 2006). From this perspective, the revitalization of Indigenous food systems is central to the

climate crisis and “...an important part of our recovery from the impacts of colonization” (Simpson, 2011, p. 131).

Climate change has significant and growing impacts on Indigenous food systems and food availability. The unpredictability of weather and environmental conditions related to climate change and the increasing costs of harvesting (e.g., extra food, gas, supplies, multiple trips) threaten the ability of First Nations, Inuit and Métis to travel on the Land, Water and Ice to access traditional foods (King and Furgal, 2014). Furthermore, later freeze-up and earlier thaw due to warming temperatures shorten the winter road season, requiring alternate means of getting food to remote communities and adding to the already high costs of imported foods in northern and remote areas. Livelihoods that depend on harvesting fish, plants and wildlife are anticipated to be impacted by climate change (see Case Story 9; ICC Alaska, 2020; Jantarasami et al., 2018; Parlee et al., 2014; Dittmer, 2013); as are those in agriculture (Settee, 2020; Shinbrot et al., 2019; Saint Regis Mohawk Tribe, 2013), transportation (Hori et al., 2018a; 2018b) and tourism and recreation (ICC, 2008).

Combined, these factors have led to decreased consumption of healthy and culturally preferred local foods and increased reliance on retail food (Dodd et al., 2018a, 2018b; Medeiros et al., 2017; Berner et al., 2016; Loring and Gerlach, 2015). This exacerbates already high rates of chronic diseases prevalent among First Nations, Inuit and Métis, including obesity, diabetes and cardiovascular diseases (Kolahdooz et al., 2015; Reading, 2015). First Nations, Inuit and Métis are responding to this reality by exercising autonomy over our Lands and traditional foods, a crucial process in addressing socioeconomic marginalization and health disparities (Coté, 2016).

CASE STORY 9: Reflections on weather, Inuit food systems and our way of life

By Ray Ruben, harvester, Mayor of Paulatuk in the Inuvialuit Settlement Region, Inuvialuit Game Council Representative and a contributing author to the *For Our Future: Indigenous Resilience Report*.

The weather has always been a topic of discussion when hunters meet. Today, weather is still a major factor in our daily and seasonal lifestyle. Over time, weather patterns have shifted and changed. A couple of decades back, we knew the river systems would freeze in early October. Now, the rivers freeze up in late October/early November. We once had winter hunting on the sea ice open in October, now the hunting season opens in December. It is now a very rare occasion to see icebergs and multi-year ice. We have had to adapt to the changing ice conditions to travel to and from our harvesting camp sites (see Figure 7). Our migrating animals and birds have also been impacted by the later freeze up and earlier thaw. Although they still migrate to the same areas to feed and rear their young, their migration routes and timing have changed. Conditions of the terrain and rivers, as well as the weather, are factors in their annual migrations.

The knowledge once passed down by our Elders, verbally and through storytelling in regard to weather and seasonal changes, does not reflect what is happening today. The weather has become more unpredictable, and in some seasons, more severe. The strength of the winter winds when they come have increased in velocity. We have broken 50-year rainfall records and are observing more than usual coastal and inland erosion. The changes have impacted the ability of the Elders and harvesters to pass on the knowledge to younger people and families. Without the knowledge and teaching to become

experienced travelers of the Land, it affects our ability and willingness to go out to live and harvest for our families. More young families are now focused on earning a wage to support their families. In some cases, both parents are forced to find work as food costs rise and they have less harvested food from the Land. The need to supplement country food for single families and the elderly who are unable to harvest for themselves has resulted in seasonal harvesting programs in limited numbers.

The seasonal harvesting of all our needs requires large freezer storage spaces. When the geese migrate through, we harvest and store enough for the next year so a typical family of four might need to harvest and store 50 to 80 geese for the year. We also fish during the spring, summer and fall for the coming winter and again require freezer space to store the catch. So, for every species and food source we harvest, we need proper storage space. In the days before climate change and the resulting changes on the Land and Waters around us, we were able to keep our food year-round stored in icehouses. These icehouses were simply caves dug down into the permafrost, fashioned with storage rooms large enough for the needs of the community and insulated and sealed with proper hatches. Today, because of the changes in the climate, it is nearly impossible to construct an icehouse, maintain it and keep it frozen. The government ceased funding for community walk-in freezers, as funding became less accessible and depleted. Yet there continues to be a need for large freezer storage space for those communities that maintain a traditional lifestyle of seasonal harvesting and food gathering for. It has been shown that when there is no safe storage space available, harvest activities to bring in the needed food supply are affected.

CASE STORY 9 continued



Figure 7: Inuvialuit Settlement Region. Source: Photo courtesy of Kristen Walsh, 2018.

Across Canada, there have been other innovative examples of asserting Indigenous food sovereignty including school and community gardens, greenhouses, traditional food education programs, market garden and food cooperatives, country food harvesting and sharing programs, wild food banks and fish-buying clubs (Robin, 2019; Kamal et al., 2015; Martens, 2015; Thompson et al., 2012; Thompson et al., 2011). Others rely on strong traditional food sharing networks to address any climate-induced vulnerability. For example, in 2017 in the Skeena River watershed, salmon returns were at an all-time low, which required visiting the neighbouring Nisga'a territory to access healthier fish stocks (Human Rights Watch, 2020). In urban centres, providing Indigenous Peoples with the ability to learn about traditional practices and knowledge systems around food has been a proven mechanism to strengthen Indigenous food sovereignty (Ray et al., 2019). In an Inuit context, Sudlovenick (2019) worked with hunters from Iqaluit to discuss whether or not nattiit (ringed seals) were safe to eat, based on the presence of five pathogens—*Brucella*

canis, *B. abortus*, *Erysipelothrix rhusiopathiae*, *Leptospira interrogans*, and *T. gondii*—demonstrating how Indigenous Knowledge Systems can inform adaptation measures.

Lynn et al. (2013) recognized the importance of tapping into Indigenous Knowledge Systems to address these climate change-related impacts. While Government of Canada legislation historically inhibited many First Nations from participating in agriculture (Tang, 2003), today there are several examples of successful agricultural initiatives undertaken by First Nations, including the the Muskoday First Nation in Saskatchewan, which has operated a successful organic agriculture co-operative for over a decade (Martens, 2016) and the Blood Tribe Agricultural Producers in southern Alberta (Kulshreshtha et al., 2011) and. The Métis Nation of British Columbia launched a Home Garden Project Pilot in 2021 to support Métis citizens in purchasing their own garden supplies. The program was so successful that it was expanded in 2023 to provide over 300 households with resources to access nutritious food and reconnect to their food system (Métis Nation British Columbia, n.d.).

8.3 Indigenous leadership at the nexus of water and energy sovereignty

The nexus of water and energy sovereignty is a key priority for First Nations, Inuit and Métis. In each context, reasserting authority and decision-making powers is enabling a redistribution of power. This move to self-determination and sovereignty is central to addressing the structural legacy of colonization. Here, we will focus on water and energy given the above discussion.

8.3.1 Energy

First Nations, Inuit and Métis communities are increasingly taking a leadership role in clean energy initiatives, currently leading a total of 204 projects greater than 1 MW across Canada (see Box 6; Indigenous Clean Energy, 2022a; Hoicka et al., 2021). Since 2017, the number of medium and large Indigenous clean energy projects (over 1 MW, powers over 150 homes) has grown by 29.6%. Energy sources for these projects include hydroelectricity (56.5%), wind (22.9%), solar (11.8%), bioenergy (7.1%) and hybrid sources (1.7%) (Indigenous Clean Energy, 2022a). Broadly, there is clear recognition that clean energy can uphold the stewardship and relational principles of Indigenous worldviews (Jaffar, 2015); support the reclamation of land and environmental rights (Lowan-Trudeau, 2017); contribute to local economic development and self-sufficiency (Lipp and Bale 2018; Rezaei and Dowlatabadi, 2016); and uphold efforts for autonomy and self-determination (Stefanelli et al., 2019). Several studies and reports have examined Indigenous involvement in renewable energy initiatives across Canada and the response of Indigenous communities to preferential policies such as feed-in-tariff laws or grid-connection for off-grid communities (Indigenous Clean Energy, 2022a; Hoicka

et al., 2021; Stefanelli et al., 2019). Key to this is addressing challenges with electricity governance, regulations and policies, often within the jurisdiction of provincial and territorial governments and part of the role of public and private utilities (Indigenous Clean Energy, 2022a).

There is an ongoing discussion about the benefits of legacy “green” energy projects. In particular, hydroelectric development has been a lightning rod for Indigenous resistance due to potentially enormous landscape and waterscape changes, as well as the long-term impacts of GHG emissions and methylmercury releases (Tsuji et al., 2021). Large projects, both historical (such as the Bennett Dam and system of dams in Cree and Inuit territory) and contemporary projects (such as Project C and Muskrat Falls), have generated significant responses from Indigenous Peoples, leading to protests and concessions (Luby, 2020). These projects can have significant negative impacts on the ability of Indigenous Peoples to engage in hunting, harvesting and gathering practices, as well as on sacred sites and cultural landmarks. For example, the James Bay Cree and Northern Quebec Agreement, one of the first modern land claims in Canada, was motivated by Quebec’s interest in hydroelectric development (Nungak, 2017). The consultation and consent process for these projects can often be inadequate, with First Nations, Inuit and Métis concerns and interests not being sufficiently addressed. Similar concerns exist about the waste from nuclear power. In Ontario, for instance, First Nations and Métis governments have raised significant concerns over the transportation and storage of nuclear waste, including in the proposed deep geological reservoir. Small modular reactors, however, have received some interest from First Nations, (e.g., CBC News, 2021; Qaujigiartiit Health Research Centre, 2019), for their potential for modular energy generation.

BOX 6: Indigenous sustainable energy projects

Indigenous Peoples are involved in the development of increasingly diversified and Indigenous-led clean energy projects in every region of Canada (Indigenous Clean Energy, 2022b; Lynch, 2017).

Estimates suggest that First Nations, Inuit and Métis are now involved in over 200 medium-to-large scale renewable energy projects, 1,700 to 2,100 micro or small-scale renewable energy systems, 72 bioenergy projects and 19 transmission projects, bringing \$295M in net annual returns and 2,870 person years of annual employment to Indigenous communities (Indigenous Clean Energy, 2022a; 2020).

Indigenous governments, corporations and other Indigenous entities are advocating for specific actions from federal, provincial and territorial governments that recognize Indigenous self-determination in clean energy strategies and are driven by economic reconciliation principles fostering policy efforts to achieve socioeconomic parity and Indigenous energy autonomy (National Indigenous Economic Development Board, 2022; Steffanelli et al., 2019). This includes decolonizing provincial, territorial and municipal energy systems, including public utilities (i.e., electricity and natural gas delivered to buildings), to enable Indigenous clean energy projects to contribute to these systems and generate returns (Lovekin et al., 2022).

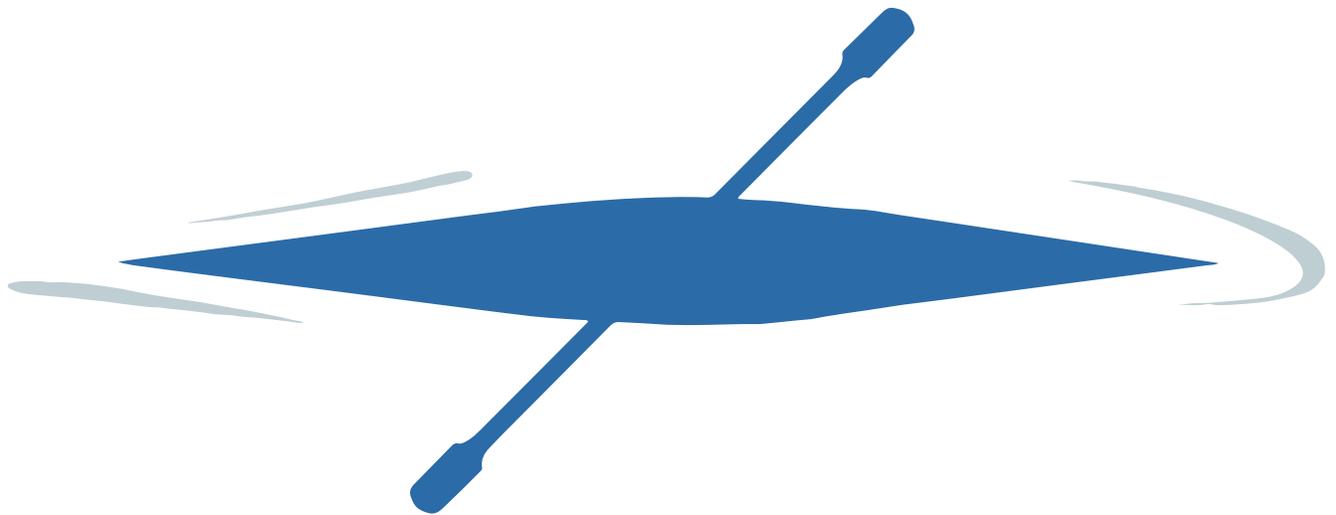
The majority of the almost 300 communities across Canada classified as off-grid and diesel-reliant are Indigenous. As a result, these communities are not only unable to benefit from an economy of scale on a very expensive fuel source but are also exposed to health risks from polluting emissions. Nunavut depends solely on diesel generators, many of which are outdated (Waterlutions Media and Wong, 2020). Funding from the Government of Canada—including Natural Resource Canada’s Clean Energy for Rural and Remote Communities program, Crown-Indigenous Relations and Northern Affairs Canada’s Northern REACHE initiative and Indigenous Services Canada’s Strategic Partnerships Initiative, among others—has directed resources to support a transition off diesel by 2035.

The interconnections and challenges in energy generation also directly impact Indigenous Peoples’ ability to access food and water. First Nations, Inuit and Métis governments and organizations are working to ensure that federal, provincial and territorial governments align their obligations with respect to the implementation of the UNDRIP with the creation of Indigenous power authorities and utilities, where local Indigenous energy leadership promotes self-sufficiency and supports Canada’s clean energy transition (Lovekin et al., 2022).

8.3.2 Water

First Nations, Inuit and Métis have been asserting authority over water governance, research and management (see Box 7; Craft and King, 2021; Irvine et al., 2020). For instance, the Government of Northwest Territories' *Northern Voices, Northern Waters* Strategy (2018) explicitly includes provisions for recognizing Indigenous rights and considers Indigenous Knowledge as equivalent to western science (Global Water Futures, 2020; Sandford et al., 2011). In Mittimatalik (Pond Inlet), Nunavut, youth and supporting partners use traditional knowledge from community

Elders in tandem with western scientific methods, such as water sampling, to study the increasing frequency of gastrointestinal illnesses in the community (ITK, 2019b). However, bridging knowledge systems can be challenging in practice (Mantyka-Pringle et al., 2017). For example, the Mackenzie River Basin Board has a mandate to include Indigenous Peoples and integrate Indigenous Knowledge but struggles to adequately represent the diverse interests and knowledge of the many unique Indigenous communities in the Mackenzie River Basin's work (see Case Story 8; Morris and de Loë, 2016).



BOX 7: Indigenous water governance

Indigenous Peoples across Canada and internationally have issued a variety of declarations expressing our alarm at the degradation of water systems, describing Water as a fundamental gift of the Creator and affirming our role and responsibility to care for Water for current and future generations. The United Nations Human Rights Council's Special Rapporteur on the human rights to safe drinking water and sanitation recognizes the 2003 Indigenous Peoples Kyoto Water Declaration and advocates for an ecosystem approach and the consideration of Water as a common good in line with Indigenous Peoples' integrated view of Water and aquatic ecosystems (United Nations Human Rights Council, 2022). In Indigenous cultures across Canada, women and their role as life-givers are linked to their roles as water stewards and in spiritual ceremonies to protect water bodies from pollution and maintain the ability of watersheds to absorb and retain water (National Collaborating Centre for Indigenous Health, 2022; Chiblow, 2019).

The right of Indigenous Peoples to self-determination includes effective participation in the management of large aquatic ecosystems. Climate change, together with unsustainable natural resource extraction practices, is having a negative impact on Indigenous Peoples' access to safe drinking water and making Indigenous communities vulnerable to drought and flooding (Chakraborty, 2021). In northern Canada, climate change has influenced the hydrological cycle to such an extent that

communities have reduced freshwater availability (ITK, 2021a; Waterlutions Media and Wong, 2020; Goldhar et al., 2014).

Far too many First Nations, Inuit and Métis communities continue to lack access to clean drinking water and water infrastructure. A number of Government of Canada commitments to ending drinking water advisories in Indigenous communities have failed to reach their targets for more than three decades (Swampy and Black, 2021). In the face of these challenges, First Nations, Inuit and Métis communities across Canada are actively pursuing work to safeguard the watersheds in our homelands through new Indigenous Protected and Conserved Areas and water governance initiatives (Latulippe and McGregor, 2022; Arsenault et al., 2018). Examples include the establishment of the *Ashnola sməłqmíx Protected and Conserved Area* by the Smalqmix of the Sukwnaqin-x (Lower Similkameen Indian Band, 2022), the Indigenous Watersheds Initiative in British Columbia and various initiatives of the National Indigenous Guardians Network, which reflect the inherent jurisdiction and responsibility of Indigenous Peoples to protect and manage our territories and watersheds according to Indigenous laws and customs. One example of this is the *Anishinaabe Nibi Declaration* (Craft and King, 2021), which voices the relationship with *Nibi* (Water) and jurisdictional responsibility that all Anishinaabe citizens have within the Treaty #3 territory, in accordance with the *Manito Aki Inakonigaawin* (Mother Earth law).

8.4 Climate change impacts on Indigenous economic systems and regenerating meaningful economies

“...We have a very real stake in the international community and our voices need to be heard, that this is not just an inconvenience to your bottom-line, to economies. This is a climate crisis.”

– Chief Dana Tizya-Tramm, Vuntut Gwitchin First Nation

8.4.1 Climate change impacts on Indigenous economic systems

In the above sections, we have described climate change as a cumulative impact related to the history and ongoing legacy of colonialism. In the Canadian context, this is directly linked to the imposition of an economic system on First Nations, Inuit and Métis that is predicated on our forceful removal, dispossession and criminalization. Further, Canada’s colonial practices have prevented First Nations, Inuit and Métis from participating in the Canadian economy (Yellowhead Institute, 2021), while at the same time trying to assimilate Indigenous Peoples into liberal capitalist citizens (Pasternak, 2020). This context is essential to understand the impacts of a rapidly changing climate on Indigenous economic systems, which are based on relationships that protect the well-being of people, culture and knowledge systems (Kelly and Woods, 2021).

By contrast, the continued commitment to resource development on First Nations, Inuit and Métis Lands and Waters—as evident in the 2022 Government of Canada’s *Critical Minerals Strategy*—alters “...the ability of Indigenous

people to live with the Land in *miyo wiche-towin* (good relationships) or be able to have *miyo pimatsowin* (a good or healthy life / livelihood), through hunting, fishing or harvesting” (Jobin, 2020, p. 109). This model of development is based on extracting the maximum amount possible while mitigating the “unacceptable” risks (Curran et al., 2020). Under this model, First Nations, Inuit and Métis governments and citizens are forced to fit or integrate economic systems into non-Indigenous systems. This is actively challenged by Indigenous Peoples (Hilton, 2021; Kelly, 2017; Kuokkanen, 2011), offering coherent and feasible alternatives to the mainstream economic system (see Section 8.4.3).

Progress on participation within the mainstream economy has improved for First Nations, Inuit and Métis citizens and governments in the last decade, including through Impact and Benefit Agreements, resource sharing and progressive procurement policies. However, we struggle with the authority to control decision-making, including leasing, permitting and licensing on our Lands and Waters, without constant obstruction (Pasternak, 2020). At the core of these challenges is the foundational question of who has the authority to make economic decisions (e.g., with respect to resource development, highway construction or other infrastructure-related decisions) on Land and Waters. Kelly (2017) highlights this clearly: “[t]he challenge ahead for Indigenous People[s] contesting the foundations of capitalism lies in questioning who benefits from economic success, and who pays the cost of exploited land and resources” (p. 107). Decisions underlying the transition to a low-carbon future, including decarbonization decisions, cannot proceed without clearly considering the simultaneous goal of decolonization.

8.4.2 Indigenous participation in shaping a low-carbon future

First Nations, Inuit and Métis participate in the global economy and the transition to a low-carbon future in myriad ways. In highlighting this diversity, our intent is not to create divisions between Indigenous Peoples who are for or against development, or to the extreme, those who have “sold out” or “remained true” to their Indigenous values (Atleo, 2021). First Nations, Inuit and Métis can be both grounded in our culture and participate in the modern economy. Rather, our exploration seeks to highlight the complexity that First Nations, Inuit and Métis citizens, governments and communities need to navigate in the face of settler colonialism, neoliberal capitalism, environmental decision-making and the ongoing struggles for Indigenous self-determination. The Truth and Reconciliation Commission (2015) summarizes this well: “sustainable reconciliation involves realizing the economic potential of Indigenous [Peoples] in a fair, just and equitable manner that respects their right to self-determination” (p. 207). Therefore, addressing climate change and its connection to the low-carbon transition is, at its foundation, about self-determination.

The *Toward Net Zero by 2050 Conference Findings and Report* prepared by the First Nations Major Projects Coalition (2022) explored opportunities for Indigenous Peoples within the net-zero energy transition. By providing examples of critical minerals, clean power generation, carbon capture, utilization and storage, and sustainable finance, they introduced a new vision in which Indigenous nations own or are presented with the

opportunity to own or enter equity ownership in net zero energy and climate-resilient infrastructure projects. There are First Nations, Inuit and Métis governments that continue to seek equity-partnerships in resource development, including both conventional oil and gas development (such as liquid nitrified gas) and the infrastructure supporting its transmission (such as pipelines). In these contexts, there are also questions on whether equity-partnerships, without addressing the underlying decision-making frameworks in federal, provincial or territorial systems, are sufficient to truly advance decolonization and support the self-determination of First Nations, Inuit and Métis governments.

There are many other examples of First Nations, Inuit and Métis working to disrupt the mainstream economic system in both formal and informal ways. Indigenous Peoples have turned to the courts through strategic litigation to reinstate our jurisdiction and authority over resource development, such as the *Delgamuukw* case (The Canadian Encyclopedia, 2019). When these efforts do not materialize, First Nations, Inuit and Métis may resort to other forms of resistance. Indigenous Climate Action (2022; 2021a; 2021b) released several documents as part of its Decolonizing Climate Policy work that calls out market-based mechanisms—such as carbon offsets and techno-innovations like geo-engineering—that perpetuate the colonial and capitalist systems driving the climate crisis. In whatever way First Nations, Inuit and Métis citizens and governments participate in climate action and the net-zero transition, they uphold our right to self-determination.

8.4.3 Indigenous-led regeneration of meaningful economies

Potawatomi scholar Robin Wall Kimmerer speaks to the origin of the western economic system as one of scarcity, accumulation and competition (Kimmerer, 2013). Through describing her relationship with the *Bozakmin* (serviceberry in Potawatomi), she presents an alternative approach to economic organization—a gift economy that “arise[s] from the abundance of gifts from the Earth, which are owned by no one and therefore shared.” Carol Anne Hilton (2021), in her book *Indigenomics*, describes this difference: “While the Western mainstream economy is geared toward monetary transactions as a source of exchange, the Indigenous economy is based on relationship. Indigenous economies are the original sharing economy, the original green economy, regenerative economy, collaborative economy, circular economy, impact economy, and the original gift economy. The Indigenous economy is the original social economy” (p. 91).

This foundation of relationships and the extension of justice to all beings is a key element of Indigenous economies (Trospen, 2022). Coulthard (2013) challenges us to avoid thinking that these are products of the past. Instead, through the application of Indigenous governance principles to non-traditional economic activities, we can support thriving Indigenous economies. *Cash Back*, a special report by the Yellowhead Institute (2021), summarizes this well:

“The multiplicity of Indigenous economies is not a future prospect: it is already here. It is in the community-regulated fisheries and the dismantled dams that usher home fish kin. They exist in community freezers of wild meat, at feasts that fill bellies and hearts with connection and care. They can be seen in the governance protocols of sugar bush camps and salmon harvests. They live in lipstick lines, airlines, and moccasin making micro-enterprises. They are the multi-billion-dollar rental housing developments, tobacco trade, and lumber shops. They are in defund police movements, harm reduction initiatives, friendship centre childcares. At their core, what makes them Indigenous economies is that they do not exploit that which they depend upon to live, including people. And they protect a world that is not prepared to value people’s time, homelands, and harvests solely in cash” (p. 8).

Indigenous Peoples face challenges in the expressions of our economies both from a rapidly changing climate and from the structural and ongoing legacy of colonization. Making space for thriving Indigenous economies—and our basis in an ethic of relationality, reciprocity and responsibility—can offer important insights for efforts to advance both decolonization and decarbonization, while opening space for Indigenous-led climate action.

9.0 Self-determination is critical to Indigenous-led climate action

.....

Self-determination and governance are key rights and aspirations for First Nations, Inuit and Métis in the face of climate change. We must recognize and address how the impacts of climate change affect our ability to determine our own futures, govern ourselves and adapt our governance structures to the impacts of climate change.

We possess the right to self-determination, to govern ourselves and exercise rights for the well-being of our lives, the Land, Water and Ice, as well as for future generations and all life. In the context of climate change, past approaches to research, scientific inquiry, assessments, program design and delivery, funding and policy development have not been led by us.

This is changing. We are taking leadership and innovating in climate research, policy and actions that reflect our respective realities and experiences. These processes are generating knowledge and actions that inform responses to the climate change impacts our communities face. Within diverse Indigenous societies, women, youth and gender-diverse individuals are also assuming leadership roles and defining climate action.

As the climate changes, our ability to govern ourselves is affected, as relationships to the natural world are disrupted. As we move into the future, we must adapt our governance structures to maintain and transform decision-making processes for the benefit of all. It is critical that our governments maintain authority

and jurisdiction over our Lands, Waters, Ice and territories, and maintain our ability to exercise our rights and responsibilities.

9.1 Introduction

Indigenous self-determination is critical for effective adaptation and to actively address the compounding impacts of climate change as well as historical and ongoing forms of colonialism. Supporting Indigenous self-determination, recognizing Indigenous Peoples' rights and supporting Indigenous knowledge-based adaptation are critical to reducing climate change risks and achieving success with climate action (Bird, 2021; Dawson et al., 2020; Gunn, 2020; Townsend et al., 2020).

Until recently, the most common response to addressing climate change impacts in the lives of Indigenous Peoples has included participation in developing local, regional, national and international climate change responses (e.g., accords, plans, policies and strategies). Currently, First Nations, Inuit and Métis are creating our own laws, climate strategies and initiatives that draw on our knowledge, governance, laws and legal systems (see Case Story 10; Case Story 11; Case Story 12). Youth are articulating their responses and identifying pathways for a self-determined future (Yukon First Nations Climate Action Fellowship, 2023; Lim with ʔehdzo Got'Inę Gots'ę Nákedı [Sahtú Renewable Resources Board] and The Pembina Institute, 2014).

Despite the barriers to Indigenous leadership in current climate change approaches, learning from Indigenous-led frameworks can support Indigenous climate governance. This includes recognizing that climate policy must prioritize the Land and emphasize rebalance with the

Land, operate on a nation-to-nation basis, recognize the right to self-determination, prioritize and generate Indigenous Knowledge and governance, and advance integrated and interdependent climate actions.

CASE STORY 10: Indigenous law in action: The Listuguj Mi'gmaq Fishery

In 1993, the Listuguj Mi'gmaq First Nation Government reclaimed the management of the salmon fishery in the Restigouche River, where it flows between the provinces of New Brunswick and Quebec. These are Waters that the Listuguj Mi'gmaq people had fished for many generations. They did so by passing their own law, without seeking permission from provincial and federal governments. This was a Listuguj Mi'gmaq law, an assertion and manifestation of the nation's right to fish and govern its people, Lands and Waters in its own ways. Since its adoption, the Listuguj Mi'gmaq First Nation Government Law on Fisheries and Fishing has been the effective law governing salmon fishing on the Restigouche River, displacing provincial and federal authority.

The law reflects that the lives of the salmon and the lives of the Mi'gmaq are intertwined and is also one of affirmation: to use, manage and occupy the Land and the Water in accordance with Mi'gmaq values, philosophies and ways-of-being (Mettalic and Chamberlain, 2006, as cited in Ladner and Tait, 2017). As Fred Metallic writes, "in Mi'gmaq, I say 'the salmon is my brother.' If the salmon is my brother, then he's no different than my uncle, my cousin, my aunt's husband who has passed away. And all these people are buried here,

all these people who shared their experience and understanding of salmon fishing; they shared their experiences and knowledge of this territory. They taught my father everything that he knows about salmon fishing... and he taught me... we continue to give back to people through the salmon so that we can continue to acknowledge and strengthen that we are connected" (p. x).

The law provides for co-management agreements with adjacent governments, in the interests of conservation and effective management of the resource. It also establishes means of monitoring the condition of the resource, setting harvest limits and carrying out other management activities. The creation of the Mi'gmaq fisheries law was a groundbreaking step in reclaiming governance as a Mi'gmaq right and practice. The law is about the fishery, but its significance extends far beyond the management of the river and the salmon, as important as those are. It restores to the government of the Listuguj First Nation its status as a lawmaking body. The nation has since expanded their lawmaking as it relates to fisheries, enacting in 2019 their Law on the Lobster Fishery and Lobster Fishing (Cornell et al., 2010).

CASE STORY 11: The connection between climate action and the protection of Métis rights

Describing the significance of the 2022 participation of the Métis Nation at the 27th Conference of the Parties of the United Nations Framework Convention on Climate Change (COP 27), President Cassidy Caron of the Métis National Council (MNC) shared the following thoughts (Métis Nation of Alberta, 2022):

“Here in Canada, we need to be having conversations with the folks that are at the decision-making tables to make sure that the Métis-specific Lands, that we have an inherent right to use and protect and be in relationship with, are going to be protected. We might not have those Lands within our own grasp right now, but we will be working towards that in the future so that we can raise our families on these Lands. And right now, what we need to do is make sure that those Lands will be protected so that we can have those Lands, that our families will be on those Lands, and growing up connected to the Lands that our ancestors grew up on.... As Métis people we are in a really unique position of being able to combine our deeply held connection to the Land with our really distinct history of adaptation and resiliency. Those are all things that we need to draw on...those strengths, as we move forward in trying to tackle the climate crisis.”

The Métis People rely on the Land for continued vitality of their physical, spiritual, socioeconomic and political life. Métis have found innovative ways to live in their particular environments, despite diminished access and displacement from Land and Waters (MNC’s National Environment Committee [JF Consulting, 2020]). This resilience to change, built over generations, will allow the Métis to play an important role in adaptation efforts and environmental sustainability as the climate changes. The MNC’s *National Métis Climate Change and Health Vulnerability Assessment* identified the following climate change impacts as major risks to all Governing Members including increased frequency and severity of forest fires, flooding, extreme heat and drought, vector-borne diseases and invasive species. The assessment also identified regionally-specific risks for each Governing Member (JF Consulting, 2020). However, despite these risks, the Métis Nation is taking proactive action to protect its citizens and advance Métis Climate Leadership through a number of programs and research, like the MNC’s work around Métis connections to wildland fire (see Case Story 13).¹⁰

In 2024, the Métis National Council, in partnership with its Governing Members, will be releasing its National Climate Strategy, which will define the roadmap to move forward on our self-defined climate change priorities.

10 For more information, see the video *Métis National Council Wildfire Workshop* available at <https://www.youtube.com/watch?v=fe45DiYvgd4>

CASE STORY 12: Research by Inuit for Inuit

Inuit-academic research relationships in Inuit Nunangat have a fraught history (e.g., Gearheard and Shirley, 2009), and Inuit have worked for decades to shift the power imbalances that characterize research institutions (ITK, 2018). Inuit have made key contributions to research throughout Inuit Nunangat for generations but historically have rarely if ever been acknowledged for their work and even then only as unidentified assistants (Bell, 2019).

Two decades ago, Inuit communities came together to carry out the first research study to document Inuit observations of climate change and its impacts on Inuit lives across Inuit Nunangat. *Unikkaqatigiit: Putting the Human Face on Climate Change* (Nickels et al., 2005) was released in 2005. Within days, the Inuit Circumpolar Council Canada launched one of the first legal petitions seeking relief from human rights violations caused by the United States government's lack of action to combat GHG emissions (ICC, 2005). While the petition was denied a hearing at the time, it played a key role in initiating a normalized global dialogue about the human rights implications of climate change that continues to this day.

The National Inuit Strategy on Research (2018) is the first road map for achieving the Canadian Inuit vision for self-determination in research, and its implementation plan defines Inuit expectations for research partnerships in Inuit Nunangat (ITK, 2018). At an international level, the Inuit Circumpolar Council has outlined a series of Inuit-driven protocols for the equitable and ethical engagement of Inuit in research (ICC, 2022). The first Inuit-led, governed and directed research program, Inuit

Qaujissarnirmut Piliirijjutit, was established in 2021. Along with the Canada-Inuit Nunangat-United Kingdom Arctic Research Programme, it is at the forefront of Inuit-led and co-developed research programs. The forthcoming Inuit Nunangat research policy will clarify Inuit expectations for Inuit involvement in setting Canada's Arctic research agenda in the future.

Inuit research methodologies are now fostered in a number of Canadian Inuit policies and strategies, including the *National Inuit Climate Change Strategy* (ITK, 2019a) and the *Inuit Nunangat Food Security Strategy* (ITK, 2021), and through the work of Inuit co-management institutions such as the Fisheries Joint Management Committee and the Nunavut Wildlife Management Board (Snook et al., 2018b). Internationally, the Inuit-led *Pikialasorsuaq* (North Water Polynya) Commission brought Inuit from Nunavut and Greenland together to determine Inuit research and management priorities for a key marine area vulnerable to climate change in the High Arctic (Canada, 2019).

A growing number of Inuit and non-Inuit researchers now engage in meaningful and collaborative research partnerships in Inuit Nunangat, tied to aspirational work to renew Inuit knowledge systems linked to Inuit-driven policy needs, and guided by Inuit knowledge experts and Elders (e.g., Cuerrier et al., 2022; Harper et al., 2021; Ittaq Heritage and Research Centre, 2021; Loseto et al., 2020; Pedersen et al., 2020; Sawatzky et al., 2020; K.J. Wilson et al., 2020; Carter et al., 2019; Huntington et al., 2019; Qaujigiartiit Health Research Centre, 2019; Jones et al., 2018; McGrath, 2018; Cuerrier et al., 2015).

CASE STORY 13: Indigenous-led stewardship and research: Yunesit'in First Nation fire stewardship

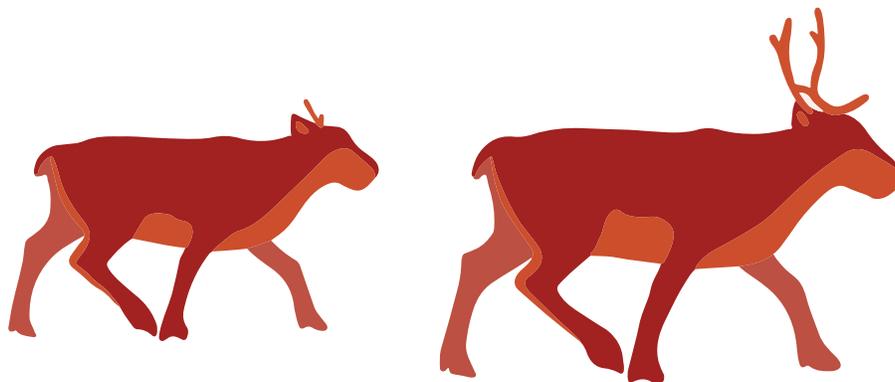
To be resilient in the face of increasing wildfire risk due to climate change, Yunesit'in First Nation, located 90 km west of Williams Lake, BC, is revitalizing their fire practices. In the winter of 2017, in collaboration with Gathering Voices Society, the community developed a pilot program to revitalize Yunesit'in fire stewardship. This pilot project allowed Yunesit'in fire practices to be used on the Land for the first time in at least two generations. It began in 2019, with 15 hectares burned and six community members trained to interpret landscapes, seasons and local ecological indications to determine where and when to burn. By 2021, the program expanded to include more than 150 hectares burned.

The fire stewardship program involves landscape planning for applying low-intensity “cool” burns to areas with high fuel loads. The fuels typically include dried grasses and shrubs as well as woody debris from trees that have died from insect infestation, disease, drought or previous wildfire. The volume of fuels in these forests and grasslands is significant and acknowledged as unhealthy by community members for several reasons: the buildup of debris is a wildfire risk; the forest is difficult to access for community members; and wildlife like deer and moose have trouble navigating through this debris. Community members

have identified that a key role for people is to “clean the landscape” with fire, opening up grasslands for wildlife, making forests easier to access and promoting new growth for animals to feed. The fire stewardship program is also studying the effects of cultural burning on fire behaviour, forest health, berries, ungulates and carbon emissions. This research will help to further the understanding of the role of fire as a stewardship tool.

The program fulfills three general goals identified by the community: 1) it strengthens cultural connection and well-being through revitalizing and sharing Indigenous Knowledge around fire; 2) it helps restore the health of the Land through Indigenous fire stewardship, which can result in fewer wildfires, the protection of biodiversity and the maintenance of culturally important sites; and 3) fire stewardship is a way to respect traditional laws, reflecting responsibilities to the Land and future generations.

Fire stewardship is viewed by the community as a pathway to revitalizing teachings and Land stewardship practices and restoring the health of the Land. The ambition for the program is to build public awareness of Indigenous fire stewardship and then to catalyze these programs across British Columbia and Canada.



9.2 Indigenous governance, self-determination, law and legal systems

Indigenous Peoples have long histories of governance systems to manage our Lands, resources and relations with other beings (Whyte, 2017a). As a result of this place-based knowledge, many communities possess a well-developed capacity to adapt to environmental and climatic change (Whitney et al., 2020). Governance systems (see Table 2) vary among nations and communities, yet they are generally structured by webs of mutual responsibilities that are shared across humans, the Land and more-than-human beings (Whyte, 2016).

In the environmental sphere, governance includes systems that range from customs to processes and coordinate the achievement of environmental outcomes, such as clean air and water and resource development (Whyte, 2016). These processes can be categorized as monitoring climate change, mitigating and adapting to impacts and ensuring climate resilience (Wale, 2022; Lindenmayer and Likens, 2010).

There are other examples of Indigenous governance (see Table 2) that address broader environmental issues rather than specific climate-related targets. Their structures range from top-down plans to collaborative partnerships and Indigenous-led climate actions.

Table 2: Indigenous environmental governance

TYPE OF INITIATIVE	EXAMPLES AND REFERENCES
Environmental guardianship programs	Case Story 8; Reed et al., 2021a
Resource and fisheries co-management	Galappaththi et al., 2022; Stefanelli et al., 2019; Snook et al., 2018b; Armitage et al., 2011
Writing laws	Listuguj Mi'Gmaq Government, 2019; Cornell et al., 2010
Marine conservation activities	Ban et al., 2019
Land use plans	Dehcho First Nations et al., 2016
Disaster recovery plans	Yellow Old Woman-Munro et al., 2021
Government-to-government agreements and activities	Crown-Indigenous Relations and Northern Affairs Canada, 2023
Modern treaty negotiations and the land claims process	Curran and Napoleon, 2020
Conservation agreements	2010 Gwaii Haanas Marine Agreement and the Great Bear Rainforest Agreements
Community environmental assessments	Tsleil-Wautuh Nation, 2021; Morales, 2019
Community lawmaking	The First Nations Land Management Act regime; Curran and Napoleon, 2020; Case Story 10
Stewardship policies	The Stk' emlúpsmc te Secwépemc Nation's (SSN) assessment of the Ajax Mine in British Columbia; SSN Ajax Decision Summary, 2017
Conservation policies	Cree Regional Conservation Strategy developed by the Eeyo Protected Areas Committee; Cree Nation Government, 2015
Fire and forest stewardship through cultural burning	Nikolakis and Ross, 2022
Impact and Benefit Agreements with private entities	Richardson, 2008

As climate change transforms the landscapes around Indigenous communities, it also affects Indigenous Peoples' legal traditions and our ability to transmit them. Central to this reality is the understanding that Indigenous laws and legal systems are intertwined with the Land, Water and Ice and practices that occur there, such as hunting, fishing, cooking and medicinal practices. Asch et al. (2018), drawing on teachings from Elder Basil Johnston, describes this as *akinoomaagewin*, meaning that "...we learn how to live well by giving our attention to the Earth and taking direction from her" (p. 51). Luschiim, a Cowichan Elder, explains how the Land is inextricably tied to the transmission of law or the manner in which *snuw'uyulh* (law) is taught, refined and studied in the Coast Salish legal tradition: "The land opens the door for our *snuw'uyulh*. It gives us the opportunity to learn. For me and my family, being out on the land, it opens the door to share our *snuw'uyulh*. Looking back, so many plus years ago, that's what it did for myself. When my great grandfather Luschiim would come to visit, after sitting down with us for a while, he would always take us for walks (me and my sister) and that's where he shared the *snuw'uyulh*. At that particular time, I didn't know why he was doing that. But as I think about it now, in relation to my experiences with my own grandchildren, it becomes clear. You see, I can sit here, like we're doing, in the house and talk about these things, but there are always some things you can miss. But when I'm out there in the mountains, or on the salt water, it opens my eyes to what I should be sharing. What I should be sharing with them right now" (Morales et al., 2016, p. 115).

For instance, climate change impacts on the sockeye salmon stocks in the Coast Salish world is one such example. If Indigenous Peoples no longer have access to sockeye salmon, then they not only lose a source of

dietary support but also lose the intangible teachings (laws and legal practices) associated with that resource. They lose the ability to transmit the teachings of sharing, reciprocity, responsibility and stewardship, as it relates to the sockeye. Other examples linking Land to laws and other teachings exist as well, such as fishing sites regarded as sacred portals to access *Stó:lō* ancestors (see Case Story 5.1 in RPR-5; Kelly, 2017); the role maple syrup holds as a central place in Algonquin worldview (Corbiere, 2011); the Lakota, Nakota and Dakota creation story connected to the buffalo and the buffalo hunt (Macdougall and St-Onge, 2013; Deloria, 2006) and, in an Inuit context, a lens of balance and *Inuit Qaujimagatuqangit* (Rahm et al., 2017).

Indigenous author, theologian and historian Vine Deloria Jr. confirmed the special relationship between Indigenous Peoples and our territorial spaces when he stated that "Indigenous Peoples often give greater prominence to the place and environment that we occupy than we do to time in the western sense of the word" (Deloria Jr., 1973). So, our continuing connection to the Land and fulfilling our role within that ongoing relationship is centered on our specific environment and the relationships it maintains. As one can see, the practice of law is greatly affected when climate change alters the landscapes and related natural resources, which Indigenous Peoples rely on.

9.3 Impacts of climate change on Indigenous governance

Whyte (2016) introduced the concept of "colonial *déjà vu*" to characterize how climate injustice is embedded within a cyclical and larger history of anthropogenic change driven by colonialism, industrialism and capitalism. This cyclical and structural legacy has also manifested in the supremacy of one knowledge

system and its description of the climate “problem,” blocking discussions on the root causes of the biodiversity and climate crisis (Stoddard et al., 2021). Furthermore, this has manifested in the design and implementation of current environmental governance frameworks. For example, Mackey (2016) describes how some foundational concepts of ownership, separation and improvement that underlie western scientific thought—and by consequence, environmental governance—differ from Indigenous ways of knowing. When management or governance regimes are built upon these ideologies, the inherent rights of Indigenous Peoples are dominated, overshadowed and marginalized (Walsey and Brewer, 2018). Unfortunately, when Indigenous Peoples do participate, it has been limited due to power imbalances and differences in worldviews (e.g., western science emphasizes facts, whereas Indigenous Knowledge Systems emphasize relationships) (Littlechild, 2014). In this regard, Whyte (2019) discusses how these differences, including how climate “solutions” disregard the essential role of relationships, including those with our more-than-human kin, push society past both an ecological and relational tipping point.

Until recently, the most common response to addressing climate change impacts in the lives of Indigenous Peoples has included participation in climate approaches led by others. This has proven to be unsatisfactory (Indigenous Climate Action, 2021a; Reed et al., 2021b). There are few formal and public examples of Indigenous assertions of Indigenous climate governance and self-determination. The *National Inuit Climate Change Strategy* (ITK, 2019a) offers one such example. This strategy demonstrates how Indigenous Peoples are working towards addressing climate change issues from the local to global scales on our own terms and to create

effective adaptation initiatives that speak to the needs and priorities of our communities (ITK, 2019a). A more regional example is the *British Columbia First Nations Climate Strategy and Action Plan* (British Columbia Assembly of First Nations, 2022), created with British Columbia First Nations and informed by Indigenous Knowledge, principles and worldviews. The objective of the Strategy is to: “Identify strategies and actions to reduce greenhouse gas emissions, to strengthen Indigenous climate leadership in British Columbia, to reduce vulnerability to impacts and to build capacity, understanding and resilience in First Nations. The Strategy is intended to help guide climate responses while also communicating to governments and partners of priority areas. This will, in turn, remind governments and partners that successful climate action is possible only when co-created with First Nations in ways that protect and strengthen Title, Rights and jurisdiction, and when Indigenous Knowledge and unique connections to territories are respectfully acknowledged and thoroughly incorporated in all aspects of climate planning and action” (British Columbia Assembly of First Nations, 2022).

In support of Indigenous climate governance, First Nations, Inuit and Métis are developing our own culturally relevant climate toolkits and delivering training to youth, community activators and leaders (see the work of the Centre for Indigenous Environmental Resources and the Arctic Institute of Community-Based Research, for example). A noteworthy example by the Métis Nation British Columbia (MNBC) is a virtual climate preparedness workshop series called *Strengthening Our Resilience to Climate Change* (MNBC, 2021). The purpose of the series was to share multi-generational knowledge, skills and experience to support good decision-making in a changing climate (refer to graphic on page 5 of MNBC, 2021).

The Native Women’s Association of Canada (NWAC) developed the Environmental Conservation and Climate Change Office (ECCCO) toolkit known as *Impact of Climate Change on Indigenous Women, Girls, Gender-Diverse and Two-Spirit People* (NWAC and ECCCO, 2022). The purpose of the toolkit is to generate gender-diverse climate knowledge in support of decision-making. A key example of grassroots climate self-determination is the launch of Indigenous Climate Action’s Indigenous Climate Leadership Program and associated toolkit. These are intended to develop climate actions that are community derived and led (Indigenous Climate Action, 2021c). Finally, the First Nations Health Authority (FNHA) leads and administers a community-driven funding program focused on climate change—the FNHA’s Indigenous Climate Health Action Program (ICHAP) supports First Nations leadership in reducing climate change impacts on health. Projects through this program can support climate health in general or on developing a strategy or action plan to reduce climate change impacts on community health” (First Nations Health Authority, n.d.).

9.4 Adaptive Indigenous governance in the face of a changing climate

9.4.1 Indigenous-led opportunities and meaningful recognition

When Indigenous Peoples are in control of climate change policy and programming, as opposed to being managed by an external entity, the outcomes are drastically different (Thompson et al., 2020). Success of Indigenous-controlled climate actions, however, comes with the qualifier of needing sufficient

funding and resources. Without adequate government support and investment, free of paternalistic conditions, even the most effective and prospective Indigenous-led climate actions will face challenges.

Examples of Indigenous-led climate actions include independent renewable resource development (Stefanelli et al., 2019), disaster recovery programming (Yellow Old Woman-Munro et al., 2021), and the codification and enforcement of Indigenous laws, such as Grand Council Treaty 3’s Great Resource Law and the Manito Aki Inakonigaawin, which ensure the duty to respect and protect Lands that may be affected from over-usage, degradation and unethical processes. The Tsleil-Waututh Nation in British Columbia conducted their own environmental assessment of Kinder Morgan’s proposed expansion of the Trans Mountain Pipeline using its Stewardship Policy as the assessment framework. The Policy is based on Tsleil-Waututh and Coast Salish legal principles and provides a site- and species-specific list of stewardship obligations (Curran and Napoleon, 2020). Additionally, the Siksika Nation in Alberta’s flood recovery system is centred on the legal principle of *Ispommita*, which connects community members and creates a shared belonging in response to the impacts of catastrophes related to climate change (Yellow Old Woman-Munro et al., 2021).

A necessary precursor to success in these types of programs is the meaningful recognition of Indigenous nationhood and self-determination (N. Wilson et al., 2018). Settlers must do their part to respect Indigenous Land relationships, honour legal obligations, restore governance, and institute action to ensure a respectful relationship (Irlbacher-Fox and MacNeill, 2020). The delegation of

responsibilities to Indigenous Peoples, such as transferring customary maritime rights areas to Indigenous Peoples (Fischer et al., 2022), is requisite for the meaningful recognition of Indigenous rights and nationhood. The optimal outcome is sustainable self-determination, in which Nations have the capacity to manage resources and the Land according to traditional governance (Cameron et al., 2019). These Indigenous-led climate programs can then set standards for state entities in managing resources and the Land (Curran and Napoleon, 2020). Moreover, they begin to curb government control in favour of Indigenous environmental governance (Curran and Napoleon, 2020).

In terms of research, Indigenous-designed frameworks draw on traditional law and ensure more control and autonomy over data collection within communities (Reid et al., 2021). Indigenous Peoples and communities are involved in research on climate change and on projects and initiatives focused on renewable energy (CBC News, 2022; Hoicka et al., 2021; Mercer et al., 2020a; 2020b; 2020c; Stefanelli et al., 2019; McDiarmid, 2017), improving food security (Johnston and Spring, 2021; Desmarais, 2019; Lee et al., 2019; Delormier et al., 2017), monitoring impacts of climate change (N. Wilson et al., 2018), building on traditional knowledge to combat and adapt to the climate crisis (Thompson et al., 2019; Pearce et al., 2015; Reid et al., 2014), and engaging with youth, women, Elders, and the community to build on climate knowledge and action (Whitney et al., 2020; Arruda and Krutkowski, 2017; MacDonald et al., 2015; Allen et al., 2014; Big-Canoe and Richmond, 2014; Dowsley et al., 2010).

9.4.2 Collaboration, pluralistic approaches and partnerships

Collaborative approaches to the climate crisis that incorporate Indigenous and western knowledge systems are beneficial structures to facilitate Indigenous climate governance (Ermine, 2005). The benefits of these approaches include empowering self-determination (Cameron et al., 2019), reversing dependency on governments (Cameron et al., 2019), the development of shared priorities such as the need for holistic and integrative approaches and the complementary differences between the two knowledge systems (Thompson et al., 2020).

Examples of collaborative policy models include nation-to-nation resource sharing agreements, co-management of Lands and ocean resources, pluralistic legal frameworks and Indigenous environmental guardianship programs (see Case Story 14). The Gwaii Haanas Marine Agreement ('Marine Agreement') of 2010 expands shared responsibilities for cooperative planning, operation and management of Canada's first national marine conservation reserve (Curran and Napoleon, 2020). The Marine Agreement explicitly names the Haida as a full partner and notes that the relationship will fail if one party unilaterally exercises jurisdiction (Curran and Napoleon, 2020). Bypassing state authorities, Indigenous Peoples have also entered impact and benefit agreements with industrial developers to prevent and reduce the negative effects of industrial projects and address the distribution of benefits to communities (Bowie, 2013).

There are several caveats raised in the scholarship when it comes to collaborative approaches and co-management. First, legal

pluralism and collaboration may perpetuate “legal centrism,” in which Indigenous legal systems and knowledge are overshadowed by dominant legal systems (Richardson, 2008). Second, there remain cautions as to whether Indigenous Knowledge Systems and western science may be successfully framed as equal

within a shared structure (see Case Story 14). As stated by Fischer et al. (2022), the two may be diametrically opposed: “we feel deeply that Indigenous and Traditional Peoples’ knowledge is for connecting and living, while western science is for conquering and controlling” (Fischer et al., 2022, p. 292).

CASE STORY 14: Enhancing the reintroduction of plains bison in Banff National Park through cultural monitoring and traditional knowledge

While collaborative approaches are gaining traction, there is still a need to ensure Indigenous Knowledge and practices are given equal consideration. First Nations, Inuit and Métis are working to have their expertise and traditional knowledge recognized and meaningfully implemented in co-management settings.

In 2017, Parks Canada released 16 bison in the northeast section of Banff National Park. This herd has since grown to over 60 animals roaming throughout the reintroduction area. Although Parks Canada has been monitoring the ecological impacts of this reintroduction, there has been little to no cultural monitoring data collected. In response, the Stoney Nakoda Nations prepared their own report, which emphasizes the importance of their traditional and cultural knowledge and provided recommendations for how they can be meaningfully included in the management of the buffalo. The report notes that western science, legislation, and policy continue to play the leading role in park management.

The report recommendations include several ways that Parks Canada and the Stoney

Nakoda can work more closely together to ensure the continued success of the bison reintroduction program. Stoney Nakoda Elders and field technicians emphasized the importance of ceremony for project success at all stages of the Bison Cultural Project and the need for continued cultural monitoring. Cultural monitoring can be used to better understand bison herd dynamics, predator-prey relationships with wolves and grizzly bears, and to better describe the renewed connection to the Land by the Stoney Nakoda Nations. The report stresses that projects such as this are an integral part of Truth and Reconciliation and demonstrate how Traditional Ecological Knowledge can be woven with western science to define a more holistic approach to park management.

Meaningfully including Stoney Nakoda people and knowledge in the bison reintroduction in Banff National Park is a way to not only ensure the successful reintroduction of bison to the landscape but also to ensure the reconnection of the Stoney Nakoda peoples to their ancestral and sacred territories.

Source: Stoney Nakoda Nations (2022)

9.4.3 International collaboration, knowledge-sharing and solidarity

Globalization has the positive effect of facilitating communication and sharing of strategies and solutions among global Indigenous Peoples (Fischer et al., 2022). Knowledge-sharing and solidarity on the international stage bridge diverse knowledge systems and challenge historical tactics of division inherent to colonization (Cameron et al., 2019). On the international stage, Indigenous Peoples have pushed for the inclusion of their knowledge, rights, and governance in conventions and initiatives such as the United Nations Framework Convention on Climate Change (UNFCCC), the United Nations Convention on Biological Diversity, the IPCC, and the International Union for the Conservation of Nature (IUCN). In the UNFCCC, Indigenous Peoples secured the inclusion of rights-based language in the preamble to the Paris Agreement and five other references to Indigenous Peoples, including the recognition of their knowledge (Art. 7, para. 5). The emergence of references to Indigenous Peoples within the UNFCCC has been tracked by the International Indigenous Peoples Forum on Climate Change and the Centre for International Environmental Law (UNFCCC, 2021), showing a clear positive increase in references to Indigenous Peoples and Indigenous Knowledge.

A key outcome of this work can be found in the Local Communities and Indigenous Peoples Platform, which, after several years of negotiation, created the Facilitative Working Group (FWG)—the first constituted body under the UNFCCC with equal representation between Indigenous Peoples and States. The term “local communities” has raised serious concern among Indigenous Peoples, leading to a slow erosion of rights afforded to Indigenous Peoples in international documents,

such as the United Nations Declaration on the Rights of Indigenous Peoples. The Inuit Circumpolar Council Canada has released a position paper in this regard, arguing that “...the practice of lumping Inuit and other Indigenous peoples together with ‘local communities’ is part of an alarming trend in the behavior of States to diminish the standards in the United Nations Declaration on the Rights of Indigenous Peoples, including actions to devalue Indigenous peoples’ status, rights, and role” (ICC, 2020). Similar positions have been taken by the Assembly of First Nations and the United Nations Permanent Forum on Indigenous Issues.

In the context of the IPCC, a 2023 article (Carmona et al., 2023) assesses how its Sixth Assessment Report (AR6) recognizes and promotes Indigenous Peoples’ role and knowledge systems in climate governance. The article used a content analysis of the Working Groups I, II, and III reports, as well as the Synthesis Report, to show a growing number of references to Indigenous Peoples and their knowledge systems compared to previous assessment reports. Despite this growth, they also found that the IPCC continues to reproduce a reductionist approach to Indigenous Peoples’ knowledge and rights, which risks promoting harmful stereotypes that increase inequity. As the IPCC prepares for the Seventh Assessment Report (AR7), Indigenous Peoples are preparing to increase their involvement to ensure further progress.

Progress was also made with the Kunming-Montreal Global Biodiversity Framework, adopted in December 2022, where Indigenous Peoples’ rights were explicitly recognized, including in relation to the new 30 by 30 Target (which calls for at least 30% of terrestrial, inland water, and coastal and marine areas to be effectively conserved and managed by 2030).

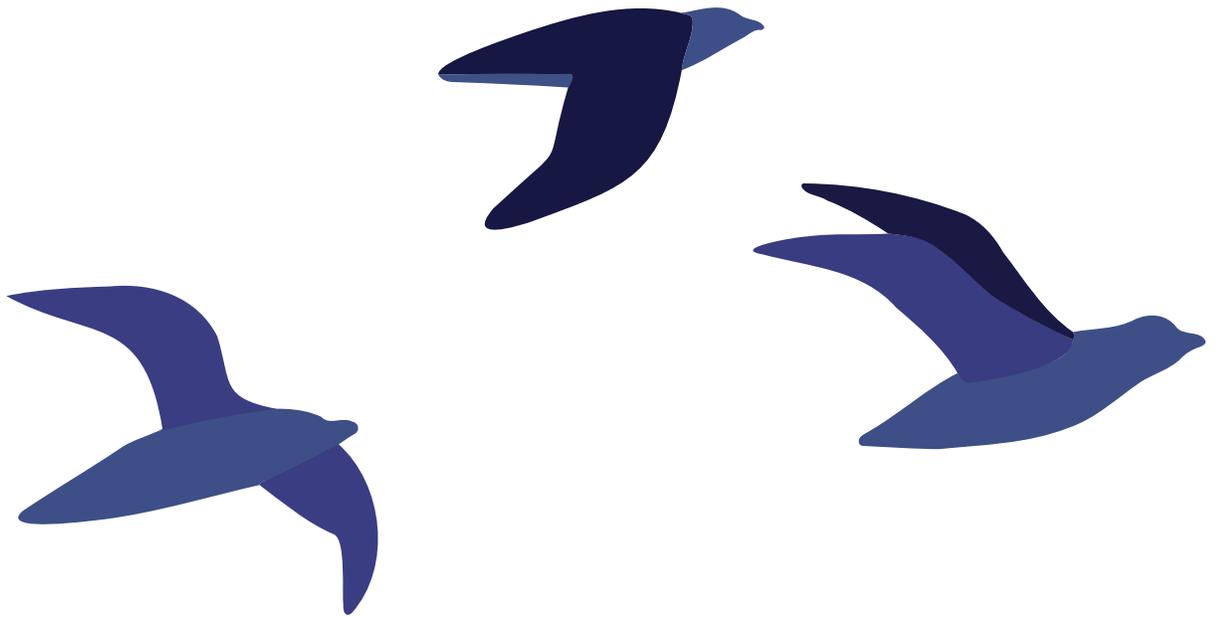
10.0 Moving forward

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This report is the first of its kind, written from the perspective of First Nations, Inuit and Métis scholars and practitioners. The report's key messages offer an important starting point for more dialogue and action. However, they do not do full justice to the incredible amount of work being led by First Nations, Inuit and Métis. As we developed the report, the author team repeatedly identified the importance of making space for future work on key areas of research, exploration and discussion led by rights- and title-holders from within Indigenous communities. Future Indigenous-led climate-related work will require support and investment in our research, development, new technologies, novel approaches and entrepreneurship. This could include the following:

- Stronger consideration of gender, especially the knowledge, perspectives and experiences of Indigenous women, non-binary and 2SLGBTQQIA+ in climate research, assessments and actions, including projects led by Indigenous governments.
- Support for First Nations, Inuit and Métis governments and organizations to lead their own climate change assessments and strategies in order to develop their own evidence-base for making climate-informed decisions. This includes respect for Indigenous data sovereignty in line with their respective policies and protocols.
- A commitment to uplift Indigenous worldviews that respect all our relations in all aspects of climate-related research. This includes additional work on collaborative relationships that embrace multiple worldviews and prioritize “All My Relations.”
- Indigenous-led analysis on emerging concepts and discussions within climate discourse, such as net-zero, nature-based approaches and carbon offsets, in order to position First Nations, Inuit and Métis governments and organizations as leaders, as well as to avoid the misinterpretation of Indigenous Knowledge Systems.
- Indigenous-led research on the development and exploration of new funding models that are available directly to First Nations, Inuit and Métis at all levels to develop and lead Indigenous-led research.
- First Nations, Inuit and Métis developed theories around the necessity of access to healthy Land, Waters and Ice, especially for youth. We must articulate the ways that this is essential for fundamental health and wellness.
- Exploration of the required steps to decolonize climate research, assessments and actions to open space for First Nations, Inuit and Métis to advance our own climate governance and policy.
- Additional research on the intersections between Indigenous law, governance and climate change.

- Research on links between Indigenous languages and climate change, with the intention to strengthen connections between Indigenous stewardship and caretaking, biodiversity and Indigenous Knowledge and language retention.
- Support ongoing, sustainable and equitable funding for land-based training programs at local and regional scales, recognizing hunters and harvesters (and training those for the future) as key to increasing food security, transmitting traditional knowledge, monitoring and assessing the environment, and increasing community health and well-being.
- Indigenous-led research on the connections between climate change, health and wellness at local, regional, national and international levels, including critical review of concepts such as planetary health and One-Health (recognizing the connection between the health of people, animals and the environment).
- Case stories on effective partnerships between First Nations, Inuit and Métis governments and organizations with allied organizations (e.g., academics, environmental non-governmental organizations, governance and other stakeholders) to advance Indigenous-led climate actions.



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