Sahtú nek’e ʔeghálats’eyeda kesórídaots’edéhʔake

Sahtú Land Use Planning Board

Background Report

2022 Edition

Sahtú Land Use Plan Background Report

The Sahtú Settlement Area

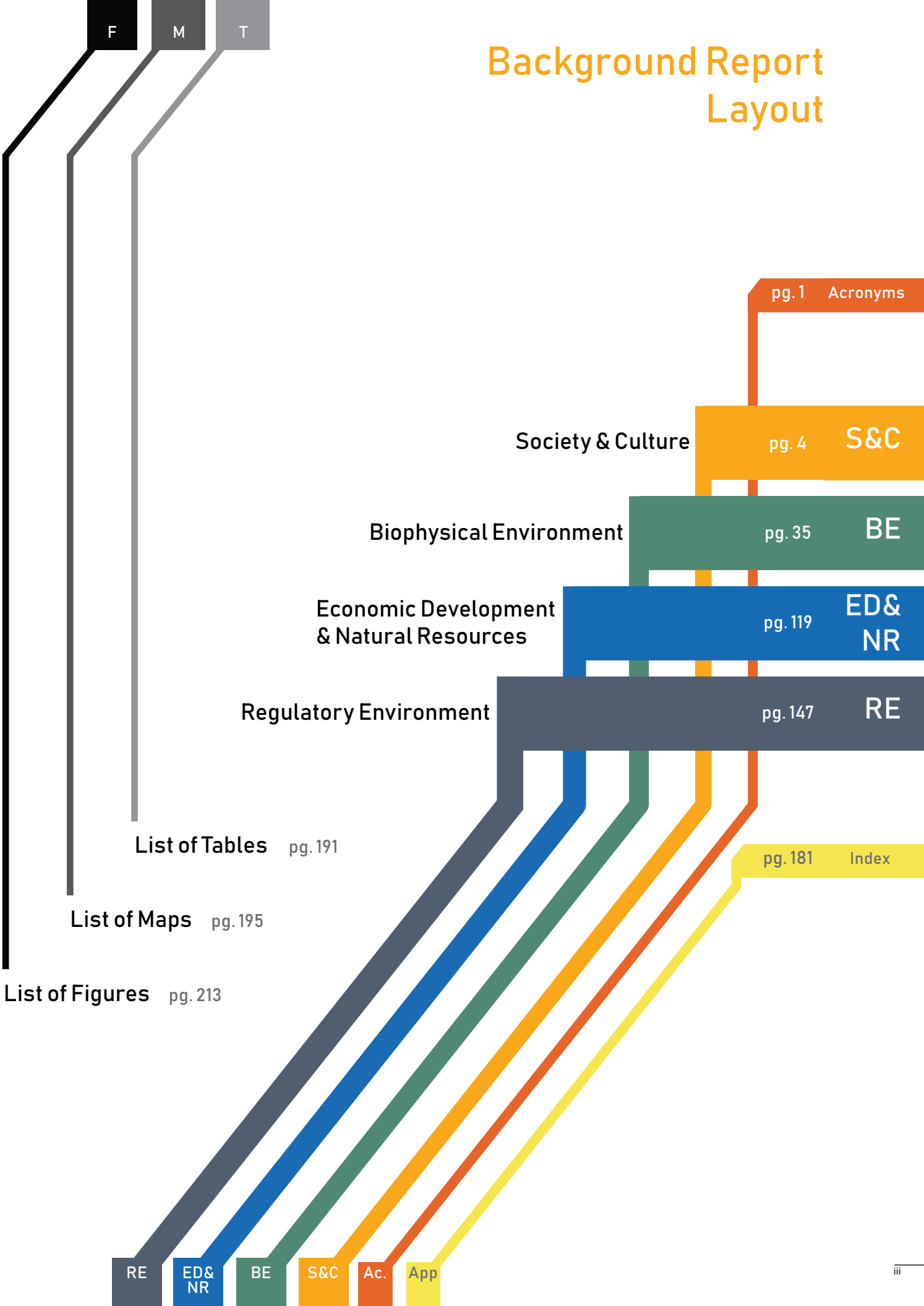
The Sahtú Land Use Plan Background Report is one of two supporting documents to the Sahtú Land Use Plan (SLUP) as listed in S.1.7. This Background Report is intended to capture the main characteristics of the Sahtú Settlement Area (SSA), its people, the culture, special places, the biophysical environment, the economy, and the regulatory regime. Above all, the Background Report should help readers better understand the Sahtú and the reports and information that were considered in the development, decisions, and planning that resulted in the SLUP.

The Sahtú Land use Planning Board (SLUPB) has sought to develop a balanced plan for the SSA by considering a diversity of resources. The SLUP was written by taking into account the three pillars of sustainability: socio-cultural, economic, and ecological factors. Respect for these three domains was a consideration for formulating a balanced approach to decision-making. Crown-Indigenous Relations and Northern Affairs Canada's (CIRNAC) Sustainable Development Strategy 2017-2020 describes their vision for First Nations, Inuit, Métis, and northern communities as those which "are healthy, safe, self-sufficient and prosperous – a Canada where people make their own decisions, manage their own affairs and make strong contributions to the country as a whole." [1]

As a non-legally binding supporting document, this report is not subject to the SLUP approval process and can be updated as new sources of information and data come available. Users of the SLUP are expected to be knowledgeable of relevant legislation, data sources, and reference materials which may be available. This report is a compilation of information from many sources available during the planning process. Before referencing this document, users of the SLUP are expected to review the original data sources and reports for any changes that may have occurred.

1 "Departmental Sustainable Development Strategy." (CIRNAC, 2020). Accessed May 9 2022. https://www.rcaanc-cirnac.gc.ca/eng/1523493900785/1555598609593

Background Report Layout



Background Report
Table of Contents

Background Report
Table of Contents

CH. 2. BIOPHYSICAL ENVIRONMENT

Background Report
Table of Contents

Background Report
Table of Contents

Acronyms

AANDC*	Aboriginal Affairs and Northern Development Canada (*currently CIRNAC)
AMMO	The Association of Mackenzie Mountains Outfitters
BLT	Block Land Transfer
CCME	Canadian Council for Ministers for the Environment
CDD	Commercial Discovery Declaration
CER	Canada Energy Regulator
CIRNAC	Crown-Indigenous Relations and Northern Affairs Canada
CNSC	Canadian Nuclear Safety Commission
COSEWIC	Committee on the Status of Endangered Wildlife in Canada
CWS	Canadian Wildlife Service
CZ	Conservation Zone
DIAND*	Department of Indian Affairs and Northern Development (*currently CIRNAC)
DFO*	Department of Fisheries and Oceans (*now Fisheries and Oceans Canada)
DUC	Ducks Unlimited Canada
DSO	Designated Sahtu Organization
ECCC	Environment and Climate Change Canada
EL	Exploration Licence
ENR	Department of Environment and Natural Resources (GNWT)
FGH	Fort Good Hope
GBL	Great Bear Lake
GBL&W	Great Bear Lake & Watershed
GBLWMP	Great Bear Lake Watershed Management Plan
GHG	Greenhouse Gas
GNWT	Government of the Northwest Territories
GRD	Granular Resources Directory
GUZ	General Use Zone
HB	High Boreal
HS	High Subarctic
IBP	International Biological Programme
LNG	Liquid Natural Gas
LS	Low Subarctic
ITI	Department of Industry, Tourism and Investment (GNWT)
INAC*	Indigenous and Northern Affairs Canada (*currently CIRNAC)
INF	Department of Infrastructure (GNWT)
IWA	Important Wildlife Areas
JRP	Joint Review Panel
NGO	Non-governmental Organization

NTGS	Northwest Territories Geological Survey
MACA	Department of Municipal and Community Affairs (GNWT)
MB	Mid Boreal
MBIS	Mackenzie Basin Impact Study
MVEIRB	Mackenzie Valley Environmental Impact Review Board
MVLWB	Mackenzie Valley Land and Water Board
MVRMA	*Mackenzie Valley Resource Management Act*
NAC	Northern Affairs Canada
NRCan	Natural Resources Canada
NWT	Northwest Territories
NWTWA	*Northwest Territories Waters Act*
OROGO	Office of the Regulator of Oil and Gas Operations
PAS	Protected Areas Strategy
PC	Parks Canada
PCI	Proposed Conservation Initiative
PL	Production Licence
PWS	Department of Public Works and Services (GNWT)
PWNHC	Prince of Wales Northern Heritage Centre
RRC	Renewable Resources Council
SARA	*Species at Risk Act*
SDD	Significant Discovery Declaration
SDL	Significant Discovery Licence
SDMCLCA	*Sahtu Dene and Métis Comprehensive Land Claim Agreement*
SLUP	Sahtú Land Use Plan
SLUPB	Sahtú Land Use Planning Board
SLWB	Sahtú Land and Water Board
SRRB	Sahtú Renewable Resource Board
SSA	Sahtú Settlement Area
WSS	Water Stewardship Strategy (NWT)

CH. 1. Society and Culture

1.1 THE SAHTÚ SETTLEMENT AREA (SSA)

1.1.1. BOUNDARIES

The boundaries of the Sahtú Settlement Area (SSA) are identified in the *Sahtu Dene and Métis Comprehensive Land Claim Agreement (SDMCLCA)*, settled in 1993. The SSA consists of approximately 282,773 km² in the Northwest Territories.

The SSA shares its borders with the:

- Inuvialuit Settlement Region to the north,
- Nunavut and the Tłı̨chǫ Settlement Area to the east,
- Dehcho Territory to the south, and
- Yukon Territory and the Gwich'in Settlement Area to the west.

S&C

See Map 1: Sahtú Settlement Area - on page 5.

1.1.2. LAND OWNERSHIP AND ORGANIZATION

Of the 282,773 km² of land in the Sahtú Settlement Area (SSA), the Sahtú Dene and Métis have title to approximately 40,959 km² and of these lands, 1,808 km² also have the title to subsurface rights. The Sahtú Dene and Métis also have title to approximately 342 km² of land outside the SSA. The majority of the lands in the Sahtú are public lands, owned by the federal government and administered by the Government of the Northwest Territories (GNWT) Department of Lands.

TABLE 1. SURFACE AND SUBSURFACE LAND OWNERSHIP IN THE SAHTÚ SETTLEMENT AREA

	Land Ownership	Surface / Subsurface Rights
Sahtú Settlement Area (SSA)	Sahtu Lands (Dene & Métis owned)	Surface
		Subsurface
	Public Land (Federal Land)	Surface
		Subsurface
	Municipal Land (GNWT Land)	Surface
	Block Land Transfers (GNWT Land)	Surface

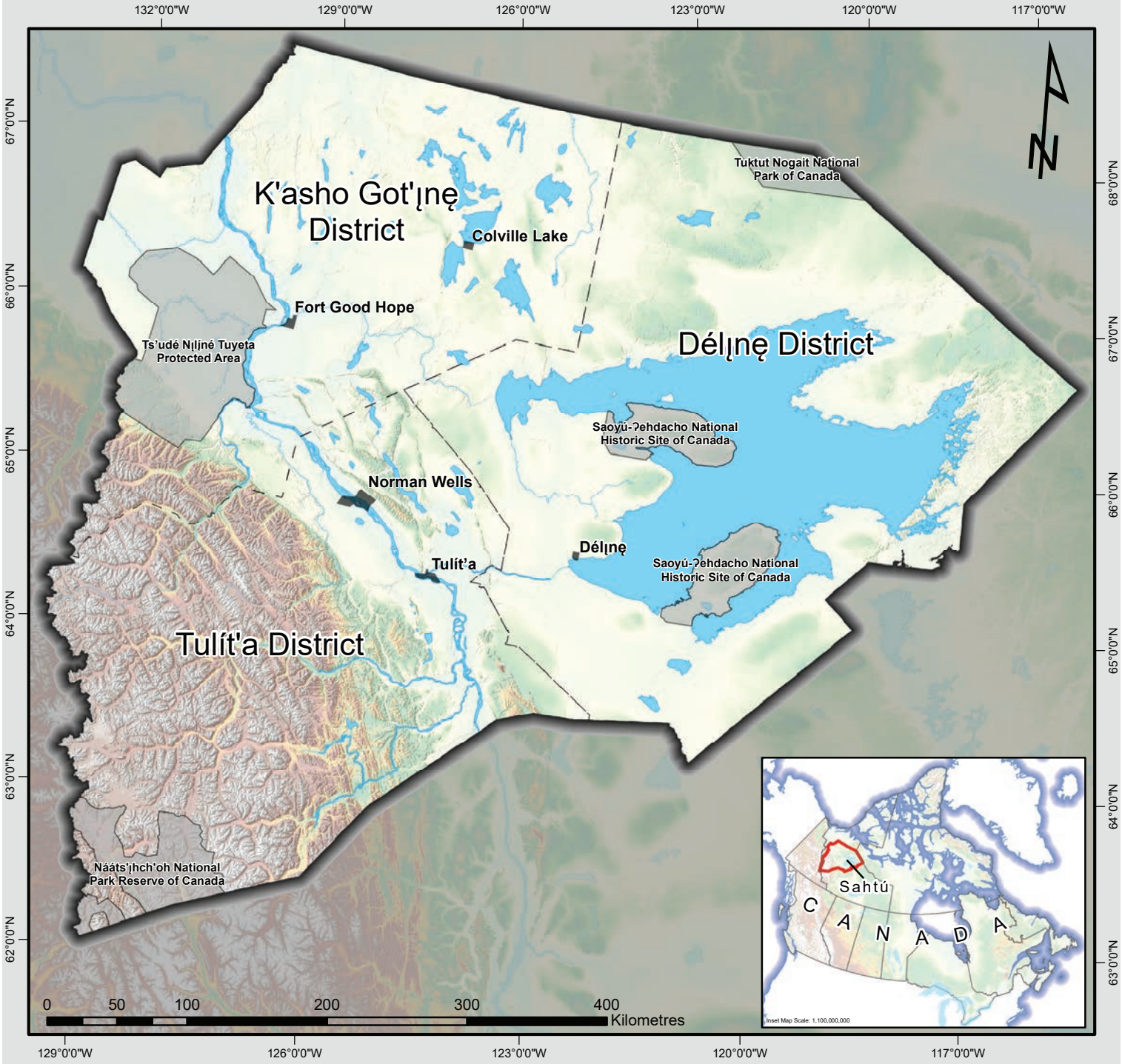
Source: Sahtu Dene and Métis Comprehensive Land Claim Agreement (1993)

Lands owned by the Sahtú Dene and Métis people are called Sahtú lands. Sahtú lands found within community boundaries are called Sahtú municipal lands. The SLUP does not apply to municipal lands. Those lying outside community boundaries are called settlement lands.

Community governments, private individuals and corporations also hold lands within community boundaries. Community boundaries are established by the GNWT and delineate the geographic area that is within a community government's jurisdiction.

Sahtú Land Use Plan

Map 1 - Sahtú Settlement Area



Legend

- Sahtú District Boundaries
- Rivers & Lakes
- National Park and Historic Site / Established Protected Area
- Community Boundary

Projection:

Coordinate System: NAD 1983 NWT Lambert
Projection: Lambert Conformal Conic
Datum: North American 1983
Central Meridian: -112.0000
Standard Parallel 1: 62.0000
Standard Parallel 2: 70.0000
Latitude of Origin: 0.000
Map Scale: 1:4,000,000

Please consult Appendix page 185 "Map 1. Sahtú Settlement Area" for map references.

Sahtú Land Use Planning Board
P.O. Box 235
Fort Good Hope, NT
X0E 0H0
Telephone: +1 867 598 2055
Website: http://www.sahtulanduseplan.org
Email: info@sahtulanduseplan.org

Date Produced: March 2022

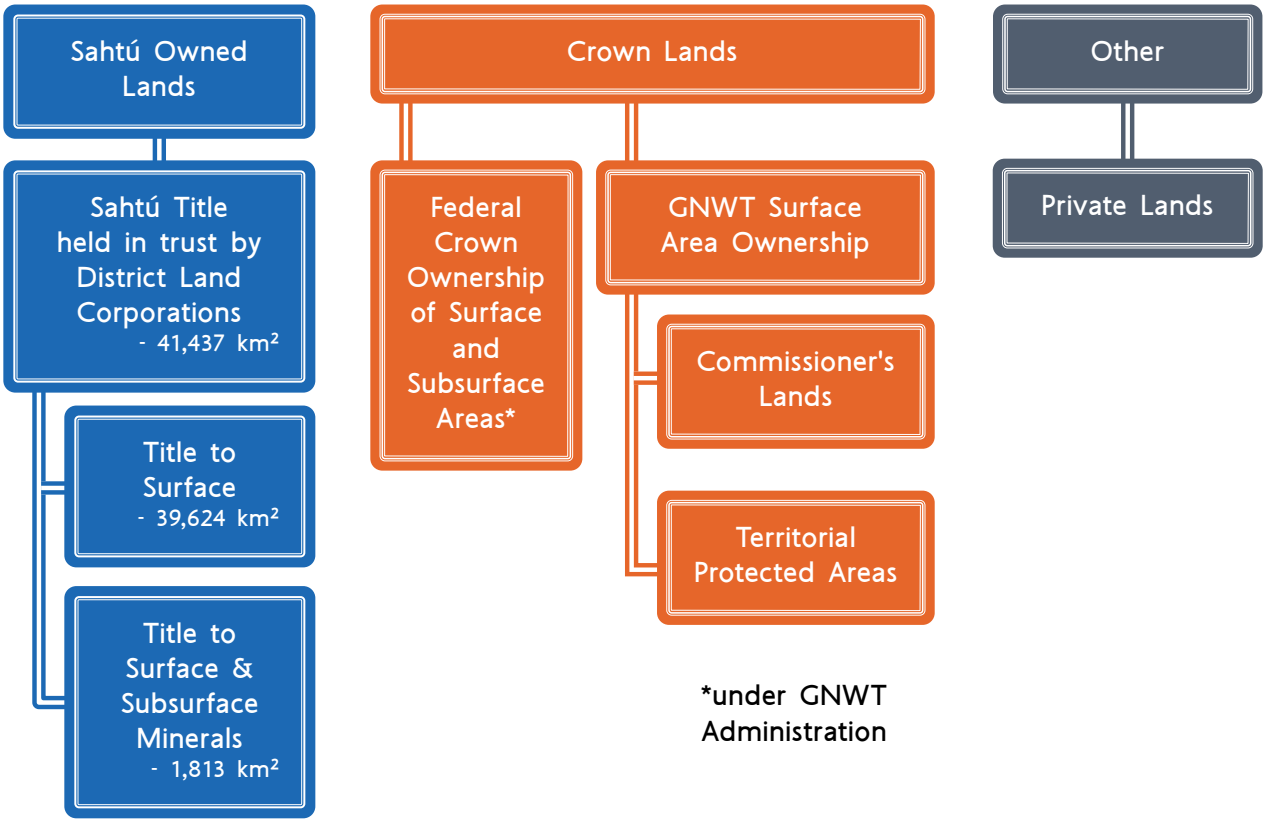
Document Path: \\10.117.7.122\GIS Data\Maps\Working_Files\2022\Background_Report_Maps\Sahtu_Settlement_Area.mxd

Block Land Transfers (BLT) are lands set aside by the GNWT for future community use and growth by the community governments. The GNWT administers significant areas of land within Block Land Transfer Boundaries and Community Boundaries, known as "Commissioner's Land." In Colville Lake and Fort Good Hope the Block Land Transfer boundary and community boundary are identical. In Norman Wells, Tulit'a and Dél̨ ne̹, Block Land Transfer boundaries are significantly larger than the community boundaries. The Plan does not apply to lands within community boundaries but does apply to lands within BLTs that lie outside of the community boundaries.

Within Block Land Transfer boundaries and community boundaries, there are significant areas of land transferred through the *Sahtu Dene and Métis Comprehensive Land Claim Agreement (SDMCLCA)*. Sahtú lands were selected for a variety of reasons including spiritual value, traditional use, harvesting potential, and revenue generating opportunities.

The SLUPB only has the authority to plan for lands that fall within the SSA. All lands lying outside of the SSA boundary are not subject to the Plan and as a result, not discussed in this Background Report, or in the Plan. Figure 1 excludes land within community boundaries as the Sahtú Land Use Plan does not apply to municipal lands.

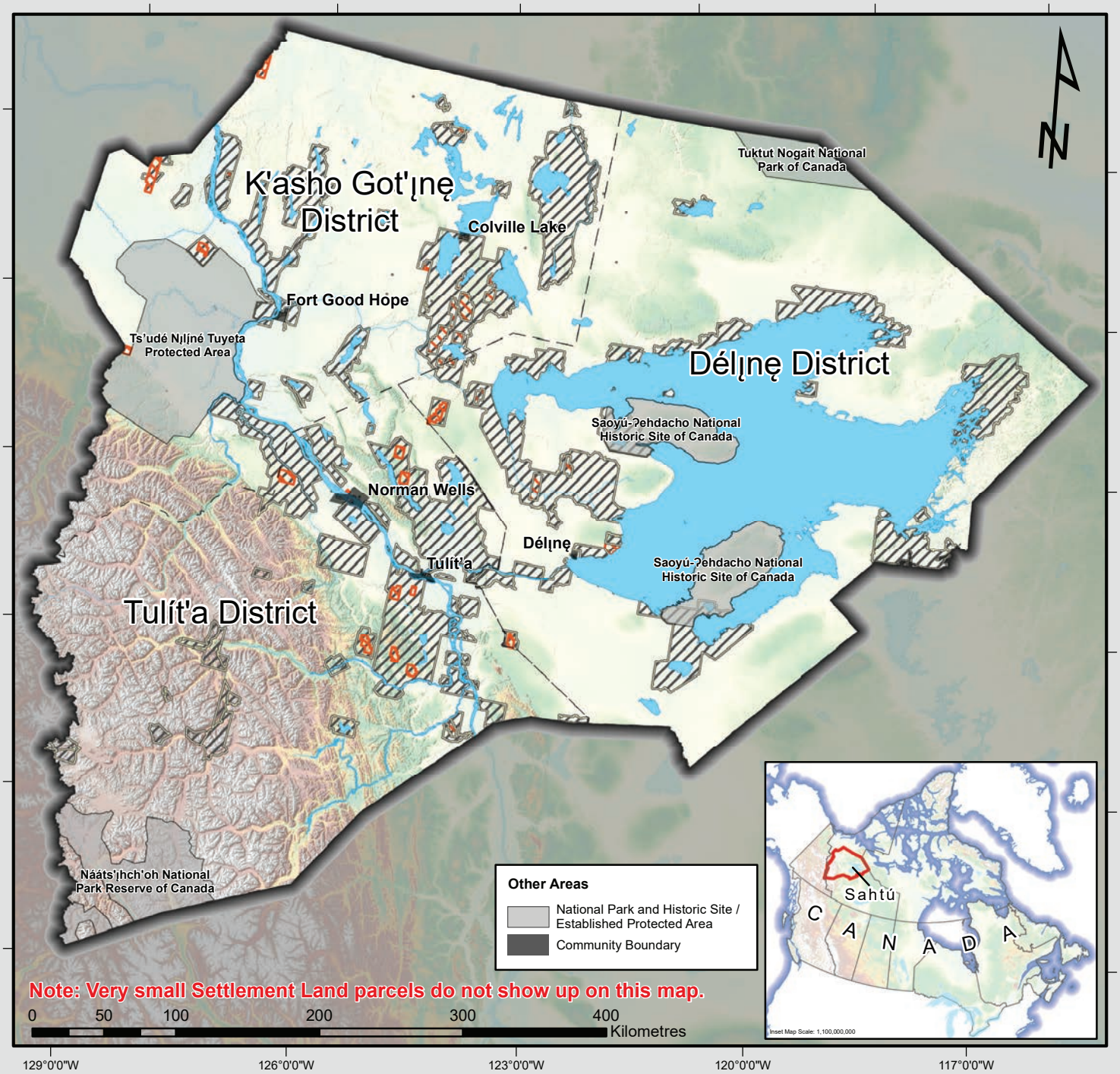
FIGURE 1. LAND OWNERSHIP CATEGORIES IN THE SSA



Source: Oil and Gas Approvals in the Northwest Territories – Sahtú Settlement Area, The Regulatory Roadmaps Project, February 2002.

Sahtú Land Use Plan

Map 2 - Sahtú Settlement Lands



Legend

Sahtú District Boundaries

Rivers & Lakes

Sahtú Settlement Lands

Surface & Subsurface Right

Surface Rights Only

Projection:

Coordinate System: NAD 1983 NWT Lambert
Projection: Lambert Conformal Conic
Datum: North American 1983
Central Meridian: -112.0000
Standard Parallel 1: 62.0000
Standard Parallel 2: 70.0000
Latitude of Origin: 0.000
Map Scale: 1:4,000,000

Please consult Appendix page 185 "Map 2. Sahtú Settlement Lands" for map references.

Sahtú Land Use Planning Board
P.O. Box 235
Fort Good Hope, NT
X0E 0H0
Telephone: +1 867 598 2055
Website: http://www.sahtulanduseplan.org
Email: info@sahtulanduseplan.org

Date Produced: March 2022

Document Path: \\10.117.7.122\GIS Data\Maps\Working_Files\2022\Background_Report_Maps\Sahtu_Settlement_Lands.mxd

1.1.3. LOCAL LEADERSHIP

The SSA is divided into 3 Districts. Within these 3 Districts are located the 5 Sahtú communities:

- K'asho Got'ı̨nę District (Colville Lake and Fort Good Hope),
- Délı̨nę District (Délı̨nę), and
- Tulit'a District (Tulit'a and Norman Wells).

The local Band Councils and regional Sahtu Dene Council are the political bodies responsible for matters relating to the treaty and the Indian Act. The Band Councils play an important leadership role in determining community priorities and administering social programs. The Sahtu Dene Council makes decisions on issues that influence how business is conducted in the Sahtú region and provides advice to the Sahtu Secretariat Incorporated (SSI).

S&C

1.1.4. THE SAHTU SECRETARIAT INCORPORATED (SSI)

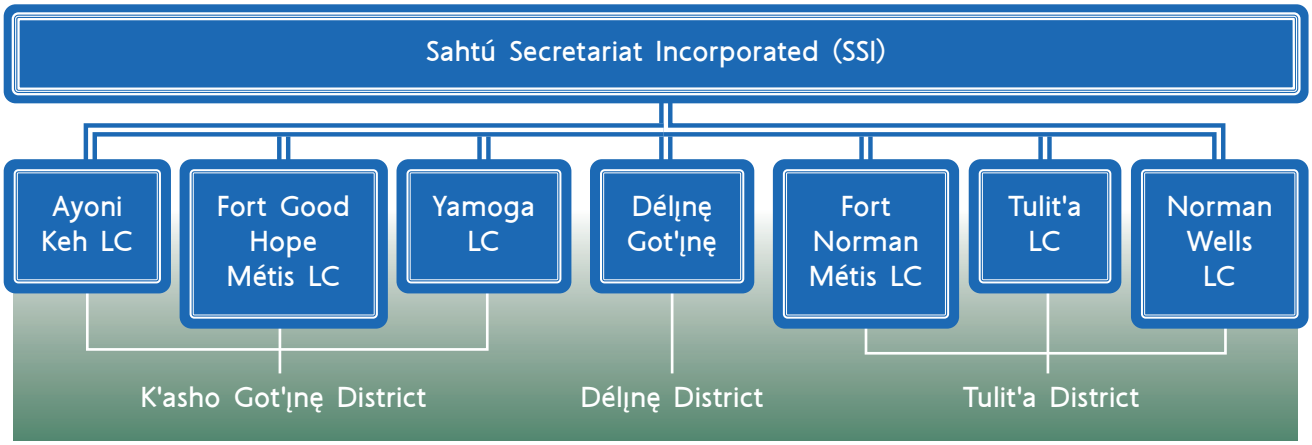
The Sahtu Secretariat Incorporated (SSI) is the coordinating body for all land corporations. The SSI and land corporations are responsible for:

1. holding the land in trust for beneficiaries and
2. managing the Land Claim funds.

Each District has its respective land corporations as listed in Figure 2.

The SSI's mandate is to ensure that the implementation of programs and services under the *Sahtu Dene and Métis Comprehensive Land Claim Agreement (SDMCLCA)* benefits the people of the Sahtú. The SSI is the main contact for federal and territorial governments with respect to education, health, environment and economic development. The three approving parties of the Sahtú Land Use Plan (the Plan or the SLUP), are the SSI, the Territorial and the Federal Governments.

FIGURE 2. SAHTU SECRETARIAT INCORPORATED (SSI) AND THE LAND CORPORATIONS (LC)



1.2 THE PEOPLE

1. 2. 1. THE SAHTÚ DENE AND MÉTIS[2]

The Sahtú Settlement Area (SSA) is the homeland of the Sahtú Dene and Métis. The Sahtú Dene have occupied the area for thousands of years. The Sahtú Métis are descendants of intermarriage between Sahtú Dene and Euro-Canadians who began to move into the region with the fur trade in the early nineteenth century.

Different cultural groups exist in the Sahtú region. Specific names for people of a particular area or region are sometimes used in the Zone Descriptions found in the Appendices of the Plan. The Districts are based on three main cultural groups in the Sahtú region.

S&C

Within each District are cultural groups, often based on their home territory:

- People living in the K'asho Got'ı̨nę District with the communities of Fort Good Hope and Colville Lake are called the K'asho Got'ı̨nę (Big Willow People);
  - Shıgago Got'ı̨nę – people who lived around Little Chicago;
  - Ts'oga Got'ı̨nę – people who lived around Ts'oga Túé (White Muskeg Lake);
  - Duta Got'ı̨nę – people who lived at Duta, Among the Islands;
  - Tashín Got'ı̨nę – people who lived around Tashín Túé (Lac des Bois).
- People living in the Délı̨nę District are the Sahtú Got'ı̨nę (Great Bear Lake People).
- People living in the Tulit'a District in the communities of Norman Wells and Tulit'a are the Shúhtaot'ı̨nę (Mountain People);
  - Shıta Got'ı̨nę – people who lived in the upper Mackenzie Mountains;
  - K'ą́ą́lǫ Got'ı̨nę – people who lived around K'ą́ą́lǫ Túé (Willow Lake).

The regional bands share a common culture. Differences occur in the dialects, practices, stories, cultural heroes, and places used by each group.[3]

See Map 3: Traditional Cultural Groups - on page 10.

For more information on cultural groups, see:

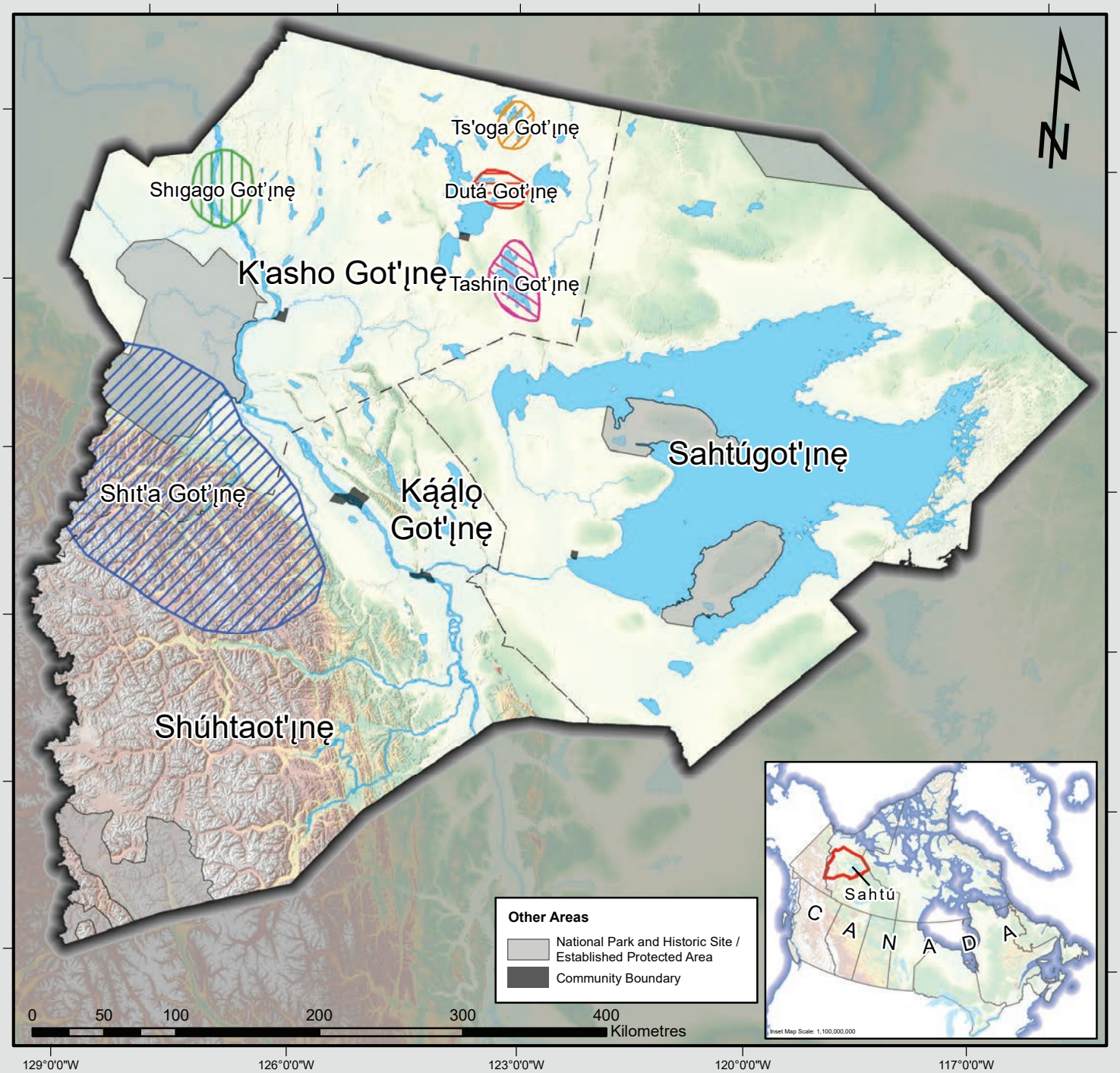
> The Sahtu Heritage Places and Sites Joint Working Group, ***Rakekée Gok'é Godı: Places We Take Care Of.*** Written by Tom Andrews. (January 2000, 2nd Edition).

2 The Sahtu Heritage Places and Sites Joint Working Group, *Rakekée Gok'é Godı: Places We Take Care Of.* Written by Tom Andrews. (January 2000, 2nd Edition).

3 Ibid.

Sahtú Land Use Plan

Map 3 - Traditional Cultural Groups



Legend

- Sahtú District Boundaries
- Rivers & Lakes

Cultural Groups

- Dutá Got'ıne
- Shıgago Got'ıne
- Shıt'a Got'ıne
- Tashín Got'ıne
- Ts'oga Got'ıne

Projection:

Coordinate System: NAD 1983 NWT Lambert
Projection: Lambert Conformal Conic
Datum: North American 1983
Central Meridian: -112.0000
Standard Parallel 1: 62.0000
Standard Parallel 2: 70.0000
Latitude of Origin: 0.000
Map Scale: 1:4,000,000

Please consult Appendix page 186 "Map 3. Traditional Cultural Groups" for map references.

Sahtú Land Use Planning Board
P.O. Box 235
Fort Good Hope, NT
X0E 0H0
Telephone: +1 867 598 2055
Website: http://www.sahtulanduseplan.org
Email: info@sahtulanduseplan.org

Date Produced: March 2022

Document Path: \\10.117.7.122\GIS Data\Maps\Working_Files\2022\Background_Report_Maps\Traditional_Cultural_Groups.mxd

1. 2. 2. SAHTÚ COMMUNITIES[4]

There are five communities in the Sahtú Settlement Area:

- Káhbamı Túé - Colville Lake,
- Radılıh Kǫ - Fort Good Hope,
- Tłegǫ́hłı - Norman Wells,
- Tulít'a, and
- Délı nę.

KÁHBAMĮ TÚÉ, COLVILLE LAKE

Káhbamı Túé, "Ptarmigan Net Lake" or Colville Lake is the smallest and most remote community. It was originally an outpost camp where a few families established their homes. It is home to the Behdzi Ahda First Nation. It was and continues to be an important fish lake and trapping area.[5]

Colville Lake remained one of the more isolated communities in the western Arctic until the turn of the 21st Century. Today a winter road connects it to Fort Good Hope, Norman Wells, Yellowknife, and to other southern communities. Significant natural gas reserves were discovered in the area suggesting a future with increased economic opportunities.[6]

RADILIH KǪ, FORT GOOD HOPE

Radılıh Kǫ, "home at the rapids" or Fort Good Hope, is 27 km south of the Arctic Circle, located below Fee Yee, the Ramparts Rapids. Fee Yee is an ancient fishery and spiritual site.

Fort Good Hope was established in 1805 as the first fur trading post in the lower Mackenzie. It became a place of gathering and trade for the Shúhtaot'ı nę, Gwich'in and Inuvialuit of the Mackenzie Delta. The town was relocated several times but it returned to its original site where it remains today, on the eastern shore of the Mackenzie River.[7]

4 James Auld and Robert Kershaw, ed. *The Sahtu Atlas: Maps and Stories from the Sahtu Settlement Area in Canada's Northwest Territories.* (Norman Wells: Friesen, Sahtu GIS Project, 2005). Excerpted from p. 25.

5 Ibid.

6 Ibid.

7 Ibid. p. 19

TŁEGǪ́HŁI, NORMAN WELLS

Tłegǫ́hłı, "where the oil is" or Norman Wells was established in 1921 due to oil deposits. The existence of oil seepages was known to the Dene passing through the area but the first well was not drilled until 1919.

In the mid-1980s a pipeline was completed to Zama, Alberta. Norman Wells became a regional centre with jet service north and south. A number of regional government offices and skilled, high wage jobs are available in town. Oil reserves are now in decline but adventure tourism is creating new opportunities.[8] Norman Wells is the largest and least traditional community of the Sahtú region.

S&C

TULÍT'A

Tulít'a, formerly Fort Norman, means "where the waters meet." The name refers to the meeting of Sahtú Deh, Bear River's clear waters with the muddy waters of the Dehcho, the Mackenzie River. Tulít'a is across the river from Bear Rock, a sacred site for Dene living in and outside of the Sahtú. People would camp at Tulít'a to hunt for caribou and more rarely, muskoxen.

Tulít'a was established in 1810 by the North West Company. The community was relocated several times and as in the case of Fort Good Hope, it returned to its original location in 1851, where it remains today. Tulít'a is also situated within an oil-rich area.

DÉLĮNĘ

Délįnę, "where the water flows", is located on the west end of Keith Arm of Great Bear Lake. The current location was established around Prophet Ayha's residence, a well-known and well-respected man whose prophecies are largely regarded as being realised in the present day. In 1825 Franklin and his crew also established a staging area and winter quarters in Délįnę's current location.

The people of Délįnę refer to themselves as "Sahtú Got'ınę", "the people of the Sahtú". The Sahtú Got'ınę see themselves as part of the lake as they see evidence of their ancestors all around. The lake is part of their culture and way of life and they consider themselves stewards of the lake. They are the only community on Great Bear Lake, which has sustained them since time immemorial. The lake and its watershed play a central role in the cosmology, history and traditional law, and in the elders' transmission of culture to younger generations.[9]

8 James Auld and Robert Kershaw, ed. *The Sahtu Atlas: Maps and Stories from the Sahtu Settlement Area in Canada's Northwest Territories.* (Norman Wells: Friesen, Sahtu GIS Project, 2005).

9 Great Bear Lake Working Group. *"The Water Heart": A Management Plan for Great Bear Lake and its Watershed.* Directed by the Great Bear Lake Working Group and facilitated and drafted by Tom Nesbitt. (May 31, 2005, with Caveat of February 7, 2006.)

1. 2. 3. STATISTICAL OVERVIEW OF THE SAHTÚ[10]

Figures data are taken from "*Summary of NWT Community Statistics*" available at the NWT Bureau of Statistics website.

The SSA accounts for 5.9% of the NWT's population and 5% of its income. Norman Wells is the commercial and administrative centre, serves as the regional hub and is the region's primary service and supply centre. It has the highest average level of family income in the NWT.

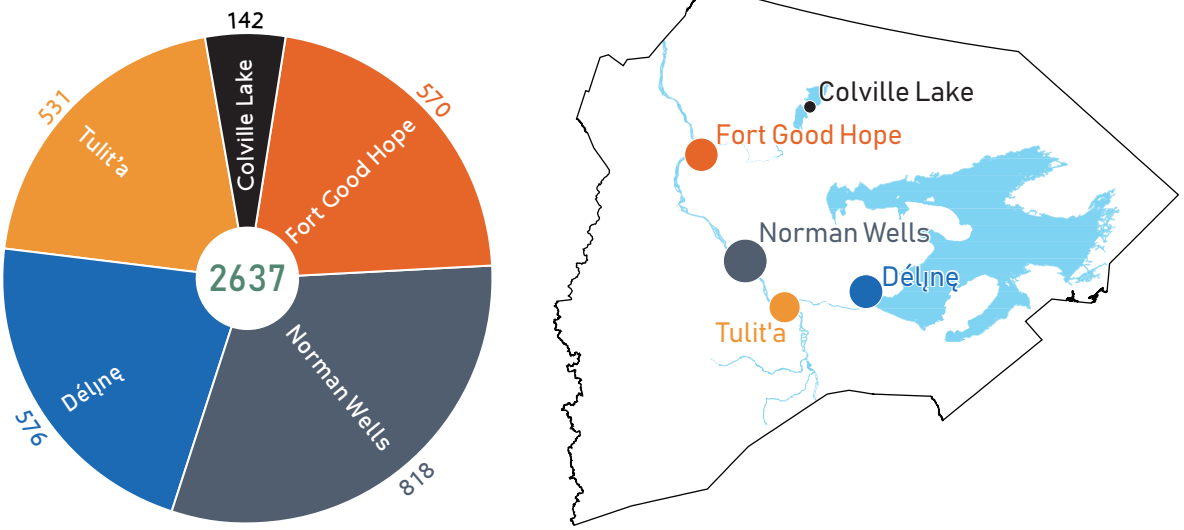
POPULATION

The population of the SSA in 2018 as reported by the NWT Bureau of Statistics was 2,637, 5.9% of the total NWT population. The population consists of 22.1% of residents under the age of 15 and 13.6% that are 60 years of age or older. The SSA population is 72.4% Indigenous. The communities of Colville Lake, Délı̨ nę, Fort Good Hope, and Tulit'a have similar ethnicity proportions with 83% of the population or higher that is of Indigenous descent. In Norman Wells, 36.6% of the population is Indigenous. Across the NWT 50.2% of the population is Indigenous.

The average annual percent growth of people under the age of 15 from 2008-2018 decreased 0.8% while the average annual percent growth of people 60 years and older increased by 4.3%.

FIGURE 3. SAHTÚ POPULATION IN 2018

2018 Total Population in Sahtu Region: 2637



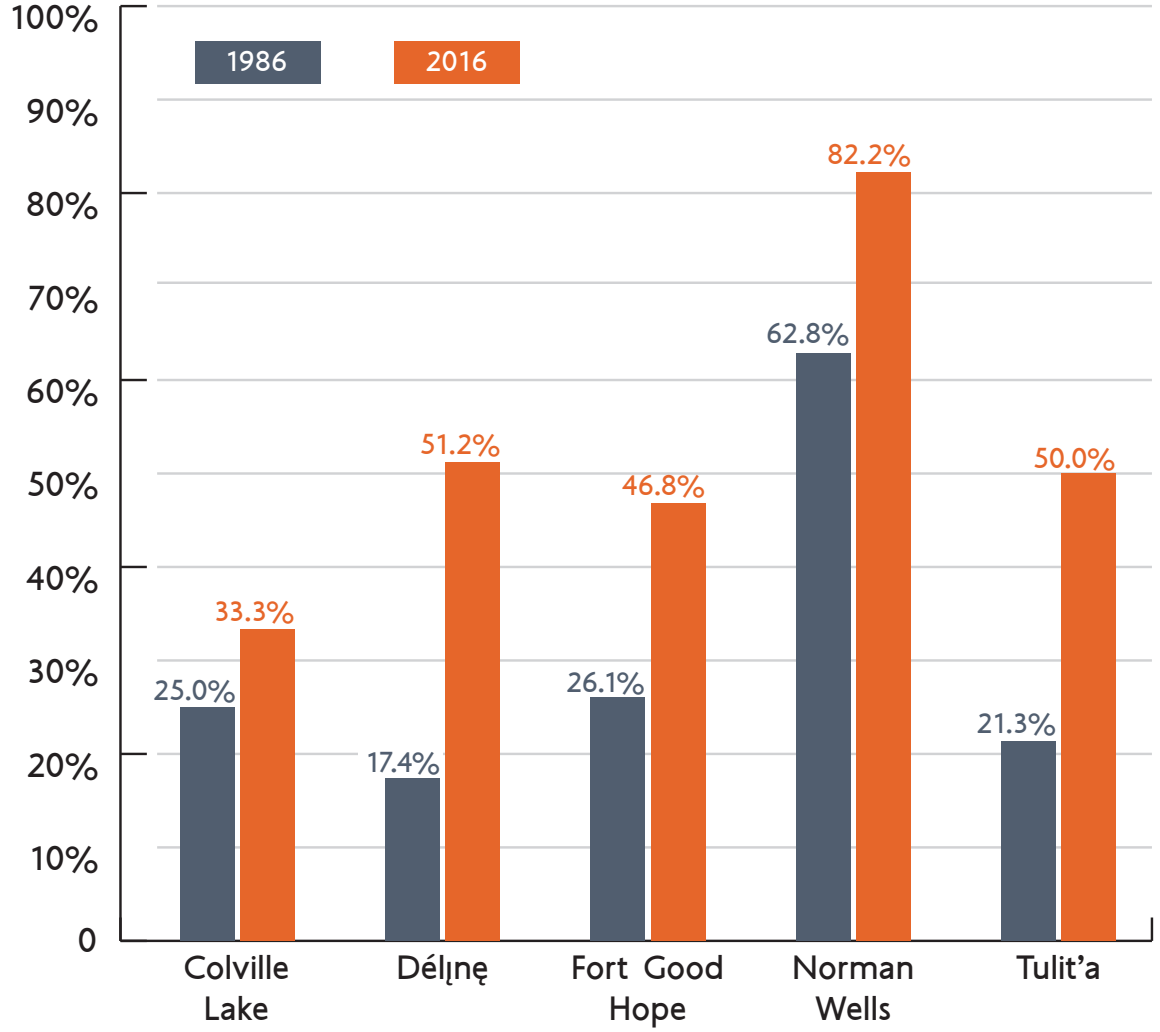
Source: NWT Bureau of Statistics (2019)

10 "Northwest Territories: Sahtu Regional Summary, (September 2019)," NWT Bureau of Statistics https://www.statsnwt.ca/community-data/Summary%20of%20 Community%20Statistics2019.pdf

EDUCATION

Education levels in the SSA increased considerably between 1986 and 2018, however they remain significantly below NWT levels. In 2016, 59% of people in the Sahtú region had a high school diploma or more education whereas 72.6% of the NWT population had a high school diploma or more.[11]

FIGURE 4. PEOPLE WITH A HIGH SCHOOL DIPLOMA OR MORE EDUCATION FROM 1986 AND 2016



Source: NWT Bureau of Statistics (2019)

11 "Northwest Territories: Sahtu Regional Summary, (September 2019)," NWT Bureau of Statistics https://www.statsnwt.ca/community-data/Summary%20of%20 Community%20Statistics2019.pdf

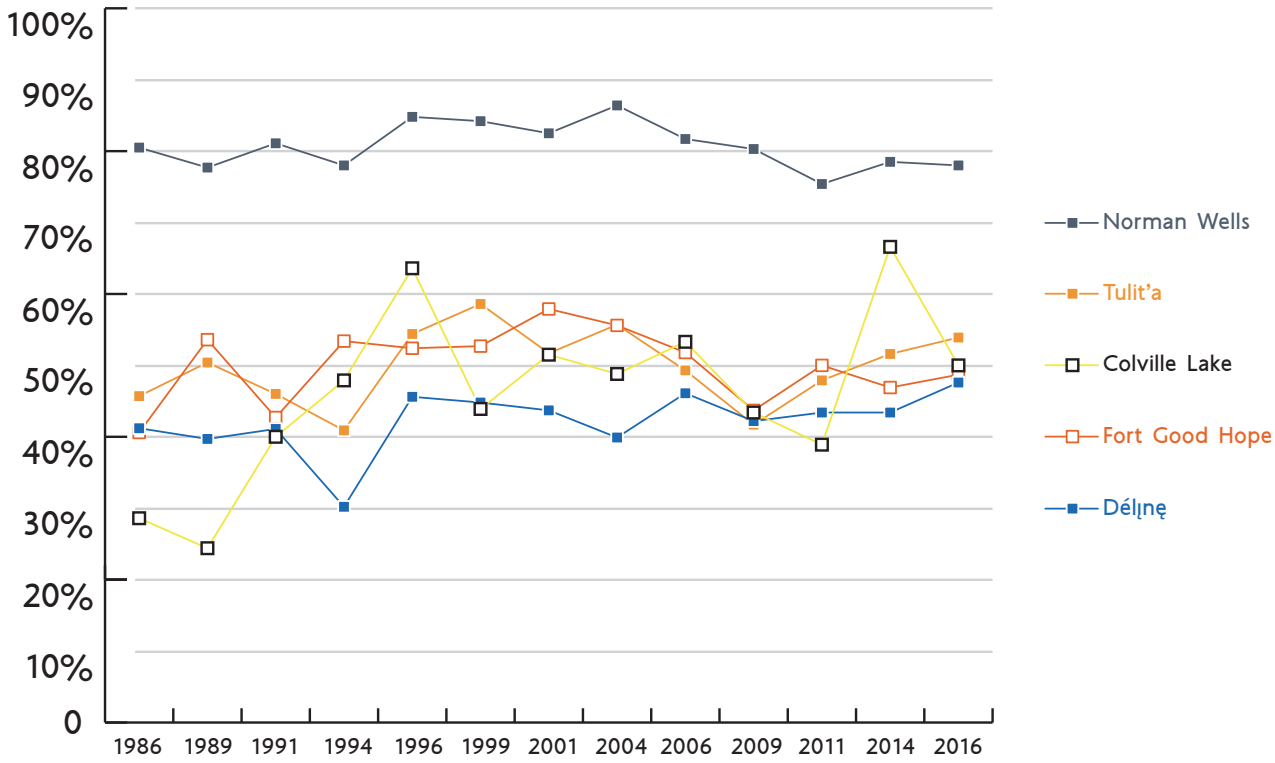
LABOUR FORCE ACTIVITY

The employment rate in the SSA was 59.3% in 2016. In the late 1990s and early 2000s it increased to over 62%, primarily due to increases in employment in Colville Lake and Fort Good Hope. Employment rates in Norman Wells remained relatively steady over the same period.

In 2016 the rate of employment for non-Indigenous people in the SSA was 86.6% compared to 49.3% for Indigenous people. In 2014 the employment rate for persons in the SSA with a high school diploma or more was 77.2% compared to an employment rate of 32.2% for those without a high school diploma.[12] In 2014, when compared to the rest of the NWT, the SSA had the second largest gap after the Beaufort-Delta region in employment rates between people with a high school diploma or higher and those with less education.

S&C

FIGURE 5. EMPLOYMENT RATES FROM 1986 THROUGH TO 2016



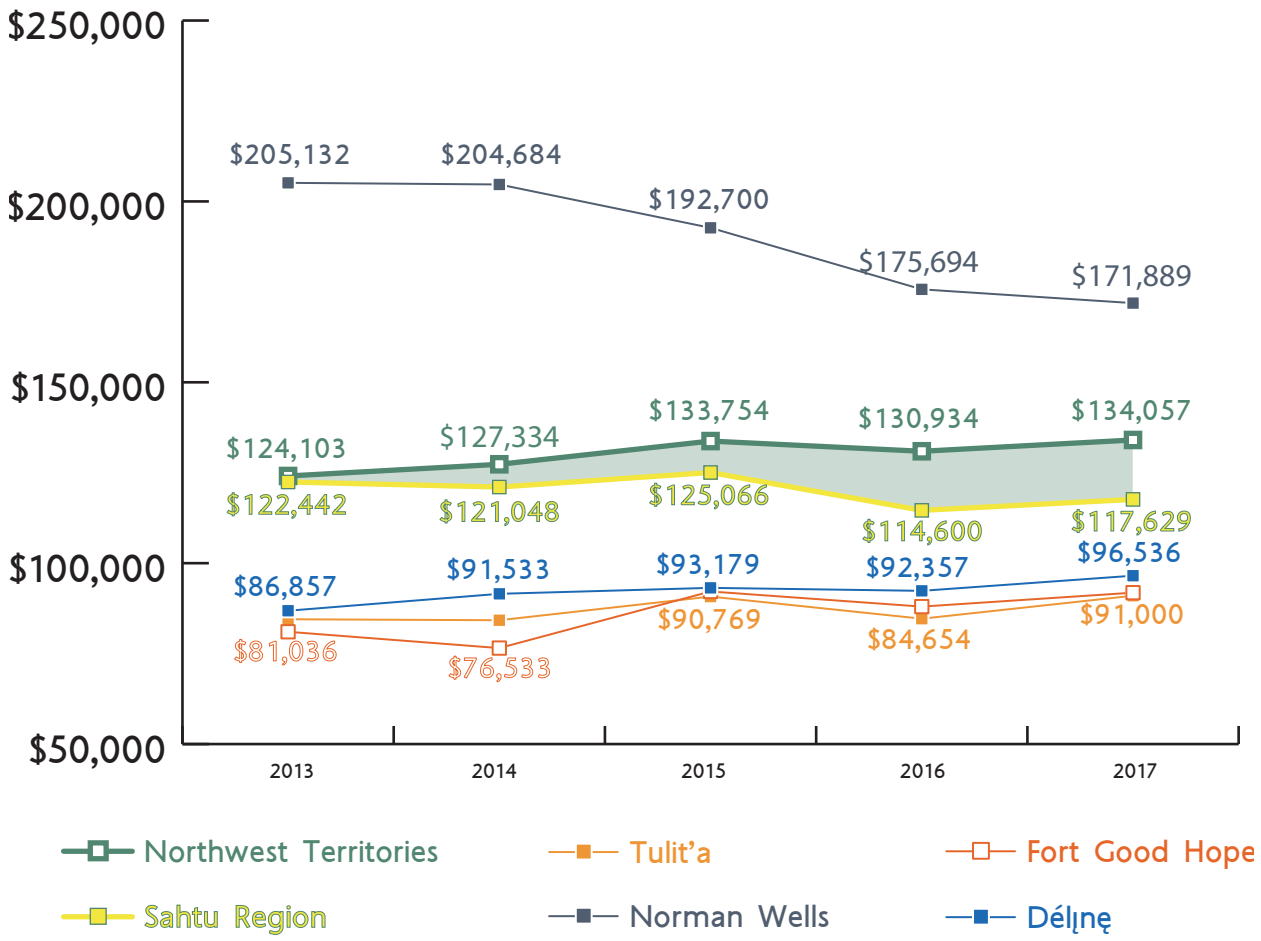
Source: NWT Bureau of Statistics (2019)

12 "Northwest Territories Statistics by Subject, Labour & Income, Family Income by Community and Geographic Aggregation - 2001-2019," NWT Bureau of Statistics https://www.statsnwt.ca/labour-income/income/Family%20Income.xlsx

INCOME[13]

In 2017, the average family income in the SSA was $117,629. The NWT's average income for the same period was $134,057. In 2017, 15.5% of families across the SSA had incomes less than $30,000 compared to 12.9% across the NWT. In Norman Wells, only 11.1% of families had incomes less than $30,000.

FIGURE 6. AVERAGE FAMILY INCOME FROM 2013 THROUGH TO 2017



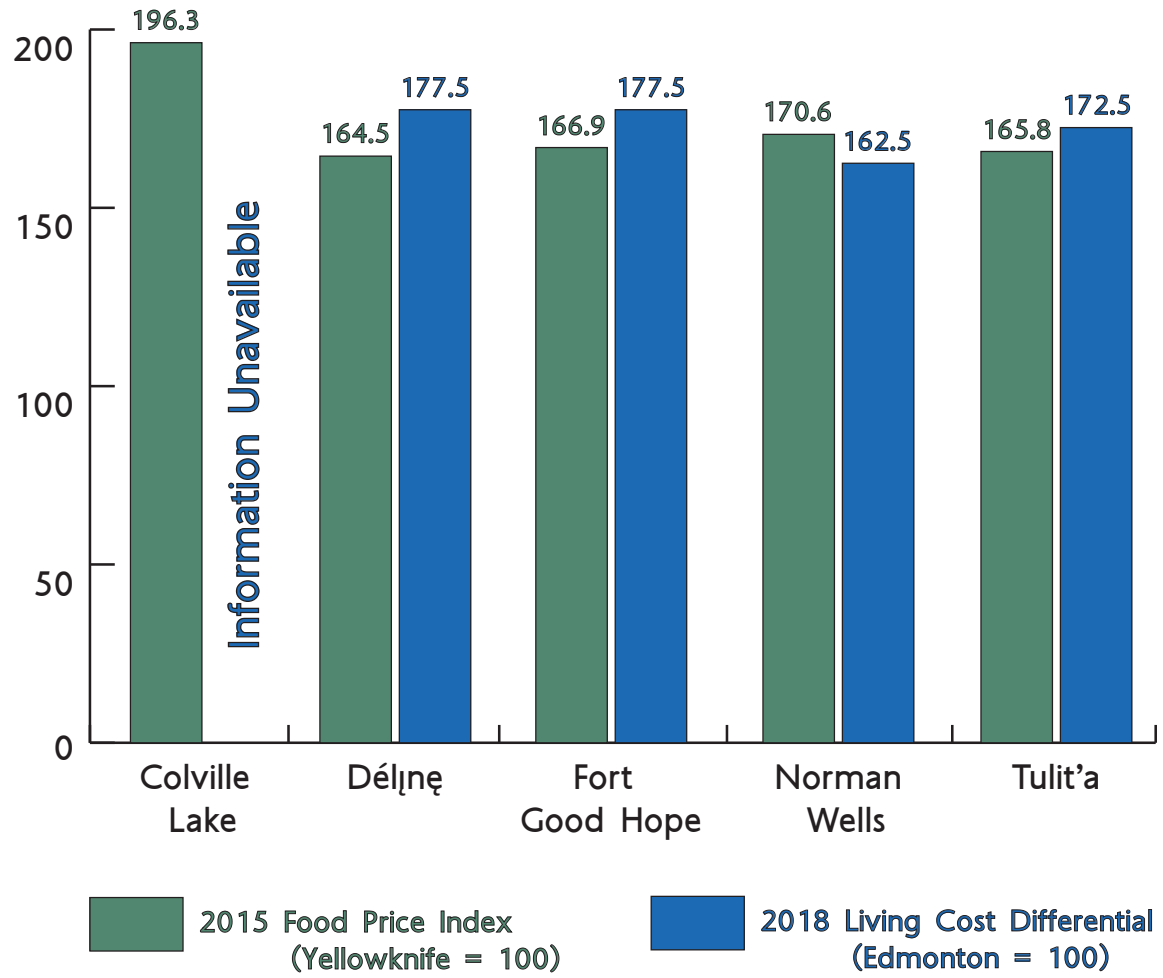
Source: NWT Bureau of Statistics (2019)

13 "Northwest Territories Statistics by Subject, Labour & Income, Family Income by Community and Geographic Aggregation - 2001-2019," NWT Bureau of Statistics https://www.statsnwt.ca/labour-income/income/Family%20Income.xlsx

COST OF LIVING[14]

Yellowknife is used as a baseline for the food price index in 2015. The living cost differential refers to the cost of a basket of goods in the NWT communities compared to the cost of a basket of the same goods in Edmonton (Edmonton = 100). The living cost differential includes a variety of products and services such as food and transportation but it does not include shelter costs. Colville Lake has the highest food costs of the SSA, with costs at 96.3% more than Yellowknife. The other communities experienced food costs from 64.5% more than Yellowknife (Dél̨ı̨nę) to 70.6% more than Yellowknife (Norman Wells).

FIGURE 7. FOOD PRICE INDEX IN 2015 & LIVING COST DIFFERENTIAL IN 2018



Source: NWT Bureau of Statistics (2019)

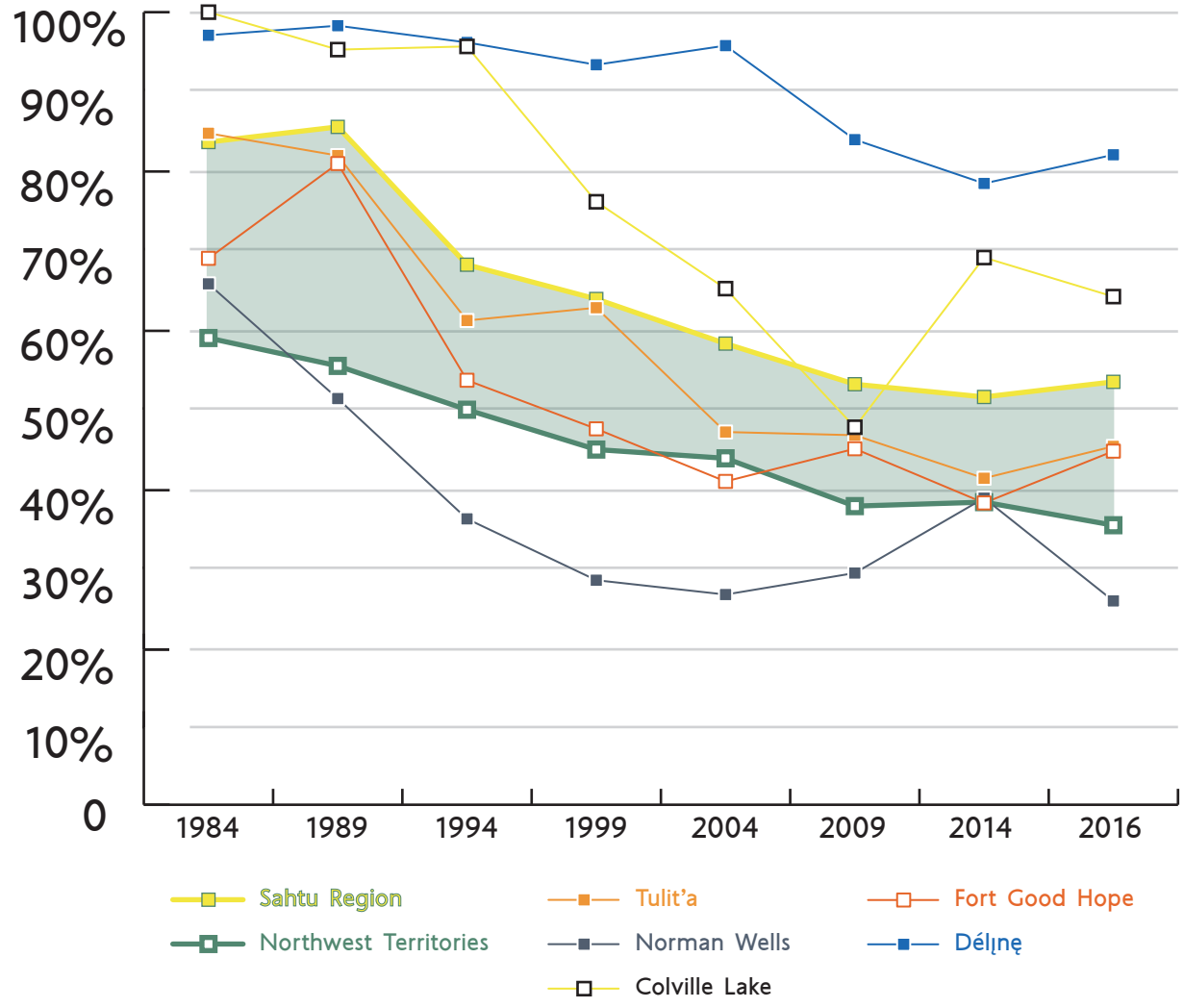
14 "Northwest Territories Statistics by Subject, Prices & Expenditures, Living Cost Differentials," NWT Bureau of Statistics https://www.statsnwt.ca/prices-expenditures/living_cost_differentials/; "Northwest Territories: Sahtu Regional Summary, (September 2019)," NWT Bureau of Statistics https://www.statsnwt.ca/community-data/Summary%20of%20_Community%20Statistics2019.pdf

INDIGENOUS LANGUAGES[15]

The percentage of Indigenous that speak an Indigenous language have decreased over the last few decades. In 1984, across the NWT 59.1% of Indigenous across the territory spoke an Indigenous language compared to 83.7% across the SSA. There has been a marked decrease across the SSA, where in 2016 only 53.6% of Indigenous spoke an Indigenous language. Dél̨ı nę remains the highest, where 82.1% of Indigenous spoke an Indigenous language in 2016.

S&C

FIGURE 8. PERCENTAGE OF INDIGENOUS PEOPLE WHO SPEAK AN INDIGENOUS LANGUAGE



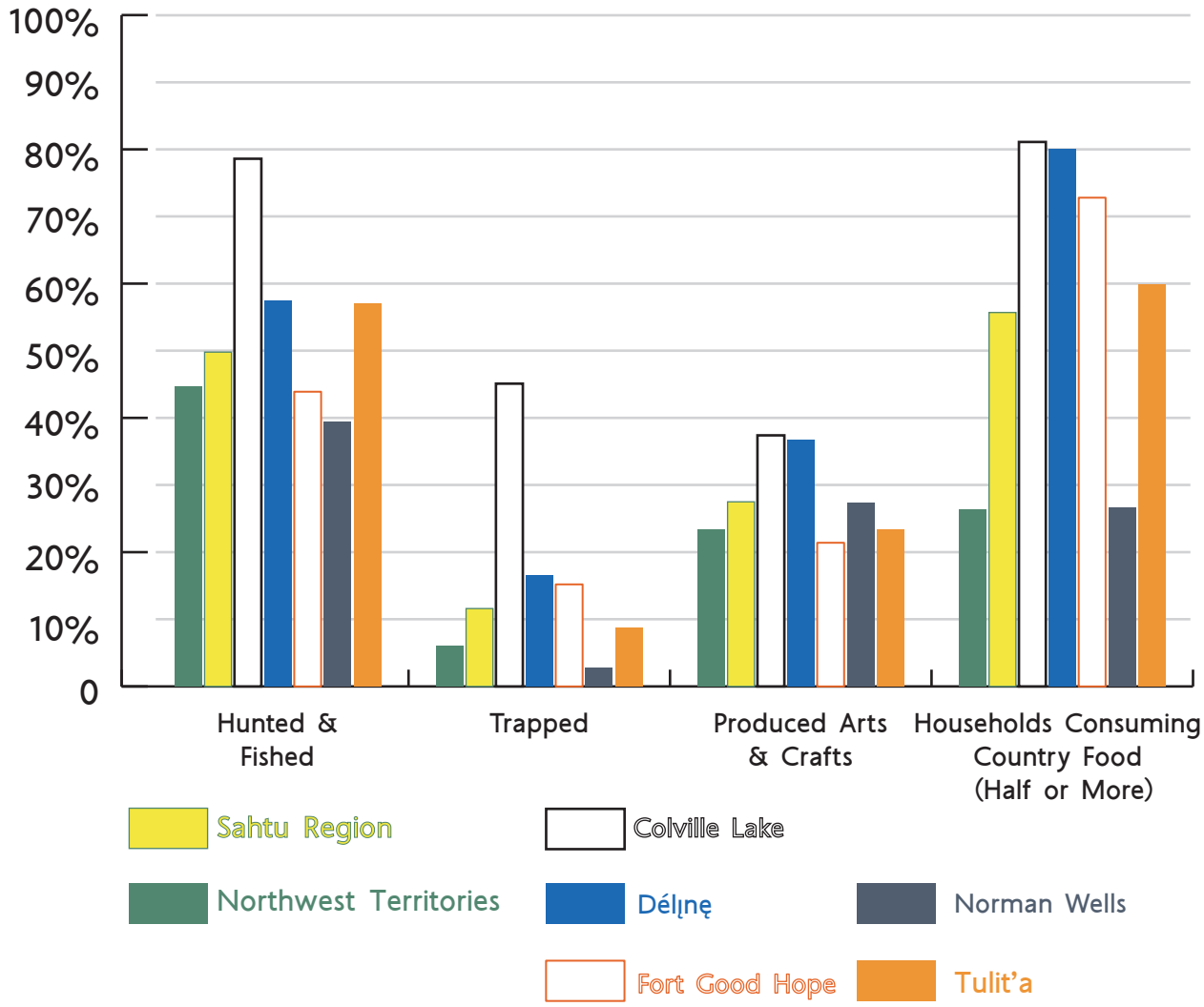
Source: NWT Bureau of Statistics (2019)

15 "Northwest Territories: Sahtu Regional Summary, (September 2019)," NWT Bureau of Statistics https://www.statsnwt.ca/community-data/Summary%20of%20 Community%20Statistics2019.pdf

TRADITIONAL ACTIVITIES[16]

In 2008 the percentage of people who hunted and fished in the Northwest Territories was 39.4%. In the SSA it was 44.7%. The percentage across the NWT who trapped was 6.2% compared to 12% in the SSA. Those engaging in arts and crafts in the NWT was 8.7% compared to 11.4% in the SSA. The percentage of households where country food made up half or more of the diet in the SSA was double that of the NWT as a whole.

FIGURE 9. PARTICIPATION IN TRADITIONAL ACTIVITIES



Data Source: NWT Bureau of Statistics (2019)

16 "Northwest Territories: Sahtu Regional Summary, (September 2019)," NWT Bureau of Statistics https://www.statsnwt.ca/community-data/Summary%20of%20 Community%20Statistics2019.pdf

1.3 CULTURE

This land is our source of survival. Our grandfathers, our fathers, and we the elders of today have all strived on the land. I myself have been committed to living on the land. So when we speak of the land, we speak nothing but the truth. It is as if we are speaking of our own hearts.

The land is very important to us. Not only do we dwell on it but also the wildlife survives on it. As humans, we survive by eating the wildlife. That ... is a way of life.[17]

S&C

"Rakekée Gok'é Godı: Places We Take Care Of", A Report by the Sahtu Heritage Places and Sites Joint Working Group (January 2000, 2nd Edition), is an important resource on Sahtú Dene and Métis culture. The bulk of the information below is referenced from this report.[18] Excerpts from *"The Water Heart": A Management Plan for Great Bear Lake and Its Watershed* (2005) are also included.[19]

Traditional Dene life followed the changing seasons and movement of wildlife. The Dene developed knowledge of the land and the ability to survive in harsh climates. With the coming of the fur traders, the Dene world changed. Understanding this history is critical to understanding the Peoples' connection to the land and their views on land management. The history of the Métis falls within the more recent past. In the early days of the fur trade the Métis played prominent roles in the local economy as entrepreneurs and interpreters, and were ambassadors to both cultures. Many places throughout the SSA are important to both the Dene and the Métis for their history and culture.[20]

The Sahtú Dene and Métis identify their language as "Dene Kədǝ", the Dene language. For the non-Dene and non-Métis, the language is often referred to as North Slavey.

1. 3. 1. TRADITIONAL KNOWLEDGE (TK)

Traditional knowledge (TK) is an evolving body of knowledge, values, beliefs, practices, customs, and understandings about the environment and about the relationship of living beings with one another and the environment.[21] TK is rooted in the traditional way of life of first nations and is passed down orally, through observations, personal experiences, and spiritual teachings.

---

17 Sahtu Land Use Planning Board, *Building a Vision for the Land* study, confidential interviews, 1999.

18 The Sahtu Heritage Places and Sites Joint Working Group, *Rakekée Gok'é Godı: Places We Take Care Of.* Written by Tom Andrews. (January 2000, 2nd Edition).

19 Great Bear Lake Working Group. *The Water Heart": A Management Plan for Great Bear Lake and its Watershed.* Directed "by the Great Bear Lake Working Group and facilitated and drafted by Tom Nesbitt. (May 31, 2005, with Caveat of February 7, 2006.)

20 The Sahtu Heritage Places and Sites Joint Working Group, *Rakekée Gok'é Godı: Places We Take Care Of.* Written by Tom Andrews. (January 2000, 2nd Edition). Excerpted from p. 22.

21 Gwich'in Tribal Council, *Traditional Knowledge Policy*, 2004.

S&C

The Dene culture has traditionally defined itself largely in terms of its relationship with the land and the Creator. To the elders, people are not separate from the land. Rather, we are part of it. Tradition and culture are passed on orally and through activities on the land. Culture is passed on through careful observation of, and learning from the land. Spiritual and ethical values, traditional law, codes of behaviour, and stories are learned this way as are knowledge of wildlife behaviour and of the natural environment.

Traditional ecological knowledge is based on generations of careful observation of the used environment and its seasonal and yearly variations: knowledge of local micro-climates, ice and snow, river currents, plant communities, and animal movements and behaviour, etc. Through this body of knowledge, the Dene and Métis survived in a very harsh environment. [22]

TK includes more than knowledge about the environment. It is also knowledge about the use and management of the environment and values about the environment. TK has been developed and refined over long periods of time and then passed on through many generations. Elders are the primary custodians and teachers in this oral culture which is ideally learned on the land. Many stories are associated with specific places and are told on or near the location. [23]

For example, TK includes knowledge of the local environment and seasonal distribution of food sources. This includes understanding wildlife behaviour and the cultural rules that govern human interactions with wildlife. These rules include a hunter's interactions with wildlife from the harvesting to preparing phases, established to show respect to the animal. TK also involves social norms such as sharing customs, rules for kinship, rules for social interactions and social values, all of which help sustain life and maintain the Sahtú Dene and Métis identity. [24]

TK is not only knowledge. It can be compared to a worldview that includes customs, practices, principles, and ethical standards that govern the way a person understands the world and lives in it.[25] In Dene culture the land fulfills many of the functions of libraries, schools, universities, and spiritual places in most western cultures. It is the place where much of culture is learned. It is the sustainer of all life and it is sacred. Human beings are regarded has having responsibilities towards the land. Given the extent of current-day human impacts on the land, elders assert that we are now even more responsible for maintaining its ecological integrity. [26]

---

22 Great Bear Lake Working Group. *"The Water Heart": A Management Plan for Great Bear Lake and its Watershed.* Directed by the Great Bear Lake Working Group and facilitated and drafted by Tom Nesbitt. (May 31, 2005, with Caveat of February 7, 2006.) From S. 6.2, p. 81.

23 MVEIRB, *Guidelines for Incorporating Traditional Knowledge in Environmental Impact Assessment*, 2005.

24 The Sahtu Heritage Places and Sites Joint Working Group, *Rakekée Gok'é Godı: Places We Take Care Of.* Written by Tom Andrews. (January 2000, 2nd Edition).

25 Gargan, Samuel. *Dehcho First Nation Traditional Knowledge Research Protocol*, Deh Cho First Nation. 2004.

26 Ibid.

CULTURAL MAPPING PROJECTS

A number of reports published over the years have contributed to mapping the footprint of Dene and Métis groups over the SSA. TK, traditional place names and archaeological sites are just a few ways to visually represent the extent of the Indigenous presence, occupancy and use on the land. Some examples of the sources used by the SLUPB are cited in Table 4: SLUP Zone Designations of Sahtú Heritage Sites in "Places We Take Care Of" - on page 31.

S&C

TABLE 2. EXAMPLES OF TK AND SOURCES OF CULTURAL INFORMATION

Traditional Knowledge Projects	Description
Dene Mapping Project	Traditional place names were mapped in a project headed by anthropologist Michael Asch at the University of Alberta in the 1970-1980s
Fort Good Hope Chevron TK Report	Completed from 1986-1990: Part of a joint venture agreement (Chevron and FGH) to identify sensitive areas to be avoided
Aboriginal Affairs and Northern Development Canada (AANDC) TK Project	In 1992-93 AANDC conducted an extensive mapping project to identify a wide variety of TK values in the SSA: cabins, burial sites, archaeological sites, etc.
Prince of Wales Northern Heritage Centre (PWNHC) Archaeological Data	PWNHC promotes the preservation and documentation of archaeological heritage and cultural sites significant to the Northwest Territories. The Centre records locations of archaeological sites.
SLUPB Current Trails Mapping	Conducted from Sept 1999 to June 2000: 186 people interviewed in 5 Sahtú communities (for trails and resource harvesting mapping)
SLUPB Mapping our Future Report	Conducted from April-May 2001: 108 people interviewed individually, 155 participated in workshops, 15% of Sahtú residents were interviewed to identify special places for protection
SLUPB Resource Harvesting Mapping	Conducted from June to Nov 2000: 186 people interviewed in 5 Sahtú communities (for resident harvesting sites and current trails mapping)
Tulit'a TK Report	Developed for the Tulit'a Forest Land Management Plan to document traditional land use knowledge and practices

When Zone Descriptions in the Appendices of the Plan mention *"Mapping Our Future"* recommendations, it is in reference to the areas identified in this report:

> *Mapping Our Future, Report on Community Surveys and Workshops*, April-May 2001, prepared for the Sahtú Land Use Planning Board by Jennifer Blomqvist.

Mapping Our Future was a survey conducted early in the planning process to inform communities about land use planning and to receive feedback on areas considered for protection and development. Significant places were identified and recommendations for the protection of their values were recorded. It was informative during the early planning days and lay the groundwork for future zoning.

S&C

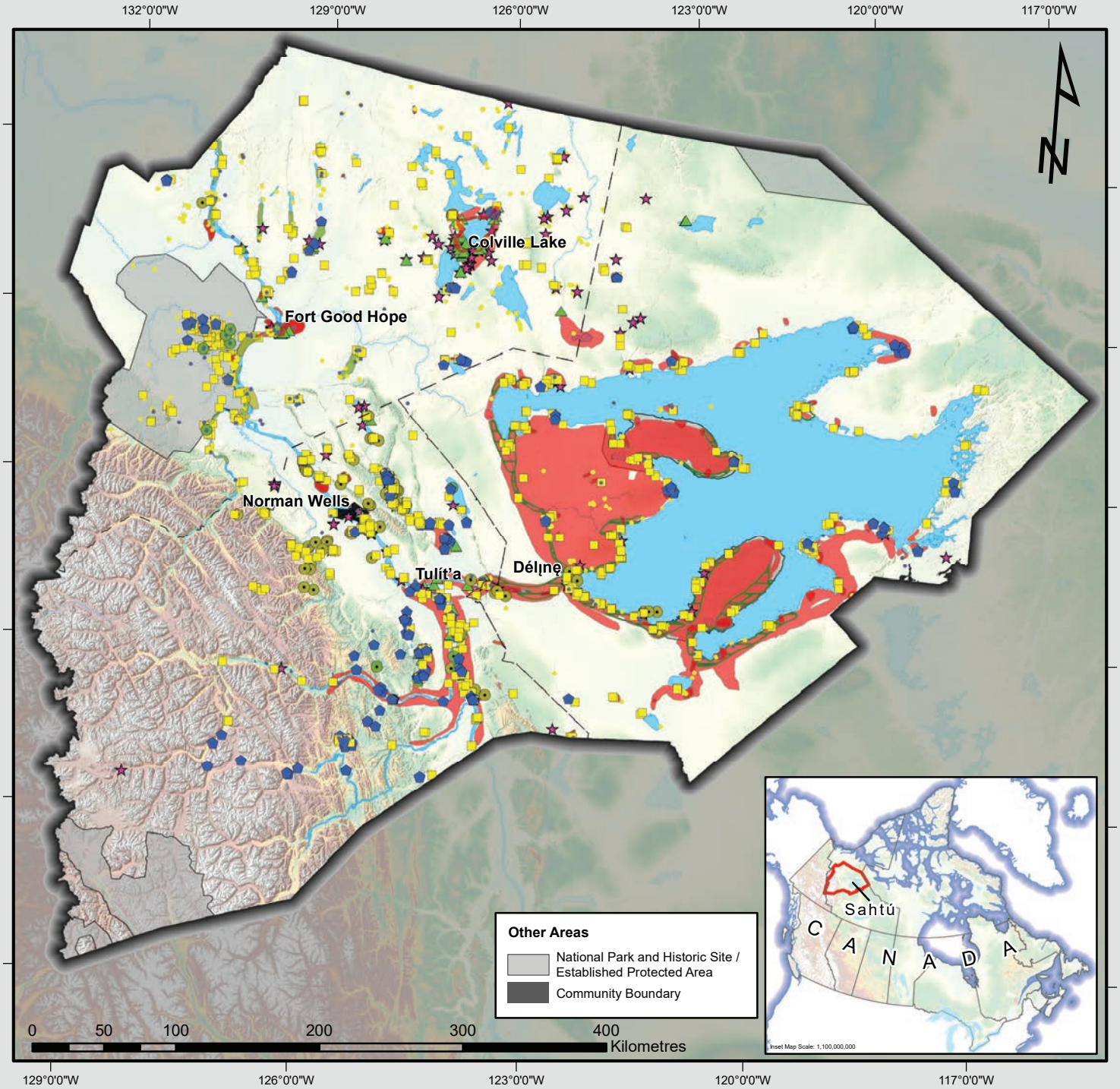
These projects and maps are not comprehensive. They are intended to reflect cultural values on the land. In considering them, it is important to remember that only a fraction of traditional land uses have been recorded and/or mapped. A low representation of cultural values in an area does not necessarily reflect low use and may in some cases simply reflect gaps in our records. People continue to build cabins, set trap lines and it is generally accepted that due to their high occurrence, the large majority of archaeological sites have yet to be identified in mapping projects. The SLUPB strongly advises proponents to contact the local land corporations, elders councils, TK holders and charter communities to carry out TK projects before they start work.

Regarding TK, a number of TK data sources were merged to keep data points confidential. When Zone Descriptions in the Appendices of the Plan mention “cabins, camps, tents, plant gathering areas, recreational areas, log timber and firewood, cultural, historic, sacred, archaeological, or burial sites”, they originate from these mixed sources. There is no report associated with the digital maps. The SLUPB is either the holder of the GIS shapefiles or has obtained them through data sharing agreements with the original data holder.

See Map 4: Significant Cultural Areas - on page 24.

Sahtú Land Use Plan

Map 4 - Significant Cultural Areas



Legend

- Sahtú District Boundaries
- Rivers & Lakes
- Cabins, Camps, and Tent Sites
- Recreational Areas & Historical Sites
- Cultural, Sacred, and Grave Sites
- Timber Harvesting & Berry Picking
- Plant Harvesting Areas

Projection:

Coordinate System: NAD 1983 NWT Lambert
Projection: Lambert Conformal Conic
Datum: North American 1983
Central Meridian: -112.0000
Standard Parallel 1: 62.0000
Standard Parallel 2: 70.0000
Latitude of Origin: 0.000
Map Scale: 1:4,000,000

Please consult Appendix page 186 "Map 4. Significant Cultural Areas" for map references.

Sahtú Land Use Planning Board
P.O. Box 235
Fort Good Hope, NT
X0E 0H0
Telephone: +1 867 598 2055
Website: http://www.sahtulanduseplan.org
Email: info@sahtulanduseplan.org

Date Produced: March 2022

Document Path: \\10.117.7.122\GIS Data\Maps\Working_Files\2022\Background_Report_Maps\Significant_Cultural_Sites.mxd

TRADITIONAL TRAILS AND TRADITIONAL PLACE NAMES

The Sahtú Dene and Métis landscape is intimately known to elders. The Sahtú people's network of traditional use trails covers a land use area of over 300,000 km².[27] Traditional place names and their associated stories link thousands of locations together and create a narrative of the land. This helps to pass down knowledge of the land, from one generation to the next. Traditional place names tie the Sahtú Dene and Métis people to their culture and to the land.

S&C

Traditional trails do more than provide access to harvesting areas. Associated stories are a record of land use over time and can be the focus of activities, stories, rituals, and teachings that provide potential for understanding Sahtú and Dene Métis culture and history.[28]

The Sahtú Dene and Métis are undertaking various initiatives to reclaim their culture and rename the land. The Plan advances these efforts by using Dene words and place names to describe the land and the people where they are available, updating the spelling of these through SLUP amendments when corrections are suggested by local language experts as well as when a standardized spelling is accepted and adopted by Sahtú organizations. The Board will work to replace English words and concepts with Dene language as planning progresses and traditional place names are given to the Board and verified by language experts. The Board recognizes that more work needs to be done in order to accurately reflect local history through traditional names. There are multiple resources, including *The Sahtu Atlas*, that provide a historical and current view of traditional place names.

> James Auld and Robert Kershaw, ed. *The Sahtu Atlas: Maps and Stories from the Sahtu Settlement Area in Canada's Northwest Territories.* (Norman Wells: Friesen, Sahtu GIS Project, 2005).

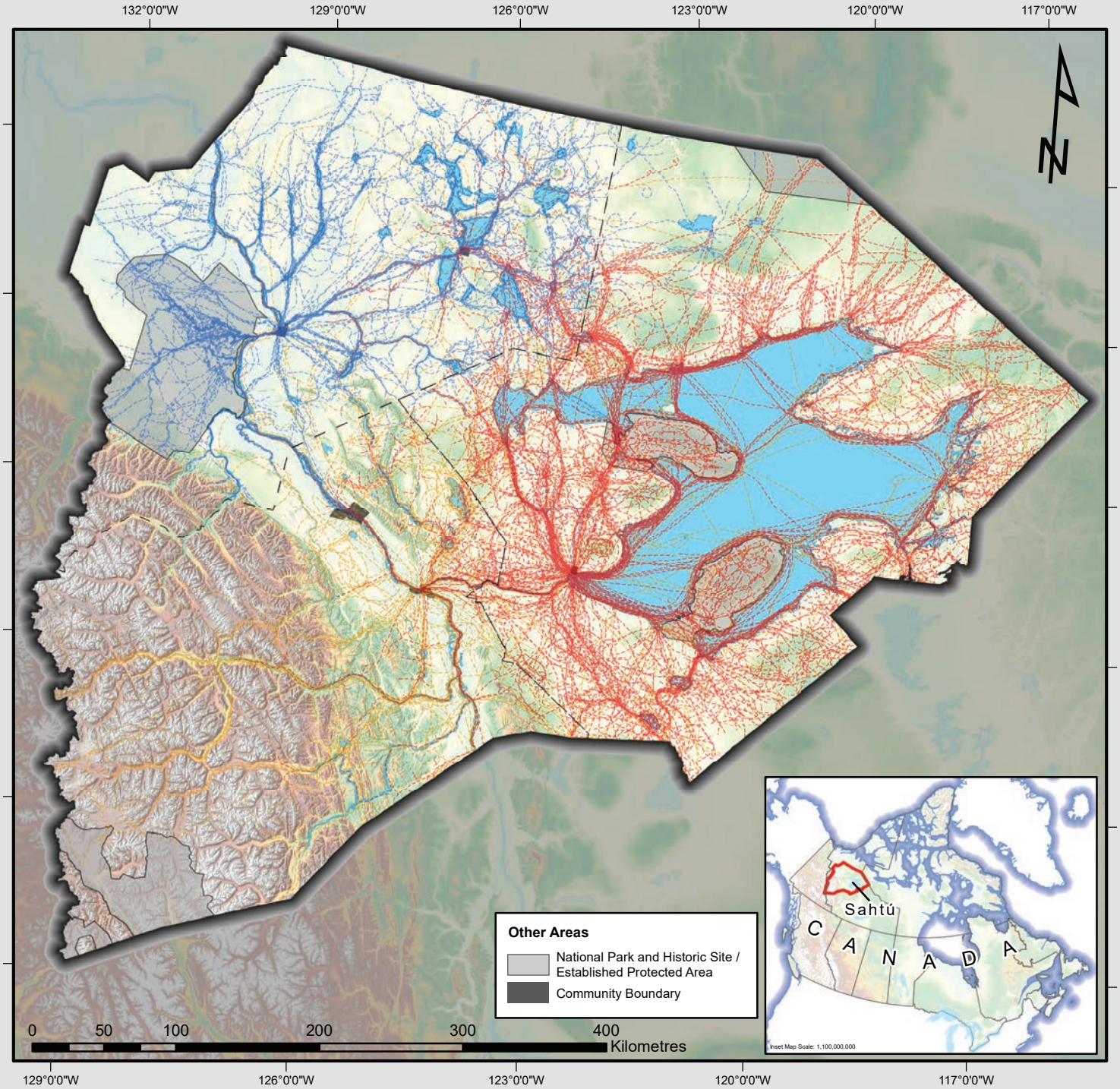
See Map 5: Dene and Métis Traditional Trails - on page 26.

27 The Sahtu Heritage Places and Sites Joint Working Group, *Rakekée Gok'é Godı: Places We Take Care Of.* Written by Tom Andrews. (January 2000, 2nd Edition). Excerpted from p. 16.

28 The Sahtu Heritage Places and Sites Joint Working Group, *Rakekée Gok'é Godı: Places We Take Care Of.* Written by Tom Andrews. (January 2000, 2nd Edition).

Sahtú Land Use Plan

Map 5 - Dene and Métis Traditional Trails



Legend

- Sahtú District Boundaries
- Rivers & Lakes

Traditional Dene and Metis Trails:

- Tulít'a
- Délı̨nę
- Fort Good Hope

Projection:

Coordinate System: NAD 1983 NWT Lambert
Projection: Lambert Conformal Conic
Datum: North American 1983
Central Meridian: -112.0000
Standard Parallel 1: 62.0000
Standard Parallel 2: 70.0000
Latitude of Origin: 0.000
Map Scale: 1:4,000,000

Please consult Appendix page 187 "Map 5. Dene and Metis Traditional Trails" for map references.

Sahtú Land Use Planning Board
P.O. Box 235
Fort Good Hope, NT
X0E 0H0
Telephone: +1 867 598 2055
Website: http://www.sahtulanduseplan.org
Email: info@sahtulanduseplan.org

Date Produced: March 2022

Document Path: \\10.117.7.122\GIS Data\Maps\Working_Files\2022\Background_Report_Maps\Traditional_Trails.mxd

1. 3. 2. SAHTÚ DENE AND MÉTIS SPIRITUALITY

Sahtú Dene history is divided into two great time periods: the time of the "Old World", when animals and humans could change form and lived together, succeeded by the "New World", when animals and humans took their final form.[29] We are living in the New World today where people and animals live in harmony, abiding by rules of mutual respect and conduct. These rules guide hunters to respect the animals that give themselves up for food.

The land is also a living thing, inhabited by entities or 'powers', both benevolent and malevolent. While travelling across the land, it is important to make votive offerings to the entities and to observe strict rules of behaviour. Offerings may be anything of value such as matches, tobacco, ammunition, or a few coins.

S&C

POWERFUL AND SIGNIFICANT PLACES

There are places where powerful entities reside, important events have taken place, or cultural legends are associated with specific landscape features. These places are powerful and significant due to their special conditions. Such places are often prominent landmarks. Special rules must be respected while travelling in these areas.

For example, a giant sheep inhabits Drum Lake. Travellers are cautioned to cross the lake only at specific locations. Doing otherwise would disturb the giant sheep, causing it to rise and create a whirlpool that might endanger the travellers. Many such places are found throughout Sahtú Dene and Métis lands.

See Map 4: Significant Cultural Areas - on page 24.

BURIAL SITES

Burials are sacred places that are given great respect. Since the coming of Christianity, graves have been surrounded by fences. When travellers encounter a burial, it is customary to repair grave fences, clear vegetation from the surfaces of graves, and leave offerings such as tobacco or other gifts. At times a fire-feeding ceremony is performed near the graves of prominent individuals. Food is ceremonially given to a fire in honour of the dead. In return people ask their ancestors for good weather, safe travelling conditions, and success in hunting.

29 The Sahtu Heritage Places and Sites Joint Working Group, *Rakekée Gok'é Godı: Places We Take Care Of.* Written by Tom Andrews. (January 2000, 2nd Edition).

1. 3. 3. YOUTH AND THE LAND

In Sahtú Got'ı̨nę tradition, grandparents often played a central role in the upbringing and education of their grandchildren. Many years ago, when the time was right, one such grandfather took up the teaching of his grandson. His words "made a path" or a "life-long road" for his grandson, which would allow his grandson to "see his grey hair at the end of his road". He taught his grandson of the universal law of the connectedness of all things, of respect for all things, and of the challenges that he would face along his particular road.

S&C

His grandfather also tied moose hide bracelets around the wrists and ankles of his grandson and instructed his grandson not to disturb the bracelets, to leave them on until they disintegrated and fell-off naturally, and to inform him as they fell-off. And he instructed his grandson to pay close attention to his dreams.

Thereafter, the grandson began dreaming of the moose. He developed a "mystical tie" to the moose, a tie that was to endure and develop for the rest of his life. After some time, his left ankle bracelet fell off. Later, his right wrist bracelet fell-off, and later again his right ankle and his left wrist bracelets each fell-off in turn. When he informed his grandfather that the final bracelet had fallen-off, of the order of their falling-off and of his dreams, his grandfather was assured of the unity of his person and his relationship with the land. He declared his grandson sufficiently mature that he was now an adult and could establish his own household and home.[30]

Elders say that young people must try to understand the meanings of stories through their own experience, noting that this encourages independent thinking and provides for a strong future for the youth. The land teaches the young their identity, their history, and the rules of their society. Experience on the land is a path to acquiring knowledge. [31]

When families travel on the trails that cross the Sahtú landscape, children are told the place names and their associated stories. As these stories are passed on, places become aids for remembering the vast oral tradition in which Sahtú Dene and Métis culture is rooted.

30 Charlie Neyelle, interview. Great Bear Lake Working Group. *The Water Heart": A Management Plan for Great Bear Lake and its Watershed.* Directed "by the Great Bear Lake Working Group and facilitated and drafted by Tom Nesbitt. (May 31, 2005, with Caveat of February 7, 2006.) p. 84.

31 The Sahtu Heritage Places and Sites Joint Working Group, *Rakekée Gok'é Godı: Places We Take Care Of.* Written by Tom Andrews. January 2000 (2nd Edition). Excerpted from p. 20.

1. 3. 4. ONGOING RELATIONSHIP WITH THE LAND

Though the majority of Sahtú heritage places and sites deal with the past, modern events are used to pass knowledge on to younger generations. Sites of recent disaster or places where cultural rules have been broken become the heritage places of later generations.

For example, *Nǫfee Kǫselee* was the site of a tragic drowning in the 1920s which claimed the lives of an entire family. It is now used to instruct young people about safe travel over ice. In the 1940s two trappers at *Beshode Túé* were fixated on trapping and as a result endangered the lives of their families, bringing starvation and death. Today the story is used to instruct young people on the appropriate rules for trapping and caring for a family.

S&C

Research and monitoring are a fundamental a part of the culture. In Délı̨ nę middle-aged and elder Sahtú Gotı̨nę tell a story. When they were younger, their elders gradually passed on to them the accumulated knowledge of the Sahtú Got'ı̨nę. They also instructed them to observe, take note and be aware of every aspect of their surroundings: of the particular features of places; changing relationships among weather, snow, ice, currents, plants and animals; of the cycles and features of plants and the seasons; and of the particular movements and behaviour of mammals, fish and birds, etc.

Later in life when they found themselves outside the normal realm of their experience and in real danger, the teachings of their elders and the years of observation allowed them to respond with understanding and skill and to survive. As a result, the Sahtú Got'ı̨nę (People of Délı̨ nę) insist that the responsibility of research and monitoring should be more community based in order to benefit from the knowledge that people have of the land, to increase involvement and training opportunities for the Sahtú Dene and Métis in development projects. It would also be a way to integrate both traditional knowledge and scientific understanding of the land. The Sahtú Dene and Métis maintain an active relationship with the landscape - one that is ever changing and growing. The relationship is not a static part of history but is living and ongoing.[32]

32 Ibid., p. 21

1.4 RAKEKÉE GOK'É GODI: PLACES WE TAKE CARE OF

"*Rakekée Gok'é Godi: Places We Take Care Of, Report of the Sahtu Heritage Places and Sites Joint Working Group*" (January 2000), is a foundation document and was extensively used in the development of the SLUP. The Working Group was established under S.26.4 of the *SDMCLCA* to identify culturally significant sites in the SSA and make recommendations regarding their protection.

The Sahtu Heritage Places and Sites Joint Working Group made a number of recommendations to protect the heritage and cultural sites in the region. The report listed a total of forty sites, the bulk of which have been given some level of protection under the Plan.

S&C

Table 3: Sahtú Land Use Plan Zone Designations identifies the zone designation in the SLUP for each of the forty heritage sites described in the report. Sites may have multiple designations if they sit in more than one of the Plan's zones. The third column in Table 4: SLUP Zone Designations of Sahtú Heritage Sites in "Places We Take Care Of" - on page 31 corresponds to the zoning for each of the special places. The acronyms used are briefly explained in Table 3 and are elaborated upon in S.3.2 of the Plan. Only places that are located in Sahtú Settlement Area are included.

TABLE 3. SAHTÚ LAND USE PLAN ZONE DESIGNATIONS

Zone	Description
General Use Zone (GUZ)	Development subject to the General Use Terms of the Plan
Special Management Zone (SMZ)	Development subject to the General Use Terms of the Plan AND Subject to the Special Management Terms of the Plan
Conservation Zone (CZ)	Development prohibited as per terms of the Plan
Proposed Conservation Initiative (PCI)	Same protection status as CZ in the Plan until they are protected under other legislation.

When Zone Descriptions mention *Rakekée Gok'é Godi: Places We Take Care Of* recommendations, it is in reference to the areas identified in the report:

> The Sahtu Heritage Places and Sites Joint Working Group, ***Rakekée Gok'é Godi: Places We Take Care Of.*** Written by Tom Andrews. (January 2000 2nd Edition). https://www.pwnhc.ca/docs/PWNHC-publication-places_we_take_care_of.pdf

See Map 6: Heritage Sites - on page 33.

TABLE 4. SLUP ZONE DESIGNATIONS OF SAHTÚ HERITAGE SITES IN "PLACES WE TAKE CARE OF"

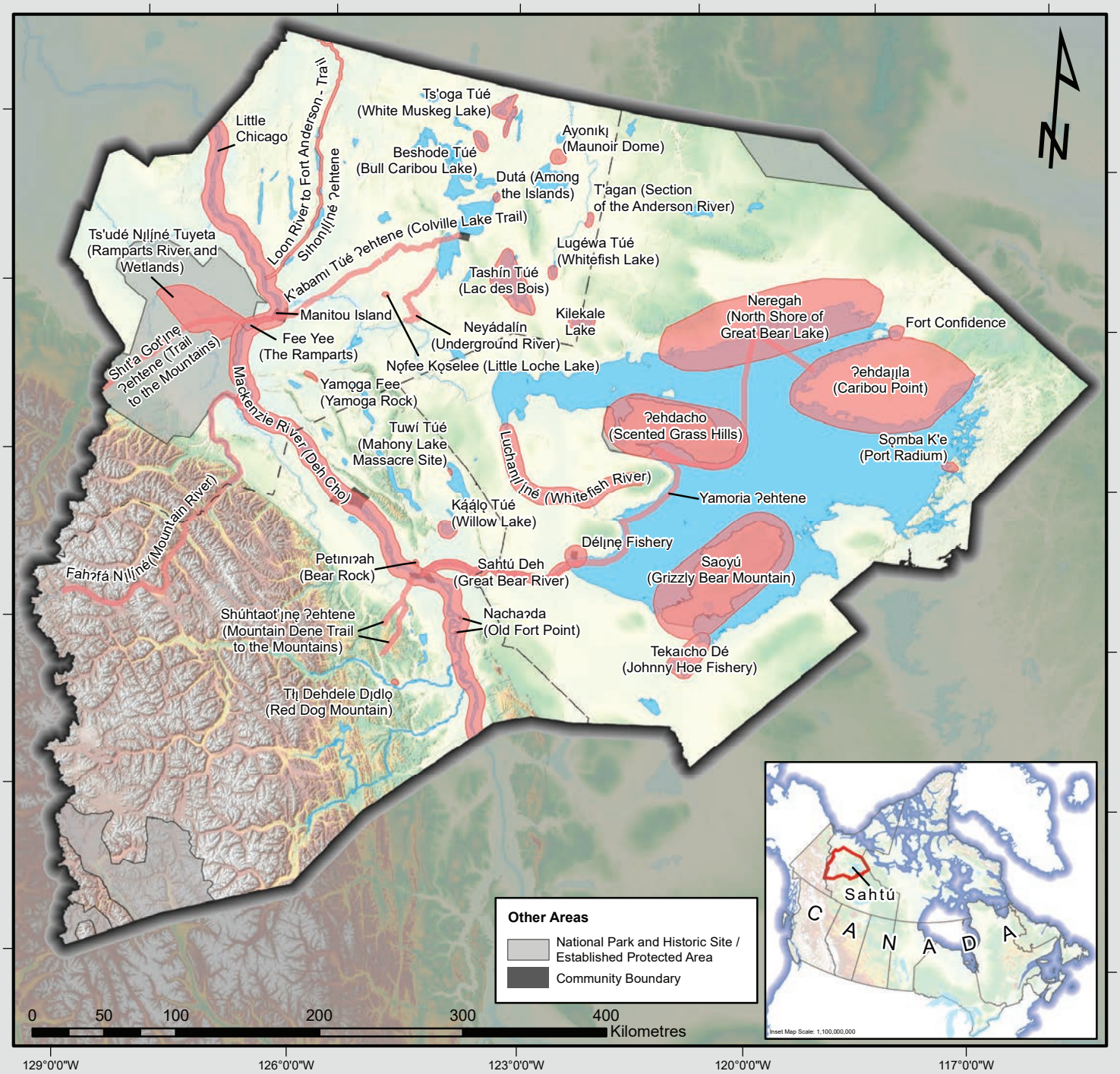
Dene Name	English Name/Description	Zone (GUZ, SMZ, CZ, PCI, EPA)
Fee Yee	The Ramparts	PCI , SMZ
Saoyú-ʔehdacho	Scented Grass Hills and Grizzly Bear Mountain	Not subject to Plan
Tɬı Dehdele Dıdlǫ	Red Dog Mountain	CZ
Délıné	Délıné Fishery & Sir John Franklin's Wintering Quarters	SMZ
Sıhonıĺíné ʔehtene	"Anderson River Trail" - Trail from Loon River to Fort Anderson	SMZ
Ayonıkı	Maunoir Dome	SMZ
Beshode Túé	Bull Caribou Lake	GUZ
Dutá	"Among the Islands"	GUZ
Fahʔfą Nıĺíné / K'ááchohtíídeé	Mountain River	CZ, SMZ
Káhbamı Túé ʔehtene	Colville Lake Trail	GUZ, PCI, SMZ
Kǫę Gojíré Dúwé	Manitou Island	SMZ
Lugéwa Túé	Whitefish Lake	CZ
Neyádalín	Underground River	SMZ
Nǫfee Kǫselee	Little Loche Lake	GUZ
Shıgago	Little Chicago	SMZ
Shıt'a Got'ınę ʔehtene	"Mountain People Trail" - Trail to the Mountains	SMZ, PCI
T'agan	Section of the Anderson River	CZ
Tashín Túé	Lac des Bois	CZ
Ts'udé nıĺíné Tuyeta	Ramparts River and Wetlands	PCI
Ts'oga Túé	White Muskeg Lake	GUZ, CZ
Yamǫga Fee	"Yamoga Rock"	CZ
ʔıdıtúé Dáyı́dá	The Thunderbird Place	PCI
ʔehdaĺ́la	Caribou Point	CZ
Luchanıĺı́né	Whitefish River	CZ
Neregah	North Shore of Great Bear Lake	SMZ
Sǫmba K'e	"The Money Place" - Port Radium	SMZ
Tuktut Nogait	Tuktut Nogait National Park Reserve	National Park/PCI
T'echo cho deh t'a tlaa	Fort Confidence Area	CZ
Turılı	Johnny Hoe Fishery	CZ
Yamorıa ʔehtene	Trail followed by Yamoria & the Giant Beavers, Bear Lake	SMZ, CZ
K'ą́ą́lǫ Túé	Willow Lake (Brackett Lake)	CZ

TABLE 4. SLUP ZONE DESIGNATIONS OF SAHTÚ HERITAGE SITES IN "PLACES WE TAKE CARE OF" (CONTINUED)

Dene Name	English Name/Description	Zone (GUZ, SMZ, CZ, PCI, EPA)
Petınıʔah	Bear Rock	CZ
Nachaʔda	Old Fort Point	SMZ
Shúhtaot'ıné ʔehtene	Mountain Dene Trail to the Mountains	CZ, SMZ, GUZ
Tuwí Túé	Mahony Lake (and Massacre Site)	CZ
Deh Cho	Mackenzie River	SMZ
Sahtú Deh	Great Bear River	SMZ
Shalee Túé	Kilekale Lake	GUZ

Sahtú Land Use Plan

Map 6 - Heritage Sites



Legend

Sahtú District Boundaries

Rivers & Lakes

Rakekée Gok'é Godı: Places We Take Care Of

Heritage Sites

Projection:

Coordinate System: NAD 1983 NWT Lambert
Projection: Lambert Conformal Conic
Datum: North American 1983
Central Meridian: -112.0000
Standard Parallel 1: 62.0000
Standard Parallel 2: 70.0000
Latitude of Origin: 0.000
Map Scale: 1:4,000,000

Please consult Appendix page 188 "Map 6. Heritage Sites" for map references.

Sahtú Land Use Planning Board
P.O. Box 235
Fort Good Hope, NT
X0E 0H0
Telephone: +1 867 598 2055
Website: http://www.sahtulanduseplan.org
Email: info@sahtulanduseplan.org

Date Produced: March 2022

Document Path: \\10.117.7.122\GIS Data\Maps\Working_Files\2022\Background_Report_Maps\Heritage_Sites.mxd

S&C

CH. 2. Biophysical Environment

2.1 GEOLOGY[34]

The geography of a region is controlled by its geological history. This includes glacial history, the type of rock in an area, the age of these rocks, or the physiographic nature of the rock outcroppings. On a large scale, geologists recognize these differences and separate regions into geological 'provinces'.

The Sahtú Settlement Area (SSA) includes five distinct geological provinces:

- Bear Province (part of the Canadian Shield), with abundant bedrock outcrops;
  - a small portion of the Slave Province (part of the Canadian Shield);
- Interior Platform (part of the Western Canada sedimentary basin), with few bedrock outcrops;
  - the similar Arctic platform (extending under the Arctic archipelago islands);[35]
- Mackenzie and Selwyn Mountains (part of the Rocky Mountains and North American Cordilleran Orogen) with abundant bedrock outcrops.

This geological diversity also hosts a similarly diverse collection of mineral deposits with a variety of commodities (eg. copper).

Many commodities such as copper occur in all three geological provinces. However, the nature of how the copper occurs, or the other commodities it exists with, is different in each province. Because of this, the types of mineral deposits (or how the copper occurs) in each province is distinctly different. How one understands and explores for this type of mineralization varies as well.

See Map 7 - Geological Provinces on page 36.

2.1.1. THE FIVE GEOLOGICAL PROVINCES

THE BEAR PROVINCE, AND THE SLAVE PROVINCE

The Bear and Slave Provinces are the easternmost geological provinces in the SSA. They are characterized by extensive bedrock exposures and are part of the Canadian Shield.

Deposits of copper and uranium are found in the Bear Province, while diamonds are mined and explored in the Slave Province.

Two components include:

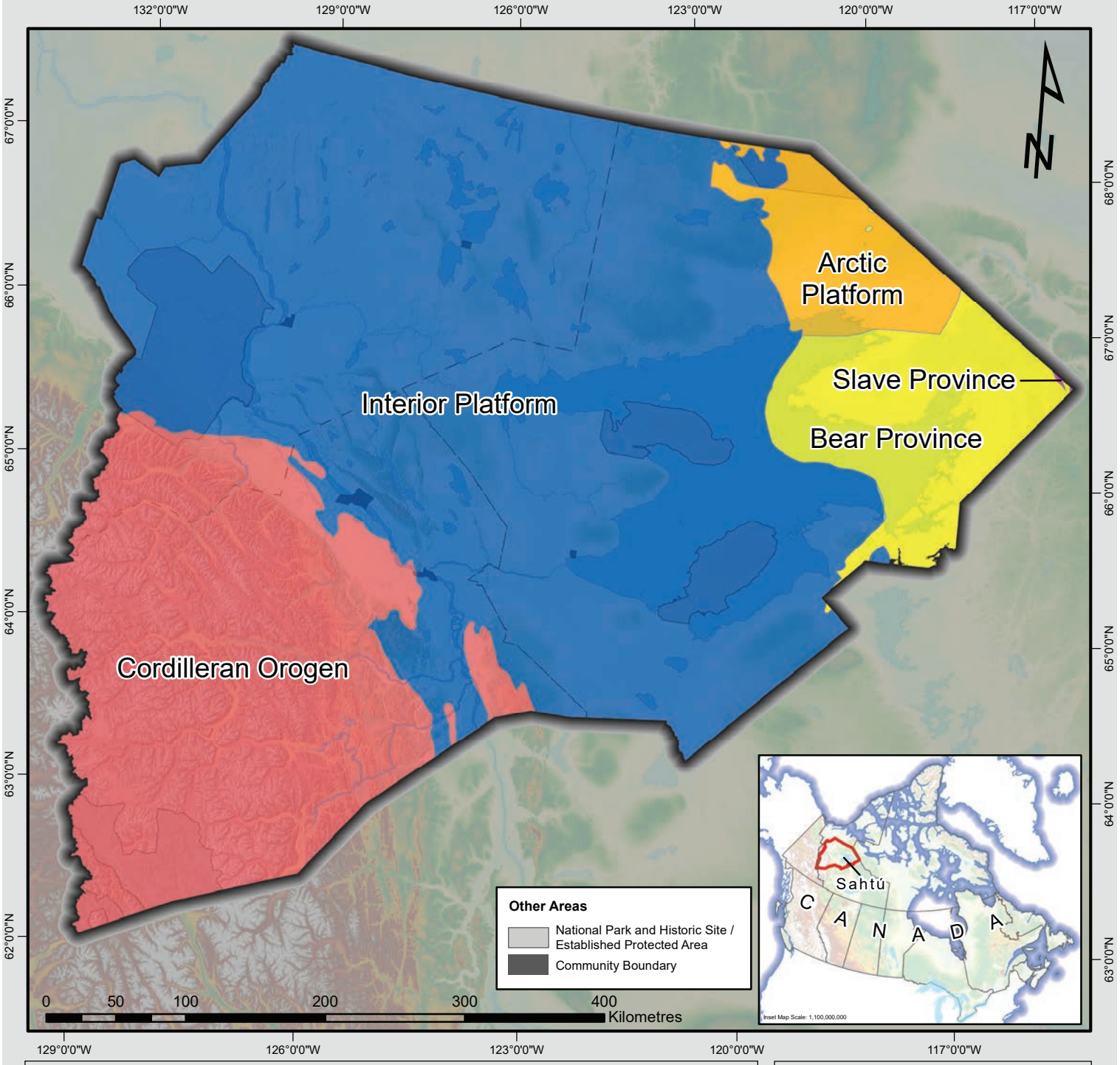
- the Great Bear Magmatic Zone, an area mostly of ancient granite and volcanic rocks, and

34 Luke Ootes, personal communication. NWT Geoscience Office, February 2010.

35 James Auld and Robert Kershaw, ed. *The Sahtu Atlas: Maps and Stories from the Sahtu Settlement Area in Canada's Northwest Territories.* (Norman Wells, N.W.T: Sahtu GIS Project, 2005.) Excerpted from pg. 28.

Sahtú Land Use Plan

Map 7 - Geological Provinces



Legend

- Sahtú District Boundaries
- Rivers & Lakes

Geological Provinces

- Arctic Platform
- Bear Province
- Cordilleran Orogen
- Interior Platform
- Slave Province

Projection:

Coordinate System: NAD 1983 NWT Lambert
Projection: Lambert Conformal Conic
Datum: North American 1983
Central Meridian: -112.0000
Standard Parallel 1: 62.0000
Standard Parallel 2: 70.0000
Latitude of Origin: 0.000
Map Scale: 1:4,000,000

Please consult Appendix page 188 "Map 7. Geological Provinces" for map references.

Sahtú Land Use Planning Board
P.O. Box 235
Fort Good Hope, NT
X0E 0H0
Telephone: +1 867 598 2055
Website: http://www.sahtulanduseplan.org
Email: info@sahtulanduseplan.org

Date Produced: March 2022

Document Path: \\10.117.7.122\GIS Data\Maps\Working_Files\2022\Background_Report_Maps\Geologic_Provinces.mxd

- the slightly younger rocks of the Coppermine Homocline (flat-lying) that overly or cover the Great Bear magmatic zone.

The Bear Province is the easternmost geological province in the SSA. It is characterized by extensive bedrock exposures and is part of the Canadian Shield.

THE INTERIOR PLATFORM, AND ARCTIC PLATFORM

The Interior Platform is the central geological Province in the SSA. It is younger than the Bear Province and covers it like a blanket. While it has some similar aged rocks as the Mackenzie Mountains, it was not thrust and folded into mountain ranges.

The Interior Platform stretches from the Arctic Ocean through to the central United States. For example, similar rock types can be continually observed in central Saskatchewan and the SSA.

THE CORDILLERAN OROGEN - MACKENZIE AND SELWYN MOUNTAINS

The Mackenzie and Selwyn Mountains are the northern extent of the Rocky Mountains, part of the Cordilleran Orogen, that stretch from Mexico through to Yukon and the Northwest Territories (NWT). They form the westernmost of the three geological provinces in the SSA.

Some geological attributes in the Mackenzie Mountains are similar to the Interior Platform. These rocks however have been thrust and folded, then glaciated to form a mountain belt where much bedrock is exposed. This history has also exposed a diversity of geological attributes and mineral prospects and deposits.

2.2 CLIMATE

2. 1. 2. TEMPERATURE

Environment and Climate Change Canada (ECCC) has historic data of temperature normals taken at the Norman Wells station between 1981-2010. Temperatures vary across the SSA due to a number of influences. No historic data pertaining to climate normal was available for the other SSA communities.

TABLE 5. CANADIAN CLIMATE NORMALS FROM 1981-2010 TAKEN AT NORMAN WELLS

Temperature	Jan	Feb	Mar	Apr	May	Jun
Daily Avg. (°C)	-26.1	-24.0	-18.4	-5.1	6.4	15.0
Daily Max. (°C)	-22.2	-19.5	-12.5	1.0	12.1	20.7
Daily Min. (°C)	-29.9	-28.4	-24.2	-11.1	0.6	9.3
Rainfall (mm)	0.2	0.0	0.1	1.2	13.3	42.4
Snowfall (cm)	21.1	19.9	14.4	12.8	6.4	0.4
Precipitation (mm)	15.6	14.9	10.7	11.1	19.0	42.7

Temperature	Jul	Aug	Sep	Oct	Nov	Dec	Year
Daily Avg. (°C)	17.1	13.8	6.6	-4.7	-18.7	-23.4	-5.1
Daily Max. (°C)	22.5	19.0	11.0	-1.6	-15.2	-19.6	-0.4
Daily Min. (°C)	11.5	8.4	2.0	-7.7	-22.2	-27.1	-9.9
Rainfall (mm)	41.8	41.1	26.7	4.6	0	0.2	171.7
Snowfall (cm)	0.0	0.7	6.9	27.3	26.0	25.9	161.5
Precipitation (mm)	41.8	41.8	33.1	26.7	18.7	18.2	294.4

Source: Environment and Climate Change Canada's Historic Data[36]

Below freezing minimum temperatures are the norm in January.[37] Weak or little sunshine means there is little variation between maximum day and minimum night-time temperatures in January. Temperatures can drop to -40 °C and -50 °C in the winter

36 Environment and Climate Change Canada, *Canadian Climate Normals*, 1981-2010 Climate Normals & Averages. https://climate.weather.gc.ca/climate_normals/index_e.html

37 Ibid.

months.[38] Despite the long cold winters the short summers can be warm and usually range from 20°C to mid-30°C with variations across the area.[39]

Precipitation in the Sahtú is restricted partly because of the rain-shadow effect of the Mackenzie Mountains. Snow and rainfall are low by North American standards.

Average precipitation is roughly 300-400 mm annually for the majority of areas within the SSA. The eastern side of Great Bear Lake tends to get less. The north-eastern side of the lake gets about 120-200 mm annually, and the south-eastern side gets about 201-300 mm annually. Precipitation decreases at the more northern altitudes, tapering off to 250 mm at the northern boundary.[40]

January precipitation is mainly in the form of snow. Across northern Canada, the month of April is still winter, where precipitation continues to fall as snow. October marks the transition from mainly rain to snowfall. By November precipitation primarily falls as snow. Mean monthly snowfall rises sharply in the autumn and then diminishes through the winter months.

Even as snowfall decreases, snow accumulation steadily increases throughout the winter due to lack of significant thaws. Maximum snowpack depth is reached in March then a more rapid decrease in the snow-pack occurs as summer approaches.[41]

38 Natural Resources Canada, *The Atlas of Canada.* Contains information licensed under the Open Government Licence – Canada. http://atlas.nrcan.gc.ca/site/english/maps/environment/climate/temperature

39 Natural Resources Canada, *The Atlas of Canada.* Contains information licensed under the Open Government Licence – Canada. http://atlas.nrcan.gc.ca/site/english/maps/environment/climate/temperature/temp_summer

40 Ecosystem Classifcation group. *Ecological Regions of Northwest Territories – Taiga Plains.* Department of Environment and Natural Resources, Government of the Northwest Territories, (Yellowknife, NT, Canada, 2007, rev. 2009). Viii + 173 pp. + folded insert map.)

41 Natural Resources Canada, *The Atlas of Canada*. Contains information licensed under the Open Government Licence – Canada. http://atlas.nrcan.gc.ca/auth/english/maps/environment/climate/snowcover/snowdepth

2. 2. 1. PERMAFROST

Permafrost refers to soil or rock whose temperature remains at or below 0°C throughout the year for at least two years. Permafrost ground can contain ice or practically no ice at all. Between the permafrost and the ground surface is an "active layer" which thaws in summer and freezes in winter.

The "active layer" ranges in thickness from tens of centimetres to several metres thick, and is dependent on various climate, vegetation and sediment characteristics. The active layer can be unstable, and changes in its thickness, such as may occur in response to climate warming, can result in melting of underlying permafrost.

Where the underlying permafrost contains significant amounts of ice, the change in volume as the ice melts can lead to settling or collapse of the soil above.[42] This makes it difficult to build roads, airfields, and other public infrastructure.

BE

Permafrost does not stop vegetation from growing, however, it limits the depth to which roots can penetrate. Furthermore, permafrost maintains cold ground temperatures, stunting the growth of vegetation.

Most of the SSA lies within the zone of extensive discontinuous permafrost (50-90% of area underlain by permafrost). Farther north near Fort Good Hope and Colville Lake, the permafrost becomes continuous (90-100% of area underlain by permafrost). Depths of permafrost in the SSA range from 0m below large lakes and rivers, 20-80m around Norman Wells, and up to 450m deep in the Colville Hills area.[43]

Environment Canada, before reforming as Environment and Climate Change Canada (ECCC), provided the SLUPB with a permafrost map that describes extent of coverage through ranges in percentages permafrost. The Zone Descriptions can be found in the Appendices of the SLUP. The zones are described as existing in:

- "extensive discontinuous permafrost" – where permafrost covers between 50%-90% of the landscape; or
- "continuous permafrost" – where permafrost covers between 90%-100% of the landscape.

42 Natural Resources Canada, *The Atlas of Canada*. Contains information licensed under the Open Government Licence – Canada. http://atlas.nrcan.gc.ca/auth/english/maps/peopleandsociety/nunavut/land/permafrost/1

43 Smith, S.L. and Burgess, M.M. *A digital database of permafrost thickness in Canada.* (Geological Survey of Canada, Open File 4173. 2002).

There is no report associated with these classification categories. The primary source of information was provided by Environment Canada and originated from the *Atlas of Canada*.[44]

See Map 8: Permafrost and Treeline - on page 42.

2. 2. 2. CLIMATE CHANGE

The signs of a changing climate are familiar to NWT residents. According to the Government of the Northwest Territories' (GNWT) *2030 NWT Climate Change Strategic Framework*, sponsored by the Department of Environment and Natural Resources (ENR), residents have expressed concerns regarding the impacts of climate change. These impacts include:

> *"changing ice conditions and increased risks to human safety, impacts on water quality and quantity, impacts on forest, habitat and wildlife, invasive species, food security and decreased access to country foods, and loss of culturally significant sites and artifacts".*[45]

BE

This report addresses the need to transition to a lower carbon economy, the improvement of knowledge of climate change impacts, as well as the building of resilience to adapt to a changing climate. The report further mentioned that there are:

> *"parts of the territory [that] are warming up to four times faster than global averages, and considerable changes to the natural environment are being experienced by Northerners".*[46]

The result of many of these impacts are due to increased wildland fires, thawing permafrost, slumping ground, and shoreline erosion, which cause risks to infrastructure, such as buildings, roads, pipelines, transmission lines, etc., as well as impact traditional economies such as trapping[47] and subsistence harvesting.

---

44 Natural Resources Canada, *The Atlas of Canada*. Contains information licensed under the Open Government Licence – Canada. https://www.nrcan.gc.ca/maps-tools-and-publications/maps/atlas-canada/10784

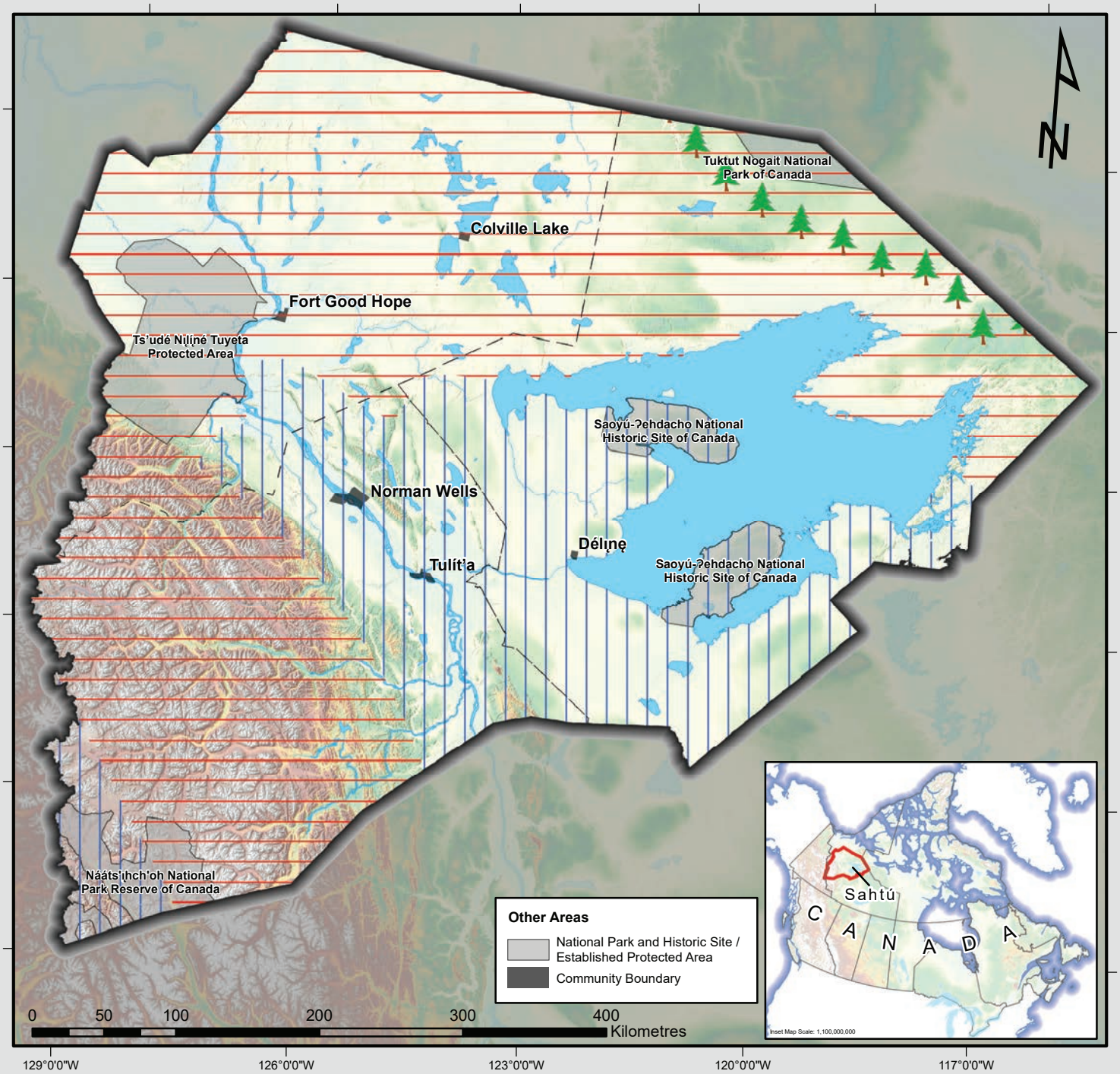
45 *2030 NWT Climate Change Strategic Framework*, GNWT. https://www.enr.gov.nt.ca/sites/enr/files/resources/128-climate_change_strategic_framework_web.pdf

46 Ibid.

47 Ibid.

Sahtú Land Use Plan

Map 8 - Permafrost and Treeline



Legend

- Sahtú District Boundaries
- Rivers & Lakes
- Treeline

Permafrost Extent

- Continuous (90-100%)
- Extensive Discontinuous (50-90%)

Projection:

Coordinate System: NAD 1983 NWT Lambert
Projection: Lambert Conformal Conic
Datum: North American 1983
Central Meridian: -112.0000
Standard Parallel 1: 62.0000
Standard Parallel 2: 70.0000
Latitude of Origin: 0.000
Map Scale: 1:4,000,000

Please consult Appendix page 189 "Map 8. Permafrost and Treeline" for map references.

Sahtú Land Use Planning Board
P.O. Box 235
Fort Good Hope, NT
X0E 0H0
Telephone: +1 867 598 2055
Website: http://www.sahtulanduseplan.org
Email: info@sahtulanduseplan.org

Date Produced: March 2022

Document Path: \\10.117.7.122\GIS Data\Maps\Working_Files\2022\Background_Report_Maps\Permafrost_Treeline.mxd

Residents of SSA communities are reliant on the traditional economy and subsistence harvesting for their survival, as presented in the data under 1. 2. 3. STATISTICAL OVERVIEW OF THE SAHTU on page 23; they therefore see the impacts of climate change first-hand in their daily lives. As such, increasing negative effects from climate change will create increased risks to economic, social, and cultural values of SSA communities.

With the GNWT's goal to transition to an economy that uses less fossil fuels (reducing greenhouse gas emissions by 30% below 2005 levels by 2030) by using carbon revenues to improve energy efficiency and renewable energy solutions, and their implementation other strategies to mitigate and adapt to climate change, it is hoped that the Northwest Territories and SSA communities will be better equipped to face a changing climate.[48]

Design criteria of infrastructure is very important to SSA communities in the wake of climate change. With no all-weather road connecting SSA communities, there is a reliance on seasonal winter roads for transportation. Events in past years have shown that these roads are being impacted by climate change, such as the mid-March 2019 incident which left many motorists stranded due to mild temperatures, turning the winter road to mud.[49] This event happened at a time when the road is usually still open, as the average closing date for the road over 20 years ranges from March 28 to April 2, depending on the segment of the SSA's winter road network.[50]

> *"Some of the most rapid climate changes on earth have been observed in the Canadian and U.S. arctic regions, with rising temperatures resulting in permafrost melting at unprecedented rates. Climate is the principal factor controlling the formation and persistence of permafrost, with ground temperatures and permafrost active layer depths directly linked to time averaged mean air temperatures."*[51]

48 Ibid.

49 "*Mackenzie Valley Winter Road Closes Amid Mild Temperatures*", CBC News, 2019. https://www.cbc.ca/news/canada/north/mackenzie-valley-winter-road-closed-1.5064202

50 "*Winter Roads Average Open/Close Dates*", Department of Infrastructure, GNWT, 2020. https://www.inf.gov.nt.ca/en/services/highways-ferries-and-winter-roads/winter-roads-average-openclose-dates

51 Auld, H., Walker, J., Klaassen, J., Morris, R., Fernandez, S., Cheng, V., MacIver, D. *The Changing Climate and National Building Codes and Standards*. (Adaptation and Impacts Research Section, Environment Canada, Toronto, ON. 2008)

Average circumpolar Arctic temperatures have increased twice as fast as the global average surface temperature which has warmed by about 0.74° C over the last 100 years.[52] According to the report, the

> *"Mackenzie Valley is a global hotspot for climate change with average annual temperatures increasing about 2° C since the 1940s,"*[53]

when record keeping started.

WARMING TRENDS ACROSS CANADA

Environment Canada, before reforming as ECCC, provided a map of warming trends across Canada from 1979 to 2008. The changes in degrees per decade are recorded. Temperatures in the SSA were recorded at the Norman Wells weather station.

BE

52 Ibid.

53 Ibid.

2.3 WATER AND WATERSHEDS[54]

Water is a fundamental requirement of life. Lakes and rivers provide drinking water for communities, habitat for fish and wildlife, and act as travel and shipping routes through the SSA. Water is necessary for the development of roads, infrastructure, and resource development. Many lakes and rivers, and water in general, have spiritual significance to the Sahtú Dene and Métis.

At any one time, there are multiple uses of water occurring within a watershed, all with the potential to impact water. Project-specific decisions must be made within a larger context that takes into account all uses within the watershed.

2. 2. 3. THE RIGHT TO WATER

In 2007, the 15th Legislative Assembly of the NWT passed *Motion 20-15(5)* declaring the right to water in which the Legislative Assembly, with the right to water included in the *2010 NWT Water Strategy*. It reads the following:

- It recognizes that all peoples have a fundamental human right to water, that this right includes access to water bodies for purposes of harvesting, travel and navigation, and that this right takes precedence over the use of water for industrial and commercial purposes;
- It endorses the application of the precautionary approach in all management decisions or actions that may affect the quality, quantity or natural rate of flow of water; and
- It urges all parties to complete and implement comprehensive watershed management and land use plans as soon as possible in order to safeguard water sources and maintain ecosystem integrity across the basin.[55]

For greater detail see *The Right to Water: Motion 20-15(5).*[56]

2. 2. 4. WATERSHED MANAGEMENT IN THE PLAN

The majority of lakes and rivers within the SSA that hold special significance to the Sahtú Dene and Métis are captured within Special Management Zones (SMZs), Conservation Zones (CZs) or Proposed Conservation Initiatives (PCIs). The *SDMCLCA*

54 Kokelj, Shawne A., *Hydrologic Overview of the Gwich'in and Sahtu Settlement Areas*, (INAC, Water Resources Division, 2001).

55 NWT Water Stewardship. *Northern Voices, Northern Waters: The NWT Water Stewardship Strategy*, (Environment and Natural Resources, GNWT, January 2018). https://www.enr.gov.nt.ca/sites/enr/files/resources/nwt_water_stewartship_strategy_web.pdf

56 *The Right to Water: Motion 20-15(5)*, March 5, 2007, Northwest Territories Hansard Page 1168-9, Excerpted from *Northern Voices, Northern Waters: The NWT Water Stewardship Strategy*, (Environment and Natural Resources, GNWT, 2018). https://www.enr.gov.nt.ca/sites/enr/files/resources/nwt_water_stewartship_strategy_web.pdf

BE

BE

gives participants the right to have water that remain substantially unaltered as to quality, quantity, and rate of flow when such waters are on or flow through or are adjacent to Sahtú lands (S. 20.1.8 (a)). Many SMZs, CZs, and PCIs include Sahtú Settlement Lands to which this requirement applies.

The Canadian Council of Ministers for the Environment (CCME) *Water Quality Guidelines for the Protection of Aquatic Life* includes a nondegradation policy, which states that for waters of superior quality or that support valuable biological resources, the degradation of water quality should always be avoided. Given the relatively low level of development that has occurred within the SSA and the importance of the lakes and rivers captured within SMZs, CZs and PCIs, this policy should be applied to all of these zones.

BE

The Plan's *Conformity Requirement #5 – Watershed Management*, is intended to support the themes of non-degradation of water sources as stated in government policy and the *SDMCLCA*, and protect the most important lakes and rivers in the SSA from impacts originating outside the boundaries of SMZs, CZs, and PCIs. Applicants and Regulators are referred to the maps and zone descriptions found in the *Sahtú Land Use Plan*, where readers will find a description of current uses and values.

See Map 9: Major and Regional Watersheds - on page 49.

2. 3. 1. NWT WATER STEWARDSHIP STRATEGY & ACTION PLAN[57]

With increasing concern and interest relating to water availability and quality, the GNWT has taken a number of initiatives, two of which are mentioned below.

In 2010, the GNWT and Indian and Northern Affairs Canada (INAC) (now Crown-Indigenous Affairs and Northern Development Canada – CIRNAC) released *"Northern Voices, Northern Waters: The NWT Water Stewardship Strategy"*, which was formulated by consulting with Indigenous governments, NWT communities, regulatory boards, environmental organizations, industry, academic institutions, and the general public. The Strategy's vision states that:

> *"The waters of the NWT will remain clean, abundant and productive for all time."*[58]

57 NWT Water Stewardship. *Northern Voices, Northern Waters: The NWT Water Stewardship Strategy*, (Environment and Natural Resources, GNWT, January 2018). https://www.enr.gov.nt.ca/sites/enr/files/resources/nwt_water_stewartship_strategy_web.pdf

58 Ibid.

The strategy states that improved water stewardship in the NWT will require:

- Applying integrated watershed management and ecosystem-based management practices;
- Applying concepts of water valuation and sustainability accounting;
- Using decision-making processes that consider the effects of all past, present and future activities on the watershed and all interests in the water resource;
- Using the best available scientific, traditional and local knowledge to make decisions that may affect water; and
- Increasing interaction among water partners.[59]

The Strategy is intended to guide the long-term stewardship of NWT water resources. It states that "Freshwater is fundamental to life. Clean and abundant freshwaters ensure healthy, productive ecosystems. These are essential to the social, cultural and economic well-being of people, particularly the residents of the Northwest Territories (NWT). The rivers, lakes, streams and ponds of the NWT are an essential part of northern life and traditional Indigenous cultures".[60]

BE

> *"Aboriginal people have a long and intimate relationship with the natural environment. They draw their spiritual and cultural integrity and strength from the land and water (ie. ecosystem)" and they "expect their traditional ways of life and cultures to be sustained. Many places and features associated with water have important cultural, spiritual or historical meaning."*[61]

The *"NWT Water Stewardship: A Plan for Action 2016-2020"*[62] followed in 2016. The Action Plan describes action items put into motion by the vision of the Strategy. It lays out a partnership approach to improving and enhancing water stewardship at all levels, and designates lead water partners and deliverable dates for each of the action items.

59 Ibid.

60 NWT Water Stewardship. *Northern Voices, Northern Waters: The NWT Water Stewardship Strategy*, (Environment and Natural Resources, GNWT, January 2018). https://www.enr.gov.nt.ca/sites/enr/files/resources/nwt_water_stewartship_strategy_web.pdf

61 Ibid.

62 *"NWT Water Stewardship: A Plan for Action 2016-2020"*, (Environment and Natural Resources, GNWT, 2016). https://www.enr.gov.nt.ca/sites/enr/files/resources/nwt_water_stewardship_strategy_plan_for_action_2016-2020.pdf

2. 3. 2. WATERSHEDS [63]

This section extensively references the December 2001 edition of INAC's "*Hydrologic Overview of the Gwich'in and Sahtu Settlement Area.*" The SLUP recognizes that water quality and quantity are important concerns to the people of the SSA and have taken this into consideration in its development of the SLUP.

Watersheds are areas of land containing a set of streams and rivers that all flow into a single larger body of water, such as a larger river, a lake or an ocean. The SSA has many water bodies, including rivers, streams, lakes and wetlands. Within the SSA there are 7 major watersheds. Within these major watersheds are 25 regional watersheds varying in size from 100 km² to 26,000 km².

See Map 9: Major and Regional Watersheds - on page 49.

The SSA has four major directions of water flow: [64]

BE

1. West Mackenzie Region – water flows eastward from the Mackenzie Mountains, draining into the Mackenzie River on its west side;
2. East Mackenzie Region – water flows westward, draining into the Mackenzie River on its east side;
3. Arctic Region – water flows northward into the Arctic ocean;
4. Great Bear Region – water flows into the Great Bear Lake, which then flows into the Mackenzie River via Great Bear River.

Two water bodies of significant sizes dominate the SSA landscape. The Dehcho (Big River), or Mackenzie River runs through the SSA from the south to the north. Great Bear Lake occupies the eastern half of the SSA. Both have provided the Sahtú Dene and Métis with vital social, cultural and economic resources since time immemorial. Watersheds offer geographical or physiographical, rather than political boundaries for the planning process.[65]

Freshwater considerations in land use planning are important. Protecting a full diversity of freshwater ecosystem types is a vital component to the maintenance of overall biodiversity. The SLUPB will continue to welcome information on freshwater classification and aquatic special features for future updates and reviews.

THE DEHCHO (BIG RIVER) OR MACKENZIE RIVER[66]

The Mackenzie River system is the largest in Canada and covers about 1.8 million km², about one-fifth of Canada's land-base. Its major tributaries flow from the Rocky

63 Bob Reid, personal communication. Water Management Head, INAC Water Resources, January 29, 2010.

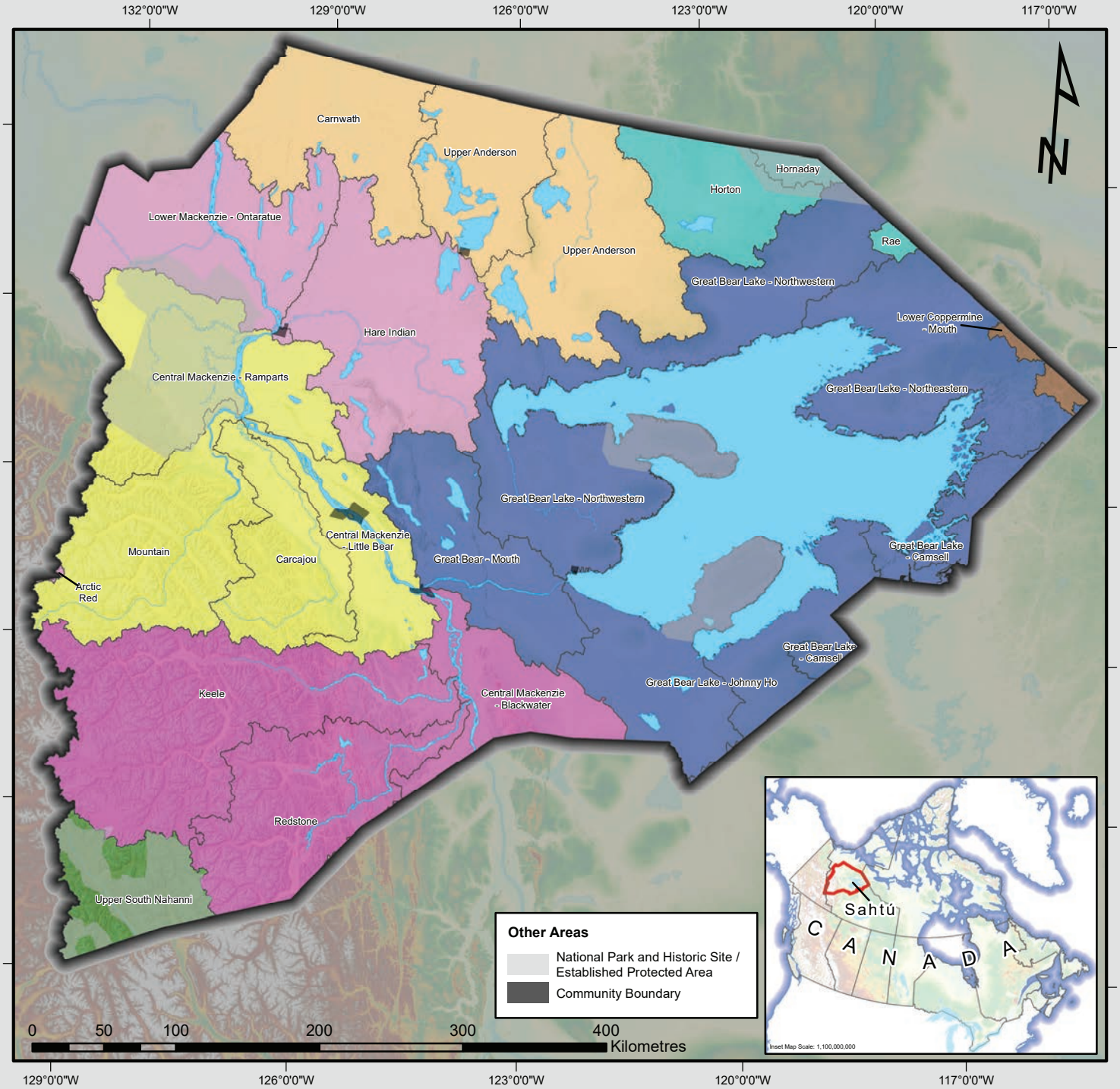
64 James Auld and Robert Kershaw, ed. *The Sahtu Atlas: Maps and Stories from the Sahtu Settlement Area in Canada's Northwest Territories.* (Norman Wells: Friesen, Sahtu GIS Project, 2005). Excerpted from p. 36.

65 Ibid.

66 Kokelj, A. Shawn, *Hydrologic Overview of the Gwich'in and Sahtu Settlement Area*, (Yellowknife: INAC, Water Resources Division, December 2001).

Sahtú Land Use Plan

Map 9 - Major and Regional Watersheds



Legend

- Rivers & Lakes

Major Watersheds

- Amundsen Gulf
- Central Mackenzie - Blackwater Lake
- Central Mackenzie - The Ramparts
- Coppermine
- Great Bear
- Lower Liard
- Lower Mackenzie
- Southern Beaufort Sea

Projection:

Coordinate System: NAD 1983 NWT Lambert
Projection: Lambert Conformal Conic
Datum: North American 1983
Central Meridian: -112.0000
Standard Parallel 1: 62.0000
Standard Parallel 2: 70.0000
Latitude of Origin: 0.000
Map Scale: 1:4,000,000

Please consult Appendix page 189 "Map 9. Major and Regional Watersheds" for map references.

Sahtú Land Use Planning Board
P.O. Box 235
Fort Good Hope, NT
X0E 0H0
Telephone: +1 867 598 2055
Website: http://www.sahtulanduseplan.org
Email: info@sahtulanduseplan.org

Date Produced: March 2022

Document Path: \\10.117.7.122\GIS Data\Maps\Working_Files\2022\Background_Report_Maps\Major_Watersheds.mxd

Mountains in British Columbia and Alberta to the Mackenzie River in NWT, which empties into the Beaufort Sea. The majority of the streams that flow through the SSA are within the Mackenzie River basin. The main tributaries in the SSA are the Keele, Redstone, Carcajou, Mountain, Hare Indian (Rabbit Skin), and Great Bear Rivers.

Near the end of the Mackenzie River's course, sediments (sand, silt, and clay) are deposited into channels, lakes and sandbars of the Mackenzie Delta which provides vital habitat for many Arctic species. Millions of migrating birds use the Mackenzie River valley as their main migratory route to the delta.[67]

The Mackenzie River tends to respond slowly to local rainfall events due to:

1. its large catchment size (1,660,000 km² at Tsiigehtchic),
2. its many inflows, and
3. the storage capacity of its large lakes (Great Bear and Great Slave).

BE

Spring runoff flows can increase quickly during break-up, especially when ice jams release. Large rainstorms in the Liard River Basin can also cause flooding along the Mackenzie River in summer.

GREAT BEAR LAKE (GBL) AND OTHER TRIBUTARIES

Great Bear Lake (GBL) sits astride the Arctic Circle and just south of the tree line. It is the largest freshwater lake entirely in Canada and the ninth largest lake in the world, both in terms of surface area (31,326 km²) and volume (2,292 km³). It makes up about 22% of the Great Bear Lake and Watershed (GBL&W).

The GBL&W is about 144,069 km², and extends into surrounding areas in the Nunavut, the Deh Cho and particularly in the Tlicho (Wek'èezhìi) settlement areas. GBL has a huge storage capacity and provides a steady flow of water to Great Bear River throughout the year. Although the flow of water is relatively steady, it peaks about mid-August then decreases gradually until late April.[68]

MAJOR TRIBUTARIES

The SSA has a diverse landscape which creates a variety of hydrological conditions. Spring snowmelt is the main source of water for most streams which means that peak flows are during the springtime. The tributaries flowing from the mountains to the west of the Mackenzie River are also significantly influenced by precipitation during the summer, mostly because the mountains have little storage capacity. For this reason, peak flows can take place over the summer and/or autumn months.

67 James Auld and Robert Kershaw, ed. *The Sahtu Atlas: Maps and Stories from the Sahtu Settlement Area in Canada's Northwest Territories.* (Norman Wells: Friesen, Sahtu GIS Project, 2005). Excerpted from p. 36.

68 Kokelj, A. Shawn, *Hydrologic Overview of the Gwich'in and Sahtu Settlement Area*, (Yellowknife: INAC, Water Resources Division, December 2001).

TABLE 6. GREAT BEAR LAKE WATERSHED BREAK-DOWN

Location	Proportion of Watershed	Total Area
SSA	64.6 %	94,245 km²
Wek'èezhìi Management Area	30.1 %	43,888 km²
Dehcho Region	4.1 %	5,934 km²
Nunavut	1.2 %	1,770 km²
Total	100.0 %	145,837 km²

Source: Spatial data from National Hydrographic Network, Natural Resources Canada, Government of Canada, compiled by the Sahtú Land Use Planning Board

The Johnny Hoe River lies partly in the SSA and flows north into Great Bear Lake. Its drainage basin is 17,300km². Its flow is not stored by large lakes but is characterized by spring runoff and followed by a relatively quick return to low flows.

The Camsell River with a basin area of 30,900km² also flows northward into Great Bear Lake from the Wek'èezhìi Management Area. The Camsell River has lake storage throughout its drainage basin and has a relatively stable flow throughout the year.

The Mountain, Keele, and Redstone Rivers have peak flows during June and August. These river basins have little storage capacity because of the steep bedrock topography. As a result, their stream water levels fluctuate quickly during spring melt and with summer rainfall events.

2. 3. 3. COMMUNITY SOURCE DRINKING WATERSHEDS

"As part of ENR's actions towards Keeping NWT Water Clean within the *"Managing Drinking Water in the NWT: A Preventative Framework and Strategy"*, community drinking water catchment areas were mapped at a scale of 1:250,000" in 2011.[69] "Each community's public water source intake was located using Municipal and Community Affairs (MACA) community infrastructure records. For purposes of water management initiatives, municipal wastewater outflow locations have also been identified from MACA community infrastructure records." [70]

See Map 10: Community Drinking Water Catchments - on page 53.

Community members use the land extensively for subsistence use. They drink water from lakes and rivers while out on the land, as well as eat the fish from the water. Abundant clean water is vital for natural processes and wellbeing of the communities.

As outlined in the *2016 GNWT Report on Drinking Water*, strategies are identified to protect communities' drinking water through:

- Source water protection and mapping;

69 GNWT Spatial Data Warehouse, *Community Public Water Supply Catchment Area Maps*. http://www.geomatics.gov.nt.ca/maps.aspx?i=8

70 Ibid.

- Community-based water monitoring;
- Research and partnerships;
- Information and data sharing;
- Youth and public education outreach; and
- Operator certification.[71]

"Coordinated watershed decision making" is of particular relevance to land use planning. In Map 10 - Community Drinking Water Catchments ENR identified the immediate areas of land around the community water source from which water drains into each of the community water supply areas (community source catchments). It also shows the larger upstream areas from which water flows into the community source catchments.

BE

Of special note is Fort Good Hope. While the community gets its water from the Mackenzie River, identifying the entire river as a community catchment area would have unintended implications for other regions. As a result, only a small area immediately surrounding the community was identified as the source catchment.

Since the passing of the *Waters Act* in 2014, water source protection management has devolved to a joint responsibility of many partners, with coordination and planning as the primary responsibility of the Water Stewardship Strategy (WSS) and Indigenous Steering Committee (ISC), GNWT.[72] To manage water quality, they consult and interact with many departments, especially ENR, but also including:

- federal departments and bodies, such as Environment and Climate Change Canada (ECCC) and its Impact Assessment Agency; Fisheries and Oceans Canada (DFO); Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC); Canadian Energy Regulator (CER); Parks Canada (PC); Transport Canada (TC) and others;
- territorial bodies such as the Departments of: Health and Social Services; Infrastructure (INF); Industry, Tourism and Investment (ITI); Municipal and Community Affairs (MACA); Lands; The Office of the Regulator for Oil and Gas Operations (OROGO); Public Works and Services (PWS);
- regional bodies such as Indigenous governments, renewable resource boards (including SRRB), Mackenzie Valley Environmental Impact Review Board (MVEIRB), land and water boards (including Inuvialuit Water Board, MVLWB and SLWB), land use planning boards (including SLUPB), and;
- individual communities, research institutions (such as Aurora College) and non-governmental organizations (NGOs).[73]

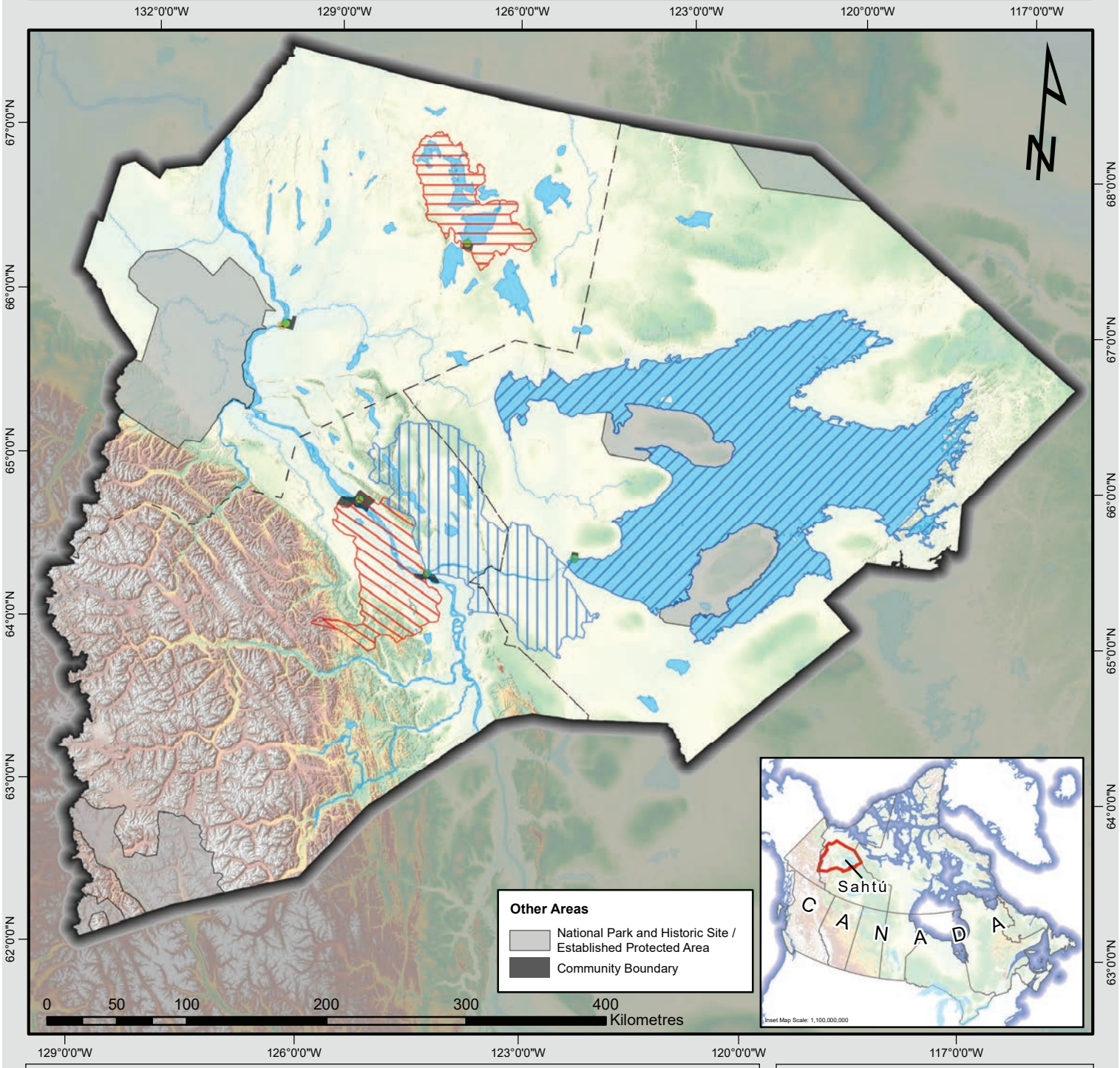
71 MACA. *Government of the Northwest Territories (GNWT) Report on Drinking Water - 2016.* (MACA - GNWT). https://www.maca.gov.nt.ca/sites/maca/files/resources/2016_drinking_water_report_-_feb_28th_0.pdf

72 NWT Water Stewardship Strategy. *NWT Water Stewardship Strategy Action Plan 2021-2025.* (ENR - GNWT, 2021) https://www.nwtwaterstewardship.ca/sites/water/files/resources/wss_action_plan_en_web_2021-2025.pdf

73 Ibid.

Sahtú Land Use Plan

Map 10 - Community Drinking Water Catchments



Legend

- Sahtú District Boundaries
- Rivers & Lakes
- Community Water Intake

Source of Community Drinking Water Catchments

- Colville Lake
- Délı̨nę
- Fort Good Hope
- Norman Wells
- Tulít'a

Projection:

Coordinate System: NAD 1983 NWT Lambert
Projection: Lambert Conformal Conic
Datum: North American 1983
Central Meridian: -112.0000
Standard Parallel 1: 62.0000
Standard Parallel 2: 70.0000
Latitude of Origin: 0.000
Map Scale: 1:4,000,000

Please consult Appendix page 190 "Map 10. Community Drinking Water Catchments" for map references.

Sahtú Land Use Planning Board
P.O. Box 235
Fort Good Hope, NT
X0E 0H0
Telephone: +1 867 598 2055
Website: http://www.sahtulanduseplan.org
Email: info@sahtulanduseplan.org

Date Produced: March 2022

Document Path: \\10.117.7.122\GIS Data\Maps\Working_Files\2022\Background_Report_Maps\Community_Drinking_Water.mxd

2.4 LANDCOVER AND ECOREGIONS

2. 4. 1. BOREAL BIOME[74]

Much of the SSA is located in the boreal or "northern" forest – Canada's largest biome. The boreal biome stretches between northern tundra and southern grassland and mixed hardwood trees. The boreal biome in Canada starts in the Yukon, forming a band almost 1000 km wide and sweeps southeast towards Newfoundland. To its north is the treeline and beyond that the tundra of the Arctic.

The NWT treeline runs diagonally south-eastward, from just north of Inuvik down to the southeast corner of the SSA.[75] Permafrost in the majority of the SSA is extensive discontinuous (50-90%) and in the northern areas it is continuous (90-100%). Where permafrost is close to the surface, the active or seasonally thawed soils are too thin to accommodate roots. Treeline is variably defined, but it is generally where trees are less than a couple of meters tall and their growth is limited by a combination of cold soils that are frozen for most of the year, short growing seasons that do not allow cones and needles to mature, and nutrient poor conditions.[76]

BE

A variety of soils occur in the region, from permanently frozen organic soils, to deep, fine textured calcareous soils. Thin soils are more likely to occur in the mountains or on the Canadian Shield to the east.[77] Coniferous trees are the dominant tree type in the region as they are well-adapted to the harsh climate and thin acidic soils.

2. 4. 2. FOREST FIRES[75]

The boreal forest of the SSA has been shaped by fire for thousands of years. All life in these forests has in some way adapted to or in many cases, come to rely on the occurence of natural wildfires. In the heart of the boreal forest, natural fire frequency ranges from 50-200 years.

It is now widely acknowledged that efforts to suppress wildfires may in fact be skewing the pattern of wildfires, with them occurring less frequently but when they do occur,

---

74 James Auld and Robert Kershaw, ed. *The Sahtu Atlas: Maps and Stories from the Sahtu Settlement Area in Canada's Northwest Territories.* (Norman Wells: Friesen, Sahtu GIS Project, 2005.) Excerpted from p. 43. ; Bob Decker, personal communication. Wildlife Biologist, Habitat Conservation, ENR - GNWT ; Dave Downing, personal communication. Ecologist, Timberline Natural Resource Group. February 17, 2010.

75 Dave Downing, personal communication. Ecologist, Timberline Natural Resources Group.

76 Bob Decker, personal communication. Forest Ecologist, Forest Management, GNWT.

77 Dave Downing, personal communication. Ecologist, Timberline Natural Resources Group.

78 James Auld and Robert Kershaw, ed. *The Sahtu Atlas: Maps and Stories from the Sahtu Settlement Area in Canada's Northwest Territories.* (Norman Wells: Friesen, Sahtu GIS Project, 2005.) p. 44 ; Tom Lakusta, personal communication. Forest Resources Manager, ENR - GNWT February 15, 2010 ; Frank Lepine, personal communication. Fire Operations Manager, ENR - GNWT, February 24, 2010 ; Kris Johnson, personal communication. Fire Science Manager, ENR - GNWT, February 26, 2010.

BE

fires are larger and hotter. By allowing dead wood and other fuel sources to build up in the forest, we are setting the stage for more destructive fires.

Fire has the following effects on forests:

- breaks rocks and builds soil;
- kills pathogens and bacteria;
- clears accumulated leaf and needle litter exposing good mineral-soil seed bed;
- fire blackened soil absorbs light, creating a greenhouse effect for seeds and seedlings;
- knocks back fire-sensitive/shade-tolerant trees;
- helps re-establishment of conifer forest; and
- recycles nutrients that are locked up in leaf litter and woody debris.

Fires can have both positive and negative effects on forest productivity. Ash from fires is rich in nutrients and can result in a flush of new growth in the years following a wildfire. There are areas where wildfires seem to have the effect of sterilizing the soils and causing a decrease in forest productivity.[79] Slow regeneration flowing fires may contribute to the long-term treeless status of burnt areas in the most northerly regions.

See Map 11: Forty-Year Fire Footprint (1980-2019) - on page 56.

2. 4. 3. ECOLOGICAL CLASSIFICATION[80]

Ecological classification is a systematic way of describing and assessing ecological diversity. Its area of application is broad and includes: environmental assessment, cumulative effects management, biodiversity monitoring and reporting, forest resource analysis and planning, wildlife habitat evaluation and conservation, and protected area identification.

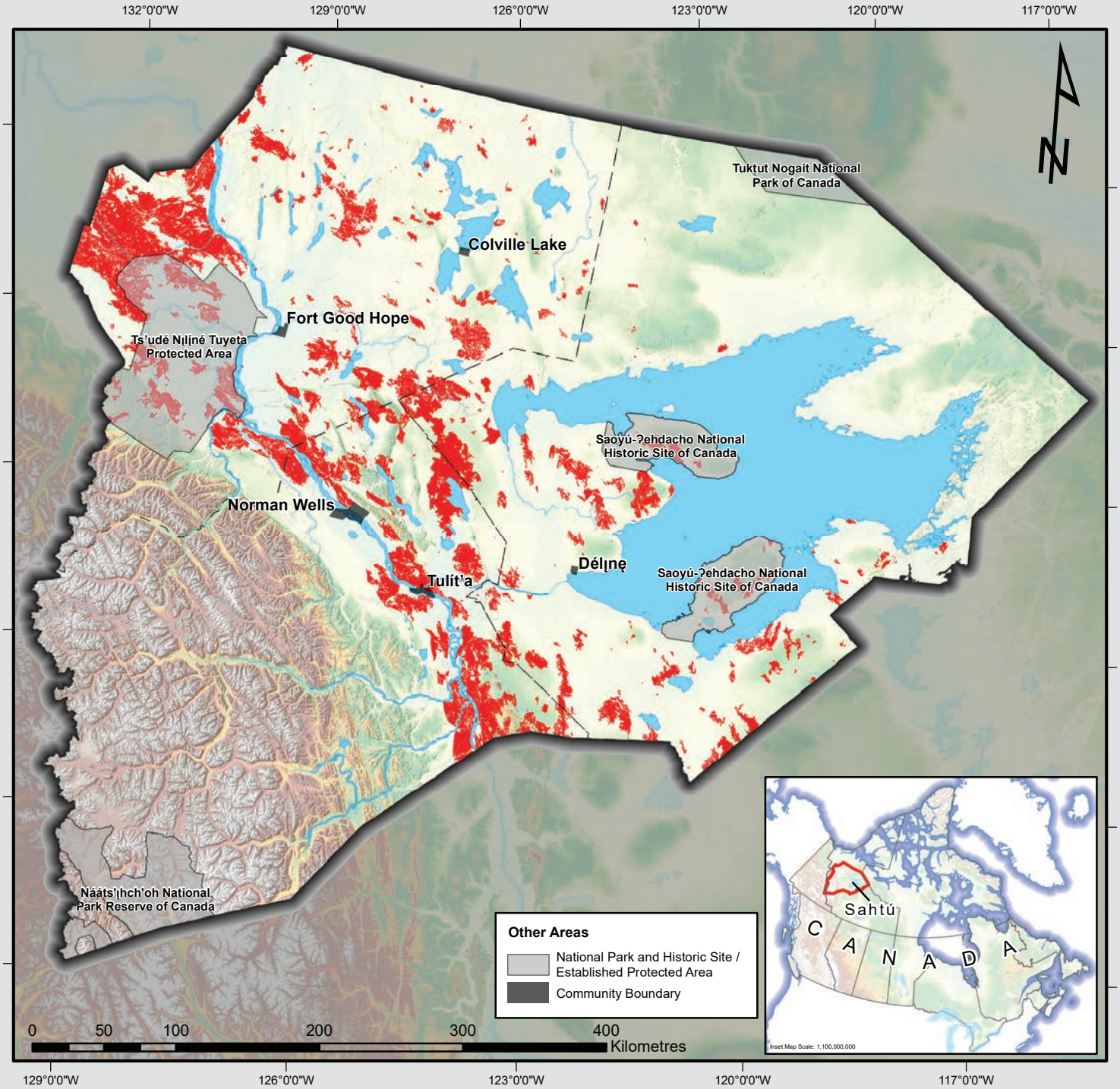
Ecological classification systems exist at global, national, regional, and smaller scales. Similar to watersheds, the smaller scale classifications fall within the larger scales in a nested hierarchy.

79 Tom Lakusta, personal communication. Manager, Forest Resources, Forest Management Division, ENR - GNWT.

80 Section based primarily on: Ecosystem Classification Group. *Ecological Regions of the Northwest Territories - Taiga Plains.* (Yellowknife: Department of Environment and Natural Resources, Government of the Northwest Territories, 2007-rev 2009). viii + 173 pp. + folded insert map; Ecosystem Classification Group. *Ecological Regions of the Northwest Territories - Cordillera.* (Yellowknife: Department of Environment and Natural Resources, Government of the Northwest Territories, 2010). x + 245 pp. + insert map; Ecosystem Classification Group. *Ecological Regions of the Northwest Territories - Taiga Shield.* (Yellowknife: Department of Environment and Natural Resources, Government of the Northwest Territories, 2008). viii + 146 pp. + insert map.

Sahtú Land Use Plan

Map 11 - Forty-Year Fire Footprint (1980-2019)



Legend

- Sahtú District Boundaries
- Rivers & Lakes
- Forty-year Fire Footprint

Projection:

Coordinate System: NAD 1983 NWT Lambert
Projection: Lambert Conformal Conic
Datum: North American 1983
Central Meridian: -112.0000
Standard Parallel 1: 62.0000
Standard Parallel 2: 70.0000
Latitude of Origin: 0.000
Map Scale: 1:4,000,000

Please consult Appendix page 190 "Map 11. Forty-Year Fire Footprint (1980-2019)" for map references.

Sahtú Land Use Planning Board
P.O. Box 235
Fort Good Hope, NT
X0E 0H0
Telephone: +1 867 598 2055
Website: http://www.sahtulanduseplan.org
Email: info@sahtulanduseplan.org

Date Produced: March 2022

Document Path: \\10.117.7.122\GIS Data\Maps\Working_Files\2022\Background_Report_Maps\Fire History.mxd

The GNWT has been using the national ecosystem classification framework since 1996 as the basis for identifying candidate protected areas, forest management planning, wildlife habitat management, and environmental impact assessment and mitigation.

The GNWT has also modified the Canadian national classification framework to produce a more definitive regional ecosystem classification system of its own. It uses 4 levels of classification, with the levels of classification that exist in SSA shown in Table 7: Ecoregions in the Sahtu Settlement Area - on page 59.

LEVEL I TAIGA AND BOREAL ECOREGIONS

The SSA lies mostly within the Level I Taiga Ecoregion. Some small south-western parts of the SSA lie within the Level I Boreal Ecoregion.

LEVEL II ECOREGIONS

Level II Ecoregions are defined more specifically than Level I Ecoregions and are nested within Level I boundaries.[81] Refer to Map 12 - Level II Ecoregions on page 62.

1. LEVEL II TAIGA PLAINS ECOREGION[82]

- Much of the Taiga Plains drains into the Arctic Ocean via Canada's largest river, the Mackenzie and its main tributaries. Main tributaries occurring in the SSA are:
  - Keele,
  - Red Stone,
  - Carcajou,
  - Mountain,
  - Great Bear,
  - Hare Indian (Rabbit Skin), and
  - Arctic Red Rivers.
  - Tens of thousands of smaller rivers, lakes and ponds also occur.
- The Mackenzie Valley is one of the major peatland areas in Canada. Peatlands occur over almost half of the total Taiga Plains area.
- The Taiga Plains and the Taiga Shield are sometimes called "the land of little sticks". Long cold winters and short cool summers limit tree and other plant growth and contribute to large areas of permanently frozen soil.

81 Ecosystem Classification Group. *Ecological Regions of the Northwest Territories - Taiga Plains.* (Yellowknife: Department of Environment and Natural Resources, Government of the Northwest Territories, 2007-rev 2009). viii + 173 pp. + folded insert map.

82 Ibid.

2. LEVEL II TAIGA SHIELD ECOREGION[83]

- The Level II Taiga Shield Ecoregion covers very little of the SSA, and extends eastward across Canada, from the Northwest Territories to Labrador. Glaciers covered most of the Taiga Shield, leaving behind glacial till deposits.
- Eskers (raised beds of gravel and sand – with the likeness of a raised railroad embankment) are common especially in the eastern half of the NWT. Eskers were formed when rivers transporting sand and gravel deposited them in ridges tens of metres high and tens of kilometres long.
- Waterbodies within the Taiga Shield drain to the Arctic Ocean via Great Slave, Great Bear Lake and the Mackenzie Rivers. The Taiga Shield also drains to the Hudson Bay via the Thelon and Dubawnt River systems.
- There are nearly 200,000 lakes found in the Taiga Shield, which range in size from large lakes, such as Great Slave Lake, to ponds less than 100 ha.
- Also known as the "land of little sticks," it has tree species that are adapted to a fire environment.

BE

3. LEVEL II TAIGA CORDILLERA ECOREGION & LEVEL III BOREAL CORDILLERA ECOREGION[84]

- As a whole, the Cordillera is a complex landscape of rugged peaks and ridges, rolling hills, eroded plateaus, deep V- and U-shaped valleys, fast-flowing braided rivers and streams, and slow-flowing meandering rivers.
- In the south and east there are glaciers and icefields. Glacial deposits are broadly distributed and mostly found on the floors and lower slopes of valleys.
- Lakes and ponds are small and thinly distributed. Wetlands are common only on floodplains, lower slopes of large rivers, and on a few broad plateaus.
- This is in contrast to the Taiga Plains, which mostly has low-relief with slow-flowing meandering rivers, and thousands of lakes and ponds.

LEVEL III AND IV ECOREGIONS

The Level II Ecoregions are further divided into Level III Ecoregions which are subsequently divided into Level IV Ecoregions. Readers are referred to the respective reports for descriptions of the Level IV Ecoregions. Locations can be cross-referenced in Map 13 - Level III & IV Ecoregions on page 63.

Level IV Ecoregions were used in determining some SLUP zone boundaries through the SLUP's planning cycle.

83 Ecosystem Classification Group. *Ecological Regions of the Northwest Territories - Taiga Shield.* (Yellowknife: Department of Environment and Natural Resources, Government of the Northwest Territories, 2008). viii + 146 pp. + insert map.

84 Ecosystem Classification Group. *Ecological Regions of the Northwest Territories - Cordillera.* (Yellowknife: Department of Environment and Natural Resources, Government of the Northwest Territories, 2010). x + 245 pp. + insert map.

TABLE 7. ECOREGIONS IN THE SAHTÚ SETTLEMENT AREA

Level - I Ecoregion	Level - II Ecoregion	Level - III Ecoregion	Level - IV Ecoregion
Taiga	Taiga Plains	Taiga Plains High Subarctic (HS)	Arctic Red Plain High Subarctic (HS)
			Travaillant Upland HS
			Anderson Plain HS
			Colville Upland HS
			Colville Plains HS
			Colville Hills HS
			Great Bear Upland HS
			Great Bear Plain HS
			Grandin Plain HS
			Grandin Upland HS
			Lac Grandin Upland HS
		Taiga Plains Low Subarctic (LS)	Arctic Red Plain Low Subarctic (LS)
			North Mackenzie Plain LS
			Norman Range LS
			Great Bear Upland LS
			Great Bear Plain LS
			Blackwater Upland LS
			Keller Plain LS
			Lac Grandin Plain LS
			Lac Grandin Upland LS
	Taiga Shield	Taiga Shield High Subarctic (HS)	Radium Hills High Subarctic (HS)
			Coppermine Upland HS
		Taiga Cordillera Low Subarctic (LS)	Radium Hills Low Subarctic (LS)
			Calder Upland LS
			Camsell Plain LS

Source: reproduced in part from Ecological Regions of the Northwest Territories – Taiga, Shield & Cordillera reports [85]

BE

TABLE 7. ECOREGIONS IN THE SAHTÚ SETTLEMENT AREA (CONTINUED)

Level - I Ecoregion	Level - II Ecoregion	Level - III Ecoregion	Level - IV Ecoregion
Cordillera	Taiga Cordillera	Taiga Cordillera High Subarctic (HS)	Canyon Ranges High Subarctic (HS*as*)
			Shattered Range HS*as*
		Taiga Cordillera Low Subarctic (LS)	Arctic Red Upland Low Subarctic (LS*b*)
			Carcajou Plain LS*b*
			Canyon Ranges LS*sa*
			Tigonankweine Range LS*as*
			Sayunei-Sekwi Ranges LS*as*
			Southern Backbone Ranges LS*as*
			Thundercloud Range LS*as*
			Painted Mountains LS*sa*
			Raven-Redstone Valley LS*bs*
			Mackenzie Foothills LS*bs*
			Central Mackenzie Plain LS*b*
			Franklin Mountains LS*sa*
	Boreal Cordillera	Boreal Cordillera High Boreal (HB)	Central Mackenzie Valley High Boreal (HB*b*)
			Natla Plateau Mid-Boreal (MB*as*)
		Boreal Cordillera Mid-Boreal (MB)	Sapper Ranges MB*as*
			Itsi Mountains MB*as*
			Mount Pike MB*as*
			Ragged Range MB*as*
			Ragged Range Valley MB*bs*

Source: reproduced in part from Ecological Regions of the Northwest Territories – Taiga, Shield & Cordillera reports [85]

85 Ecosystem Classification Group. *Ecological Regions of the Northwest Territories - Taiga Plains.* (Yellowknife: Department of Environment and Natural Resources, Government of the Northwest Territories, 2007-rev 2009). viii + 173 pp. + folded insert map; Ecosystem Classification Group. *Ecological Regions of the Northwest Territories - Cordillera.* (Yellowknife: Department of Environment and Natural Resources, Government of the Northwest Territories, 2010). x + 245 pp. + insert map; Ecosystem Classification Group. *Ecological Regions of the Northwest Territories - Taiga Shield.* (Yellowknife: Department of Environment and Natural Resources, Government of the Northwest Territories, 2008). viii + 146 pp. + insert map.

PLANNING ACROSS ECOREGIONS

The SSA has a number of Level IV Ecoregions that cross into adjacent jurisdictions (Yukon, Nunavut, Dehcho, Tłı̨chǫ, or other Settlement Regions). The SLUP has taken these trans-boundary issues into account during zone designation to ensure that enough protection is offered to sensitive areas, features, or species.

As people travel across the landscape, so do wildlife and to a lesser degree, vegetation. Trans-boundary planning allows for protection of identified special values across borders, as well as creates transportation corridors. Planning across boundaries ensures that species, landforms and ecologically sensitive areas do not become isolated pockets of protected land that are surrounded by land open for development. Planning therefore ensures that there is ecological connectivity between sensitive areas.

Some Level IV Ecoregions are found only in the SSA and nowhere else in Canada. The Colville Hills HS, Colville Plains HS and Grandin Plains HS (ʔehdaʃ́ʃ́la, known in English as Caribou Point) have combinations of climate, vegetation, geology, and other natural features that are unique to the SSA. Planning for these two ecoregions requires special attention and consideration.

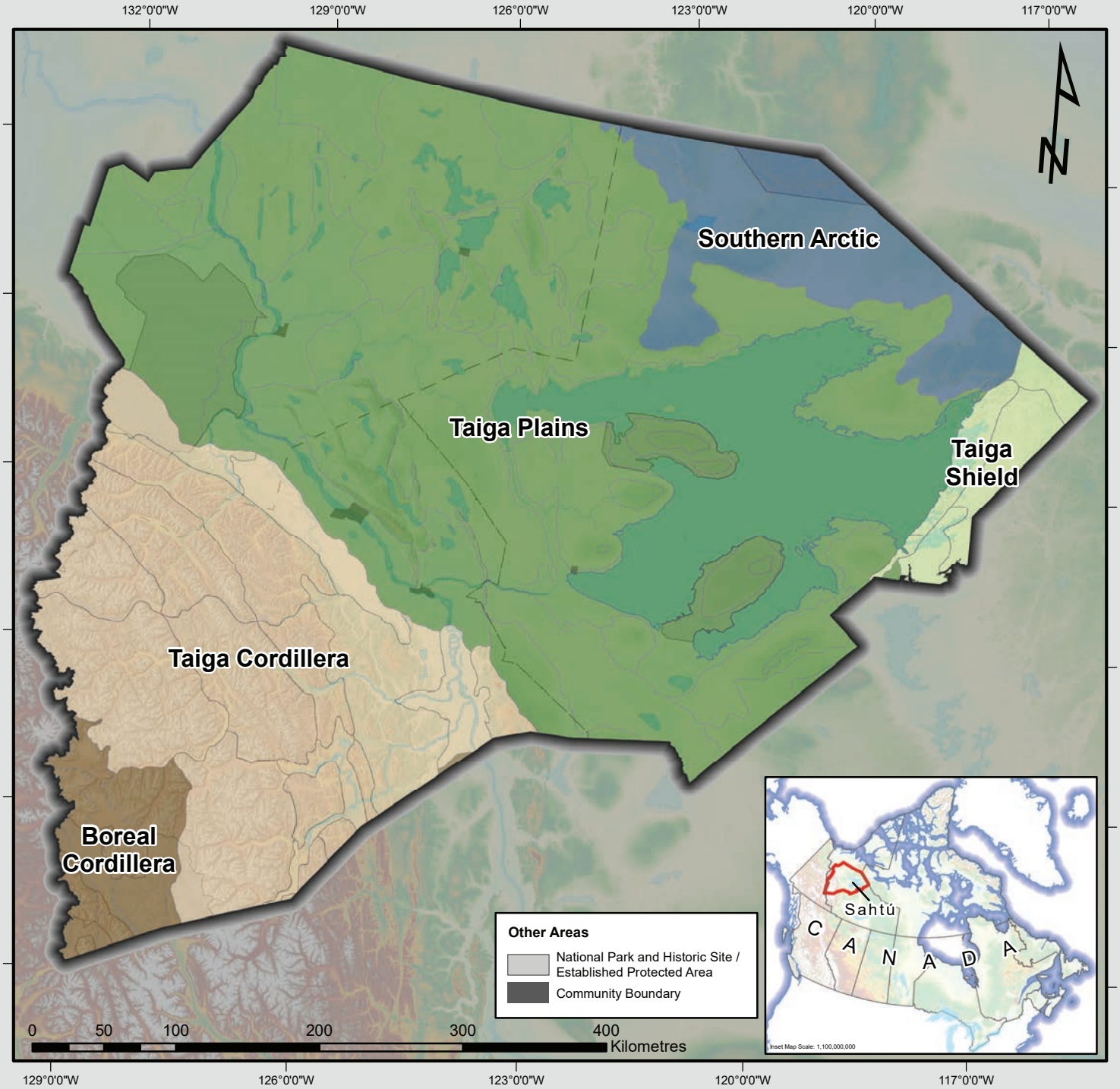
The SLUP has referred to these Level IV Ecoregions so that interested parties can refer directly to the GNWT reports for the descriptions. In certain cases, the Level IV Ecoregions were used to set zone boundaries.

When a certain "Level Ecoregion" is used in the Zone Descriptions in the Appendices of the Plan, it is in reference to the classification system described in the following reports:

- Ecosystem Classification Group. Ecological Regions of the Northwest Territories - Taiga Plains. (Yellowknife: Department of Environment and Natural Resources, Government of the Northwest Territories, 2007-rev 2009). viii + 173 pp. + folded insert map.
- Ecosystem Classification Group. Ecological Regions of the Northwest Territories - Cordillera. (Yellowknife: Department of Environment and Natural Resources, Government of the Northwest Territories, 2010). x + 245 pp. + insert map.
- Ecosystem Classification Group. Ecological Regions of the Northwest Territories - Taiga Shield. (Yellowknife: Department of Environment and Natural Resources, Government of the Northwest Territories, 2008). viii + 146 pp. + insert map.

Sahtú Land Use Plan

Map 12 - Level II Ecoregions



Legend

- Sahtú District Boundaries
- Rivers & Lakes

Level II EcoRegions

- Taiga Plains
- Taiga Shield
- Boreal Cordillera
- Taiga Cordillera
- Southern Arctic

Projection:

Coordinate System: NAD 1983 NWT Lambert
Projection: Lambert Conformal Conic
Datum: North American 1983
Central Meridian: -112.0000
Standard Parallel 1: 62.0000
Standard Parallel 2: 70.0000
Latitude of Origin: 0.000
Map Scale: 1:4,000,000

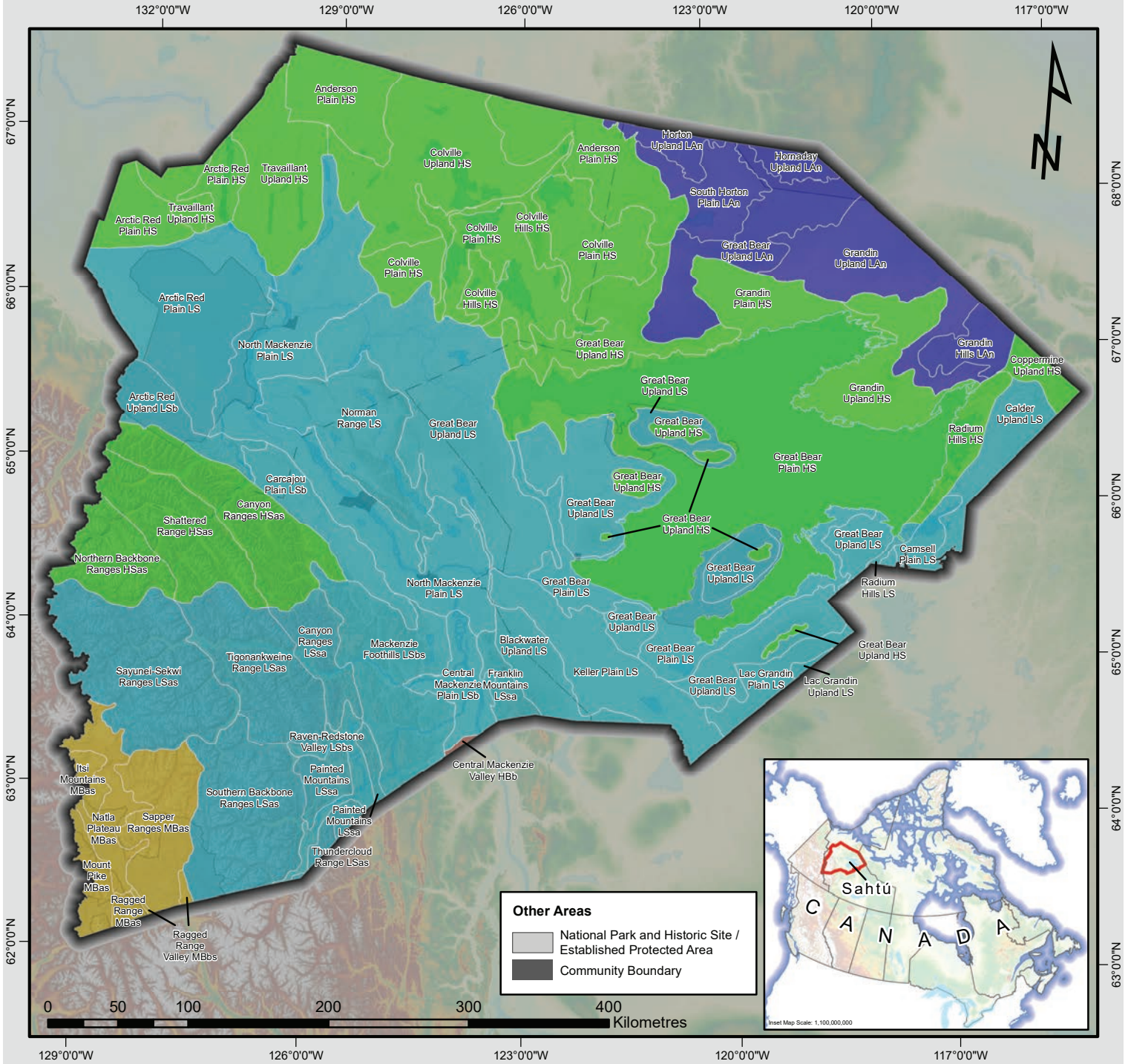
Please consult Appendix page 191 "Map 12. Level II Ecoregions" for map references.

Sahtú Land Use Planning Board
P.O. Box 235
Fort Good Hope, NT
X0E 0H0
Telephone: +1 867 598 2055
Website: http://www.sahtulanduseplan.org
Email: info@sahtulanduseplan.org

Date Produced: March 2022
Document Path: \\10.117.7.122\GIS Data\Maps\Working_Files\2022\Background_Report_Maps\Ecoregions.mxd

Sahtú Land Use Plan

Map 13 - Level III & IV Ecoregions



Legend

- Sahtú District Boundaries
- Rivers & Lakes

Note: Ecoregions Level IV are labelled individually on the map.

Ecoregions Level III

- High Boreal
- High Subarctic
- Low Arctic north
- Low Subarctic
- Mid-Boreal

Projection:

Coordinate System: NAD 1983 NWT Lambert
Projection: Lambert Conformal Conic
Datum: North American 1983
Central Meridian: -112.0000
Standard Parallel 1: 62.0000
Standard Parallel 2: 70.0000
Latitude of Origin: 0.000
Map Scale: 1:4,000,000

Please consult Appendix page 191 "Map 13. Level III & IV Ecoregions" for map references.

Sahtú Land Use Planning Board
P.O. Box 235
Fort Good Hope, NT
X0E 0H0
Telephone: +1 867 598 2055
Website: http://www.sahtulanduseplan.org
Email: info@sahtulanduseplan.org

Date Produced: March 2022

Document Path: \\10.117.7.122\GIS Data\Maps\Working_Files\2022\Background_Report_Maps\Ecoregions_Level3.mxd

2.5 ECOLOGICALLY SIGNIFICANT AREAS

2. 5. 1. ECOLOGICAL REPRESENTATION ANALYSIS

The GNWT's Conservation Network Planning aims to achieve ecological representation within each of the 45 ecoregions in the NWT. Ecological representation is "a conservation planning approach that looks at protecting what is unique and also what is common in core protected areas" as well as "ensures portions of all ecosystems in the Northwest Territories (NWT) are protected in core protected areas".[86]

Protecting portions of all landscapes and habitats in each ecoregion within areas of no development will in theory, help conserve the different life forms that are found in the NWT. No development is permitted in a core representative area.

Ecological representation cannot be met through protected areas alone. Protected areas are just one way to offer some protection for a territory's species. CZs and PCIs with no development also contribute to ecological representation.

BE

SMZs also play an important role in conserving biodiversity. Well-managed and responsible development in these areas allow for continued large-scale processes and provide connectivity and travel corridors between landscapes, with these being required for species that move over large landscapes. Responsible development in GUZs is also necessary to achieve these goals.

The following special features are also identified as contributing factors to ecological representation:

- karst;
- mineral licks;
- hot and warm springs;
- glacial refugia;
- rare and may-be at risk plants; and
- amphibians.

KARST

Karst landscapes form where rock dissolves in water (e.g., limestone), creating features like sinkholes, caves, dry valleys and gorges, turloughs and poljes (large depressions drained underground by sinkholes within them, which are periodically flooded when the underlying caves become swamped with water). Karst landscapes sometimes contain 'disappearing' streams or complex underground drainage systems. The substrate and chemical composition of karst landscapes creates unique habitats for aquatic and terrestrial species. Some species have adapted specifically to the karst

86 Environment and Natural Resources - GNWT, "20.2 Trends in Protecting Ecosystems" in *NWT State of the Environment Report, Ecosystem Conservation Planning.* (2015). https://www.enr.gov.nt.ca/en/state-environment/202-trends-protecting-ecosystems

environment and cannot survive anywhere else. Other species thrive there because of the relatively rich nutrient load in some karst soils. Physical characteristics of karst features provide important habitat for species such as bats, Dall's sheep, and other vertebrates and invertebrates that rely on caves for at least part of their lifecycle. The consistent climatic conditions in subterranean karst provides an ideal environment for the preservation of fossils, making karst areas important to archaeologists and palaeontologists.[87] Karst landscapes can be visually stunning due to their unique formations. The SSA contains world class examples of karst that should be protected. [88]

MINERAL LICKS

Mineral licks are unique habitat features that are important to many different wildlife species. Various animals visit these naturally-occurring, exposed deposits of salts or other minerals in order to ingest the mineral nutrients they need for healthy growth. Many species including moose, caribou, and mountain goats use mineral licks. Mineral licks have a particularly strong influence on habitat use by Dall's sheep and are critical to the well-being of sheep populations. Dall's sheep may travel long distances to mineral licks and often use the same licks year after year.[89]

Mineral licks are extremely sensitive to land disturbance.[90] Mineral licks are usually identified by the extensive wildlife trails converging on one area. Rea et al. 2004 advise that it is not only important to protect the mineral lick itself but also the area around the mineral lick, particularly during peak activity and, if it is a wet mineral lick, that the hydrological system feeding the lick is also maintained. These areas are used by individuals in a sensitive life stage (i.e. female sheep with young). As such, 1000 m is used as the setback for mineral licks in the SSA, based on the experience of the SSA regional biologists with Dall's sheep.[91]

---

87 Conservation Network Planning, *Special Features in the Northwest Territories: Karst*, (Yellowknife: ENR-GNWT, 2018). https://www.enr.gov.nt.ca/sites/enr/files/resources/karst_1.pdf

88 Ford, D. *Report Upon a Survey of Karst Landforms around Norman Wells, Northwest Territories.* (Yellowknife: Prepared for the NWT Protected Areas Strategy, ENR - GNWT, 2008). https://www.enr.gov.nt.ca/sites/enr/files/karst_survey_report_2008_full.pdf

89 Protected Areas Strategy Science Team, *Ecological Representation Analysis of Conservation Zones/Protected Areas Initiatives - April 30, 2009 Draft Sahtu Land Use Plan*, August 2009.

90 Weeks, H. P., and C. M. Kirkpatrick. *Adaptations of white-tailed deer to naturally occurring sodium deficiencies.* Journal of Wildlife Management 40, 1976. p. 610-625. ; Bechtold, J. P. *Chemical characterization of natural mineral springs in northern British Columbia, Canada.* Wildlife Society Bulletin 24, 1996. p. 649-654. ; Dormaar, J. F., and B. D. Walker. *Elemental content of animal licks along the eastern slopes of the Rocky Mountains in southern Alberta, Canada.* Canadian Journal of Soil Science 76, 1996. p. 509-512. ; Rea, R. V., D. P. Hodder, and K. N. Child. *Considerations for natural mineral licks used by moose in land use planning and development.* Alces 40, 2004. p. 161-167.

91 Claudia Haas, personal communication. PAS Biologist, GNWT. May 5, 2010.

HOT AND WARM SPRINGS

Hot and warm springs often have unique ecosystems and are important to many different species. The water temperature, air temperature, humidity, and water chemistry at a hot or warm spring differs from the surrounding area. As a result, the area around a hot or warm spring sometimes supports species or communities that are uniquely adapted to these environments, such as calcium-tolerant plants or warm-water bacteria.

The GNWT Conservation Planning Network defines hot and warm springs as having a water temperature of at least 10°C. Hot and warm springs can be associated with rare plants. The data available are observations by people that visit these areas so they will be biased to areas that are more commonly visited by people. It is important that land-users report any sightings of hot and warm springs and that they know of any springs in their area of interest.[92]

GLACIAL REFUGIA

During the last ice age, much of Canada was covered in ice. In order to survive, plants and animals shifted over time into areas that were ice-free and established themselves in these refugia until the ice retreated. These areas are known as glacial refugia, and they are frequently "biodiversity hotspots" with a high diversity of plants and animals, rare species, unique species, and/or unique landforms.

For example, refugia can contain the last remaining individuals of species that used to be wide-ranging but have now mostly disappeared. It is also possible that some populations that were separated from the rest of their species within these refugia during the ice age evolved increased genetic diversity and sometimes even into completely new species. The physical features of the land are also different in areas that were not glaciated because glaciations are such powerful forces that shape entire landscapes. The last glacial maxima in the NWT (~17,350 calendar years ago) resulted in a portion of one glacial refugium in the SSA.[93]

RARE OR MAY-BE AT RISK PLANTS

The definition of a rare or may-be at risk plant can depend on the geographic area being considered. Plants labelled as 'rare' by the Species at Risk Secretariat, working with the ENR Wildlife Biologist (Biodiversity), are endemic to the NWT and are thus globally rare. May-be at risk plants are extremely rare, at least regionally, but have not yet been assessed by COSEWIC (the Committee on the Status of Endangered Wildlife in Canada). There are no rare plants within the SSA.

92 Protected Areas Strategy Science Team, *Ecological Representation Analysis of Conservation Zones/Protected Areas Initiatives - April 30, 2009 Draft Sahtu Land Use Plan*, August 2009.

93 Ibid.

There are approximately 111 locations of may-be at risk plants within the SSA, including may-be at risk lichens and mosses. The data available are observations by people that visit these areas so they will be biased to areas that are more commonly visited by people. It is important that land-users report any sightings of rare and may-be at risk plants and that they know of any previous sightings in their area of interest.[94]

AMPHIBIANS

Two amphibians, the boreal chorus frog and wood frog, are found in the SSA. Neither species is considered at-risk or in decline. However, the boreal chorus frog is on the northern limits of its range in the SSA. Many people consider amphibians to be the "canary in the mineshaft", namely that they will be the first to show a sign of stress if an ecosystem is in danger. This is in part because amphibians live in both aquatic and terrestrial environments, therefore are affected by impacts from both environments. Conversely, the protection of amphibians can translate into indirectly protecting many other species.[95]

2. 5. 2. KARST LANDFORMS

In 2007 Dr. Derek Ford, Professor Emeritus in the Department of Geography and Earth Sciences at McMaster University and one of the world's leading karst experts, visited the SSA. He located, photographed and described some of the karst sites in the SSA and released *"Report upon a Survey of Karst Landforms around Norman Wells, Northwest Territories"* in March 2008.[96] The report was produced for the NWT Protected Areas Strategy (PAS) and served to identify and locate special karst features in the SSA that should be protected.

See Map 14 - Sensitive Species & Features on page 69.

94 Ibid.

95 Ibid.

96 Ibid.

2. 5. 3. INTERNATIONAL BIOLOGICAL PROGRAMME (IBP) SITES[61]

The International Biological Programme (IBP) was a cooperative study of the land conducted from 1969 to 1974. It involved the International Council of Scientific Unions and 58 participating nations around the world. [97]

The goals for the north were to:

1. locate and describe representative examples of natural arctic and subarctic ecosystems in cooperation with locals and others;
2. demonstrate how the biological value of the sites may equal or outweigh all other values of that site;
3. help the Territorial and Federal Governments develop guidelines to manage and recognize these areas as Ecological Sites.

BE

The IBP Ecological sites are special areas that represent a variety of plant and animal communities. The vegetation, animals, soils and other physical characteristics form balanced ecosystems. Many of the sites have special features such as endangered or relict populations, unique plants, breeding areas and critical range for animals, pristine lakes, mineral springs or other naturally unique features.

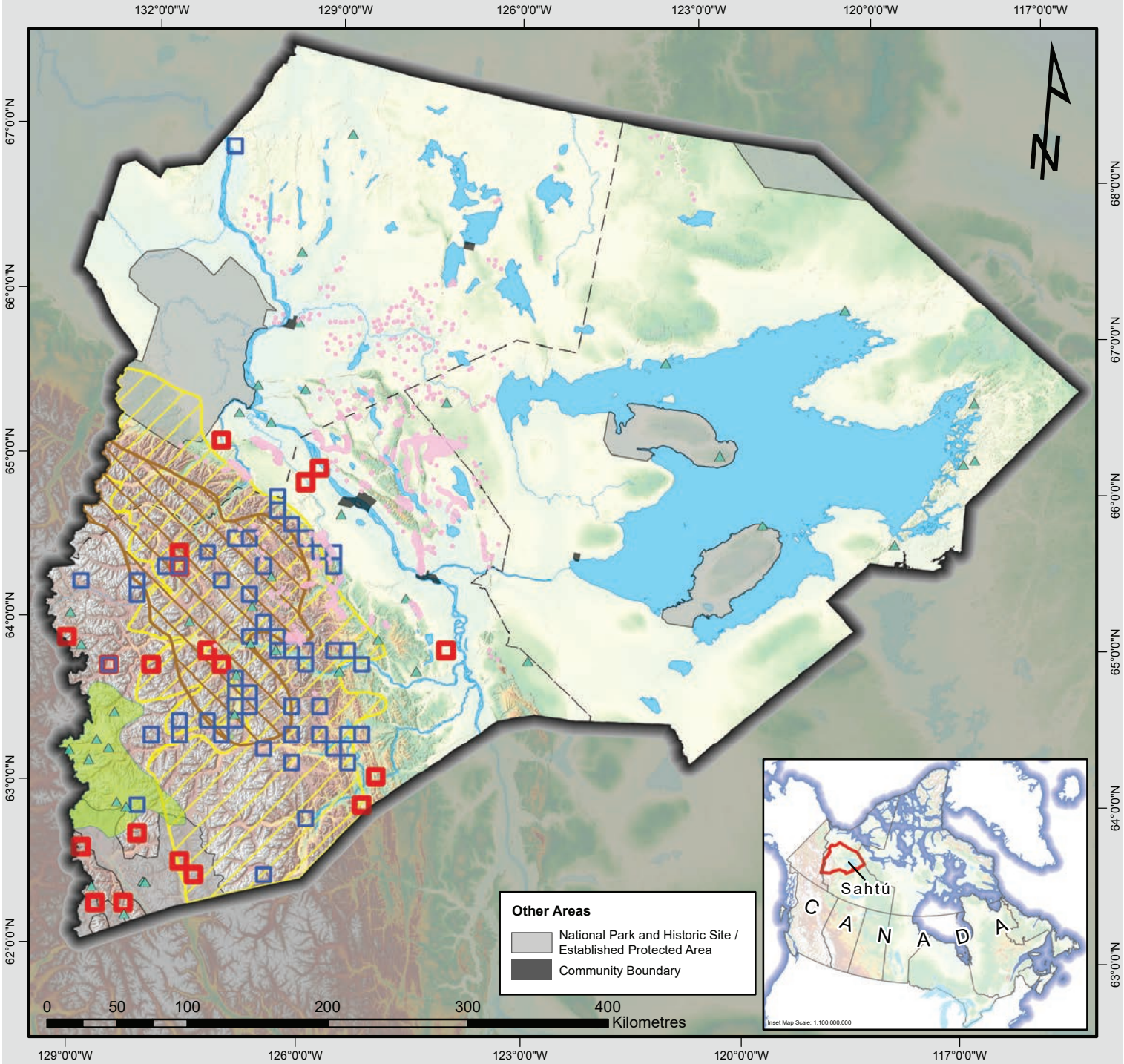
When an IBP site is located within a zone, its IBP site name and number are given so that readers may locate the site's description within the report:

> Dorothy K.B. Beckel [Coordinator Region 10 (Subarctic) Panel], ed., *International Biological Programme (IBP) Ecological Sites in Subarctic Canada, Areas recommended as Ecological Sites In Region 10, Yukon and Northwest Territories Boreal Forest to the Treeline,* (Lethbridge, Alberta, The University of Lethbridge Production Services, CCIBP/CT, 1975).

97 Dorothy K.B. Beckel [Coordinator Region 10 (Subarctic) Panel], ed., *International Biological Programme (IBP) Ecological Sites in Subarctic Canada, Areas recommended as Ecological Sites In Region 10, Yukon and Northwest Territories Boreal Forest to the Treeline,* (Lethbridge, Alberta: The University of Lethbridge Production Services, CCIBP/CT, 1975).

Sahtú Land Use Plan

Map 14 - Sensitive Species & Features



Legend

- Sahtú District Boundaries
- Rivers & Lakes
- Karst
- Area of Ice Patches
- May-be-at-Risk Plants
- Mineral Licks (1 or More in 10 km^2)
- Hot and Warm Springs (1 or More in 10 km^2)
- Glacial Refugia (17,350 Calendar Years Before Present)
- Glacial Refugia (15,600 Calendar Years Before Present)

Projection:

Coordinate System: NAD 1983 NWT Lambert
Projection: Lambert Conformal Conic
Datum: North American 1983
Central Meridian: -112.0000
Standard Parallel 1: 62.0000
Standard Parallel 2: 70.0000
Latitude of Origin: 0.000
Map Scale: 1:4,000,000

Please consult Appendix page 192 "Map 14. Sensitive Species and Features" for map references.

Sahtú Land Use Planning Board
P.O. Box 235
Fort Good Hope, NT
X0E 0H0
Telephone: +1 867 598 2055
Website: http://www.sahtulanduseplan.org
Email: info@sahtulanduseplan.org

Date Produced: March 2022

Document Path: \\10.117.7.122\GIS Data\Maps\Working_Files\2022\Background_Report_Maps\Sensitive_Species_Features.mxd

2.6 WILDLIFE

The land is very important to us. Not only do we live on it but also the wildlife survives on it. As humans, we survive by eating the wildlife. That also is a way of life.

Water, wildlife, caribou, moose, beaver, muskrat, and fish. These are all life sustaining for us. We can't allow these resources to be mismanaged. We have to be constantly aware of our responsibility for proper land management... We can't break our connection to nature.[98]

K'eyeneyo means "place where sheep are chased down." It is an isolated mountain, south of the Gravel River, at the headwaters of the Moose Horn River. It is a good place to find ewes and lams at this time of year. In the old days, sheep were chased down from the tundra plateau into snares of babiche.

Sheep are famous for their climbing skill... But there is one cliff they cannot climb, north northwest of K'eyeneyo. It is called Petl'aenejo, or "mountain where sheep are run against a cliff." There they could be killed by hunters.[99]

BE

2. 6. 1. SPECIES OF IMPORTANCE IN THE SSA

A variety of wildlife species live in the SSA. Some species are of traditional significance as they have been and continue to be used by people for subsistence and/or cultural reasons. Other species are rare, endangered, or sensitive to human influences and require special attention. Certain species are of ecological significance because they tell us about the relative health of an ecosystem. We call these indicator species. Others play a part in the region's economy for the residents of the SSA through tourism and outfitting activities. The SLUP has concentrated on key species of interest that represent the values or uses just identified.

"Mammals include some of the species that are, and have for thousands of years been most important to people in the North for food, clothing, tents, boats, tools, and as a source of income through the sale of furs, hides, crafts, and meat".[100] In addition to humans, there are 65 species of terrestrial mammals in the NWT, from tiny shrews, voles, and lemmings, to caribou, moose, bear, and Dall's sheep.

98 Sahtu Land Use Planning Board, *Building a Vision for the Land* study, confidential interviews, 1999.

99 Simmons, Norman, & Mendo, Maurice, "Wildlife," in *The Sahtu Atlas: Maps and Stories from the Sahtu Settlement Area in Canada's Northwest Territories,* ed. James Auld and Robert Kershaw (Norman Wells: Friesen, Sahtu GIS Project, 2005), p. 50, previously published as "Snowshoes and Ptarmigan Feathers," in *Mackenzie Valley Viewer*, October 2002.

100 Working Group on General Status of NWT Species. *NWT Species 2006-2010 - General Status Ranks of Wild Species in the Northwest Territories*, (Yellowknife: ENR-GNWT, 2006). p 16.

CARIBOU

Caribou are one of the most important species to people in the SSA. They are a staple of Dene and Métis subsistence harvests and their seasonal migrations have historically determined people's movements on the land.

Two subspecies of caribou exist in the SSA:

1. barren-ground caribou:
   - mostly found in the arctic and high arctic;
   - migrate over large areas of land and travel in herds;
   - associated with widely publicized population declines in the last few decades.

2. woodland caribou:
   - boreal caribou - non-migratory, live year-round in forested regions of the Mackenzie Valley;
   - northern mountain caribou – migratory, live between the forested and alpine habitats of the Mackenzie Valley.

BE

Boreal caribou are sensitive to activities associated with oil and gas exploration and extraction, particularly the cutting of seismic lines through the forests in which the caribou live. Research by the Caribou Monitoring Unit of the Alberta Biodiversity Monitoring Institute[101] in the northeast of the province has found that wolves can travel faster along seismic lines than through the forest, especially during the summer. This increases predation on caribou.

Caribou are more likely to be found at minimum 250 m from seismic lines, suggesting that habitat within 250 m of seismic lines being degraded to a certain extent.[102] Biologists are examining the density of seismic lines across the SSA to determine the current oil and gas "footprint" in the region. The GNWT in cooperation with other stakeholders has been developing land use guidelines in the NWT, including guidelines for seismic lines.[103]

101 "Research - Wolf Use of Human Disturbances", Caribou Monitoring Unit, Alberta Biodiversity Monitoring Institute. 2017. Accessed May 5, 2022. https://cmu.abmi.ca/research/wolf-use-of-human-disturbances/

102 James Auld and Robert Kershaw, ed. *The Sahtu Atlas: Maps and Stories from the Sahtu Settlement Area in Canada's Northwest Territories.* (Norman Wells: Friesen, Sahtu GIS Project, 2005).

103 Department of Lands - GNWT. *Northern Land Use Guidelines, Northwest Territories Seismic Operations*. (Yellowknife: 2015). https://www.lands.gov.nt.ca/sites/lands/files/resources/nlug_seismic_2015_english_-_16_sept_2015.pdf

MOOSE

The Dene and Métis historically and continue to rely heavily on moose for survival. The hides were painstakingly prepared and sewn together to use as tents and to cover large spruce frame boats. Moose hide leggings, coats, hats and footwear were used to keep warm. Moose meat was essential to subsistence. A successful hunt was occasion for a feast, with Elders being honoured with the head of the moose, a delicacy still enjoyed today.[104]

Today moose is still an important resource in many SSA communities. It continues to be a staple food as one animal can yield as much as 300 kg of meat. The hides are usually home-tanned and used for making slippers, mukluks, traditional dress, heavy winter mitts, and handicrafts. Some elders continue to use sinew to make thread for sewing, as it is extra sturdy for sewing items like footwear. Elders generally prefer moose hide slippers to shoes for both outdoor and indoor footwear.[105] Most hunters and trappers below the treeline still prefer moccasins to mainstream winter footwear.

Caribou (barren-ground and woodland) and moose continue to make up a significant portion of the year-round Dene and Métis diet. The meat used to be smoked and dried, making it less bulky, significantly lighter, and ready to eat at any time. Dry meat is still made today and is a widely appreciated delicacy. As with caribou (barren-ground and woodland), moose is important to the Dene and Métis for subsistence harvesting and cultural reasons.

WATERFOWL AND FISH

Waterfowl such as ducks and geese are harvested in the springtime. Dry geese is a delicacy that is made as a product of the sought after seasonal product. Migratory birds are also species of interest because of the *Migratory Bird Convention Act*[106], an international agreement to which Canada is a signatory. The Mackenzie River valley along with its islands are important stopping grounds of many species along migratory routes, allowing them to successfully complete their migration every year.

In the summer months, families set nets near their fish camps where they produce large amounts of dry fish. In the winter months, people continue to set nets or lines under the ice. The Mackenzie River and its tributaries, as well as fish lakes in the SSA continue to be used for subsistence fishing of lake trout, jackfish, lake whitefish, pickerel, inconnu, burbot (locally known as loche), and others. The nutritional and subsistence value of the mammals, waterfowl, and fish species listed above is significant.

104 James Auld and Robert Kershaw, ed. *The Sahtu Atlas: Maps and Stories from the Sahtu Settlement Area in Canada's Northwest Territories.* (Norman Wells: Friesen, Sahtu GIS Project, 2005). Excerpted from p. 49.

105 Ibid.

106 *Migratory Birds Convention Act, Statutes of Canada 1994*. https://laws-lois.justice.gc.ca/eng/acts/M-7.01/

BIG GAME AND FURBEARERS

Economically speaking, big game outfitters are a significant part of the tourism industry in the SSA. Non-resident hunters are primarily interested in Dall's sheep and northern mountain caribou, and may also hunt moose and mountain goats. Wolves, wolverines, and black bears are also open for hunting and are occasionally harvested.

Furbearers such as marten, beaver, fox, muskrat, mink and wolverine are a source of revenue for people of the SSA. Despite fluctuations in fur prices, the winter trapping season can be a source of income year after year.

2. 6. 2. NWT SPECIES AT RISK AND COSEWIC

Wildlife species serve a number of purposes. This chapter focuses on the species that are of special importance to the SSA, whether it be for socio-cultural, economic, or ecological reasons. Some species are of importance in the SSA because they are sensitive to disturbance, threatened, or at risk (see Table 8. COSEWIC Assessment - these same categories are used in the NWT status listings).

The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) is a national committee of experts that assesses the health of species in the country, including Aboriginal Traditional Knowledge committee advisors.[107] COSEWIC recommends to the federal government a list of species that need special attention. The federal Minister of Environment and Climate Change Canada considers COSEWIC's assessment and decides whether or not to adopt it under the federal *Species at Risk Act* (*SARA*).

TABLE 8. COSEWIC ASSESSMENT

COSEWIC Ranking	Status
Extinct	A wildlife species that no longer exists anywhere in the world.
Extirpated	A wildlife species that no longer exists in the wild in Canada, but exists elsewhere.
Endangered	A wildlife species facing imminent extirpation or extinction.
Threatened	A wildlife species that is likely to become endangered if nothing is done to reverse the factors leading to its extirpation or extinction.
Special Concern	A wildlife species that may become threatened or endangered because of a combination of biological characteristics and identified threats.

107 "About us," COSEWIC, 2021. Accessed May 5 2022. https://www.cosewic.ca/index.php/en-ca/about-us.html

COSEWIC's recommendations include mammals, birds, reptiles, amphibians, fish, arthropods, molluscs, plants, butterflies, moths, lichens, and mosses. COSEWIC has identified species in the SSA that need extra consideration and protection. They are listed in Table 9. SSA Species on the COSEWIC LIST. Some mammal species receive particular attention, either because of their importance to people in the traditional economy and/or as a result of their population status. Caribou is one such species because people in the north rely heavily on caribou for meat and traditional uses.

TABLE 9. SSA SPECIES ON THE COSEWIC LIST (AS OF OCTOBER 2021)

COSEWIC Assessment	Mammals	Birds
Endangered	None	Eskimo Curlew *(Numenius borealis)*
Threatened	Caribou, Barren-ground population *(Rangifer tarandus)*	Short-eared Owl *(Asio flammeus)*
	Caribou, Northern mountain population (Rangifer tarandus)	
Special Concern	Collared Pika *(Ochotona collaris)*	Buff-breasted Sandpiper *(Tryngites subruficollis)*
	Grizzly Bear, Western population *(Ursus arctos)*	Common Nighthawk *(Chordeiles minor)*
	Wolverine *(Gulo gulo)*	Harris's Sparrow *(Zonotrichia querula)*
		Horned Grebe *(podiceps auritus)* – Western population
		Olive-sided Flycatcher *(Contopus cooperi)*
		Red-necked Phalarope *(Phalaropus lobatus)*
		Rusty Blackbird *(Euphagus carolinus)*
		Barn Swallow *(Hirundo rustica)*

Source: Species at Risk Public Registry, Government of Canada, 2021. [108]

108 COSEWIC. *Canadian Wildlife Species At Risk, October 2021.* Committee on the Status of Endangered Wildlife in Canada. Accessed May 5, 2022. https://wildlife-species.canada.ca/species-risk-registry/virtual_sara/files/species/CSAR%20EN%202021.pdf

CARIBOU HERDS WITH SIGNIFICANT PRESENCE IN THE SAHTÚ

Over the past 5-10 years, all barren-ground caribou herds in the NWT have declined significantly.

Migratory barren-ground caribou are ranked as "at risk" in the *NWT Species 2021-2025 General Status Ranks* report, an update from previous reports that ranked them as "sensitive".[109] Barren-ground caribou are assessed by COSEWIC as "threatened".[110] These include Cape Bathurst, Bluenose East and Bluenose West herds, previously all called the "Bluenose caribou herd".[111]

Non-migratory boreal caribou are ranked as "at risk" in the NWT Species 2021-2025 General Status Ranks report. They are assessed by COSEWIC as "threatened".[112]

Migratory northern mountain woodland caribou are ranked as "sensitive" in the NWT Species 2021-2025 General Status Ranks report.[113] They are assessed by COSEWIC as "special concern" status.[114]

GOVERNMENT STATUS OF CARIBOU HERDS OUTSIDE THE SAHTÚ

Caribou herds without a regularly sustained presence in the Sahtú region are not currently accounted for in this document. These include Peary caribou, Dolphin and

---

109 Working Group on General Status of NWT Species. *NWT Species 2021-2025 – General Status Ranks of Wild Species in the Northwest Territories*. (ENR - GNWT, Yellowknife, NT. 2021).

110 COSEWIC. *COSEWIC assessment and status report on the Caribou Rangifer tarandus, Barren-ground population, in Canada*. (Committee on the Status of Endangered Wildlife in Canada, Ottawa, 2016). xiii + 123 pp. http://www.registrelep-sararegistry.gc.ca/default.asp?lang=en&n=24F7211B-1.

111 Advisory Committee for Cooperation on Wildlife Management. *Taking Care of Caribou: the Cape Bathurst, Bluenose-West, and Bluenose-East barren-ground caribou herds management plan.* (Yellowknife, NT, 2014). p. 18.

112 Working Group on General Status of NWT Species. *NWT Species 2021-2025 – General Status Ranks of Wild Species in the Northwest Territories*. (ENR - GNWT, Yellowknife, NT. 2021).

113 Working Group on General Status of NWT Species. *NWT Species 2021-2025 – General Status Ranks of Wild Species in the Northwest Territories,* (Department of Environment and Natural Resources, Government of the Northwest Territories, Yellowknife, NT, 2021). 389 pp. ; *Species at Risk Public Registry*, Environment and Climate Change Canada, Government of Canada, 2019: https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry.html

114 COSEWIC. *COSEWIC assessment and status report on the Caribou Rangifer tarandus, Northern Mountain population, Central Mountain population and Southern Mountain population in Canada.* (Committee on the Status of Endangered Wildlife in Canada, Ottawa, 2014). xxii + 113 pp. www.registrelep-sararegistry.gc.ca/default_e.cfm

Union caribou, and various barren-ground caribou herds such as Ahiak, Bathurst, Cape Bathurst, Beverly and Qamanirjuaq, Porcupine, Tuktoyaktuk Peninsula.[115]

Certain herds located outside the NWT such as the central mountain woodland caribou population (present in east-central British Columbia and west-central Alberta) and southern mountain woodland caribou (present in Southern British Columbia and the United States) are both assessed by COSEWIC in "endangered" status.[116] They were previously considered the same herd, but have been subdivided and should not be confused with the northern mountain woodland caribou in the Sahtú region, of the similar name.[117]

BE

2. 6. 3. CANADA'S SPECIES AT RISK ACT (*SARA*)

Canada's *Species at Risk Act* (*SARA*) is "a key federal government commitment to prevent wildlife species from becoming extinct and to secure the necessary actions for their recovery. It provides for the legal protection of wildlife species and the conservation of their biological diversity."[118]

> *"The Act establishes Schedule 1 as the official list of wildlife species at risk. It classifies those species as extirpated, endangered, threatened, or of special concern. Once listed, the measures to protect and recover a listed wildlife species are implemented."*[119]

The Schedule 1 list is based on the recommendations of COSEWIC, as described above. Territories and provinces develop their own Species at Risk Acts as well, but they create them to conform to the Federal *Species at Risk Act*. In that way, territories,

115 "Barren Ground Caribou." (Wildlife Division, ENR - GNWT). Accessed May 5 2022. https://www.enr.gov.nt.ca/en/services/caribou-de-la-toundra/general-description

116 COSEWIC. *COSEWIC assessment and status report on the Caribou Rangifer tarandus, Barren-ground population, in Canada*. (Committee on the Status of Endangered Wildlife in Canada, Ottawa, 2016). xiii + 123 pp. http://www.registrelep-sararegistry.gc.ca/default.asp?lang=en&n=24F7211B-1.

117 COSEWIC. *COSEWIC assessment and status report on the Caribou Rangifer tarandus, Northern Mountain population, Central Mountain population and Southern Mountain population in Canada.* (Committee on the Status of Endangered Wildlife in Canada, Ottawa, 2014). xxii + 113 pp. www.registrelep-sararegistry.gc.ca/default_e.cfm

118 Environment and Climate Change Canada, "Species at Risk Act: description", (Government of Canada, 2019). Accessed May 05, 2022. https://www.canada.ca/en/environment-climate-change/services/species-risk-act-accord-funding/act-description.html

119 Environment and Climate Change Canada, "Species at Risk Act: listing process", (Government of Canada, 2019). Accessed May 05, 2022. https://www.canada.ca/en/environment-climate-change/services/species-risk-act-accord-funding/listing-process.html

provinces and federal legislation work collaboratively to recover species that require special attention.

2. 6. 4. NORTHWEST TERRITORIES (NWT) SPECIES AT RISK ACT

The *Species at Risk (NWT) Act* came into force February 1st, 2010. It identifies, protects and recovers species at risk in the NWT. The "Act applies to any wild animal, plant or other species managed by the Government of the Northwest Territories".[120] It applies everywhere in the NWT, on both public and private lands, including private lands owned under a land claims agreement.

The *Species at Risk (NWT) Act* allows the GNWT to assess species status at the territorial level - which could differ from the national level. The legislation allows the territory to identify the threats facing the species in the NWT and identify what actions are necessary to protect, conserve and recover that species.

BE

In the SSA, responsibility for the conservation and recovery of species at risk in the NWT is shared among:

- wildlife co-management boards established under land claim agreements,
- the Minister of Environment and Natural Resources (ENR), and
- the federal government.[121]

The NWT Species at Risk listing for the SSA is slightly different from the COSEWIC assessment, which itself may be different from the list included in the federal *Species at Risk Act*.

Table 10: NWT Species at Risk in the SSA - on page 78 shows the Species at Risk occurring in the SSA, as per the NWT's listing.

120 Environment and Natural Resources, "Species at Risk" (GNWT, 2020). Accessed May 05, 2022. https://www.enr.gov.nt.ca/en/services/species-risk.

121 Environment and Natural Resources, "Species at Risk in the NWT" (GNWT, 2020). Accessed May 05, 2022. http://www.enr.gov.nt.ca/_live/pages/wpPages/Species_at_Risk.aspx

TABLE 10. NWT SPECIES AT RISK IN THE SSA

		Status in NWT		Status in Canada	
Class	Species	SARA Assessment	NWT List *Species at Risk Act*	COSEWIC Assessment	Federal List *Species at Risk Act*
Mammals	Caribou, Barren-ground population	Threatened	Threatened	Threatened	Not on Schedule 1 (under consideration for addition)
	Collared Pika	N/A	No Status	Special Concern	Special Concern
	Grizzly Bear (Western population)	Special Concern	No Status	Special Concern	Special Concern
	Wolverine	Not at Risk	No Status	Special Concern	Special Concern
	Woodland Caribou, (Boreal population)	Threatened	Threatened	Threatened	Threatened
	Caribou, Northern (Mountain population)	Special Concern	No Status	Special Concern	Not on Schedule 1 (under consideration for addition)
Fish	Bull Trout	N/A	No Status	Special Concern	Special Concern
	Dolly Varden (Western Arctic population)	N/A	No Status	Special Concern	Special Concern
	Shortjaw Cisco	N/A	No Status	Threatened	No Status

TABLE 10. NWT SPECIES AT RISK IN THE SSA (CONTINUED)

		Status in NWT		Status in Canada	
Class	Species	SARA Assessment	NWT List *Species at Risk Act*	COSEWIC Assessment	Federal List *Species at Risk Act*
Birds	Barn Swallow	N/A	No Status	Special Concern	Threatened
	Common Nighthawk	N/A	No Status	Special Concern	Threatened
	Eskimo Curlew	N/A	No Status	Endangered	Endangered
	Harris's Sparrow	N/A	No Status	Special Concern	Not on Schedule 1 (under consideration for addition)
	Horned Grebe (Western population)	N/A	No Status	Special Concern	Special Concern
	Olive-sided Flycatcher	N/A	No Status	Special Concern	Threatened
	Peregrine Falcon (anatum-tundrius)	N/A	No Status	Not at Risk	Special Concern
	Red-necked Phalarope	N/A	No Status	Special Concern	Special Concern
	Rusty Blackbird	N/A	No Status	Special Concern	Special Concern
	Short-eared Owl	N/A	No Status	Threatened	Special Concern

Source: "Species at Risk Public Registry", Government of Canada, 2020[122] & "NWT Species at Risk".[123]

122 Environment and Climate Change Canada, "Species at Risk Public Registry" (Government of Canada, 2019). Accessed May 4 2022. https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry.html

123 "NWT Species at Risk" (GNWT, 2013). Accessed May 4 2022. https://www.nwtspeciesatrisk.ca/

BE

BE

2. 6. 5. HABITAT SITES AND HARVESTING SITES

A number of wildlife reports and mapping projects were used by the SLUPB to make zoning decisions throughout the SLUP's drafts and approved versions, reviews, and amendments. The mapping usually falls into one of two categories, habitat sites or harvest sites. Both habitat and harvest locations are important wildlife considerations and were used to identify important wildlife areas. For most species, there is both habitat and harvesting information. The maps show the wildlife values that exist across the SSA.

HABITAT INFORMATION

Habitat information often came from traditional knowledge (TK) and scientific mapping projects, or reports identifying sensitive habitat areas such as the:

- Fort Good Hope Chevron TK project;
- Tulit'a TK project;
- INAC (Indigenous and Northern Affairs Canada) TK project;
- GNWT's *Important Wildlife Areas* (IWA) report;
- Ducks Unlimited Canada's (DUC) *Duck Breeding Density Report*;
- Canadian Wildlife Service's (CWS) *Key Migratory Bird Terrestrial Habitat Sites in the NWT and Nunavut*;
- ENR's *Seasonal Ranges of the Cape Bathurst, Bluenose-West, and Bluenose-East Barren-ground Caribou Herds*;
- Norm Simmons data on Dall's Sheep ranges in the Mackenzie Mountains;
- ENR wildlife species range mapping done in collaboration with the SLUPB.

Habitat data represent areas that are important or essential to the viability and health of the species or population. These can be calving/nesting grounds, migration paths, breeding sites/rutting grounds, areas where animals consistently gather in large numbers, seasonal ranges, or other areas that are valuable to wildlife. The consideration of these areas should decrease human impacts on wildlife and in some cases, offer wildlife species protection at times in their life cycle when they are most vulnerable.

HARVEST INFORMATION

Habitat sites differ from harvest sites. Harvest sites are areas where people have successfully harvested wildlife. Harvest sites tend to be near communities and are to an extent determined by ease of access. They may include traditional family gathering areas, cultural sites, or areas close to access roads or shorelines. Although harvest sites do not specifically represent sensitive or important habitat areas, they are a good surrogate for habitat because they tend to be where animals congregate or can be found on a regular basis.

Harvest data was collected from a number of TK projects and harvest reports such as:

- Fort Good Hope Chevron TK project;
- Tulit'a TK project;
- INAC TK project;
- ENR wildlife biologist mapping done in collaboration with the SLUPB;
- the Sahtu Renewable Resources Board (SRRB) *Sahtú Harvest Study*;
- the Special Harvesting Areas from the land claim.

2. 6. 6. SOURCES USED

Below is a brief description of the reports and mapping projects used to make wildlife-related decisions. The sources were also mapped to illustrate the wildlife values across the 66 land use zones in the SSA.

SPECIAL HARVESTING AREAS

S. 13.4.4 of the *SDMCLCA* establishes Special Harvesting Areas where Participants can harvest fish, moose, and migratory birds. Non-participants may not harvest wildlife in these areas if such harvesting is inconsistent with the special harvesting of Participants, except for a 90-day period in the fall when non-participants are allowed to harvest moose in the Special Harvesting Areas.

Special Harvesting Areas are areas that have provided a reliable and plentiful harvest year after year. As such, they are important wildlife areas as they are areas where wildlife tend to congregate. Whenever there is mention of a "Special Harvesting Area" in SLUP Zone Descriptions, it is in reference to the areas as defined in the *SDMCLCA*.

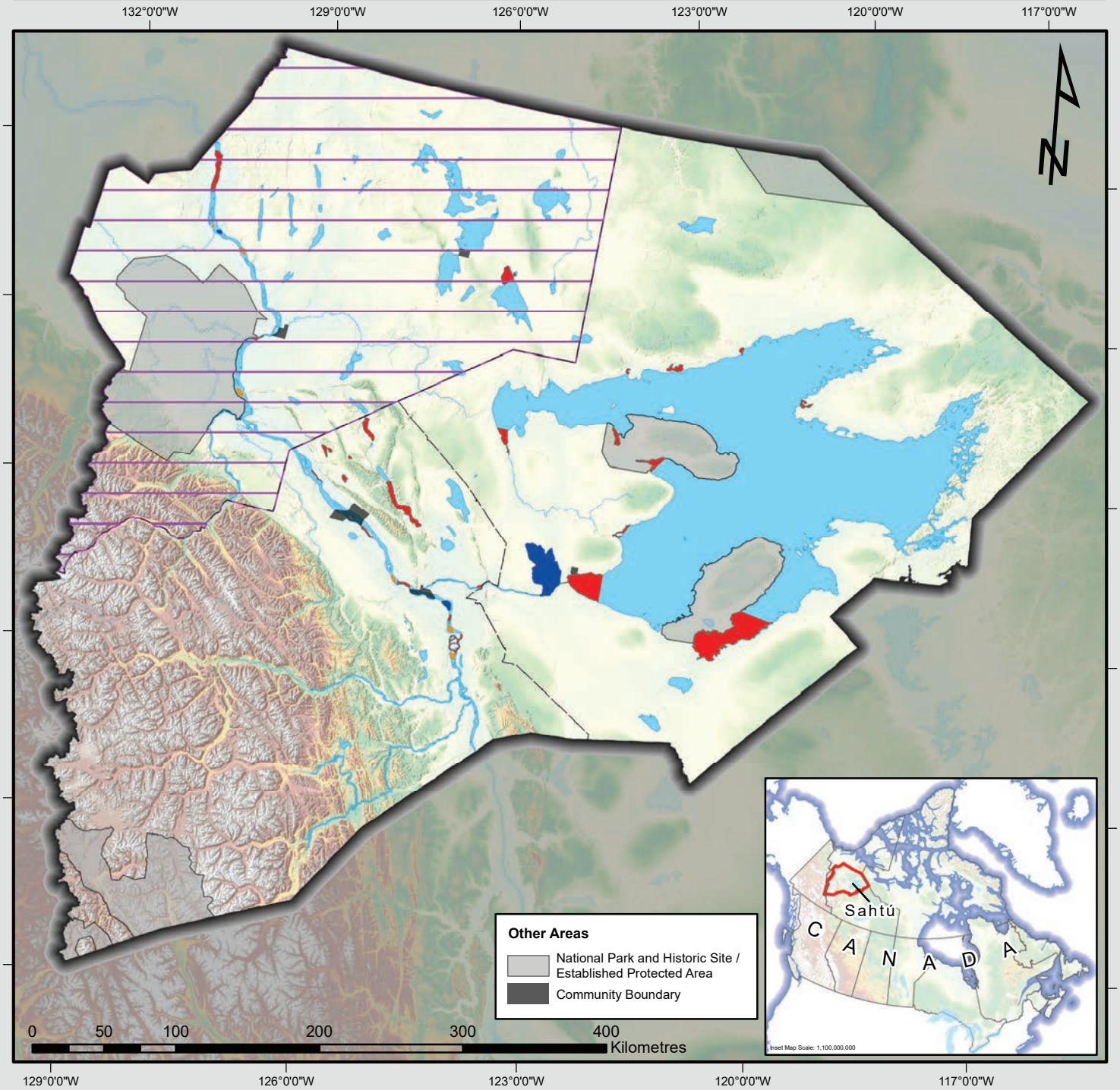
See Map 15: Special Harvesting Areas & Group Trapping Area - on page 82.

FORT GOOD HOPE-COLVILLE LAKE GROUP TRAPPING AREA

S. 13.9.4 (c) of the *SDMCLCA* re-affirms the existence of the Fort Good Hope-Colville Lake Group Trapping Area, and states that the area may not be reduced in size without the consent of the designated Sahtú organizations in Fort Good Hope and Colville Lake. The Group Trapping Area was established in previous negotiations with the Government of Canada. Its intent is to protect local Dene and Métis trappers by ensuring that the resources that they rely on are not over-harvested by non-participants. The Fort Good Hope-Colville Lake Group Trapping Area is included in the SLUP to affirm its continued existence.

Sahtú Land Use Plan

Map 15 - Special Harvesting Areas & Group Trapping Area



Legend

- Sahtú District Boundaries
- Rivers & Lakes
- Fort Good Hope/Colville Lake Group Trapping Area
- Fish Special Harvesting Area
- Migratory Bird Special Harvesting Area
- Moose Special Harvesting Area

Projection:

Coordinate System: NAD 1983 NWT Lambert
Projection: Lambert Conformal Conic
Datum: North American 1983
Central Meridian: -112.0000
Standard Parallel 1: 62.0000
Standard Parallel 2: 70.0000
Latitude of Origin: 0.000
Map Scale: 1:4,000,000

Please consult Appendix page 192 "Map 15. Special Harvesting Areas & Group Trapping Area" for map references.

Sahtú Land Use Planning Board
P.O. Box 235
Fort Good Hope, NT
X0E 0H0
Telephone: +1 867 598 2055
Website: http://www.sahtulanduseplan.org
Email: info@sahtulanduseplan.org

Date Produced: March 2022

Document Path: \\10.117.7.122\GIS Data\Maps\Working_Files\2022\Background_Report_Maps\Special_Harvesting_Areas.mxd

SRRB SAHTÚ HARVEST STUDY

Under S.13.5.6 of the *SDMCLCA*, the *Sahtú Harvest Study* was identified as a necessary step in order for the SRRB to effectively manage wildlife. The SRRB was established as the main instrument of wildlife management in the SSA. The SRRB works to protect, conserve, and manage all renewable resources within the SSA in a sustainable manner to meet or exceed the needs of the public today and in the future.

The study counts the number of animals, fish and birds harvested by Dene, Métis, and non-Participant hunters, trappers and fishers over a five-year period from 1998-2003. The names of harvesters and information collected are confidential.

The communities of Colville Lake, Fort Good Hope, Norman Wells, and Tulit'a participated in the study from 1998-2003. The community of Déljnę participated in the study from 1999-2004. In January 2004, the SRRB decided to continue the study for two more years in all communities.

The information that has been collected is used to ensure the proper management of fish and wildlife in the SSA, to determine basic needs level and to assess the potential impact of new or existing developments (e.g. oil and gas, mining, tourism) on harvesting. Information from the harvest study was used in the Zone Descriptions found in the Plan's Appendices to identify areas that are of value for harvesters.

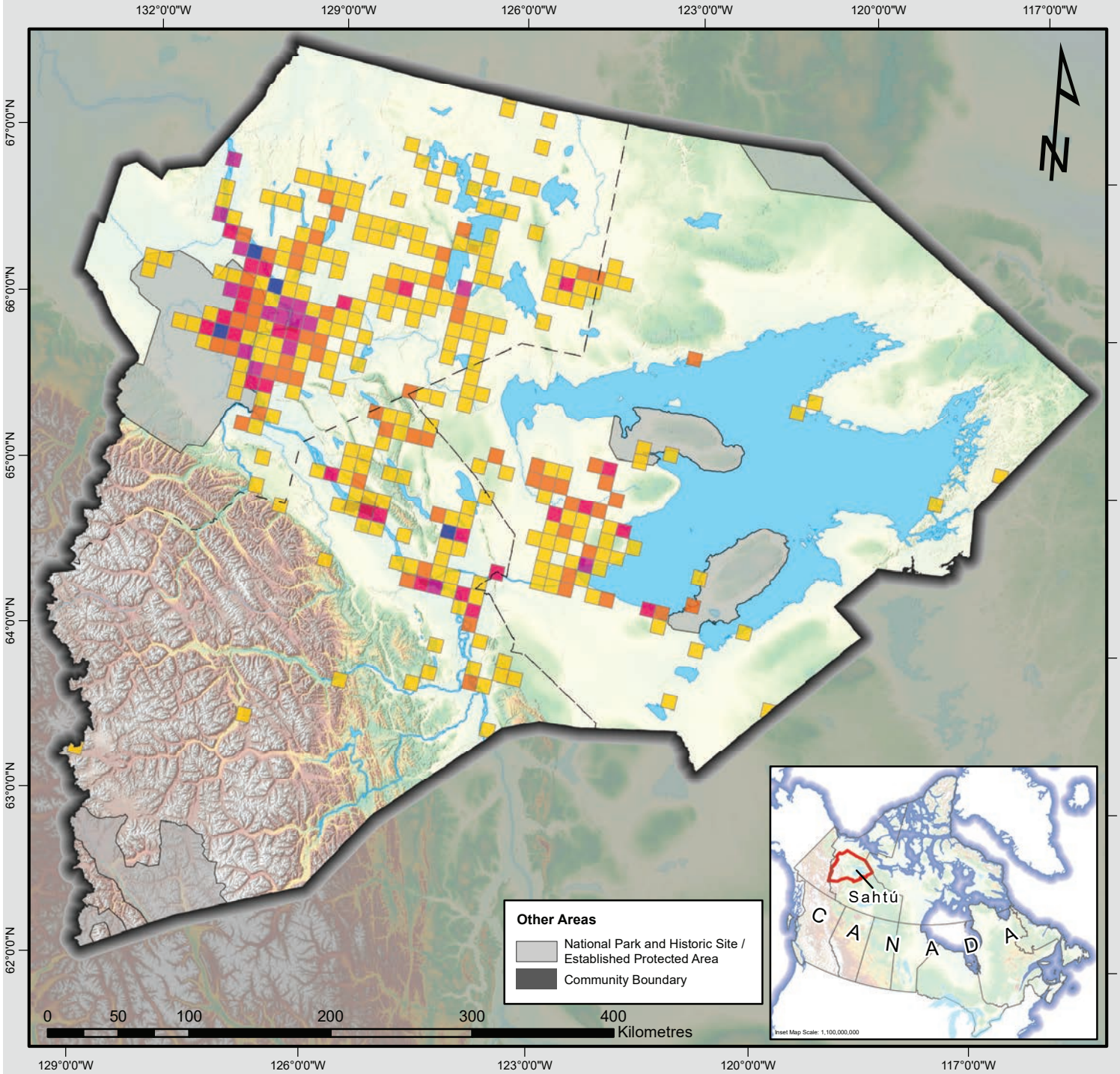
The intention of the study was to interview every eligible harvester in the SSA, although not all had participated. Those who did participate sometimes had trouble recalling the specifics of their harvests. Harvesters may be on the land for a few weeks to a few months, making it difficult to collect accurate information regarding their harvest after they return to town. The SRRB 's *Sahtú Harvest Study* is a representative summary of harvest locations in the SSA, however it should not be interpreted as a complete record of harvesting areas.

INAC TRADITIONAL KNOWLEDGE (TK) PROJECT (1992-1993)

In 1992-1993 INAC recorded a significant amount of traditional knowledge in the SSA. The study included a wide variety of wildlife harvest and habitat information. Habitat and harvest sites help to identify areas that are important to wildlife, as well as areas that are important to the people who rely on the wildlife for subsistence harvest. The INAC TK information is included in the species-specific maps in this chapter.

Sahtú Land Use Plan

Map 16 - Sahtú Renewable Resources Board (SRRB) Harvest Study



Legend

- Sahtú District Boundaries
- Rivers & Lakes

Harvesting of Small and Large Mammals (count per 10 km^2 Grid)

- 1 - 38
- 39 - 111
- 112 - 241
- 242 - 552
- 553 - 1252

Projection:

Coordinate System: NAD 1983 NWT Lambert
Projection: Lambert Conformal Conic
Datum: North American 1983
Central Meridian: -112.0000
Standard Parallel 1: 62.0000
Standard Parallel 2: 70.0000
Latitude of Origin: 0.000
Map Scale: 1:4,000,000

Please consult Appendix page 193 "Map 16. Sahtú Renewable Resources Board (SRRB) Harvest Study" for map references.

Sahtú Land Use Planning Board
P.O. Box 235
Fort Good Hope, NT
X0E 0H0
Telephone: +1 867 598 2055
Website: http://www.sahtulanduseplan.org
Email: info@sahtulanduseplan.org

Date Produced: March 2022

Document Path: \\10.117.7.122\GIS Data\Maps\Working_Files\2022\Background_Report_Maps\Harvest_Study.mxd

BARREN-GROUND CARIBOU SEASONAL RANGES

In 2014, the Advisory Committee for Cooperation on Wildlife Management released the report "*Taking Care of Caribou: Cape Bathurst, Bluenose-West and Bluenose-East Barren-ground Caribou Herds Management Plan*"[124], with a subsequent companion report released in 2016 by ENR - GNWT titled "*Technical Report on the Cape Bathurst, Bluenose-West, and Bluenose-East Barren-ground Caribou Herds*"[125]. These reports reviewed multiple sources of the movements of satellite-collared caribou over a range of years. Their ranges can be seen in Map 17 - Barren-Ground and Woodland Caribou Ranges on page 87.

TABLE 11. CORE SEASONAL RANGES OF BLUENOSE-EAST AND BLUENOSE-WEST HERDS (1993-2012)

	Spring Migration	Calving Core Ranges	Post-Calving Ranges	Summer Range	Late Summer Range
Bluenose-East	Apr 10 – May 27	May 28 – Jun 20	Jun 21 – Jul 3	Jul 4 – Aug 12	Aug 13 – Sep 6
Bluenose-West	Apr 25 – May 28	May 29 – June 23	Jun 24 – Jul 3	Jul 4 – Aug 2	Aug 3 – Aug 22

	Fall-Migration (pre-breeding) Range	Rut / Breeding Range	Fall-Migration (post-breeding) Range	Winter Range
Bluenose-East	Sep 7 – Oct 11	Oct 12 – Nov 4	Nov 5 – Dec 25	Dec 26 – Apr 9
Bluenose-West	Aug 23 – Oct 12	Oct 23 – Nov 7	Nov 8 – Nov 30	Dec 1 – Apr 24

Sources: Key Caribou Habitat, Department of Environment and Natural Resources, Government of the Northwest Territories, Department of Environment, Government of Nunavut, Caslys Consulting Ltd., 2015.

124 Advisory Committee for Cooperation on Wildlife Management. *Taking Care of Caribou: Cape Bathurst, Bluenose-West and Bluenose-East Barren-ground Caribou Herds Management Plans*, (ENR - GNWT, 2014.) http://www.grrb.nt.ca/pdf/wildlife/caribou/CB_BNW_BNE_Mgmt_Plan_FINAL.pdf

125 Advisory Committee for Cooperation on Wildlife Management. *Companion Report to "Taking Care of Caribou: The Cape Bathurst, Bluenose-West, and Bluenose-East Barren-ground Caribou Herds Management Plan"*, (ENR - GNWT, 2016.) https://www.enr.gov.nt.ca/sites/enr/files/150_file.pdf

As part of the above-mentioned reports, a compilation of maps representing the ranges of Caribou herds were released in 2015 using GPS radio collar data from 1993-2012, showing core ranges where there is a 95% probability of Caribou being present.

The core ranges of both the Bluenose-East and Bluenose-West Caribou are based on seasons. This is because barren-ground caribou use different geographic areas to meet their needs depending on the time of year, with these being their "seasonal ranges". Vulnerable times in their lifecycle are calving/post calving times, rutting season, and migration. Map 17 - Barren-Ground and Woodland Caribou Ranges identify the ranges of the Bluenose-East and Bluenose-West Caribou herds during each period of the seasons identified in Table 11: Core Seasonal Ranges of Bluenose-East and Bluenose-West Based (1993-2012) - on page 85.

Work related to the "seasonal ranges" of Barren-ground Caribou is important given the potential for oil & gas and other development activities on the winter ranges of the herds. As Caribou populations are sensitive to human impacts and have declined over the past years, development activities combined with wildfires may have significant impacts on these ranges.

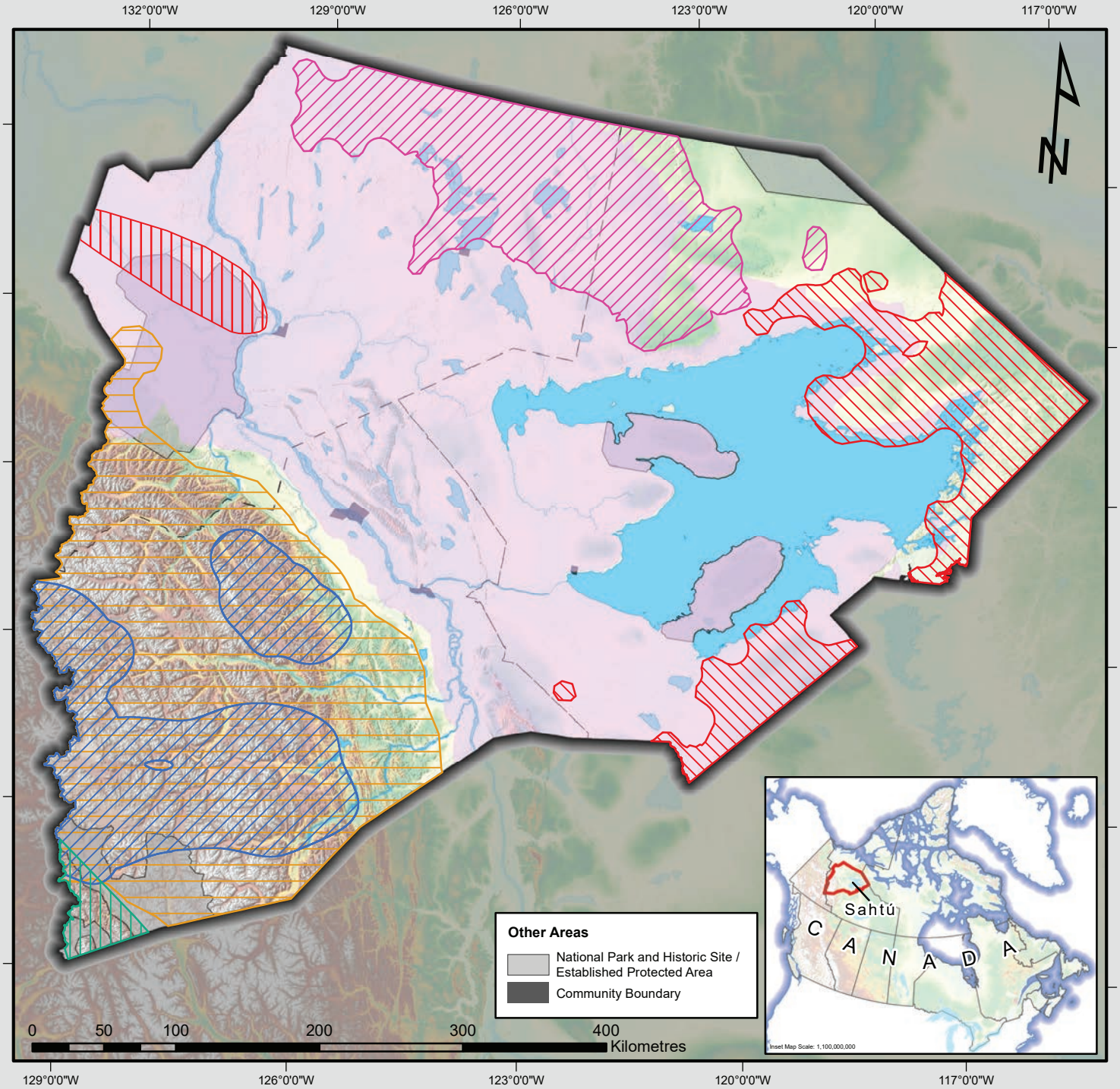
Studies have suggested that more research could better represent the caribou herd ranges. Further data collection would provide a better understanding of the locations of barren-ground caribou herds when calves and cows are most sensitive.

When formulating the Zone Descriptions found in the Appendices of the SLUP, information was included regarding if Bluenose-West or Bluenose-East barren-ground caribou live in a zone. This information is based on the following report, which is the precursor to the previously-mentioned reports by the Advisory Committee for Cooperation on Wildlife Management (*Taking Care of Caribou: Cape Bathurst, Bluenose-West and Bluenose-East Barren-ground Caribou Herds Management Plans*, and its *Companion Report*)in this section:

> Nagy et al. *Seasonal Ranges of the Cape Bathurst, Bluenose-West and Bluenose East Barren-Ground Caribou Herds* (Yellowknife; Department of Environment and Natural Resources - Government of the Northwest Territories, 2005). Manuscript Report No. 167. https://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.160.7115&rep=rep1&type=pdf

Sahtú Land Use Plan

Map 17 - Barren-Ground and Woodland Caribou Ranges



Legend

- Sahtú District Boundaries
- Rivers & Lakes
- Barren Ground Caribou (Bluenose West Fall-Winter Core Range)
- Barren Ground Caribou (Bluenose East Fall-Winter Core Range)
- Boreal Woodland Caribou Annual Range

Northern Mountain Woodland Caribou

- Redstone Herd Annual Range
- Redstone Herd Calving and Early to Midsummer Ranges
- South Nahanni Herd Summer and Rut Range
- Fort Good Hope Herd Annual Range

Projection:

Coordinate System: NAD 1983 NWT Lambert
Projection: Lambert Conformal Conic
Datum: North American 1983
Central Meridian: -112.0000
Standard Parallel 1: 62.0000
Standard Parallel 2: 70.0000
Latitude of Origin: 0.000
Map Scale: 1:4,000,000

Please consult Appendix page 194 "Map 17. Barren-Ground and Woodland Caribou Ranges" for map references.

Sahtú Land Use Planning Board
P.O. Box 235
Fort Good Hope, NT
X0E 0H0
Telephone: +1 867 598 2055
Website: http://www.sahtulanduseplan.org
Email: info@sahtulanduseplan.org

Date Produced: March 2022

Document Path: \\10.117.7.122\GIS Data\Maps\Working_Files\2022\Background_Report_Maps\Caribou_Ranges.mxd

SEASONAL RANGES OF DALL'S SHEEP IN THE MACKENZIE MOUNTAINS[126]

From 1968-1974, the CWS conducted studies on Dall's Sheep in the Mackenzie Mountains. The studies were intended to provide baseline data for the GNWT to help in the management of sport hunting in the mountains.

Non-resident sport hunting had not been allowed in the Mackenzie Mountains since 1938 when the Mackenzie Mountains Game Preserve was set aside to protect hunting grounds for use by the Dene and Métis. From 1946 to 1956, it was observed that Dene and Métis hunting in the Mackenzie Mountains had decreased significantly. As such, the Mackenzie Mountains were opened to non-resident sport hunting in 1965.

BE

Norm Simmons was a biologist with CWS. He was stationed in the Mackenzie Mountains from 1967-1972 to monitor the impacts of big game hunting on wildlife health and populations. He worked with the local Dene and Métis, recording traditional knowledge such as place names.

Norm Simmons counted, monitored, and documented the locations of sheep over the study period. His observations represented a host of values such as:

- location of observations,
- mineral licks,
- animal counts,
- important places, and
- observations on sheep and mountain woodland caribou.

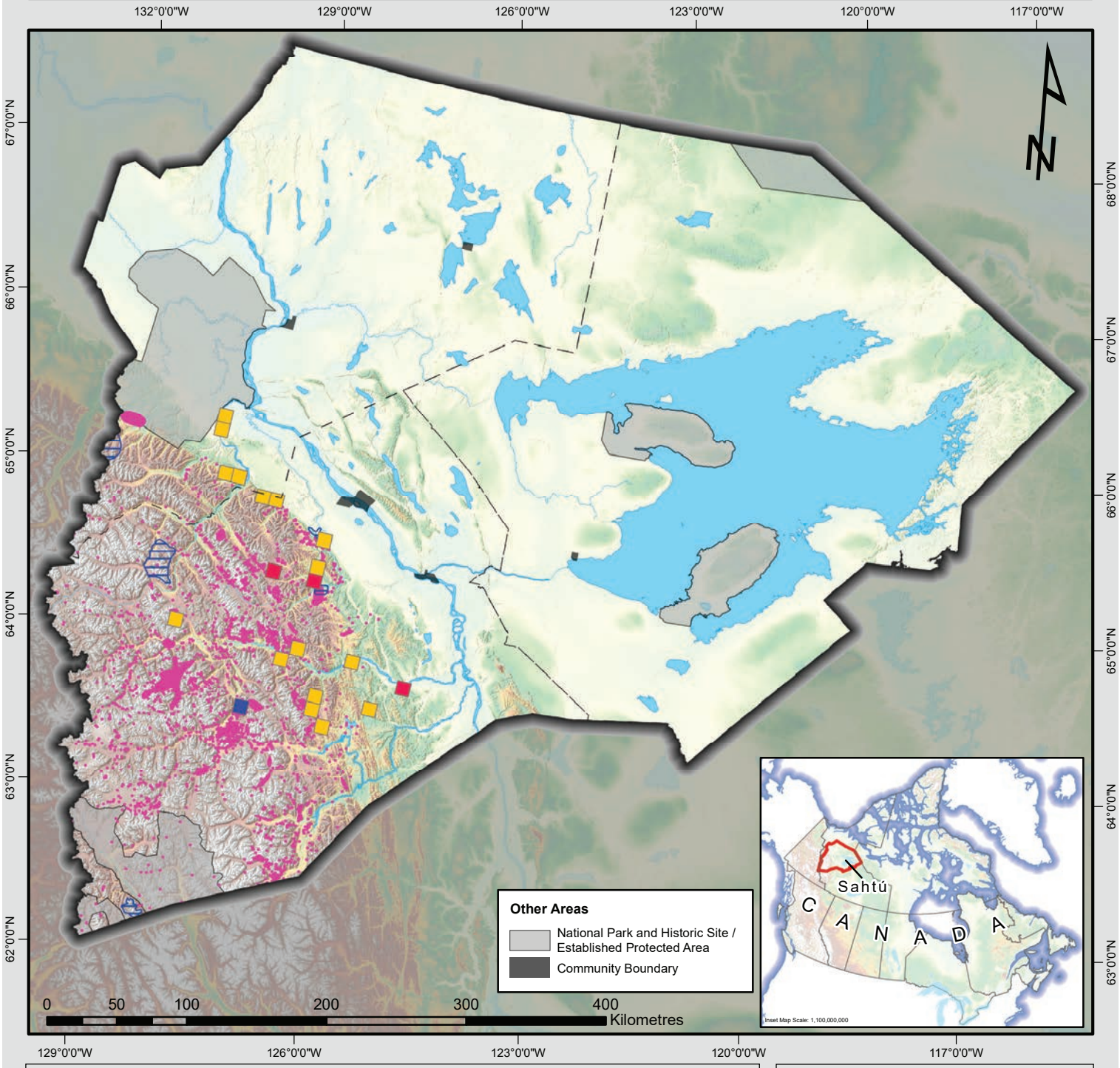
The data from Norm Simmons's study was retrieved and digitized in the early 2000s by Alasdair Veitch, Supervisor Wildlife Management, ENR (Sahtú Region). Map 18 - Dall's Sheep illustrates Norm Simmons's observations and other sources of information relating to Dall's Sheep. Although it is not possible to record all Dall's Sheep habitat, the point data gives a good indication of where sheep habitat may occur in the Mackenzie Mountains, where areas with a higher density of observations being more probable Dall's Sheep habitat locations. This information has been used in the SLUP's Zone Descriptions, as found in the SLUP's Appendices.

See Map 18: Dall's Sheep - on page 89.

126 Simmons, Norm. *Norm Simmons Fonds* (Fonds Reference Code 154.) Northwest Territories Archives, Prince of Wales Northern Heritage Centre, Yellowknife, Northwest Territories. 1960-1980. Accessed May 4, 2022. https://gnwttest.accesstomemory.org/154

Sahtú Land Use Plan

Map 18 - Dall's Sheep



Legend

- Sahtú District Boundaries
- Rivers & Lakes
- Dall's Sheep Important Wildlife Area

Norm Simmons Dall's Sheep Study

- Dall's Sheep Observations

Dall's Sheep Harvesting (SRRB Study)

(Count per 10 km^2 Grid)

- Low
- Medium
- High

Projection:

Coordinate System: NAD 1983 NWT Lambert
Projection: Lambert Conformal Conic
Datum: North American 1983
Central Meridian: -112.0000
Standard Parallel 1: 62.0000
Standard Parallel 2: 70.0000
Latitude of Origin: 0.000
Map Scale: 1:4,000,000

Please consult Appendix page 194 "Map 18. Dall's Sheep" for map references.

Sahtú Land Use Planning Board
P.O. Box 235
Fort Good Hope, NT
X0E 0H0
Telephone: +1 867 598 2055
Website: http://www.sahtulanduseplan.org
Email: info@sahtulanduseplan.org

Date Produced: March 2022

Document Path: \\10.117.7.122\GIS Data\Maps\Working_Files\2022\Background_Report_Maps\Dalls_Sheep.mxd

DUCK BREEDING SITES – DUCKS AS INDICATOR SPECIES [127]

Ducks Unlimited Canada (DUC) submitted a report to the SLUPB regarding the use of duck-related information to guide sustainable land use. The report identified locations in SSA that were modelled to support 60% of the breeding duck pairs in the Taiga and Boreal Plains. Ducks require similar habitat as other waterfowl and migratory bird species. As a result, they can be used as a surrogate to identify areas of importance for other species.

Ducks represent a wide range of avian diversity. They can be used as indicators of a healthy environment since they rely on wetlands to forage for food and uplands to have their young. Healthy wetland and upland habitats areas will increase the chances of successful reproduction, survival, and healthy population numbers.

BE

A number of development activities can affect duck habitat such as:

1. blocking the flow of water across the land or direct modifications of wetlands by roads or other infrastructure,
2. sediments from roads and other infrastructure getting into wetland areas,
3. changing water and nutrient yield caused by removing trees to make way for winter or all-weather roads, seismic lines, well pads, or other infrastructure,
4. upland and wetland basin thawing resulting from development and/or climate change.

DUC produced a map of predicted breeding duck densities in the Taiga and Boreal Plains ecozones. The analysis indicated that about 25% of the landscape supports approximately 60% of the breeding duck population. The rationale is that these areas also represent important habitat for other waterfowl and that they should be considered for protection.

Due to gaps in knowledge and an evolving understanding of locations of suitable habitat for waterfowl, DUC stressed the importance of an adaptive management framework that includes monitoring, the flexibility to make changes over time, and on-going research to gain new knowledge. The areas that were modelled to support 60% of the duck breeding areas were considered in the Zone Descriptions in the Appendices of the Plan.

When "important breeding duck habitat" is used in the Zone Descriptions, it is in reference to areas that have been identified as supporting 60% of the total breeding duck pairs in the Taiga and Boreal Plains of the SSA in the following report:

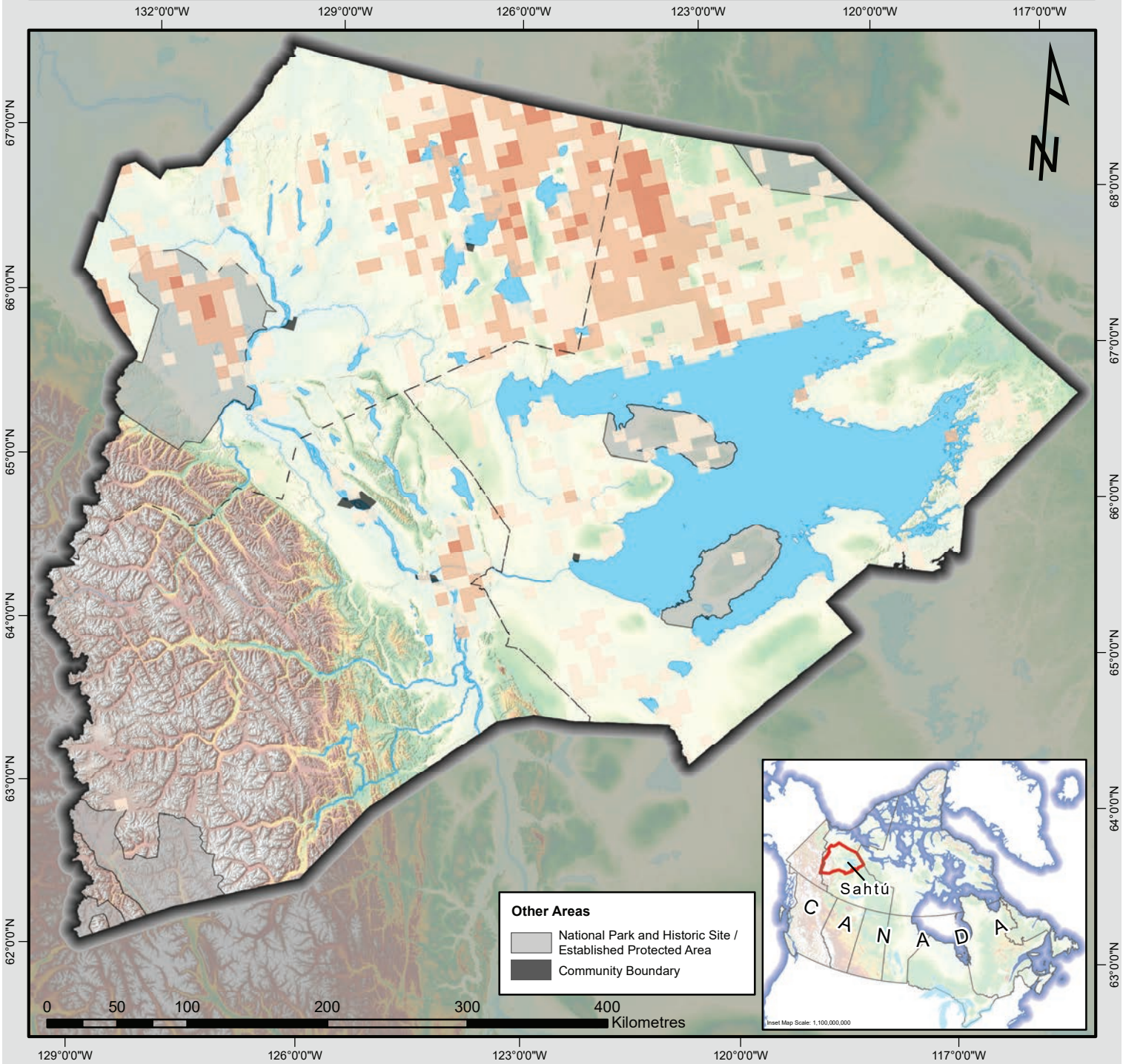
> Ducks Unlimited Canada. *Comments on Draft 2 SLUP*, July 31/09. https://sahtulanduseplan.org/sites/default/files/duc_july_31-09.pdf

See Map 19: Waterfowl Habitat - on page 91.

127 Ducks Unlimited Canada. *Comments on Draft 2 SLUP*, July 31/09. https://sahtulanduseplan.org/sites/default/files/duc_july_31-09.pdf

Sahtú Land Use Plan

Map 19 - Waterfowl Habitat



Legend

- Sahtú District Boundaries
- Rivers & Lakes

Mean Predicted Relative Waterfowl Density (Pairs per km^2)

- 0.8 - 1.2
- 1.2 - 1.5
- 1.5 and greater

Projection:

Coordinate System: NAD 1983 NWT Lambert
Projection: Lambert Conformal Conic
Datum: North American 1983
Central Meridian: -112.0000
Standard Parallel 1: 62.0000
Standard Parallel 2: 70.0000
Latitude of Origin: 0.000
Map Scale: 1:4,000,000

Please consult Appendix page 195 "Map 19. Waterfowl Habitat" for map references.

Sahtú Land Use Planning Board
P.O. Box 235
Fort Good Hope, NT
X0E 0H0
Telephone: +1 867 598 2055
Website: http://www.sahtulanduseplan.org
Email: info@sahtulanduseplan.org

Date Produced: March 2022

Document Path: \\10.117.7.122\GIS Data\Maps\Working_Files\2022\Background_Report_Maps\Waterfowl_Habitat.mxd

KEY MIGRATORY BIRD TERRESTRIAL HABITAT SITES[128]

The CWS released the third edition of the *"Key migratory bird terrestrial habitat sites in the Northwest Territories and Nunavut"* in 2008, a report that identifies terrestrial habitat areas deemed to be essential for the welfare of migratory bird species in Canada.

> *"The report describes key terrestrial habitat areas that are essential to the welfare of various migratory bird species in Canada."*[129] *"The preservation of adequate habitat (both in quantity and in quality) is fundamental to the conservation of all wildlife species."*[130]

The sites identified in the report support at least 1% of the Canadian population of at least one migratory bird species or subspecies. The sites include marine and freshwater habitats. Four of the sites identified in the report are found in the SSA. The research used to identify the sites was taken from published and unpublished reports and personal communications. The report is "offered as a guide to the conservation efforts of federal and territorial governments, wildlife co-management boards established pursuant to land claim final agreements, Indigenous and non-governmental organizations, and industry."[131]

Although site specific protection allows for the protection of habitat sites like staging areas, moulting areas, nesting colonies, and foraging areas, it cannot provide general protection to migratory species. Some populations disperse themselves throughout a variety of habitats. Rare, threatened, or endangered species that occupy restricted habitats would be vulnerable if their habitat is threatened or disturbed. Studies like this one are good for identifying especially valuable habitat sites, however TK reports were also used to identify waterfowl habitat as a means to provide a wider range of protection.

The Zone Descriptions in the Appendices of the Plan relied on this report for migratory bird habitat sites. Key terrestrial migratory bird habitat sites are included in the species-specific maps in this chapter. When *"CWS key migratory bird terrestrial habitat"* sites are used in the Zone Descriptions, it is in reference to the four sites located within the SSA in the following report:

> Latour, P.B, Leger, J, Hines, J.E., Mallory, M.L., Mulders, D.L., Gilchrist, H.G., Smith, P.A., & Dickson, D.L., *Key migratory bird terrestrial habitat sites in the Northwest Territories and Nunavut,* 3rd ed. (Canadian Wildlife Service, 2008, Occ. Paper #114.)

See Map 20: Waterfowl & Birds - on page 93.

128 Latour, P.B, Leger, J, Hines, J.E., Mallory, M.L., Mulders, D.L., Gilchrist, H.G., Smith, P.A., & Dickson, D.L., *Key migratory bird terrestrial habitat sites in the Northwest Territories and Nunavut,* 3rd ed. (Canadian Wildlife Service, 2008, Occ. Paper #114.)

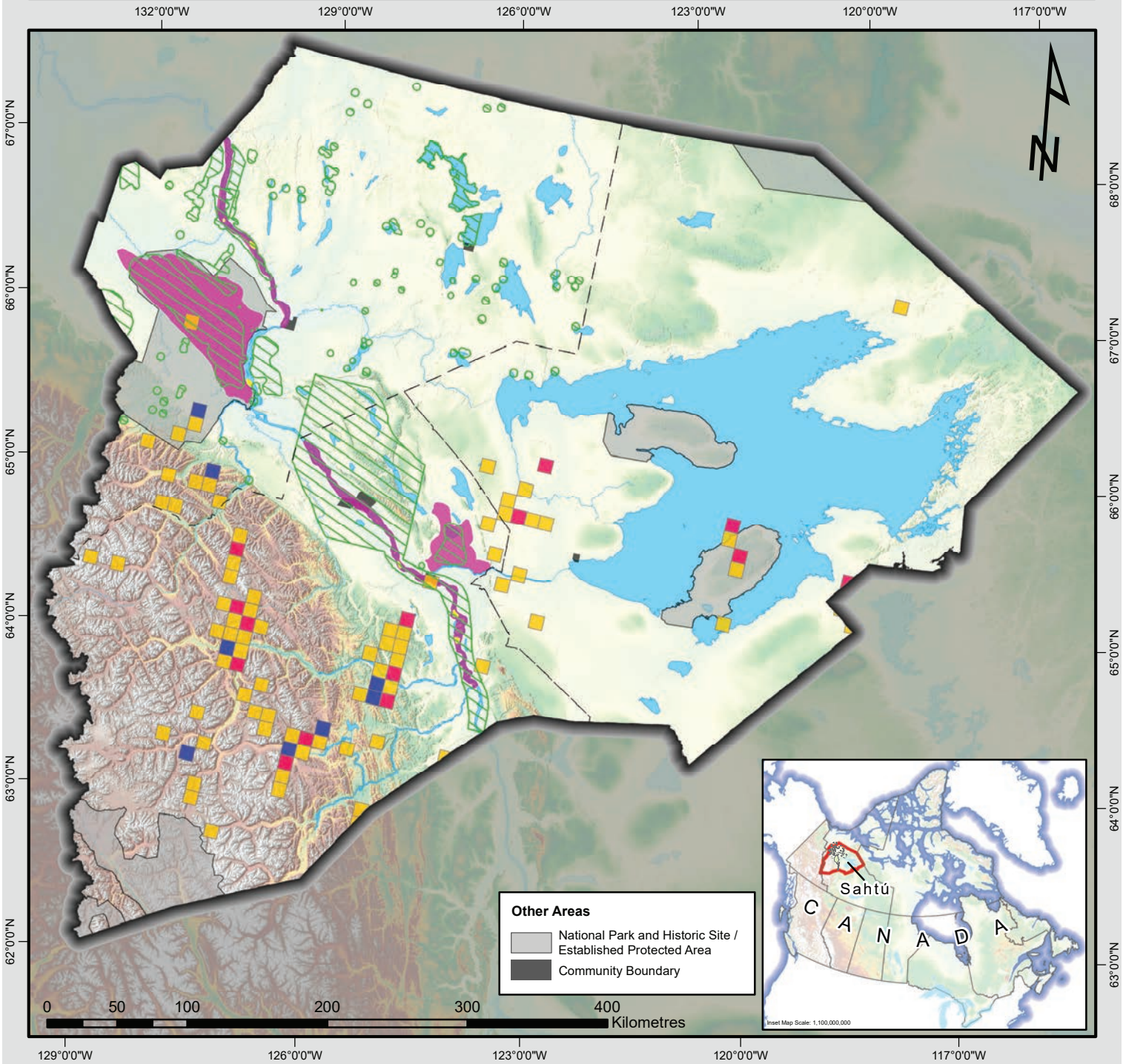
129 Ibid., p. 3

130 Ibid., p. 7

131 Ibid., p. 7-8

Sahtú Land Use Plan

Map 20 - Waterfowl & Birds



Legend

- Sahtú District Boundaries
- Rivers & Lakes
- Habitat/Harvesting (DIAND TK
- Special Harvesting Areas for Birds
- Key Terrestrial Habitat Sites (CWS)

Bird Harvesting (SRRB Study) (Count per 10 km^2 Grid)

- Low
- Medium
- High

Projection:

Coordinate System: NAD 1983 NWT Lambert
Projection: Lambert Conformal Conic
Datum: North American 1983
Central Meridian: -112.0000
Standard Parallel 1: 62.0000
Standard Parallel 2: 70.0000
Latitude of Origin: 0.000
Map Scale: 1:4,000,000

Please consult Appendix page 196 "Map 20. Waterfowl & Birds" for map references.

Sahtú Land Use Planning Board
P.O. Box 235
Fort Good Hope, NT
X0E 0H0
Telephone: +1 867 598 2055
Website: http://www.sahtulanduseplan.org
Email: info@sahtulanduseplan.org

Date Produced: March 2022

Document Path: \\10.117.7.122\GIS Data\Maps\Working_Files\2022\Background_Report_Maps\Waterfowl_Birds.mxd

IMPORTANT WILDLIFE AREAS (IWAs)[132]

The GNWT's ENR in 2012 published the report titled *"Important Wildlife Areas in the Western Northwest Territories"*, which identified areas of special importance to wildlife. The report provides maps and descriptions of known IWAs in the NWT. Data presented in the report came from various sources, such as study that was conducted between 2006 and 2009, as well as previous research and discussions with communities, co-management boards, departmental staff, and others.

The report provides information on IWAs in the NWT in order to guide management decisions. The final report was to be completed in the spring of 2010 and will undergo 10-year reviews.

BE

The GNWT has considered wildlife species for which it has management responsibilities. This includes species that fall under the *NWT Wildlife Act* but does not include fish, marine mammals or migratory birds, as these fall under federal jurisdiction under the *Fisheries Act* and the *Migratory Bird Convention Act*.

Species included in IWAs also had to meet at least one of the following conditions:

- of high socio-economic importance;
- identified by harvesters and biologists as a species to consider; or
- listed as a Species at Risk in 2006 by:
  - COSEWIC as nationally "endangered" or "threatened"; or
  - COSEWIC as "special concern" and listed as "sensitive" or higher in the NWT.

132 Wilson, J.M., and Haas, C.A., *Important Wildlife Areas in the Western Northwest Territories*, Manuscript Report No. 221, (ENR - GNWT, Yellowknife, NT, 2012.) https://www.enr.gov.nt.ca/sites/enr/files/221_public_no_appendix_c.pdf

TABLE 12. SPECIES CONSIDERED IN THE IWA REPORT THAT OCCUR IN THE SSA

	High Socio-Economic Importance	Endangered or Threatened (COSEWIC)	Special Concern (COSEWIC) and NWT status rank of Sensitive or higher
Barren-ground Caribou	X	X	
Boreal Woodland Caribou*	X	X	
Northern Mountain Woodland Caribou	X		X
Dall's Sheep	X		
Moose	X		
Mountain Goat	X		
Muskox	X		
Grizzly Bear			X
Beaver	X		
Lynx	X		
Marten	X		
Muskrat**	X		
Wolverine	X		X
Peregrine Falcon***			
Rusty Blackbird*			X
Short-eared Owl*			X

* Boreal woodland caribou, wolverine, rusty blackbird and short-eared owl were considered but no IWAs could be mapped.

** Muskrat is deemed to be of high socio-economic importance in areas outside of the SSA.

*** Due to the sensitivity of the IWAs for Peregrine falcons, data is only available upon request.

IWAs were defined as key wildlife habitat areas that had to meet at least one of the following six criteria:

1. Areas that many animals use traditionally, around the same time each year;
2. Places where animals consistently aggregate in relatively large numbers;
3. Areas that animal use repeatedly under adverse conditions as refugia (to take shelter);
4. Areas with source populations (area that supports healthy populations for migration into less populated areas);
5. For species with very low numbers in the NWT or very limited suitable habitat, their year-round range may be considered important;
6. Unique areas used by different species (e.g. mineral licks, hot springs, wetlands).

The species examined in the IWA report represent a segment of the ecologically important wildlife species in the NWT. A number of IWAs were mapped but they should not be interpreted as the only important wildlife areas. Much habitat in the SSA has not been included due to the stringent selection criteria mentioned. [133] In addition to the IWAs, unique areas for wildlife (hot and warm springs, mineral licks, may-be at risk plants) were also identified.

When an IWA is used in the Zone Descriptions found in the Appendices of the Plan, it is in reference to the areas identified in the ENR report:

> Wilson, J.M., and Haas, C.A., *Important Wildlife Areas in the Western Northwest Territories*, Manuscript Report No. 221, (Yellowknife: Environment and Natural Resources, Government of the Northwest Territories, 2012).

See Map 21: Important Wildlife Areas - on page 99.

133 Wilson, J.M., and Haas, C.A., *Important Wildlife Areas in the Western Northwest Territories*, Manuscript Report No. 221, (ENR - GNWT, Yellowknife, NT, 2012.) https://www.enr.gov.nt.ca/sites/enr/files/221_public_no_appendix_c.pdf

TABLE 13. IWAs LOCATED IN THE SSA

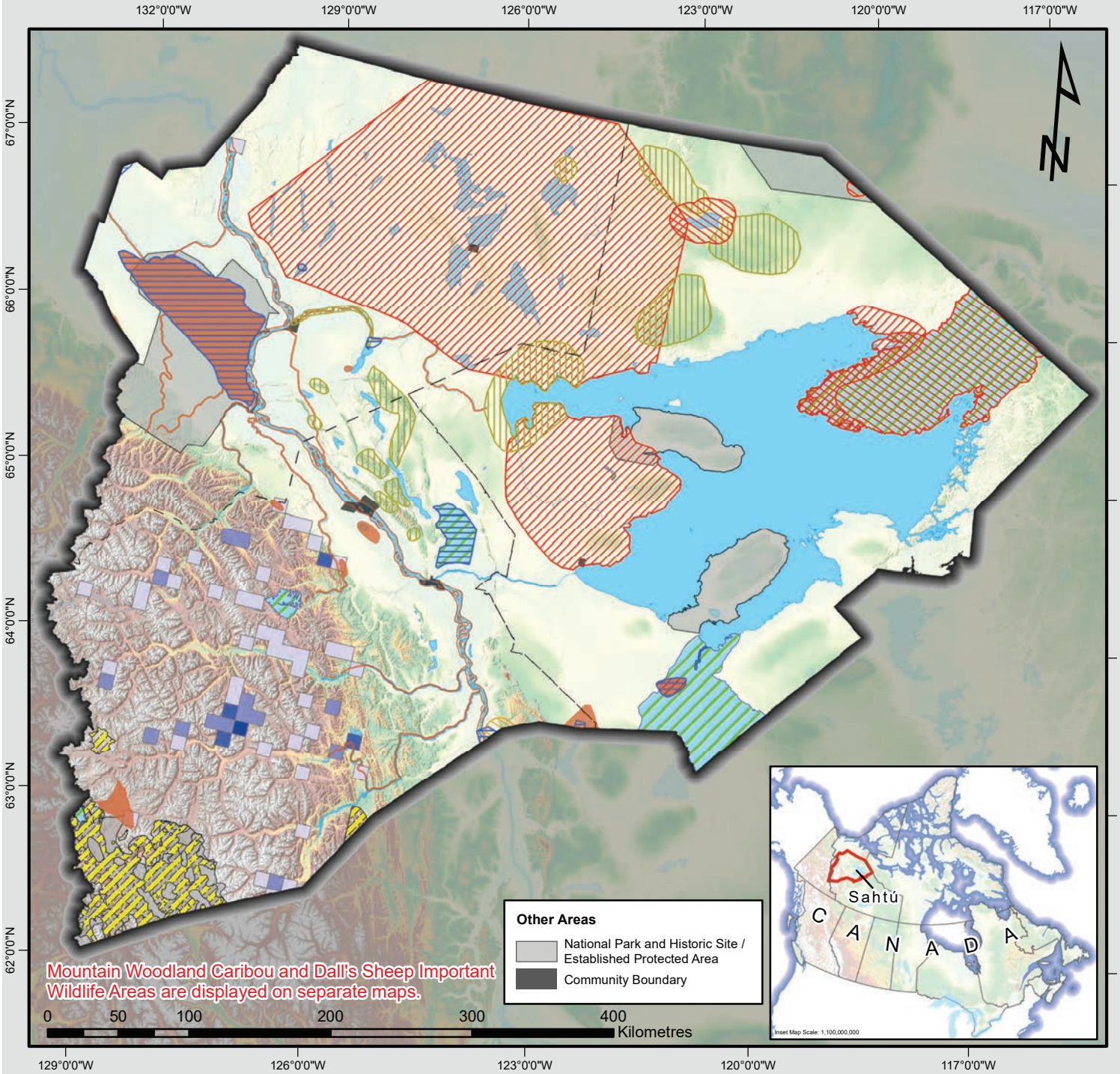
Wildlife Species	IWA ID Number	Important Wildlife Area (IWA) in the Sahtu
Barren-ground Caribou	3	Horton Lake
	4	ʔehdaʔ́ʔla (Caribou Point)
Boreal Woodland Caribou	5	Headwaters of Arctic Red River and Ramparts Rivers
	6	South Nahanni Summer and Rut Range
	10	Drum Lake (Wrigley Lake)
	11	Redstone Calving and Early-midsummer Range
Dall's Sheep	17	Northern Mackenzie Mountains
	18	Palmer Lake
	19	Dehcho Sheep Concentration Areas
	22	Dodo Canyon
	23	Between Carcajou Falls and Pyramid Mountain
Moose	29	Sahtú Rivers
	30	Ramparts River Wetlands
	31	Lac à Jacques Wetlands
	32	Florence Lake
	33	Three Day Lake
	34	Mirror Lake
	35	Wetlands southwest of Lac Ste Thérèse
	36	O'Grady Lake
	42	Norman Wells to Fort Good Hope Winter Road
Muskox	50	Sahtú Muskox Areas
	51	Hare Indian River
Grizzly Bear	58	Mackenzie Mountains Barrens
	59	Grizzly Bear Area West of Wrigley
	60	Greater Nahanni Grizzly Bear Areas
Beaver	68	Ramparts River Wetlands
	69	Loon Lake Wetlands
	70	Wetlands North of Lac à Jacques
	71	Willow Lake Wetlands
	72	Johnny Hoe River and Lac Ste Thérèse
	73	Dehcho Beaver Concentration Areas (very small portion)
Lynx	77	Dehcho Lynx Concentration Areas (very small portion)

TABLE 13. IWAs LOCATED IN THE SSA (CONTINUED)

Wildlife Species	IWA ID Number	Important Wildlife Area (IWA) in the Sahtu
Marten	81	Northern Sahtú Marten Area
	82	Caribou Point Marten Area
	83	Whitefish River Marten Area
	84	Wetlands Southwest of Lac Ste Thérèse
Unique Areas	90	Hot and Warm Springs
	91	Density of Known Mineral Licks
	102	Ramparts River Wetlands
	103	Plains of Abraham
	104	Willow Lake Wetlands
	105	ʔehdaʗ́ʗla (Caribou Point)
	111	Johnny Hoe River

Sahtú Land Use Plan

Map 21 - Important Wildlife Areas



Legend

- Sahtú District Boundaries
- Rivers & Lakes
- Barren Ground Caribou
- Beaver
- Grizzly Bear
- Lynx
- Marten
- Moose
- Muskox
- Unique Areas

Mineral Lick Density
Lick Count per 10 km^2

- 1
- 2
- 3
- 4+

Projection:

Coordinate System: NAD 1983 NWT Lambert
Projection: Lambert Conformal Conic
Datum: North American 1983
Central Meridian: -112.0000
Standard Parallel 1: 62.0000
Standard Parallel 2: 70.0000
Latitude of Origin: 0.000
Map Scale: 1:4,000,000

Please consult Appendix page 196 "Map 21. Important Wildlife Areas" for map references.

Sahtú Land Use Planning Board
P.O. Box 235
Fort Good Hope, NT
X0E 0H0
Telephone: +1 867 598 2055
Website: http://www.sahtulanduseplan.org
Email: info@sahtulanduseplan.org

Date Produced: March 2022

Document Path: \\10.117.7.122\GIS Data\Maps\Working_Files\2022\Background_Report_Maps\Important_Wildlife_Areas.mxd

2. 6. 7. SPECIES-SPECIFIC WILDLIFE MAPS

A number of species-specific maps have been created by the SLUPB. The sources of data reflect a compilation of data from the sources listed earlier in the chapter. The maps are intended to show readers a combination of wildlife habitat areas and harvest sites.

The maps vary as the data that the SLUPB was able to obtain for different species is not consistent. The maps represent the best data the SLUPB could find on important wildlife species and reflect a combination of scientific and traditional knowledge data.

SLUPB-RWED WILDLIFE MAPPING PROJECT

The SLUPB collaborated in 2001 with ENR's regional wildlife biologists on a project to map the distributions and relative densities of 82 wildlife species. The information was based on surveys and field experience. The range, occurrence, and habitat of key wildlife species were mapped.

BE

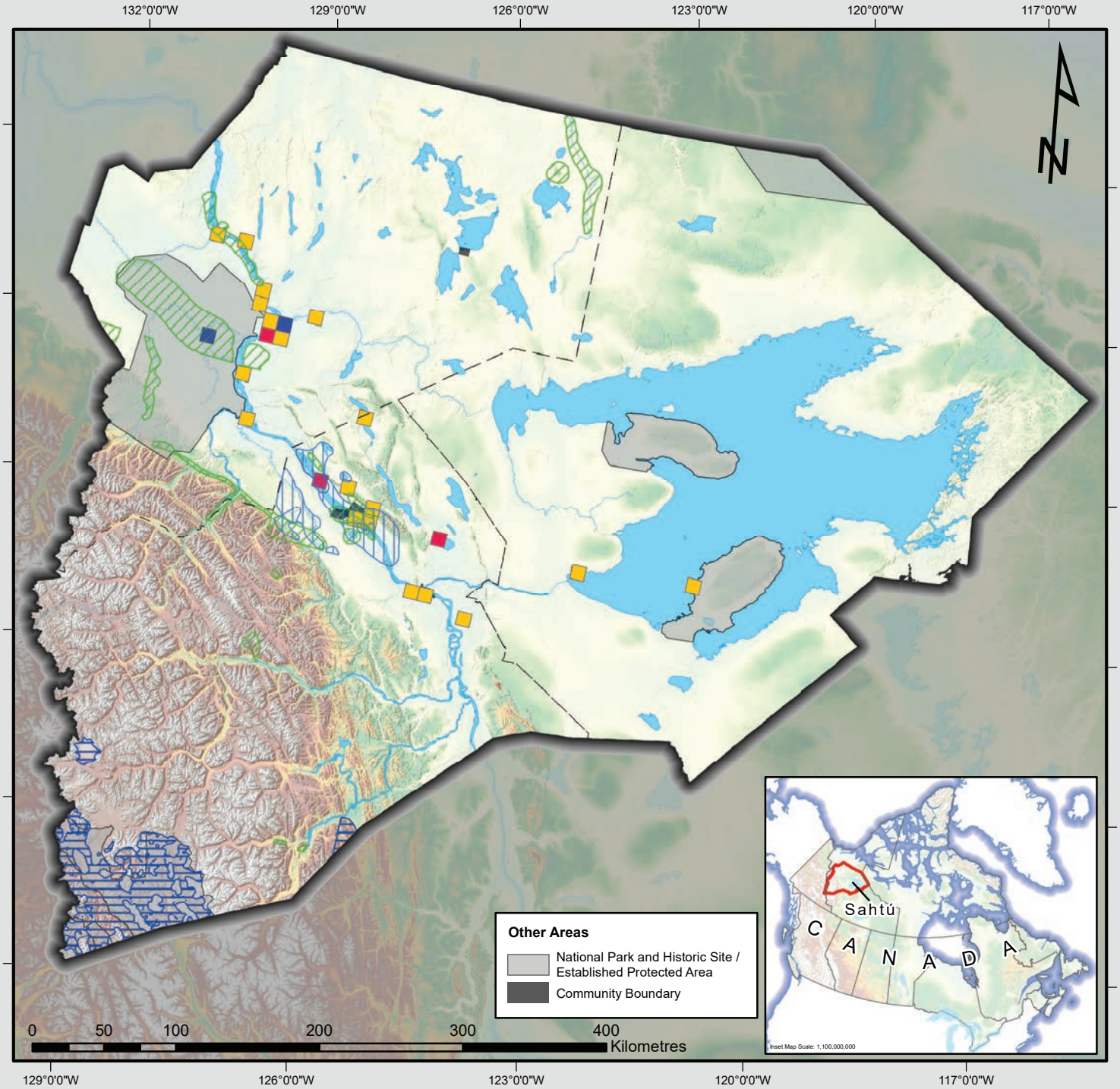
When Zone Descriptions mention "wildlife habitat", it often times originates from this source. No report was associated with the digital maps produced through this project. The SLUPB is a holder of this project's spatial data. Refer to:

- Map 22 - Bears on 101,
- Map 23 - Barren-Ground Caribou on 102
- Map 24 - Fish on 103
- Map 25 - Furbearers on 104
- Map 26 - Moose on 105
- Map 27 - Muskox on 106

which display spatial data for specific wildlife species.

Sahtú Land Use Plan

Map 22 - Bears



Legend

- Sahtú District Boundaries
- Rivers & Lakes
- Grizzly Bear Important Wildlife Area
- Habitat Area (DIAND TK)
- Harvesting Area (DIAND TK)

Bear Harvesting (SRRB Study)
(Count per 10 km^2 Grid)

- Low
- Medium
- High

Projection:

Coordinate System: NAD 1983 NWT Lambert
Projection: Lambert Conformal Conic
Datum: North American 1983
Central Meridian: -112.0000
Standard Parallel 1: 62.0000
Standard Parallel 2: 70.0000
Latitude of Origin: 0.000
Map Scale: 1:4,000,000

Please consult Appendix page 197 "Map 22. Bears" for map references.

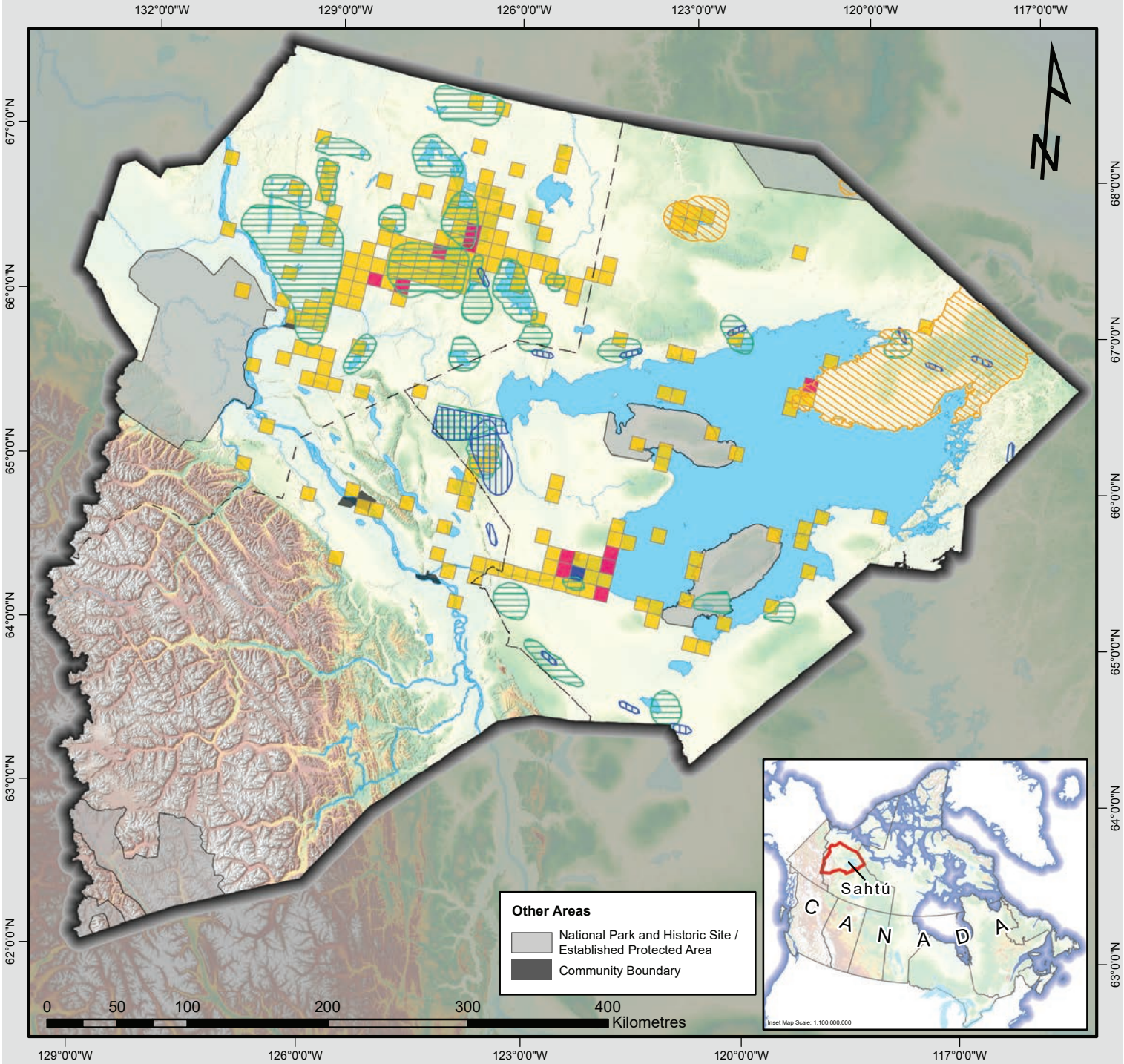
Sahtú Land Use Planning Board
P.O. Box 235
Fort Good Hope, NT
X0E 0H0
Telephone: +1 867 598 2055
Website: http://www.sahtulanduseplan.org
Email: info@sahtulanduseplan.org

Date Produced: March 2022

Document Path: \\10.117.7.122\GIS Data\Maps\Working_Files\2022\Background_Report_Maps\Bears.mxd

Sahtú Land Use Plan

Map 23 - Barren-Ground Caribou



Legend

- Sahtú District Boundaries
- Rivers & Lakes
- Barren-Ground Caribou Habitat (DIAND TK Study)
- Barren-Ground Caribou Harvesting (DIAND TK Study)
- Barren-Ground Caribou Important Wildlife Area

Barren-Ground Caribou Harvesting (SRRB Study)

(Count per 10 km^2 Grid)

- Low
- Medium
- High

Projection:

Coordinate System: NAD 1983 NWT Lambert
Projection: Lambert Conformal Conic
Datum: North American 1983
Central Meridian: -112.0000
Standard Parallel 1: 62.0000
Standard Parallel 2: 70.0000
Latitude of Origin: 0.000
Map Scale: 1:4,000,000

Please consult Appendix page 197 "Map 23. Barren-Ground Caribou" for map references.

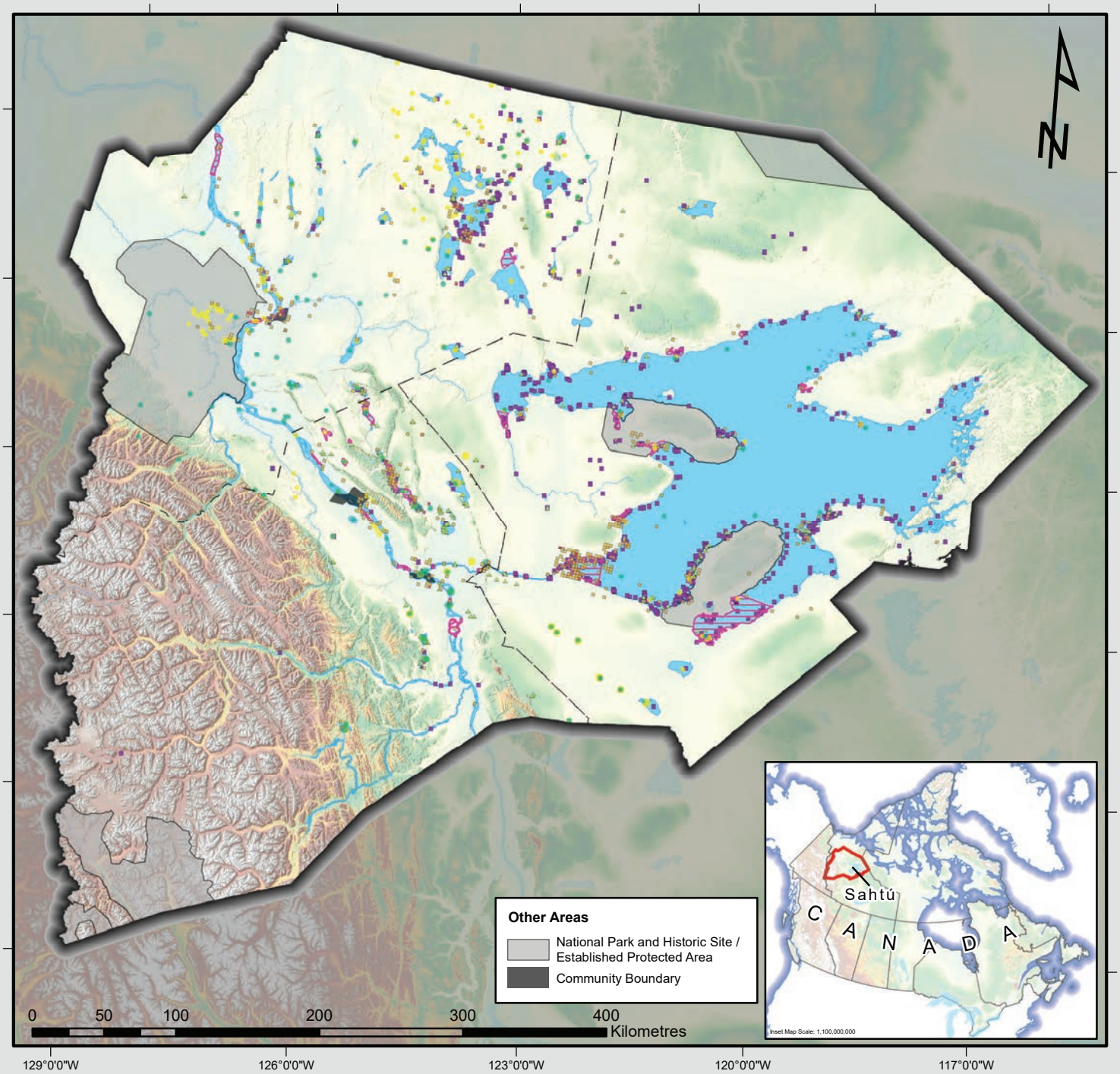
Sahtú Land Use Planning Board
P.O. Box 235
Fort Good Hope, NT
X0E 0H0
Telephone: +1 867 598 2055
Website: http://www.sahtulanduseplan.org
Email: info@sahtulanduseplan.org

Date Produced: March 2022

Document Path: \\10.117.7.122\GIS Data\Maps\Working_Files\2022\Background_Report_Maps\Barren_Ground_Caribou.mxd

Sahtú Land Use Plan

Map 24 - Fish



Legend

- Sahtú District Boundaries
- Rivers & Lakes
- Fish Habitat Area (DIAND TK)
- Fish Harvest Area (DIAND TK)
- Special Harvesting Areas for Fish
- Fish Harvesting (SLUPB TK-Current Trail Use)
- Fish Harvesting (SLUPB TK-Resource Mapping)

Fish Harvesting (SRRB Study) (Count per 1 km^2 Grid)

- Low
- Medium
- High

Projection:

Coordinate System: NAD 1983 NWT Lambert
Projection: Lambert Conformal Conic
Datum: North American 1983
Central Meridian: -112.0000
Standard Parallel 1: 62.0000
Standard Parallel 2: 70.0000
Latitude of Origin: 0.000
Map Scale: 1:4,000,000

Please consult Appendix page 198 "Map 24. Fish" for map references.

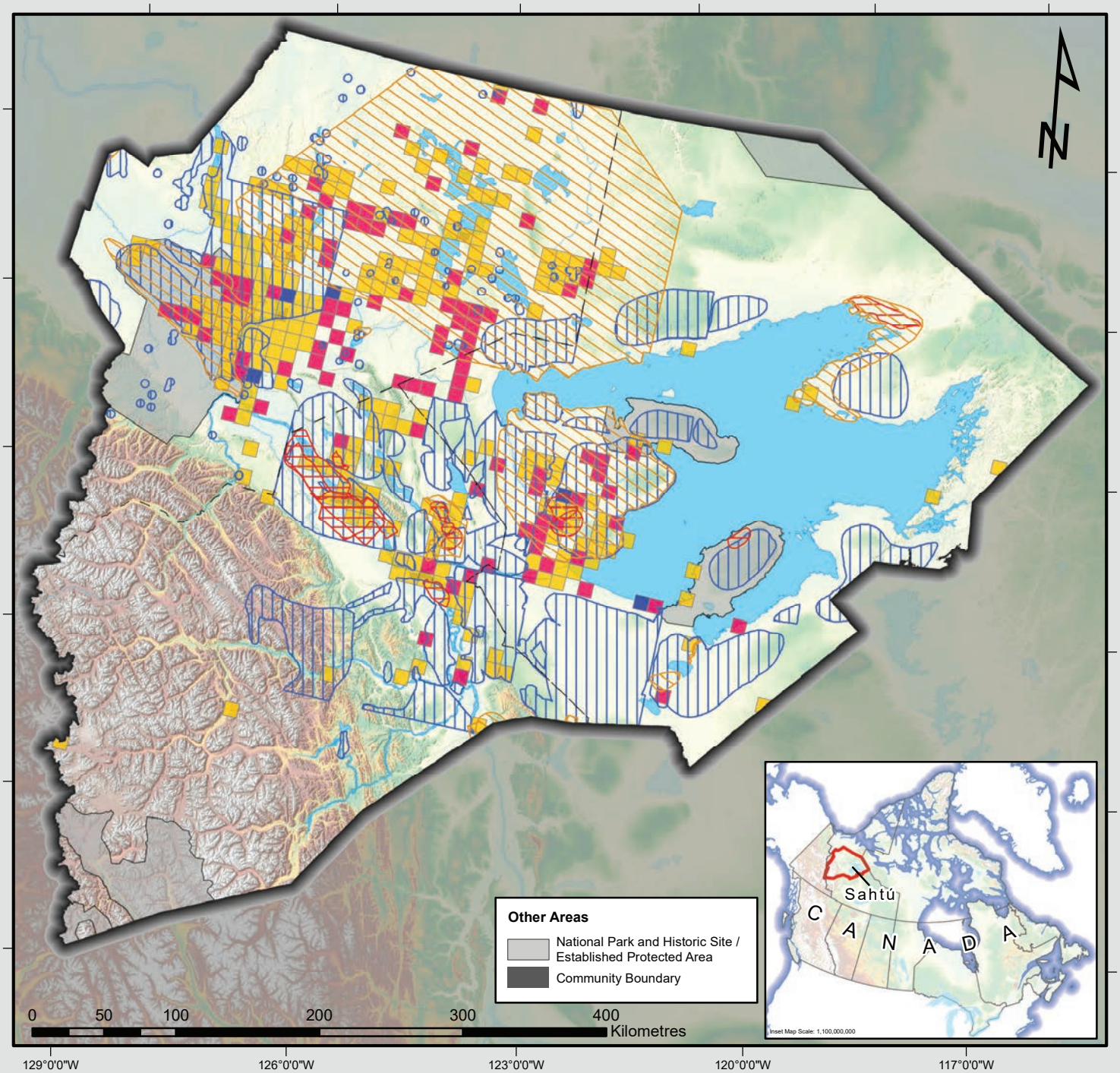
Sahtú Land Use Planning Board
P.O. Box 235
Fort Good Hope, NT
X0E 0H0
Telephone: +1 867 598 2055
Website: http://www.sahtulanduseplan.org
Email: info@sahtulanduseplan.org

Date Produced: March 2022

Document Path: \\10.117.7.122\GIS Data\Maps\Working_Files\2022\Background_Report_Maps\Fish.mxd

Sahtú Land Use Plan

Map 25 - Furbearers



Legend

- Sahtú District Boundaries
- Rivers & Lakes
- Harvest Areas (SLUPB TK)
- Habitat/Harvesting Areas (DIAND TK)
- Furbearers Important Wildlife Areas

Furbearers Harvesting (SRRB Study) (Count per 10 km^2 Grid)

- Low
- Medium
- High

Projection:

Coordinate System: NAD 1983 NWT Lambert
Projection: Lambert Conformal Conic
Datum: North American 1983
Central Meridian: -112.0000
Standard Parallel 1: 62.0000
Standard Parallel 2: 70.0000
Latitude of Origin: 0.000
Map Scale: 1:4,000,000

Please consult Appendix page 198 "Map 25. Furbearers" for map references.

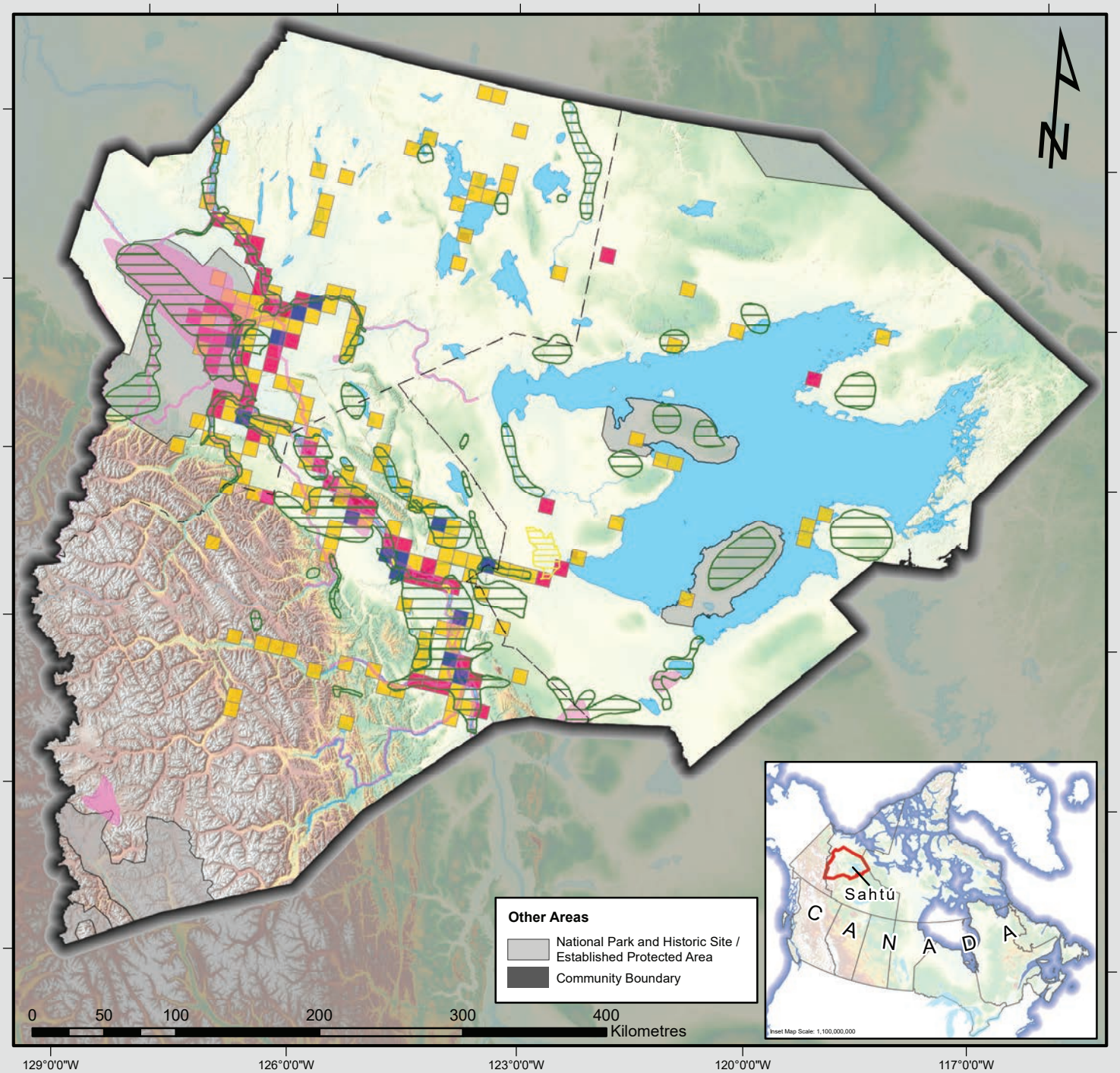
Sahtú Land Use Planning Board
P.O. Box 235
Fort Good Hope, NT
X0E 0H0
Telephone: +1 867 598 2055
Website: http://www.sahtulanduseplan.org
Email: info@sahtulanduseplan.org

Date Produced: March 2022

Document Path: \\10.117.7.122\GIS Data\Maps\Working_Files\2022\Background_Report_Maps\Furbearers.mxd

Sahtú Land Use Plan

Map 26 - Moose



Legend

- Sahtú District Boundaries
- Rivers & Lakes
- Habitat/Harvesting Area (DIAND TK)
- Special Harvesting Areas for Moose
- Important Wildlife Area

Moose Harvesting (SRRB Study) (Count per 10 km^2 Grid)

- Low
- Medium
- High

Projection:

Coordinate System: NAD 1983 NWT Lambert
Projection: Lambert Conformal Conic
Datum: North American 1983
Central Meridian: -112.0000
Standard Parallel 1: 62.0000
Standard Parallel 2: 70.0000
Latitude of Origin: 0.000
Map Scale: 1:4,000,000

Please consult Appendix page 199 "Map 26. Moose" for map references.

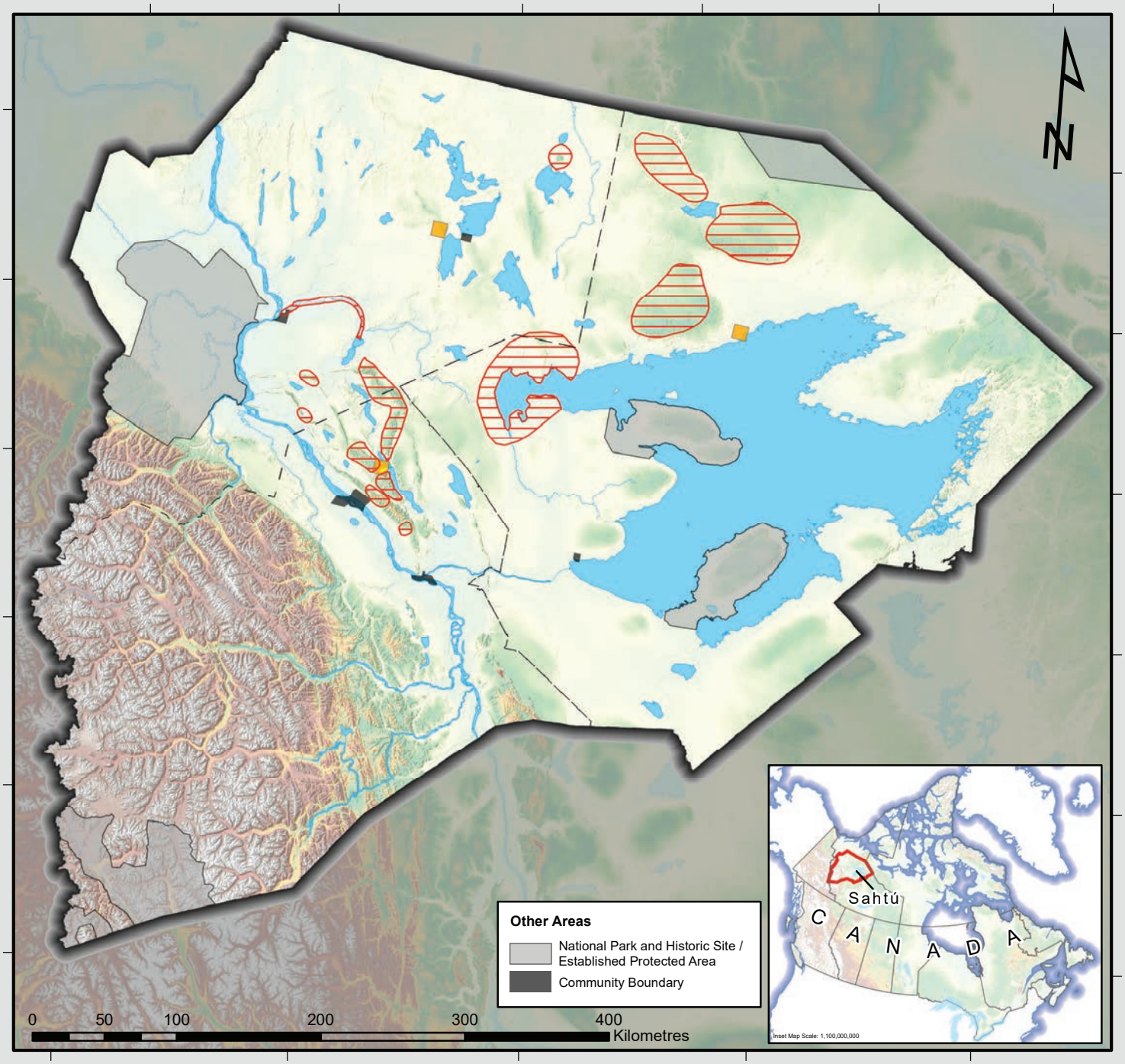
Sahtú Land Use Planning Board
P.O. Box 235
Fort Good Hope, NT
X0E 0H0
Telephone: +1 867 598 2055
Website: http://www.sahtulanduseplan.org
Email: info@sahtulanduseplan.org

Date Produced: March 2022

Document Path: \\10.117.7.122\GIS Data\Maps\Working_Files\2022\Background_Report_Maps\Moose.mxd

Sahtú Land Use Plan

Map 27 - Muskox



Legend

- Sahtú District Boundaries
- Rivers & Lakes
- Harvesting Area (SLUPB TK)
- Important Wildlife Area
- Muskox Harvesting (SRRB Study) (Masked in 10 km^2 Grid)

Projection:

Coordinate System: NAD 1983 NWT Lambert
Projection: Lambert Conformal Conic
Datum: North American 1983
Central Meridian: -112.0000
Standard Parallel 1: 62.0000
Standard Parallel 2: 70.0000
Latitude of Origin: 0.000
Map Scale: 1:4,000,000

Please consult Appendix page 200 "Map 27. Muskox" for map references.

Sahtú Land Use Planning Board
P.O. Box 235
Fort Good Hope, NT
X0E 0H0
Telephone: +1 867 598 2055
Website: http://www.sahtulanduseplan.org
Email: info@sahtulanduseplan.org

Date Produced: March 2022

Document Path: \\10.117.7.122\GIS Data\Maps\Working_Files\2022\Background_Report_Maps\Muskox.mxd

BE

CH. 3. Economic Development & Natural Environment

The Northwest Territories (NWT) has experienced an increase in investment and mineral production since the turn of the millennia. The NWT is now one of the world's largest exporters of diamonds and major new territorial investments are planned for the next few years. Mining has helped the NWT achieve the highest average incomes in Canada and the highest Gross Domestic Prouct (GDP) per business in the country, although recent years have seen a reduction in the NWT's GDP. Between 2018 and 2019, the NWT's GDP fell by 8.8%.[134] These reductions are mainly associated with reduced investment from 2018 to 2019 in mining and oil and gas extraction (reduction of 31.7%), as well as construction projects (reduction of 21.3%). [135] Presently, the economic prospects of the NWT are uncertain due to the global economic and political uncertainty.

Historically, the Sahtú Settlement Area (SSA) saw its greatest investments from the industrial sectors of oil and gas and mining. However, since 2014, oil and natural gas prices have remained low making further exploration and extraction of these resources not economically feasible. The Norman Wells oil fields are still in production although they have been in decline over the last several years.[136] As of 2020, there are no mines in the SSA, although the potential for future economic development can be significant given the minerals that have been found and mined in similar geological areas as well as the SSA's mining history.

ED& NR

A report released in 2016 titled *"Economic Futures in the Sahtu Region: A Discussion Paper on Building a Balanced Economy"* mentions the need to diversify SSA's economy, as well as makes a compelling point that a given investment in other economic sectors that are not related with non-renewable resource extraction provide more jobs to SSA residents, thus contributing to their well-being.[137] The Government of the North West Territories (GNWT) has reiterated this same point in their most recent economic review, where the strengthening and sustainability of the NWT economy requires economic diversification.[138]

As the regional commercial and administrative hub, Norman Wells is also the SSA's economic hub. Regional government offices are based here, as well as oil and gas operations related to the Norman Wells oil field. Tourism, such as canoe expeditions,

134 "Gross Domestic Product." (NWT Bureau of Statistics, 2020). https://www.statsnwt.ca/economy/gdp/June2020_GDP.pdf

135 Ibid.

136 ITI. *NWT Oil and Gas Annual Report 2020,* (ITI-GNWT, 2021). https://www.iti.gov.nt.ca/sites/iti/files/GNWT-OilGas-AnnualReport-2020-REV.pdf

137 Alternatives North. *Economic Futures in the Sahtu Region: A Discussion Paper on Building a Balanced Economy,* (Yellowknife; January 2016). https://anotheralt.files.wordpress.com/2016/02/sahtu-final-report-jan-14-2016.pdf

138 Department of Finance. Economic Review 2019-2020, Budget Address, (Department of Finance - GNWT, 2021). https://www.fin.gov.nt.ca/sites/fin/files/resources/budget_2021-economic_review.pdf

and outfitting services depart from Norman Wells. Tourism contributes to the economic system in the SSA and is expected to grow as other communities are also exploring opportunities to attract tourists, such as the community of Dél̨ nę with their work on expanding their lodge. That being said, there are many challenges related to investment in the SSA, such as its remoteness from markets, land access, a complex regulatory environment, lack of infrastructure, business services, and human resources. [139] This section will consider some of the main drivers for, and limitations to economic development in the SSA.

139 ITI. *Economic Opportunities Strategy: Connecting Businesses and Communities to Economic Opportunities*, (Yellowknife; ITI - GNWT). https://www.iti.gov.nt.ca/sites/iti/files/0004-704_econ_opp_strat_-_low-res.pdf

3.1 INDUSTRY

3.1.1.OIL AND GAS

Natural petroleum seeps in the SSA had been known by the Dene before their contact with the Europeans. The explorer Alexander Mackenzie reported of these seeps in his travel journals in the late 1700's, in which he described that the Dene used the oil to waterproof their canoes. It was not until Imperial Oil obtained leases and struck oil in Norman Wells in the 1920's that the potential of the oil field was considered. During World War II, the Norman Wells oil field captured the attention of the United States of America, who were preparing for a potential invasion from the Japanese. The Canol Project (road, pipeline, and single telecommunications line) was built through the Mackenzie Mountains to the Yukon in order to supply oil to the Alaskan coast, however, it was shut down and abandoned after one year of operation.[140]

Continued demand for oil has kept the Norman Wells oil field in operation and the SSA became a region of interest. Since the 1960s, there have been significant expenditures on oil and gas exploration and development throughout the SSA. At present, the SSA has the NWT's only producing oil field, which is one of the largest in Canada. Although it depends on market variability, the SSA has shipped over $500 million in oil a year through Enbridge Pipelines' Norman Wells to Zama City 870 km pipeline,[141] although the value of the oil shipped through the pipeline has been in decline since a peak in 2008 to $200 million in 2019.[142] As of December, 2019, the field has produced a total of 288 million barrels of oil.[143]

ED& NR

The economic benefits of hydrocarbon development in the north have been significant and include direct employment, local contracts, local hiring, spin-off employment, and other benefits. Oil and gas investment can be a significant form of economic development for SSA communities, although these benefits are also subject to fluctuating cycles of activity, which results in the present low economic activity.

In 2008, crude oil production in the NWT was worth $621,728,000 and natural gas production was $50,068,000, using 2019 dollars.[144] However, subsequent years saw a decline to $200,354,000 for crude oil production, and $9,443,000 for natural gas production. This is due to a drop in oil prices globally, as well as the declining reserves in the existing oil and gas fields. As part of this decline in global oil and gas prices, Imperial Oil announced in 2017 that the joint-venture partnership driving the Mackenzie

140 Norman Wells Historical Society. "Canol Heritage Trail." (Norman Wells, NT; 2009). Accessed May 9 2022. www.normanwellsmuseum.com

141 "Pipeline Profiles: Enbridge Norman Wells" (Canada Energy Regulator, 2021). Accessed May 9 2022. https://www.cer-rec.gc.ca/nrg/ntgrtd/pplnprtl/pplnprfls/crdl/nbrdnrmwlls-eng.html

142 "NWT Annual Mineral, Oil and Gas Production, 1999-2021" (NWT Bureau of Statistics, Government of the Northwest Territories). Accessed May 9 2022. https://www.statsnwt.ca/economy/oil-gas/

143 Ibid.

144 Ibid.

Valley Gas Project had been dissolved,[145] ending efforts to build a pipeline north to the arctic coast.

The latest *NWT Oil and Gas Annual Report*, published in 2020, indicated that there were no rights issuances processed in 2021 relating to onshore regions of the NWT, nor were there new wells drilled or seismic work conducted.[146] In terms of land dispositions, as of December 31, 2018, there were 3 exploration licences and 21 significant discovery licences active in the SSA.[147] It is important to note that since devolution in 2014, the GNWT regulates all onshore oil and gas exploration through the Office of the Regulator of Oil and Gas Operations (OROGO).[148] However, the exception to this is the Norman Wells Proven Area, which is regulated under the *Canada Oil and Gas Operations Act* (COGOA) by the Canada Energy Regulator (CER).[149] In this area, royalties are collected by the CER and then distributed to the GNWT.

OIL AND GAS POTENTIAL

Comparative and qualitative hydrocarbon potential maps of the SSA have been published by the NWT Geoscience Office (in collaboration with the Department of Industry, Tourism and Investment - ITI), to illustrate relative hydrocarbon potential in the Mackenzie Valley.[150] Areas with high hydrocarbon potential in the SSA can be found around Norman Wells, within the Mackenzie Plain and in the Keele Arch area of Colville Hills.

The total discovered recoverable oil and gas resources for the SSA has been identified as 301.6 million barrels of oil and 832.4 billion cubic feet of natural gas.[151] Discovered gas and oil field are located in the Keele Arch area of Colville Hills, at Tedji Lake, Tweed Lake, Bele, and Nogha. Together they represent total recoverable gas resources of

145 ITI. "NWT Petroleum Resources: A Path to Northern Benefits and Energy Security," (ITI-GNWT, 2018). Accessed May 9 2022. https://www.iti.gov.nt.ca/sites/iti/files/3016_-_gnwt_iti_-_nwt_petroleum_resources_web.pdf

146 NWT Oil and Gas Annual Report 2020, (ITI-GNWT, 2019). Accessed May 9 2022. https://www.iti.gov.nt.ca/sites/iti/files/GNWT-OilGas-AnnualReport-2020-REV.pdf

147 NWT Oil and Gas Annual Report 2018, (ITI-GNWT, 2019). Accessed May 9 2022. https://www.iti.gov.nt.ca/sites/iti/files/td_439-183.pdf

148 "NEB's Role in the North and Offshore", (National Energy Board, Government of Canada, 2016). https://www.cer-rec.gc.ca/bts/nws/rgltrsnpshts/2016/17rgltrsnpsht-eng.pdf

149 Ibid.

150 "Northwest Territories Hydrocarbon Potential 2018", (ITI-GNWT, 2018). Accessed May 9 2022. https://www.iti.gov.nt.ca/sites/iti/files/hydrocarbon_potential_landscape_v30_geopdf_feb15_2018.pdf

151 Drummond, Kenneth J. *Ultimate Oil and Gas Resource of the Sahtu and Gwich'in Settlement Areas*, (April 2008). Accessed May 9 2022. http://www.drummondconsulting.com/GS_TOC.pdf

832.4 billion cubic feet.[152] Natural gas wells are identified near Colville Lake as well as directly south of Norman Wells.

THE CANOL SHALE DISCOVERY[153]

The Canol Shale discovery is an opportunity that can lead to significant growth in the region. A Sahtu Exploration Readiness Session was held in September 2012 to bring stakeholders together to discuss community benefits and challenges. Dene and Métis leadership, industry, and territorial and federal governments discussed the potential of exploration licences and development activities for the SSA. Participants agreed that shale oil exploration would produce short-term benefits, however the real value would lie in the long-term production potential it represents. If done properly, a large-scale production project in the SSA could create life-long employment in the region. Since then, there have been exploration licences related to the Canol Shale, although low oil and gas prices have put a halt to any work related to the Canol Shale Discovery due to the high costs of doing business in the SSA.

See Map 40. Oil and Gas Rights.

RIGHTS ISSUANCE PROCESS

Since devolution in 2014, the Department of Industry, Tourism and Investment (ITI) of the GNWT issues explorations rights in the onshore of the Northwest Territories. Exploration rights are issues pursuant to the *Petroleum Resources Act* (PRA), as shown in the table that follows.[154]

TABLE 14. OIL AND GAS RIGHTS ISSUANCE PROCESS IN THE NWT

	Rights Issuance Process Pursuant to the Petroleum Resources Act (PRA)
Step 1	Expression of Interest by Communities or Companies
Step 2	Request for Input from Indigenous Government and Indigenous Organizations and Other Government Agencies and Departments
Step 3	Call for Bids
Step 4	Issuance and Management of Interests

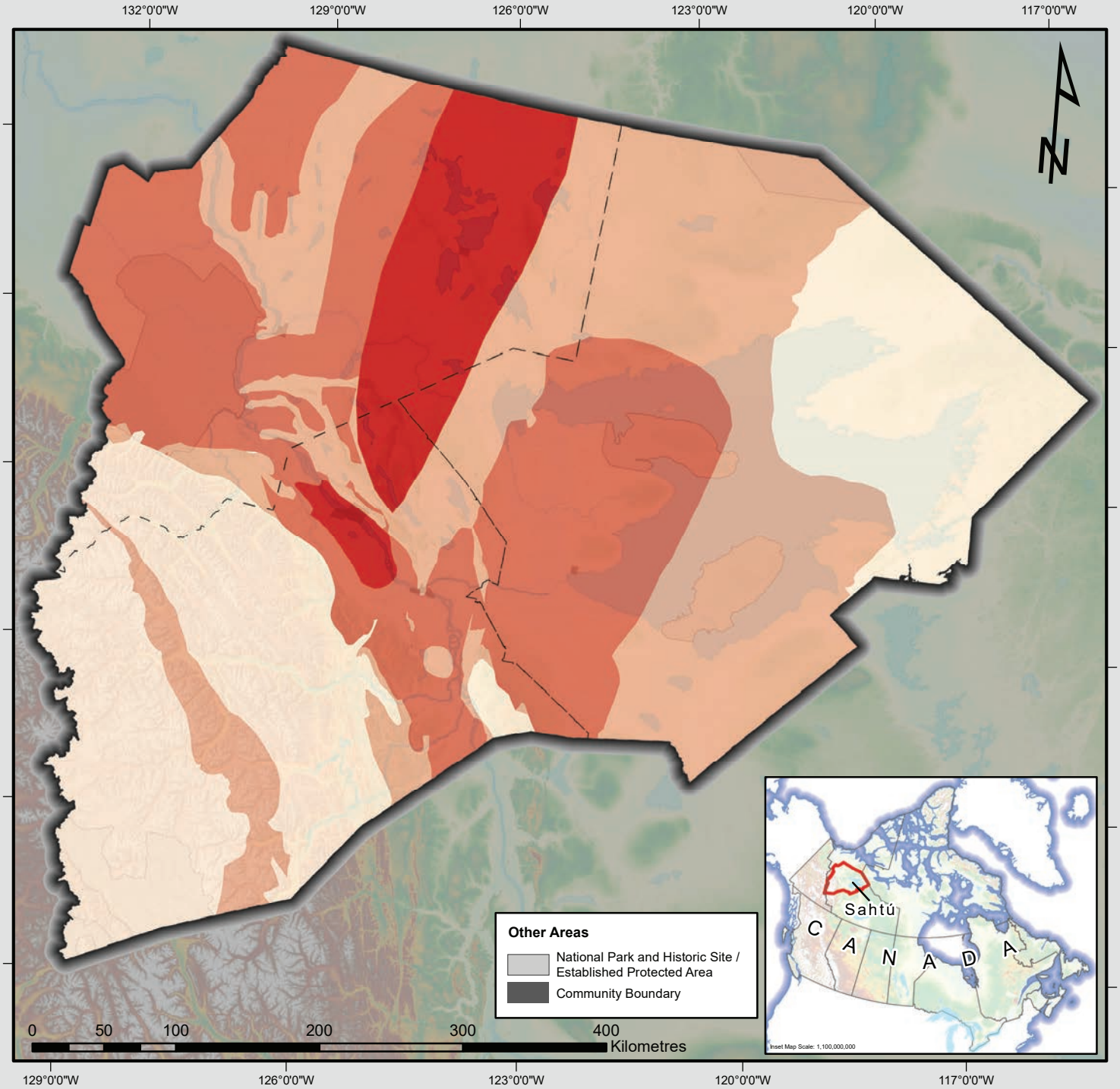
152 Ibid.

153 "Sahtu Exploration Readiness Session: Getting ready for a productive, healthy and prosperous work season", Prepared by Tait/CC. (ITI-GNWT, September 25-26, 2012). Accessed May 9 2022. https://www.ntassembly.ca/sites/assembly/files/13-02-13td15-174.pdf

154 "Oil and Gas Rights Management, Rights Issuance", (ITI-GNWT). Accessed May 9 2022. https://www.iti.gov.nt.ca/en/services/oil-and-gas-rights-management/rights-issuance

Sahtú Land Use Plan

Map 28 - Oil & Gas Potential



Legend

- Sahtú District Boundaries
- Rivers & Lakes

Oil & Gas Potential

- Very Low/Low
- Low to Moderate/Moderate
- Moderate to High/High
- Very High

Projection:

Coordinate System: NAD 1983 NWT Lambert
Projection: Lambert Conformal Conic
Datum: North American 1983
Central Meridian: -112.0000
Standard Parallel 1: 62.0000
Standard Parallel 2: 70.0000
Latitude of Origin: 0.000
Map Scale: 1:4,000,000

Please consult Appendix page 200 "Map 28. Oil & Gas Potential" for map references.

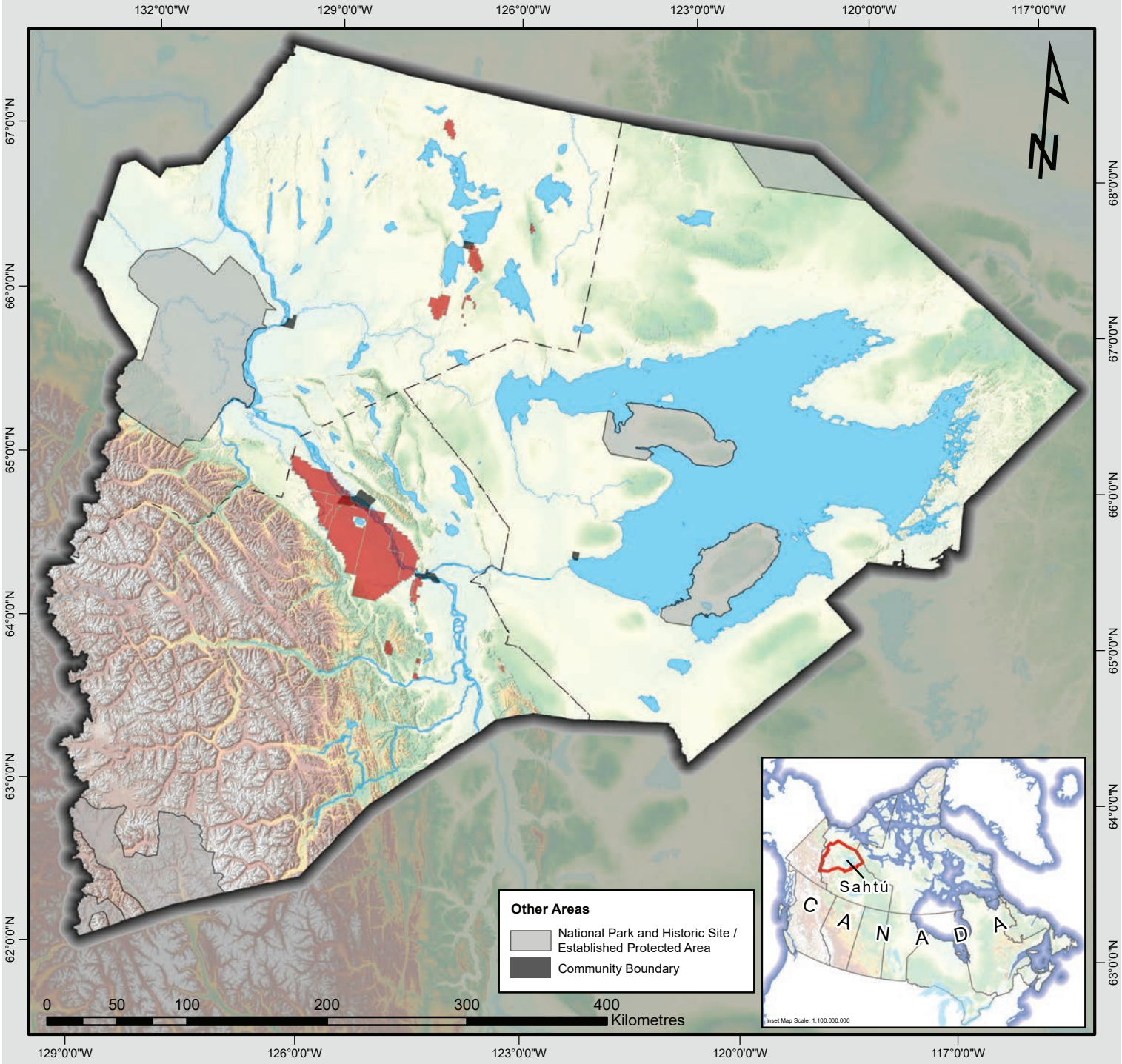
Sahtú Land Use Planning Board
P.O. Box 235
Fort Good Hope, NT
X0E 0H0
Telephone: +1 867 598 2055
Website: http://www.sahtulanduseplan.org
Email: info@sahtulanduseplan.org

Date Produced: March 2022

Document Path: \\10.117.7.122\GIS Data\Maps\Working_Files\2022\Background_Report_Maps\Oil_Gas_Potential.mxd

Sahtú Land Use Plan

Map 29 - Oil & Gas Rights



Legend

- Sahtú District Boundaries
- Rivers & Lakes

Oil & Gas Rights

- Significant Discovery Licence

Projection:

Coordinate System: NAD 1983 NWT Lambert
Projection: Lambert Conformal Conic
Datum: North American 1983
Central Meridian: -112.0000
Standard Parallel 1: 62.0000
Standard Parallel 2: 70.0000
Latitude of Origin: 0.000
Map Scale: 1:4,000,000

Please consult Appendix page 201 "Map 29. Oil & Gas Rights" for map references.

Sahtú Land Use Planning Board
P.O. Box 235
Fort Good Hope, NT
X0E 0H0
Telephone: +1 867 598 2055
Website: http://www.sahtulanduseplan.org
Email: info@sahtulanduseplan.org

Date Produced: March 2022

Document Path: \\10.117.7.122\GIS Data\Maps\Working_Files\2022\Background_Report_Maps\OilGasRights.mxd

LICENCES AND APPLICATIONS FOR OIL AND GAS DEVELOPMENT

The following licences may be granted on public land parcels. The general progression of rights from oil and gas resource exploration to extraction is described as a flowchart. See Figure 10. Rights Management Process on page 118.

TABLE 15. STAGES OF OIL AND GAS EXPLORATION[155] AND DEVELOPMENT[156]

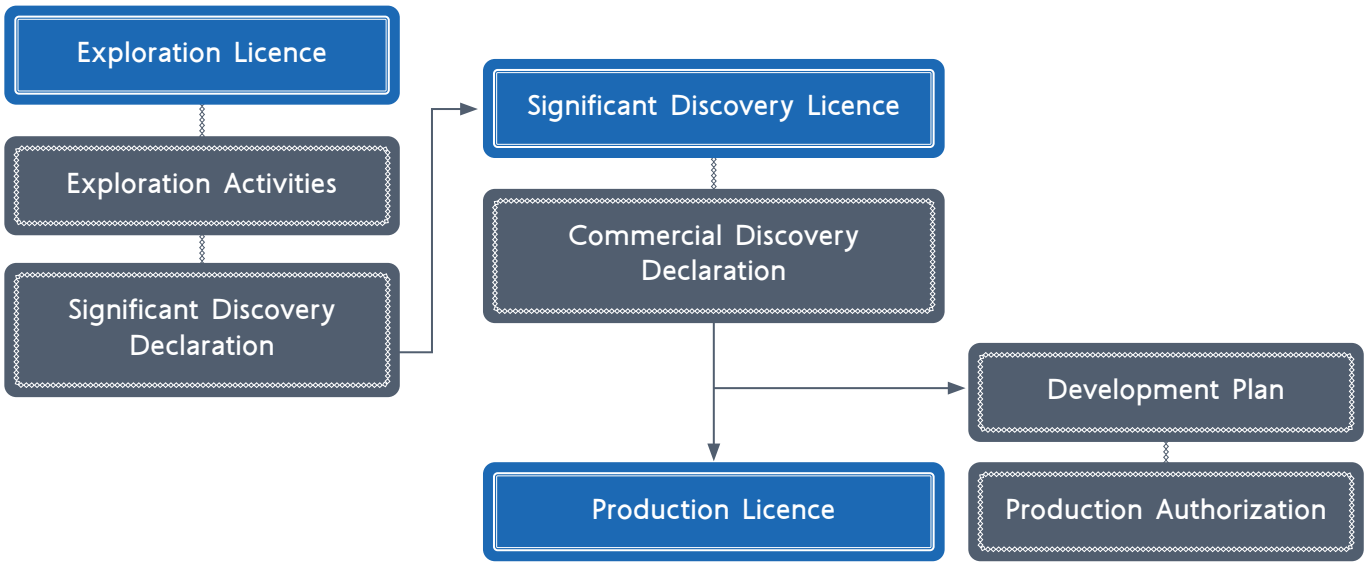
Licences & Applications	Stages of Oil and Gas Exploration and Development
Exploration Licence (EL) Duration: 8-9 years (in 2 terms)	▪ ELs give a company: • The right to explore, the exclusive right to drill and test for oil and gas; • The exclusive right to develop lands for oil and gas; • The exclusive right to obtain a Production Licence.
	• Term 1: · At the end of the Term 1 (4-5 years) the proposed dollar value of work must be spent, and one well must be drilled to continue into Term 2; · Drilling one well in the north can cost $10-15 million. • Term 2: · The company pays rental costs to the Crown in $/ha; · Further work is not required but a company may choose to continue to do seismic and drill wells.
	▪ If a well is dry the company can relinquish its EL with no penalty (assuming that it has already spent its work commitment dollars). ▪ The term of an EL must not exceed nine years from the effective date of the licence and may not be extended or renewed.
Significant Discovery Declaration (SDD)	▪ If the company makes a find, it sends a Significant Discovery Application (SDA) to the Regulator ▪ Upon approval, the Government of the Northwest Territories Regulator of Oil and Gas Operations (Regulator) or his/her delegate issues a Significant Discovery Declaration (SDD) ▪ The Government of the Northwest Territories (as distinct from the Regulator) issues the Significant Discovery Licence (SDL)

Licences & Applications	Stages of Oil and Gas Exploration and Development
Significant Discovery Licence (SDL) Duration: 15 years, renewable	▪ Once an SDL is issued, a company stops paying rent. ▪ An SDL is effective for a term of 15 years, which can be extended. ▪ A Significant Discovery Licence (SDL) gives a company: • The right to explore, the exclusive right to drill and test for oil and gas; • The exclusive right to develop lands for oil and gas; • The exclusive right to obtain a Production Licence.
Commercial Discovery Declaration (CDD)	▪ When a company intends on producing oil or gas it files a Commercial Discovery Application (CDA) with the Government of the Northwest Territories Regulator of Oil and Gas Operations (Regulator). ▪ The Regulator makes a commercial discovery declaration (CDD). ▪ The Government of the Northwest Territories issues a Production Licence (PL).
Production Licence (PL) Duration: 25 years, renewable	▪ The Production Licence (PL) allows the company to sell the product they are extracting. ▪ PLs are valid for 25 years and are renewable. ▪ A Production Licence (PL) gives a company: • The right to explore, the exclusive right to drill and test for oil and gas; • The exclusive right to develop lands for oil and gas; • The exclusive right to produce oil and gas from those lands; • Title to petroleum produced. ▪ On the expiration of the term of a PL, if oil and gas is being produced commercially, the term is extended for such period thereafter during which commercial production of oil and gas continues.

155 "Petroleum Resources Act," (Government of the Northwest Territories, 2019). https://www.justice.gov.nt.ca/en/files/legislation/petroleum-resources/petroleum-resources.a.pdf

156 "Questions & Answers, Significant Discovery Declarations and Directly Affected Persons", (Office of the Regulator of Oil and Gas Operations, Government of the Northwest Territories). https://www.orogo.gov.nt.ca/sites/orogo/files/sdd_questions_and_answers.pdf

FIGURE 10. RIGHTS MANAGEMENT PROCESS



3. 1. 2. MINERALS AND MINING

ED& NR

The SSA covers an immense area with diverse geological attributes and an equally diverse collection of mineral prospects and deposits.

Mining and mineral exploration have taken place in the eastern part of the Great Bear Lake & Watershed (GBL&W) since at least 1930. Eldorado was the NWT's first modern mining operation, opening in 1933 by producing radium, then uranium, and many years later, silver. Other mines have followed in areas around Great Bear Lake (GBL), such as Port Radium, Echo Bay, Contact Lake, Terra, Northrim, Norex, and Smallwood Lakes. Today, these mines are no longer operational, and currently there are no mines in operation in the SSA.

Geological mapping of mineral potential is not as easily modelled as an areas hydrocarbon potential. Upon consultation with the NWT Geoscience Office, the SLUPB has chosen to rely on a known metallic mineral commodity occurrence map. It is generally accepted that there is significant mineral potential within the Mackenzie Mountains, with tungsten, emeralds, and other minerals discovered in this area of the SSA.

A number of active mineral claims and leases have existed on GBL next to the closed mines, although most of these have since expired. As of July 2020, there are only 2 active mineral claims around GBL in the SSA and no active prospecting permits.[157] The chances of further findings in the area are relatively high, although market prices dictate the viability of continuing prospecting and staking claims in the SSA. With very little activity in the SSA at present, it is not expected that this will change for many years, especially since the exploration phase has very low impact and the odds of

157 "Mineral Claims and Prospecting Permits", (NWT Mining Recorder's Office, Government of the Northwest Territories, 2020).

exploration success is also very low. One of the ways to increase the odds of exploration success is to maximize access to the land for exploration through infrastructure development.

GEOLOGY AND METALLIC MINERALS[158]

A. BEAR PROVINCE MINERAL VALUES

1. GREAT BEAR MAGMATIC ZONE

There are two significant past-producing mining regions in the Great Bear magmatic zone:

- Silver Bear region, including the Terra and Norex mines;
- Echo Bay region, which includes Eldorado, El Bonanza, and Contact Lake mines.

This region also hosts a number of mineral prospects or showings. Many of these including the past-producing mines, are considered part of the iron oxide copper-gold-porphyry-five-element-vein (epithermal) spectrum of deposits.

These types of deposits can contain:

- silver and uranium;
- low-grade copper (less than about 4% copper per tonne of rock);
- significant resources of gold, cobalt, bismuth, zinc, nickel, and lead; and
- accessory vanadium, radium and rare earth elements.

Past-producing mines and a number of known prospects means the geology is favourable for these types of mineralization. The area is accessible by boat on GBL. Extensive past-mining and numerous known mineral prospects suggest that the area is highly prospective for new finds or for advancing known mineral prospects.

2. COPPERMINE HOMOCLINE

The Coppermine Homocline is composed mostly of ancient sedimentary rocks with lesser volcanic rocks that overly or cover the Great Bear magmatic zone.

Known uranium prospects exist in areas such as Caribou Point and the Leith Peninsula. These are of the sandstone-hosted or unconformity-related types and are comparable to the geology of the uranium-rich, world-class Athabasca Basin in Saskatchewan. Historical mineral exploration in this region for these types of uranium deposits has not been significant enough to provide further information.

158 Luke Ootes, Metallogenist. Personal communication. (Yellowknife, Courtesy of NWT Geoscience Office.)

Detailed mineral exploration led to a new find of diamondiferous kimberlite northeast of GBL in 2007. Production of diamonds in this region is currently uneconomic, however a discovery such as this one is of importance because diamondiferous kimberlite was not thought to occur in this region. As such, other diamond prospects are likely to be found in the area. Other mineralization types such as at least one Redbed-hosted copper occurrence and a Platinum Group Element occurrence are known in the region.

B. INTERIOR PLATFORM MINERAL VALUES

The Interior Platform covers a part of the Bear Province. Similar prospects to those in the rest of the Bear Province could occur underneath the sedimentary cover that is representative of the Interior Platform. The same can be said for a number of other mineral deposit types (and commodity types), including diamondiferous kimberlite. The general consensus in the mineral industry is that new world-class mineral deposits will be found in areas such as the Interior Platform.

At present there are no known mineral prospects other than coal in the Interior Platform of the SSA, although companies have been actively exploring for diamonds. The lack of known mineral prospects is due to a lack of historical mineral exploration and prospecting.

If mineralization exists, one could expect a Mississippi Valley-type lead-zinc deposit such as what had been found at Pine Point, an old mining town just south of Great Slave Lake. Here, they used surface and subsurface exploration techniques. A number of other mineralization types could occur in the Interior Platform, although such discoveries have not been made in the SSA.

C. MACKENZIE AND SELWYN MOUNTAIN MINERAL VALUES

A significant number of mineral prospects have been identified in the Mackenzie and Selwyn Mountains. The prospects range from locally observed mineralization to world-class deposits. They can be categorized into at least four distinct mineral deposit types:

1. Redbed or sediment-hosted copper-silver, predicatively hosted in strata that form a north-south belt in the central Mackenzie Mountains.

   E.g. Coates Lake (Dehcho region) is the best-known example of this deposit type. The extent of the belt and known occurrences in the SSA indicate it could be an attractive exploration area.

2. Carbonate-hosted zinc and lead occur throughout the Mackenzie Mountains. Most of these prospects are structurally hosted. Predicting where they may occur is generally difficult and requires detailed on-the-ground bedrock mapping and geophysical surveys.

   E.g. The Gayna River deposit in the western part of the SSA and the Prairie Creek deposit in the Dehcho region, currently in the mine planning stage. Prospects of this kind are scattered throughout the SSA and more are continually found during periods of active exploration.

3. Shale-hosted zinc and lead occurs within the Selwyn Mountains, near the Yukon border, in the southwestern extent of the SSA. These types of deposits generally contain large amounts of zinc. While they are not historically mined, work is in progress in the Yukon to move the Howard's Pass zinc deposit into production.

   E.g. Howard's Pass is currently the largest undeveloped zinc deposit in the world. Most work has been completed in the Yukon but geological evidence indicates that this deposit continues into the NWT with potentially significant zinc mineralization in the SSA.

4. Skarn-hosted tungsten (and copper, zinc) deposits and prospects are in the Selwyn Mountains, usually within the vicinity of the Yukon border.

   E.g. The Cantung mine, located in the Dehcho region, is currently the western world's largest producer of tungsten. The mine's operations depend on global market conditions for tungsten, with the mine opening and shutting at various times throughout its history. The Mactung deposit in Yukon is the western world's largest tungsten deposit, with the mine currently being in the planning phase. Parts of the deposit are found in the SSA.

Other deposits in the SSA portion of the Mackenzie Mountains include emerald mineralization near Mountain River, and the possibility of other gemstone occurrences. Much of the mineralization in this area remains unknown, as few areas of the mountains have been explored or prospected.

ED& NR

STAGES OF MINERAL EXPLORATION AND DEVELOPMENT

The process of mining in the SSA is subject to the *Mining Regulations* (established under the *Northwest Territories Lands Act*) as well as the *Sahtu Dene and Métis Land Claim Agreement* (*SDMCLCA*). These regulations apply to all lands in the NWT, excluding lands listed in Schedule 4 of the *NWT Devolution Agreement* to which the federal *Northwest Territories Mining Regulations* will apply. There are five distinct stages of mining.

Progressive reclamation includes actions that can and should be taken during mining and mineral exploration operations before permanent closure (to take advantage of cost and operating efficiencies by using the resources available from project operations). This reduces the overall reclamation costs, and shortens the time for achieving reclamation objectives, while providing valuable experience on the effectiveness of certain measures which might be implemented during permanent closure.

Progressive reclamation enhances environmental protection, minimizes the duration of environmental exposure, shortens the timeframe for achieving the reclamation goal and objectives, and reduces the financial security requirement. Any progressive reclamation should be an outgrowth of the overall stated closure objectives.

TABLE 16. FIVE STAGES OF MINERAL EXPLORATION AND DEVELOPMENT[159]

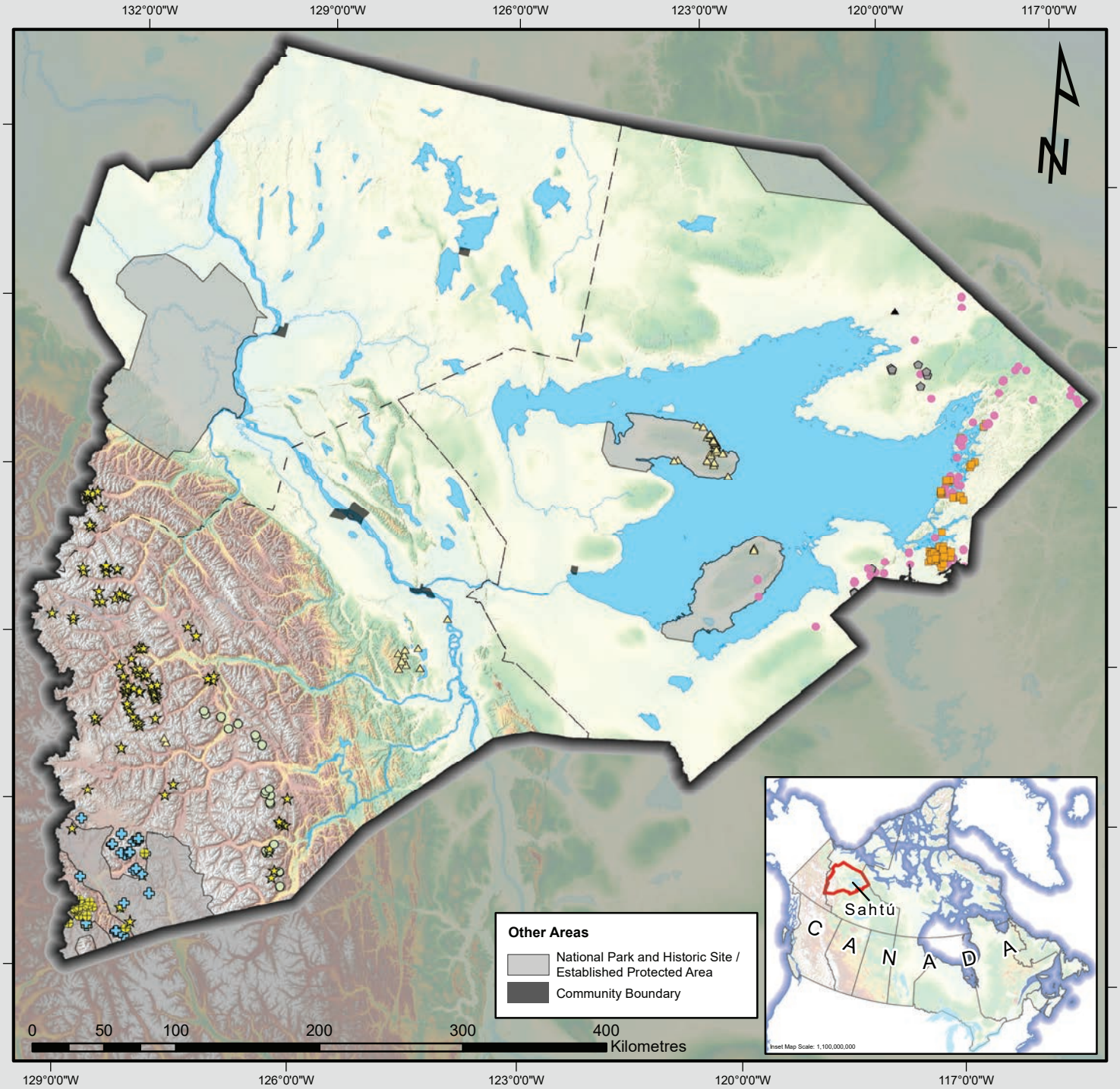
Stages of Mineral Exploration and Development	Description
Stage 1: Prospecting & Exploration Cost: About $1.75 million/project/yr Duration: 3-5 yrs	The search for mineral deposits has the highest financial risk but is the least expensive and involves activities with minimal impacts. Activities include: ▪ office work, legal and political analysis; ▪ airborne and satellite survey and data collection; ▪ geological and geophysical prospecting and surveys on the ground; ▪ trenching, cutting line grids, claim staking; ▪ detailed mapping, drilling ground surveys, initial environmental baseline work. Once a mineral claim or lease is obtained, more intensive and expensive exploration work will occur to identify a mineral deposit.
Stage 2: Discovery & Advanced Exploration Cost: About $5 million/project/yr Duration: 5-15 yrs Success: 1 out of 200 reach Development	At this stage permits, leases and licences are required and a project may be referred for environmental assessment. Most projects never get past this stage. In the case where a mine does develop it may take 10-15 years or more. Northern operations face challenges such as limited infrastructure (ie. roads, power) the cost of fuel and transportation, materials sourcing and finding adequate labour. Activities include: ▪ mapping, underground sampling, drilling, small-scale open pits or on-site processing facilities, environmental site survey; ▪ pilot tests and engineering, cost estimates; ▪ market studies and risk analysis; ▪ due diligence review, evaluation of geological, engineering, environmental, economic, legal and site data.

Stages of Mineral Exploration and Development	Description
Stage 3: Development/ Construction Cost: Can range from $500 million to $1.5 billion Duration: 3-5 yrs or more	This is the most costly phase of the mining cycle. At this stage the company raises money for mine construction and development. A company will commit to construction once all the details of the permitting and regulatory requirements are known. The feasibility study is returned to the company stakeholders for approval. This may take several years especially if there are significant changes.
Stage 4: Operation & Production Cost: Companies begin to make a return on their investment	Mining companies consider a 10-year life to allow adequate time to recover exploration and construction expenses. The lifespan of a mine depends on the amount (reserves) and quality (grade) of the mineral, metal or gems and whether operation is still profitable. Activities include: · surface and/or underground mining, milling, and processing of metal, ore or diamonds; · environmental monitoring.
Stage 5: Reclamation Cost: upwards of $150 million Duration: 2-10 years or more	All existing and new mines in the NWT must have closure and reclamation plans and are required to set aside in a trust the total estimated reclamation costs. Activities include: · Environmental restoration and monitoring.

159 INAC. *Citizen's Guide to Mining in the NWT 2006*, (Ottawa: INAC, Mineral and Petroleum Resources Directorate - DIAND, 2006). AANDC Catalogue No. R2-321/2006E; Minister of Public Works and Government Services Canada. *Citizen's Guide to Mining in the NWT 2010*, (Ottawa: INAC, 2010). Catalogue No. R2-321/2010E-PDF; INAC. *Stages of Mineral Exploration & Development in the Northwest Territories,* (Ottawa: INAC, 2007). AANDC Catalogue No. R2-466/2007

Sahtú Land Use Plan

Map 30 - Known Mineralization



Legend

- Sahtú District Boundaries
- Rivers & Lakes

Mineralization

- Coal
- Diam
- IOCG and Related
- Sandstone-hosted U
- Unclassified
- SEDEX
- Intrusion-related
- Carbonate-hosted Zn-Pb
- Coal
- Red-bed/ kupferschiefer-type Cu

Projection:

Coordinate System: NAD 1983 NWT Lambert
Projection: Lambert Conformal Conic
Datum: North American 1983
Central Meridian: -112.0000
Standard Parallel 1: 62.0000
Standard Parallel 2: 70.0000
Latitude of Origin: 0.000
Map Scale: 1:4,000,000

Please consult Appendix page 201 "Map 30. Known Mineralization" for map references.

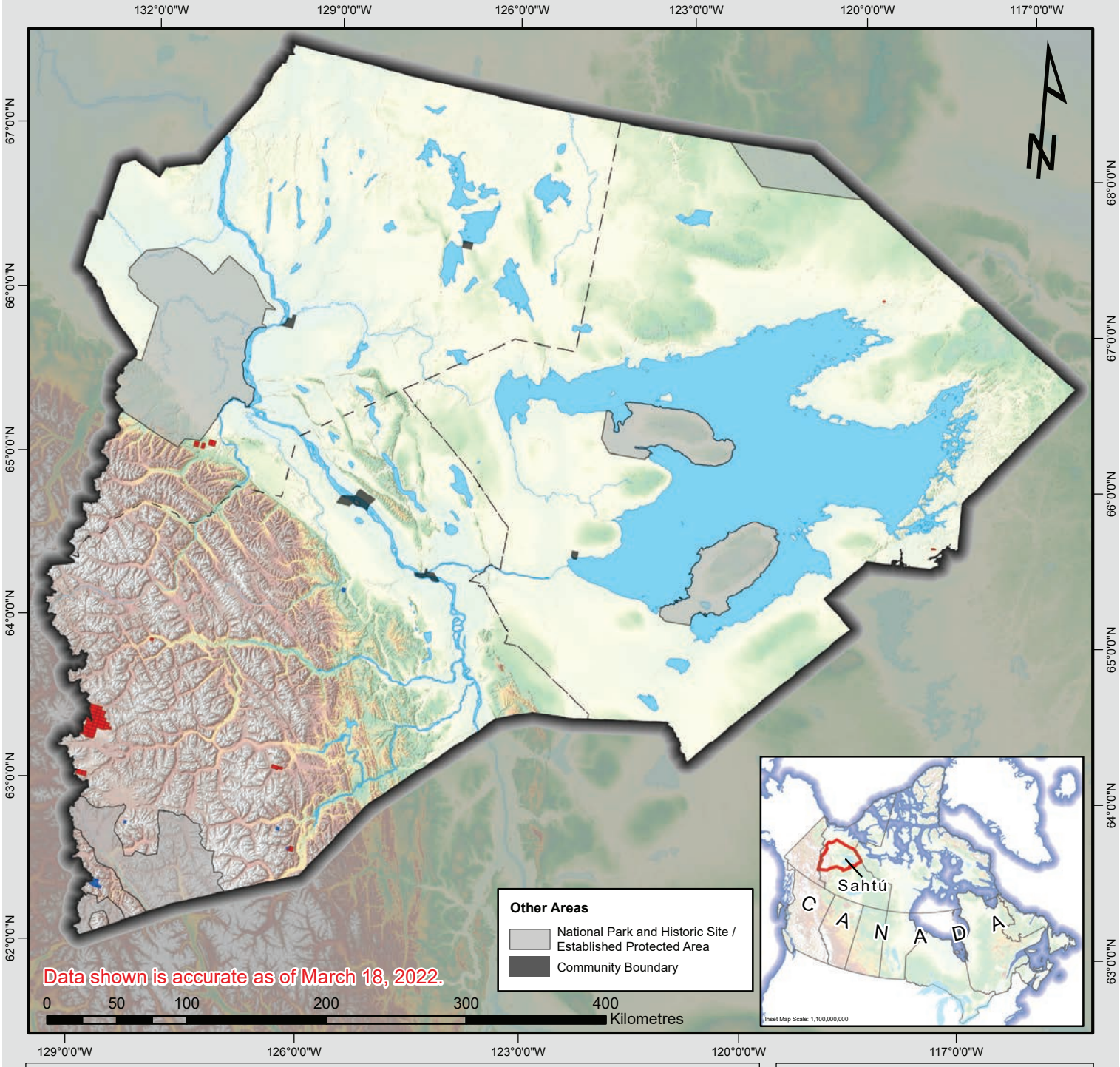
Sahtú Land Use Planning Board
P.O. Box 235
Fort Good Hope, NT
X0E 0H0
Telephone: +1 867 598 2055
Website: http://www.sahtulanduseplan.org
Email: info@sahtulanduseplan.org

Date Produced: March 2022

Document Path: \\10.117.7.122\GIS Data\Maps\Working_Files\2022\Background_Report_Maps\Known_Mineralization.mxd

Sahtú Land Use Plan

Map 31 - Active Mineral Claims and Mineral Leases



Legend

- Sahtú District Boundaries
- Rivers & Lakes
- Active Mineral Claims
- Active Mineral Leases

Projection:

Coordinate System: NAD 1983 NWT Lambert
Projection: Lambert Conformal Conic
Datum: North American 1983
Central Meridian: -112.0000
Standard Parallel 1: 62.0000
Standard Parallel 2: 70.0000
Latitude of Origin: 0.000
Map Scale: 1:4,000,000

Please consult Appendix page 202 "Map 31. Active Mineral Claims and Mineral Leases" for map references.

Sahtú Land Use Planning Board
P.O. Box 235
Fort Good Hope, NT
X0E 0H0
Telephone: +1 867 598 2055
Website: http://www.sahtulanduseplan.org
Email: info@sahtulanduseplan.org

Date Produced: March 2022

Document Path: \\10.117.7.122\GIS Data\Maps\Working_Files\2022\Background_Report_Maps\Mineral_Claims_Leases.mxd

LICENCES AND APPLICATIONS

The *NWT Mining Regulations* operate under a "free entry system". Any person with a prospecting permit can stake a claim. Prior consultation with First Nations or the public is not necessary before a proponent can explore or before NWT Mining Recorder's Office grants a permit or claim. The lack of consultation has been an issue for First Nations who object to this system. The *NWT Mining Regulations*, pursuant to the *Northwest Territories Lands Act*, came into force on April 1, 2014 as part of the devolution of powers from the Government of Canada to the GNWT. These regulations mirrored the regulations that were in place pre-devolution.

There are efforts at present to modernize the mining regulations in the NWT through the *Mineral Resources Act*, which was presented as a Bill in the legislature in early 2019. [160] This Act would give the ITI minister powers to set regulations, as well as require mining companies to sign benefits agreements with Indigenous governments affected by new mining projects. NWT residents and stakeholders were given the opportunity to provide comments on this piece of proposed legislation. The proposed *Mineral Resources Act* is not intended to be a piece of comprehensive legislation. Instead, it is intended to be one piece in the NWT's comprehensive land and resource co-management regulatory system. The intent is that it will not alter laws, regulations, and agreements already in place governing mining and exploration activities, which include the *Mackenzie Valley Resource Management Act (MVRMA)*, the *Northwest Territories Lands Act*, the *Mine Health and Safety Act*, the *Fisheries Act*, the *Species at Risk Act*, and the *Waters Act*.[161] As of mid-2020, work is still being done to the proposed *Mineral Resources Act*, and is legislation that has yet to receive Royal Assent.

ED& NR

As per S 21.4.6 (b) of the *SDMCLCA*, persons who have a right to prospect for minerals and to locate claims who do not require a land use permit or water licence can have access to Sahtú lands and waters provided that they notify the designated Sahtú organization at least seven days in advance.

160 "Understanding the Proposed Mineral Resources Act", (ITI-GNWT, 2019). Accessed May 9 2022. https://www.iti.gov.nt.ca/en/UnderstandTheMRA

161 "The Mineral Resources Act: What Can It Do?", (Government of the Northwest Territories). Accessed May 9 2022. https://www.gov.nt.ca/sites/flagship/files/documents/backgrounder_-_mineral_resources_act_what_can_it_do.pdf

TABLE 17. LICENCES AND APPLICATIONS FOR MINERAL EXPLORATION AND DEVELOPMENT

Licences and Applications	Description
Prospecting Permit	▪ Anyone with a valid prospector's licence can apply for a prospecting permit which gives them the exclusive right to explore for and stake mineral claims in a specific area for a period of 3-5 years. ▪ During this time a minimum amount of work (with a specific dollar value) must be done.
Staking a Claim	▪ Individual mineral claims may not be larger than 2,582.5 acres and last a maximum of 10 years. ▪ Work must be done on mineral claims to keep them valid. The minimum work to be done is calculated per acre.
Mineral Leases	▪ Holders of a mineral claim can apply for a Mineral Lease if they have done the required work - calculated at a minimum of $10 per acre. ▪ A legal survey by the Dominion Land Surveyor must also be completed. ▪ Leases have to be obtained prior to "production" of mineral interests.

3. 1. 3. GRANULAR DEPOSITS[161]

Natural Resources Canada has mapped the distribution and thickness of potential surface and subsurface granular aggregate resources in the NWT. Gravel, sand, crushed rocks, and bedrock are all different types of granular aggregates used by proponents on the land. Granular resources are crucial to the development of infrastructure such as roads, airstrips, petroleum wells, building pads, pipelines, and concrete production.

The data used in Natural Resources Canada's study was mostly collected in the 1960s and the early 1970s by the oil and gas industry. During seismic operations, shotholes are drilled into the ground to set charges which produce seismic data. Operators logged the type of material they were drilling through, where gravel was a sediment layer that was well recorded. In British Columbia, shothole records were found to be an effective method to identify potential granular aggregate deposits.

See Map 32 - Granular Deposits on page 129

162 Smith, I.R., Lesk-Winfield, K. "An integrated assessment of potential granular aggregate resources in Northwest Territories. Discussion." (Ottawa: Geological Survey of Canada & Natural Resources Canada, 2009). Open File 6058, 1 DVD.

The GNWT created a *Granular Resource Directory* (GRD) as part of a territory-wide granular strategy committed to conservation, sustainability, and effective management of the resources in the NWT.[163] The Directory is intended to provide guidance in the identification, acquisition, usage, and management of these strategic and valuable resources. The effective management of these resources will allow for future infrastructure development by communities, government and for industry.

The GRD identifies a number of potential granular aggregate deposits as "gravel", "gravel and sand", or "sand", while distinguishing whether deposits occurred at the surface or the subsurface. Bedrock, particularly competent sandstone and limestone, were not included in the analysis. There may be depth estimate errors and location uncertainties. Thickness and vertical depths of potential deposits are approximations. In terms of location, it is not clear whether the sites were marked by latitude and longitude or simply hand drawn on the maps.

Although they are reasonably reliable, the shothole records should be treated as potential occurrences and ought to be exploration targets before they are integrated into resource assessments and development strategies.

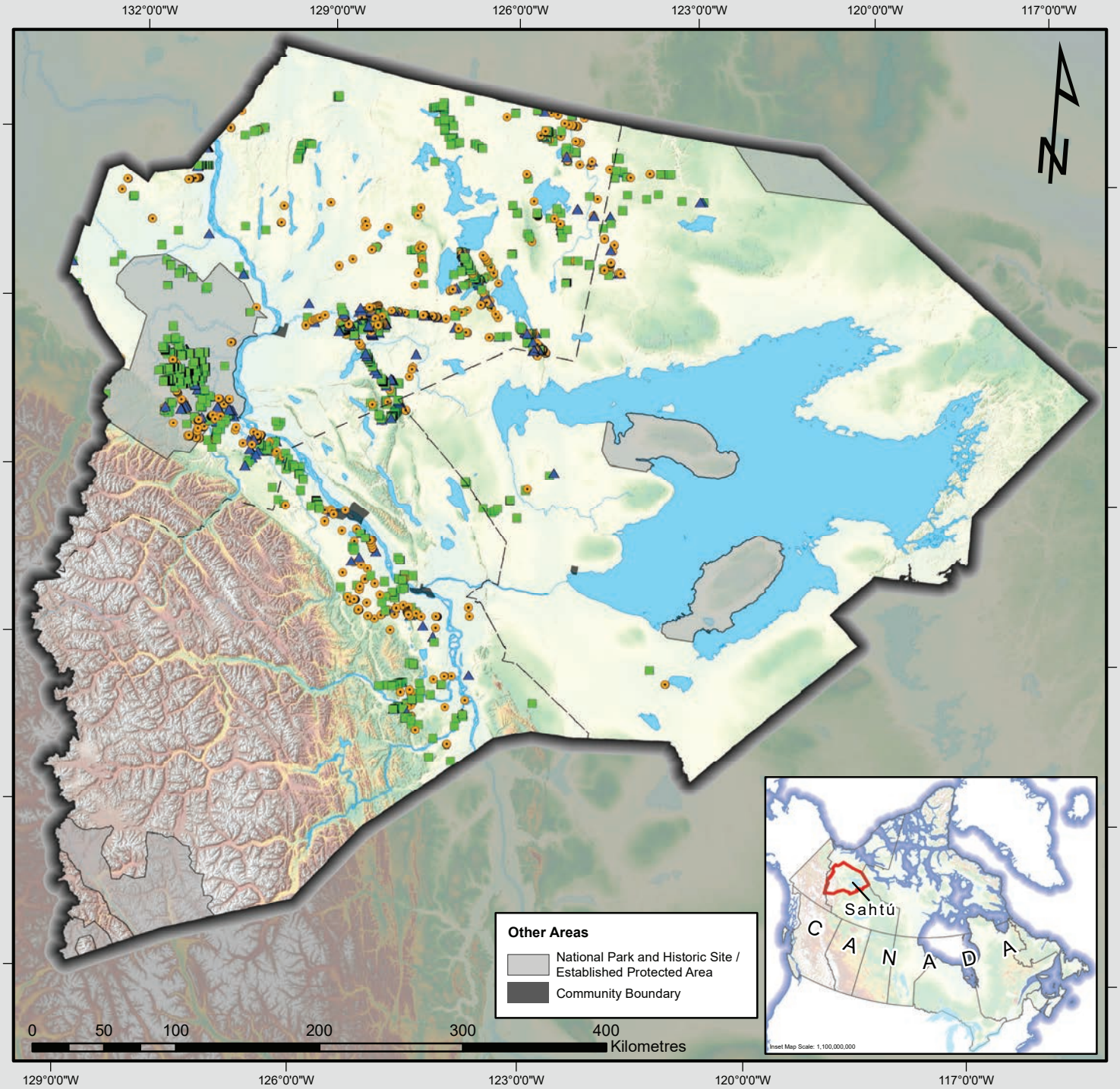
ED& NR

The GRD can be accessed on-line at: https://www.inf.gov.nt.ca/sites/inf/files/northwest_territories_granular_resource_directory.pdf

163 The Interdepartmental Granular and Environmental Remediation Committee. *Northwest Territories Granular Resource Directory – Territorial Granular Strategy.* (Department of Public Works and Services, Department of Lands, Department of Transportation, NWT Housing Corporation. Government of the Northwest Territories, March 2015). https://www.inf.gov.nt.ca/sites/inf/files/northwest_territories_granular_resource_directory.pdf

Sahtú Land Use Plan

Map 32 - Granular Deposits



Legend

- Sahtú District Boundaries
- Rivers & Lakes

Granular Deposits

- Gravel
- Gravel and Sand
- Sand

Projection:

Coordinate System: NAD 1983 NWT Lambert
Projection: Lambert Conformal Conic
Datum: North American 1983
Central Meridian: -112.0000
Standard Parallel 1: 62.0000
Standard Parallel 2: 70.0000
Latitude of Origin: 0.000
Map Scale: 1:4,000,000

Please consult Appendix page 202 "Map 32. Granular Deposits" for map references.

Sahtú Land Use Planning Board
P.O. Box 235
Fort Good Hope, NT
X0E 0H0
Telephone: +1 867 598 2055
Website: http://www.sahtulanduseplan.org
Email: info@sahtulanduseplan.org

Date Produced: March 2022

Document Path: \\10.117.7.122\GIS Data\Maps\Working_Files\2022\Background_Report_Maps\Granular_Deposits.mxd

3. 1. 4. RECLAMATION AND SITE CLOSURE

Once the desired resources are extracted, harvested, or developed, there is a public expectation that the proponent should bear the costs of cleaning-up the area and returning it to a clean and healthy state. In the past, this has not been the case, resulting in numerous contaminated sites across the north for which the federal government has become liable as the landowner.

Mines approved today are subject to rigorous environmental regulations. Crown-Indigenous Relations and Northern Affairs Canada's (CIRNAC) formerly Aboriginal Affairs and Northern Development Canada (AANDC) *NWT Mine Site Reclamation Policy* includes the following general principles:[164]

- Mine site reclamation should reflect the collective desire and commitment to operate under the principles of sustainable development, including the "polluter pays" principle.
- The required standard of reclamation should be based on the 1994 Whitehorse Mining Initiative definition: "returning mine sites and affected areas to viable and, wherever practicable, self-sustaining ecosystems that are compatible with a healthy environment and with human activities."
- Every new mining operation should be able to support the cost of reclamation. Existing mining operations will also be held accountable for their reclamation liabilities.
- Adequate security should be provided to ensure the cost of reclamation, including shutdown, closure and post-closure, is borne by the operator of the mine rather than the Crown.
- Best management practices, including progressive reclamation, should be applied to advance environmental protection and reduce environmental risks.
- Communication and consultation among all applicable parties should be comprehensive, complete and timely.

A document titled *"Guidelines for the Closure and Reclamation of Advanced Mineral Exploration and Mine Sites in the Northwest Territories"* was published in November 2013 by the Mackenzie Valley Land and Water Board (MVLWB) and AANDC (currently known as CIRNAC). This document is a complement to the *Mine Site Reclamation Policy* (2002) and supersedes AANDC's *Mine Site Reclamation Guidelines for the Northwest Territories* (2007). This document may be used as a reference document regarding expectations for abandonment and reclamation requirements in the absence of similar guidelines for the oil and gas industry.[165]

ED& NR

164 INAC. *Minesite Reclamation Policy for the Northwest Territories.* (Ottawa: INAC, 2002). Catalogue No. R2-208/2002-2E. https://www.lands.gov.nt.ca/sites/lands/files/resources/mine_site_reclamation_policy_-_nwt.pdf

165 Mackenzie Valley Land and Water Board. *Guidelines for the Closure and Reclamation of Advanced Mineral Exploration and Mine Sites in the Northwest Territories*, (Aboriginal Affairs and Northern Development Canada, November 2013). https://mvlwb.com/sites/default/files/wlwb_5363_guidelines_closure_reclamation_wr.pdf

As these documents were published before devolution of powers to the GNWT, they were redacted by AANDC (currently CIRNAC), a Government of Canada department. These are the most recent and current documents on the subject, as there have not been any updates to these documents post-devolution.

These policies and guidelines are reinforced in the *GNWT's Approach to Contaminated Sites Management* document, released in August 2019.[166] This document includes provisions to avoid the creation of new contaminated sites and promotes the federal 'polluter pay' principle. It also includes that "contaminated sites will be managed using both Indigenous traditional knowledge and values, local and community knowledge and scientific knowledge, will follow industry best-practice, and will support and respect NWT cultural values, identity and uses".[167]

Flexibility is required in defining a reclamation goal as different circumstances will warrant a different decision. The minimum, as expressed in the *Whitehorse Mining Initiative*, is to return a site to a viable self-sustaining ecosystem.[168] From there, the exact goal is best defined by the expected future use of the area and by those who will use or be affected by the area. Communities, as the most affected group, need to have a central role in setting the reclamation goal.

If an area has seen little to no development and is not expected to see further industrial use, then expectations for reclamation may be quite high and companies should be prepared to return the land in much the same condition as they found it. If future exploration or development projects are expected in the near future or the community plans to maintain the access created, then a reclamation goal consistent with continued use will be more appropriate. A reclamation goal and reclamation plan should be discussed during the application stage, and gradually refined with communities throughout the life of the project as more information is known.

THE COLLECTION OF SECURITY

The security regime is also not straight-forward with security being collected by different government departments or agencies for different purposes.

Oil and Gas companies are required to provide "proof of financial responsibility" (financial security) with the CER under S. 27(1) of the *Canada Oil and Gas Operations Act* (which applies to all offshore oil and gas or within the Norman Wells Proven Area),

166 GNWT. *Government of the Northwest Territories Approach to Contaminated Sites Management,* (ENR-GNWT, 2019). https://www.enr.gov.nt.ca/sites/enr/files/resources/gnwt_approach_to_contaminated_sites_final_august_23_2019.pdf

167 Ibid.

168 Fonds F02035. Whitehorse Mining Initiative, Queen's University Archives, Kingston, ON. http://db-archives.library.queensu.ca/index.php/whitehorse-mining-initiative-fonds

or under S. 64(1) of the *NWT Oil and Gas Operations Act* (which applies to all onshore oil and gas operations, excluding the Norman Wells Proven Area).

These funds are intended to cover:

- the proponent's financial liabilities for actual loss or damage
  - (defined to include loss of income, including future income, and with respect to any aboriginal peoples of Canada, includes loss of hunting, fishing and gathering opportunities)
- incurred by any person as a result of debris
  - (defined as any installation or structure that was put in place in the course of any authorized work or activity that has been abandoned without authorization, and any material that has broken away or been jettisoned or displaced in the course of any such work or activity)
- spills, or an authorized discharge, emission or escape of oil and gas
  - (defined as a discharge, emission or escape of petroleum, other than one that is authorized under the regulations or any other federal law)
- and the costs incurred by the federal government or any other person in taking action in relation to any of the above.

ED& NR

In plain language, it is meant to cover costs for damages and cleanup efforts from unintended spills and operations.

The GNWT's has two separate authorities monitoring lands, the Department of Lands, Territorial Lands Administration Branch and the Commissioner's Land Administration Branch, formed under their respective legislation (*Northwest Territories Lands Act* and *Commissioner's Land Act*, respectively). They administer leases, land use permits, quarry permits, land dispositions, performance securities, legal surveys, land database management, mapping services for lands within the block land transfers, and revenue collection.[169]

A mine requires a surface lease and therefore would likely be expected to post security with GNWT's Department of Lands, Securities and Project Assessment, who "coordinate the government's responsibilities for environmental liabilities and financial assurances for major resource development projects, including responsibilities for holding securities transferred from the federal government under the Devolution Agreement".[170] Securities related to water licences, on the other hand, are collected by the Department of Environment and Natural Resources (ENR).[171]

169 "Land Administration", (Department of Lands, Government of the Northwest Territories). Accessed May 9, 2022. https://www.lands.gov.nt.ca/en/land-administration

170 "Securities and Project Assessment", (Department of Lands, Government of the Northwest Territories). Accessed May 9, 2022. https://www.lands.gov.nt.ca/en/securities-and-project-assessment

171 "Land and Water Securities", (Department of Lands, Government of the Northwest Territories).

Financial security is collected by various government departments or agencies, including the CER, GNWT, and Fisheries and Oceans Canada (DFO), for very specific purposes (e.g. liability related to unintended spills, surface administration, fish habitat compensation). The *MVRMA* and the Northwest Territories' *Waters Act* give discretionary authority to the SLWB to collect security. This security is broader in purpose and is intended to cover costs related to the abandonment of the land-use operation or undertaking, restoration of the site, and any measures that may be necessary after abandonment (e.g. monitoring activities). Only federal and territorial governments are unofficially exempt from posting security, as per S. 20 of the *Mackenzie Valley Land Use Regulations*.[172]

In contrast to these specific security requirements, security collected under the *MVRMA*, the *Northwest Territories Land Use Regulations*, and the Northwest Territories' *Waters Regulations* and held by the GNWT, is more general and is intended to cover costs related to the abandonment of the land-use operation or undertaking, restoration of the site, and any measures that may be necessary after abandonment (e.g. monitoring activities).[173] In short, the financial security held by the GNWT Department of Lands - Security Coordination Unit, and ENR, under the *Land Use Regulations* and *Waters Regulations* are for different purposes. All are needed to protect the government and taxpayers from financial liability.

ED& NR

By making regulators set minimum reclamation goals and that sufficient security be posted by proponents to achieve these goals, there is more confidence from the public expectation that all land uses will be cleaned-up, the environment properly restored, and that the cost for this will be borne by the proponent. As such, it is necessary to assure that sufficient security be posted prior to authorizing any land use that will create impacts.

Accessed May 9, 2022. https://www.lands.gov.nt.ca/en/services/land-and-water-securities

172 *Mackenzie Valley Land Use Regulations*, SOR/98-429, s. 20. (Government of Canada, 1998) https://laws-lois.justice.gc.ca/PDF/SOR-98-429.pdf ;

173 *Mackenzie Valley Federal Areas Waters Regulations,* SOR/93-303, s. 12. https://mvlwb.com/sites/default/files/sor-93-303_1_0.pdf ; *Northwest Territories Land Use Regulations*, R-012-2014, s. 35. https://www.justice.gov.nt.ca/en/files/legislation/northwest-territories-lands/northwest-territories-lands.r3.pdf ; *Waters Regulations*, R-019-2014, s.11 (1). https://www.justice.gov.nt.ca/en/files/legislation/waters/waters.a.pdf

3. 1. 5. FORESTRY

As per Chapter 14 of the *SDMCLCA*, the harvest of timber for personal use is permitted year-round. The Forest Management Department within ENR has authority for granting forest authorizations for domestic, commercial, and incidental harvest of timber on public lands. The Forest Management Department does not have authority over private or selected lands, however it can issue timber transport permits to the landowner. Land Corporations and self-governments retain the authority to grant access to their lands and timber.

Large scale commercial forestry does not currently take place in the SSA nor are there immediate plans to undertake such developments. Small scale transactions occur in the form of payments or trades between individuals for labour associated with the harvest of timber for domestic use.

3. 1. 6. FISHING

Commercial fishing does not currently take place in the SSA.

ED& NR

There is limited practice of sport fishing as a tourism activity. Subsistence fishing, however, is practiced in the SSA at numerous locations such as in many fish lakes, in GBL, and along the Mackenzie River and in its tributaries. Fish lakes have been an important source of food for families, and in some circumstances, they have allowed families to endure difficult times when hunting was poor. Some fish lakes are of significant cultural importance because they have allowed families to endure times of near starvation. The community of Dél̨ nę continues to practice subsistence fishing on GBL, while other SSA communities continue to use the fish lakes, the Mackenzie River, and other water bodies as a food source year-round.

The economic value of fish has not been quantified as a dollar value, however fish is a traditional food and continues to be an important part of the Dene and Métis diet.

3.2 TOURISM

After mining and oil and gas, tourism is the territory's third largest sector of the economy. Tourism contributed more to the NWT economy than the combined sales of agriculture, forestry, fishing, and trapping in 2017.[174]

However, tourism in the SSA is still very much a niche activity, due to the expense of travel to the area. That being said, the SSA is an attractive destination in the country for visitors who are seeking a wilderness experience in a remote, pristine landscape, such as paddling trips down one of the rivers, or for those looking for impressive hunting and fishing opportunities.

The GNWT is trying to increase tourism by funding marketing research, tourism training, infrastructure, and product development. Despite a number of challenges such as the high cost of air travel, lack of direct charter flights southern Canada and abroad, high operating costs, the need for infrastructure, and difficulty of recruiting and retaining employees, the "*Sahtu Regional Tourism Strategy*" focuses on a number of opportunities for tourism development.[175]

Some major tourism assets of the SSA include:

- the Canol Heritage Trail,
- sport fishing on GBL,
- the Mackenzie River and mountains,
- paddling down Keele or
- Mountain Rivers,
- Bear River, and
- Saoyú-ʔehdacho National Historic Site of Canada,
- Nááts'ı̨hch'oh National Park Reserve of Canada.

The tourism industry would like to see the wilderness aspect of the SSA maintained. The remoteness and perceived pristine nature of the environment is a major factor in ecotourism, guiding, and outfitting activities. This includes the need for buffer zones around cabins and campsites, rotating harvest as part of a conservation strategy, protecting wildlife during birthing seasons, and securing adequate harvest levels to maintain and grow the industry.[176]

ED& NR

174 "Gross Domestic Product", (NWT Bureau of Statistics, 2019). Accessed May 9 2022. https://www.statsnwt.ca/economy/gdp/

175 Terriplan Consultants. *Tourism Strategy for the Sahtu Region*, *Final Report*, (ITI - GNWT, September 15, 2008).

176 Hougen, Kelly, et al. "Comments from the Association of Mackenzie Mountain Outfitters", (SLUPB). https://sahtulanduseplan.org/sites/default/files/ammo_comments_may_31-07.pdf

3. 2. 1. BIG GAME AND SPORT FISHING OUTFITTERS

Big game and sport fishing outfitters are a significant part of the wilderness related tourism industry in the SSA. They are permitted and subject to the necessary regulatory approvals. The Mackenzie Mountains of NWT were first opened to non-subsistence hunters or trophy hunters in 1965.

The Association of Mackenzie Mountains Outfitters (AMMO) is an 8-member association of the outfitters that have been given exclusive privilege to provide outfitting services for non-resident hunting within their outfitting zone. Under the terms of the *NWT Wildlife Act*, each licensed outfitter is licensed by the GNWT to provide outfitting services within their zone.[177]

All non-residents of the NWT are required to use the services of an outfitter and be accompanied by a licensed guide at all times while hunting. Non-resident hunters must be at least 12 years of age and are required to purchase a hunting license, while younger children can hunt with a parent or a guardian under that person's bag limit.[178] Grizzly bear hunting for non-residents was eliminated in 1982. For residents, grizzly bear hunting is restricted to one adult grizzly per lifetime and the bear must not be accompanied by a cub.

ED& NR

The licence provides for the take of one of each big game species a year:

- 1 Dall's sheep ram (with at least one 3/4 curl horn);[179]
- 1 woodland caribou (either sex);
- 1 moose (either sex);
- 1 mountain goat (either sex);
- 1 wolf (either sex);
- 1 wolverine (either sex); and
- 1 black bear adult not accompanied by cubs.[180]

According to AMMO, about 330 non-residents visit the Mackenzie Mountains to hunt every year. AMMO also estimates that the outfitting industry employs about 100-120 outfitters, guides, pilots, camp cooks, camp helpers, and horse wranglers per year.[181]

177 "Hunting Outfitting", (Association of Mackenzie Mountain Outfitters). Accessed May 9 2022. https://www.huntnwt.com/hunting.html

178 Ibid.

179 "Dall's Sheep: Harvesting", (ENR - GNWT). Accessed May 9 2022. https://www.enr.gov.nt.ca/en/services/dalls-sheep

180 "Hunting Outfitting", (Association of Mackenzie Mountain Outfitters). Accessed May 9 2022. https://www.huntnwt.com/hunting.html

181 Ibid.

3. 2. 2. SPORT FISHING AND ECOTOURISM

Sport fishing can take place as a tourism activity on GBL and along the Mackenzie and some of its tributaries. Some outfitters also have sport fishing lodges. Although there are a few private fishing lodges on GBL and the community of Dél̨ nę also offers fishing adventures on GBL, the sport fishing industry is not developed elsewhere in the SSA even though the potential for it does exist.

Ecotourism is another identified tourism product that has not been widely promoted or offered. However, there are a few outfitters that offer guided expeditions in the Mackenzie Mountains leaving from Norman Wells, such as paddling down one of the many rivers coming out of the Mackenzie Mountains, as well as sightseeing trips up the Mackenzie River's many tributaries. Potential exists for guided hikes along the Canol Trail, although this may be shaped in the future with the establishment of the Canol Trail Heritage Trail Reserve, which is still a Proposed Conservation Initiative (PCI).

ED& NR

3.3 INFRASTRUCTURE AND TRANSPORTATION

Infrastructure and transportation play significant roles in helping to build a future with economic opportunities. A significant cost of doing business in the north is tied to the lack of infrastructure and transportation options. The oil and gas and mining industries experience higher operating costs in the north due to limited infrastructure. Due to the cost of extraction and transportation, finds are often only economical if they are very large or if they occur in multiples.

It is important to note that infrastructure and transportation options that have been created for industry or by industry can later result in benefits to the communities. Examples of benefits that have been passed on include the winter road, access roads, cut lines that can be used for trapping or hunting, and the barge system that now also serves residential demands.

3. 3. 1. ENERGY & POWER DEVELOPMENT

ED& NR

Power in the Northwest Territories is generated primarily through hydro-electric projects (75%) and diesel plants. However, there is no electrical grid between any of the SSA communities or connecting them with grids in other parts of the Northwest Territories. As such, the four smaller communities of the SSA use diesel generated power exclusively, with Colville Lake having a solar array as a supplement to their diesel generator. In Norman Wells, the NWT Power Corporation purchases natural gas generated power from Imperial Oil and has a backup diesel generator if Imperial Oil is unable to fulfill the power demand. There are no hydro-electric projects in the SSA, although many of the SSA's rivers have potential to generate hydro-electric power.

The NWT currently relies heavily on imported fossil fuels, exposing it to the fluctuating world oil prices. The GNWT's Department of Infrastructure (INF) has expressed an interest in pursuing initiatives that will help reduce emissions and energy costs by advancing the development of alternative energy initiatives. This includes its committed to reducing its dependence on diesel for electricity generation as well as space heating. It set out long-term goals and commitments through the *2030 Energy Strategy*.[182] This strategy has six strategic objectives, and are as follows:

1. Work together to find solutions: community engagement, participation, and empowerment;
2. Reduce greenhouse gas (GHG) from electricity generation in diesel-powered communities by an average 25%;
3. Reduce GHG emissions from transportation by 10% per capita;
4. Increase the share of renewable energy used for space heating to 40%;

182 Department of Infrastructure. *2030 Energy Strategy: A Path to Move Affordable, Secure and Sustainable Energy in the Northwest Territories*, (INF-GNWT, 2018). Accessed May 9 2022. https://www.inf.gov.nt.ca/sites/inf/files/resources/gnwt_inf_7272_energy_strategy_web-eng.pdf

ED& NR

5. Increase residential, commercial, and government building energy efficiency by 15%;
6. A longer-term vision: developing the NWT's energy potential, address industry emissions, and do our part to meet national climate change objectives.

The strategy states that "renewables can help stabilize electricity costs and this is one of the reasons electricity and energy efficiency are a priority for [the] Strategy", even though "renewables [are] often not the most reliable way to generate electricity".[183] As such, the strategy identifies that there is a need to balance the fact that energy must be secure, affordable, and sustainable, as these may be conflicting goals at times. Soaring energy costs for residents and businesses in the NWT is a concern for many, and also needs to be addressed in the strategy.

SSA communities will see much investment in the coming years to improve their electricity generation systems, as the strategy identifies the reduction of greenhouse gas emissions from electricity generation in diesel communities by 25%.[184] These investments may come as part of government grants for small-scale renewable electricity projects on homes or buildings (through net metering or direct to grid for larger projects), as well as partner financing for larger-scale renewable energy projects. These types of investments involve the local communities and their residents, which gives residents a voice into how projects should be implemented in their community, while giving direct benefit to them through lower electricity costs, upgraded electricity generation and distribution systems, more reliability, and lower emissions. This is not an easy feat, as renewable energy technology has yet to become economic in the North "due to remoteness, high operating costs, and lack of economies of scale", meaning that any initiatives for the foreseen future need to be financed or subsidized by the governments.[185]

While wind and solar part are renewable energy mechanisms that can be implemented at a small scale (e.g. private residence through net metering), all SSA communities may also consider mini-hydro solutions to energy production over the long-term. These types of projects are "considered run-of-river, which is to say that you do not need dams or to flood land and create a reservoir", thus having low impacts to the watercourses on which they are installed.[186]

Another plausible solution for SSA communities that are along the future Mackenzie Valley Highway corridor includes the transportation of Liquefied Natural Gas (LNG)

183 Ibid.

184 Ibid.

185 Ibid.

186 Ibid.

once the road is finally built. When considering fuel types for power generation, LNG produces 25% less GHG than diesel.[187] This is also a cost-saving measure, as the market price of LNG is lower than that of diesel. This system is already in place in Inuvik, where regular delivery of LNG eliminates the need for expensive storage tanks , further reducing costs.[188]

Space heating of homes and buildings is a significant use of energy and cause for emissions in the NWT due to the cold climate. Heating with fossil fuels produces approximately 13% of the NWT's total emissions, where only 20% of non-industrial heating needs are met with biomass such as cords of wood or wood pellets, the rest being serviced by fossil fuels.[189] To meet the objectives of the strategy proposed, where 40% of community heat in 2030 will come from renewable energy, the GNWT plans to continue investments in expanding the wood pellet supply chain to include local production, as well as provide incentives to switch to wood fuel for heat.[190]

ED& NR

This is a feasible solution for SSA communities, as it does not need additional infrastructure other than changing the type boilers/furnaces of homes and buildings, which can be done at the end of the current boilers'/furnaces' useful lifespan. It is also a reliable source for heating, where new and efficient technologies have made wood a reliable source of energy for large scale applications. Large wood pellet boilers can heat institutional buildings such as schools and offices, where at present they heat many public and private buildings throughout the SSA. Some boilers can also fuel district heating systems and generate electricity.

If SSA communities were to be linked into a hydroelectric grid in the distant future (no talks of this at present), consumers may get electric heat at a reduced rate, such as South Slave communities currently receive from electricity generated by the Talston hydroelectric project.[191] Over the long term, it was identified that very small nuclear projects could also provide a solution for reducing emissions in community power generation and heating, although at present none are licensed for use in Canada and would require community acceptance.[192]

187 Department of Infrastructure. *2030 Energy Strategy: A Path to Move Affordable, Secure and Sustainable Energy in the Northwest Territories*, (INF-GNWT, 2018). Accessed May 9 2022. https://www.inf.gov.nt.ca/sites/inf/files/resources/gnwt_inf_7272_energy_strategy_web-eng.pdf

188 Ibid.

189 Ibid.

190 Ibid.

191 Ibid.

192 Ibid.

It is important to note that all of the policies, goals, and regulations developed by the GNWT for energy and power development must comply with the resource management regimes created by settled land claims such as the *SDMCLCA*.

3. 3. 2. TRANSPORTATION

WINTER ROADS

The winter road system in the SSA is maintained by GNWT-INF. It provides the only road access in the SSA and connects all five communities. It extends down the valley from Wrigley in the Dehcho Region, to Tulit'a, Norman Wells, Fort Good Hope, and ending at Colville Lake. An additional road connects Délı̨nę to the Mackenzie Valley winter road just south of Tulit'a. At Wrigley, the winter road is connected to North-American highway system by the Mackenzie Valley all-weather highway.

The Norman Wells to Fort Good Hope section of the road has officially been in operation since 1987, while the Fort Good Hope to Colville Lake portion has been in operation since 2000-2001.[193] Many transportation companies utilize the winter roads within the SSA to deliver necessary goods to residents, haul fuel to the communities for their use throughout the year, as well as to resupply the stores with heavier items that are not viable to be transported by air. As all the power generated in 4 of the SSA communities come from imported diesel, the winter road provides a vital link to the modern existence of communities.

ED& NR

The winter road system is open from the end of December through to the last half of March. The following table shows average opening and closing dates. Times are averages over the last 15-20 years (depending on how long the section of the road has been in operation).

193 Department of Infrastructure, "Winter Roads Average Open/Close Dates, Highways, Ferries, and Winter Roads", (INF-GNWT, 2020). Accessed May 9 2022. https://www.inf.gov.nt.ca/en/services/highways-ferries-and-winter-roads/winter-roads-average-openclose-dates

TABLE 18. MACKENZIE VALLEY WINTER ROAD [194]

Winter Road Section	Distance (km)	Max. Load limit (kg)	Open date (avg.)	Close date (avg.)
Wrigley - Tulit'a	248	64,000	December 25	March 28
Tulit'a - Norman Wells	88	64,000	December 26	April 1
Dél̨ nę Access Road	106	50,000	January 17	March 30
Norman Wells - Fort Good Hope	162	64,000	December 22	April 1
Fort Good Hope - Colville Lake	165	64,000	December 22	April 2

MACKENZIE VALLEY HIGHWAY EXTENSION

In *Connecting Us: Northwest Territories Transportation Strategy 2015-2040*, the GNWT Department of Transportation (now INF) expressed that the transportation system influences quality of life, cost of living, and economic opportunities, where the GNWT is dedicated to continuing work with all stakeholders to ensure that the transportation system is well positioned to meet current and future needs.[195]

In 1989 the former GNWT Department of Transportation took over responsibility for maintenance, operation and reconstruction of existing highways in the NWT. The federal government remains responsible for new road construction. Over the years, both the federal and territorial governments have considered building an all-season road down the Mackenzie Valley from Wrigley to Tuktoyaktuk. The road would provide access to communities within the Mackenzie Valley and Delta and facilitate the development of resources. Since then, governments have committed on building pieces of the Mackenzie Valley Highway, including the all-weather highway from Inuvik to Tuktoyaktuk, which opened to traffic in November 2017. [196]

194 Ibid.

195 Department of Transportation (now Infrastructure). "Connecting Us: Northwest Territories Transportation Strategy 2015-2040", (INF-GNWT, 2014). Accessed May 9 2022. https://www.inf.gov.nt.ca/sites/inf/files/resources/nwt_transportation_strategy.pdf

196 Department of Infrastructure, "Mackenzie Valley Highway," (INF-GNWT, 2019). Accessed May 9 2022. https://www.inf.gov.nt.ca/sites/inf/files/resources/mackenzie_valley_highway_-_february_2019.pdf

Along the winter road alignment leading from the Dehcho Region to the SSA communities, 39 of the 40 bridges needed are already in-place.[197] Other small projects along this route that have been completed (November 2018) include the Norman Wells to Canyon Creek all-weather access road, which will form part of the future Mackenzie Valley Highway between Tulit'a and Norman Wells.[198]

Upcoming projects along the Mackenzie Valley Highway alignment include the construction of:

- an all-weather access road from Wrigley to Mount Gaudet in the Dehcho Region,
- the Great Bear River bridge on the alignment between Tulit'a to Norman Wells,
- an all-weather access road from Canyon Creek to Prohibition Creek, as well as
- the relocation of the Oscar Creek bridge along the Norman Wells to Fort Good Hope winter road alignment.[199]

Expected benefits of the Mackenzie Valley all-weather highway include lower prices, an increase in tourism, enhanced access to services. and improved operating efficiencies. Community concerns include an increase in social problems related to alcohol and drugs. Environmental concerns include potential negative effects on fish and wildlife habitat and populations.[200]

BARGES

In the summer months (mid-June to late-September), the communities of Tulit'a, Norman Wells and Fort Good Hope are supplied by a tug and barge service along the Mackenzie River. The GNWT and private companies owned and run these barges, shipping domestic and commercial items. The stores and residents of these communities may take advantage of the barge system to ship items as it is less costly than shipping by air.

Cargo service for the SSA starts in Hay River and in Fort Simpson, with communities being resupplied from 2-5 times over the course of the summer. [201] The communities of Dél̨ n̨ę and Colville Lake are not accessible by barge, therefore they are supplied by air and by trucks during the winter road season.

197 Ibid.

198 Ibid.

199 Ibid.

200 GeoNorth, Ltd. and Golder Associates, Ltd. *Mackenzie Valley Highway Extension Environmental Scoping Report* (1999).

201 Marine Transportation Services. "Marine Transportation Services" (INF-GNWT, 2022). Accessed May 9 2022. https://www.inf.gov.nt.ca/en/MTS ; "Barging". (Vancouver: Cooper Barging Service Ltd.). Accessed May 9 2022. http://www.cooperservices.ca/barging/

AIR TRAVEL

Passenger air service to the SSA is provided by two private airlines, North-Wright Airways and Canadian North. North-Wright Airways, headquartered out of Norman Wells, is 51% owned by Sahtú organisations and 49% privately owned. It provides regular service between SSA communities, Inuvik, and Yellowknife. They also provide charter and specialty services, which include service to remote lakes around the SSA. They have a fleet of single and twin-engine fixed wing aircraft mounted on wheels, skis, floats or tundra tires.[202]

Jet service to the SSA is provided by Canadian North out of Norman Wells, with flights to Inuvik, Yellowknife, and Edmonton. They also provide cargo service to Norman Wells. Other airlines also service cargo deliveries to SSA communities, such as Buffalo Air and Summit Air.

ED& NR

Sahtu/Great Slave Helicopters is a charter company servicing the Mackenzie Valley and headquartered in Norman Wells. The company is a joint venture with land corporations in the Tulit'a District, holding equal shares totaling 51% of the company, while Great Slave Helicopters retains ownership of the remaining 49% of shares.[203]

Canadian Helicopters is one of the largest helicopter transportation service companies operating in Canada and one of the largest in the world based on the size of its fleet. It has over 40 base locations across Canada including one in Norman Wells.[204] It offers chartered service including emergency medical services, infrastructure maintenance, utilities, oil and gas, forestry, mining and construction. It also operates three flight schools and provides repair and maintenance services.

202 "Aircraft Fleet", (North Wright Airways, 2017). Accessed May 9 2022. https://north-wrightairways.com/aircraft-fleet

203 "Sahtu Helicopters", (Great Slave Helicopters, 2022). Accessed May 9 2022. http://www.gsheli.com/sahtu

204 "Locations", (Canadian Helicopters Ltd., 2020). Accessed May 9 2022. https://www.canadianhelicopters.com/locations/

ED&
NR

ED&
NR

CH. 4. Regulatory Environment

4.1 MACKENZIE VALLEY RESOURCE MANAGEMENT ACT (*MVRMA*)

The SLUP must be consistent with the *Mackenzie Valley Resource Management Act* (*MVRMA)* and the Sahtu Dene and Metis Comprehensive Land Claim Agreement (*SDMCLCA)*.

To fulfill the requirements of the *SDMCLCA*, the *MVRMA* was proclaimed on December 22nd, 1998. The *MVRMA* implemented the obligations of the *SDMCLCA* by legislating the:

- Sahtú Land Use Planning Board (SLUPB) under Part 2,
- Sahtú Land and Water Board (SLWB) under Part 3,
- Mackenzie Valley Land and Water Board (MVLWB) under Part 4, and
- Mackenzie Valley Environmental Impact Review Board (MVEIRB) under Part 5.

The *SDMCLCA* required the establishment of a number of boards as institutions of public government. These boards are part of an integrated and coordinated system of land and water management in the Mackenzie Valley. They set out a new system for managing development in the Sahtú Settlement Area (SSA). The boards regulate all land and water uses, including deposits of waste.

The *MVRMA* is the primary legislation regulating land and water use within the Mackenzie Valley. It is described as a modern integrated resource management statute that provides for integrated decision making. It requires that first nations, governments, and regulatory bodies carry-out their powers in accordance with approved land use plans, and that approved recommendations from the environmental impact assessment process be incorporated into licensing and permitting decisions.

RE

Under this approach, the *MVRMA* sets procedures for the preliminary screening, environmental assessment, and environmental impact review of proposals for land and water use, other than for those few activities exempted under the Act or Regulations (minor uses, emergencies, national security, and those uses approved before 1984). Since most land use activities require either a land use permit or water licence under the *MVRMA*, in addition to any other authorizations required from other government bodies, this has the effect of coordinating project review between the multitude of federal and territorial departments and agencies involved.

The MVLWB oversees the preliminary screening and regulatory authorization functions (issuance of land use permits and water licences with appropriate terms and conditions) in non-settlement regions as well as trans-boundary projects, while the regional SLWB fulfills this role for applications wholly within the SSA.

Projects requiring environmental assessment or environmental impact review are referred to the MVEIRB, which manages those processes.

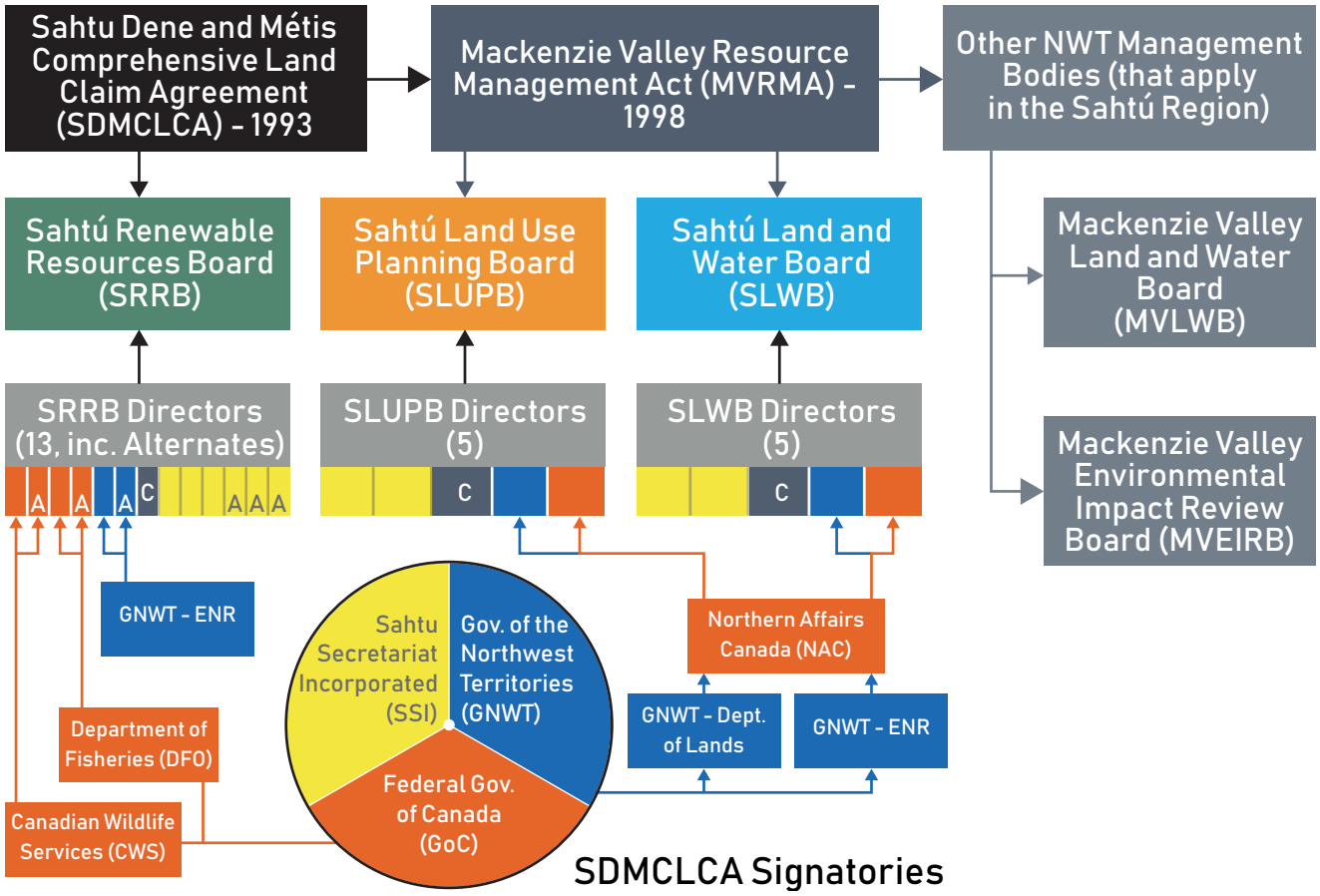
- Section S. 124 requires that the MVEIRB be notified and a preliminary screening be conducted on every application for a permit, licence, or authorization under federal

RE

or territorial legislation. Any development proposed by the federal, territorial, or the Sahtú First Nations that do not require any authorizations are also subject to preliminary screenings. Activities can be exempted from preliminary screening if they are listed under the Exemption List Regulations or preliminary screening is declared inappropriate for reasons of national security. This section establishes the SLWB as the lead preliminary screener in the SSA.

- S. 125(1) states that if the preliminary screener determines that the development "might have a significant adverse impact on the environment or might be a cause of public concern", they must refer the proposal to the MVEIRB for an environmental assessment.
- S. 126 requires that the MVEIRB conduct an environmental assessment of a proposal referred to them by a preliminary screener, government (federal, territorial or community), or the Sahtú First Nations and allows the MVEIRB to conduct an environmental assessment of a proposal on its own motion.

FIGURE 11. REGULATORY BODIES IN THE SSA



4.2 DESIGNATED SAHTÚ ORGANIZATIONS (DSOs)

The *SDMCLCA* establishes a number of Sahtú organizations known as Designated Sahtú Organizations to manage the funds, lands, rights, and responsibilities of the Sahtú First Nation on behalf of all participants. These organizations (DSOs) are established as trusts, societies, or corporations. The Sahtú Secretariat Incorporated (SSI) is the governing body, responsible for management of the funds and major programs while ownership and responsibility for Sahtú lands was given to the district land corporations/self-government as described earlier in this chapter. Sahtú municipal lands are held and administered either by the district land corporations, or the local land corporations where they exist (e.g. in the Tulit'a District there are 3 local land corporations, and 1 District land corporation). See Figure 2. Sahtu Secretariat Incorporated (SSI) and the Land Corporations (LC) on page 8

Land use activities carried out on Sahtú lands which require a land use permit, water licence, or another type of authorization, require proof of permission/agreement from the district land corporation/self-government to access their lands. The DSOs are referral organizations that provide comments relevant to their mandates for preliminary screening and environmental assessments.

For activities related to prospecting or staking a mineral claim on Sahtú lands, which do not require a land use permit, water licence, or another type of authorization, the prospector is required to give a 7 days notice to the district land corporation/ self-government before entering onto their lands. On lands where the district land corporation owns the mineral rights, companies wishing to access and explore for minerals or oil and gas must negotiate those rights directly with the district land corporation. See Figure 11. Regulatory Bodies in the SSA on page 148.

RE

4.3 CO-MANAGEMENT BOARDS IN THE SSA

When the *SDMCLCA* and the *MVRMA* were formulated they introduced a new system of land and water management for the SSA. The system of cooperative management is aimed at ensuring the direct and meaningful participation of SSA residents in the management and regulation of the land, water and resources.

In contrast to the previous system that concentrated management authority with the federal and territorial governments, a co-management system recognizes the special knowledge SSA residents have about the land while giving them rights as land users.

Co-management boards are accountable to the public. Board members are nominated by the Indigenous, territorial, and federal governments. The people of the SSA are represented by the SSI, which nominates half of the members of each board. The federal Minister of Northern Affairs Canada (NAC) appoints members to the board based on these nominations. Together, the members of the board nominate a Chairperson, who is then appointed by the federal Minister of NAC.

4. 3. 1. SAHTÚ LAND USE PLANNING BOARD (SLUPB)

Under Part 2 of the *MVRMA*, the Sahtú Land Use Planning Board (SLUPB) is responsible for preparing and adopting a land use plan (SLUP) for the SSA. The SLUP must be submitted to and approved by SSI, followed by the territorial and federal governments.

RE

After the SLUP is approved, the SLUPB is responsible for:

- monitoring the implementation of the SLUP;
- considering applications for exceptions to the SLUP;
- determining whether an activity is in accordance with the SLUP when it is requested to do so; and
- preparing and adopting amendments to the SLUP for subsequent approval by SSI and the territorial and federal governments.

The SLUPB will carry-out a comprehensive review of the SLUP within five years of its approval, and every five years after that or at other agreed upon intervals.

4. 3. 2. SAHTÚ RENEWABLE RESOURCES BOARD (SRRB)

The Sahtú Renewable Resource Board (SRRB) is the 'main instrument of wildlife and forest management' in the SSA. The SRRB works with the Sahtu Renewable Resource Councils (RRCs) to manage wildlife and forests. Their main responsibilities include wildlife management, wildlife research, conservation-education and consultations.

The SRRB is responsible for:

- proposing and establishing policies to protect wildlife and wildlife habitat;
- developing wildlife management plans;
- reviewing and approving of proposed developments;

- overseeing wildlife research in the SSA;
- providing students with opportunities to develop scientific learning and traditional skills; and
- regularly consulting with communities.

The SRRB was also responsible for conducting the Sahtú Harvest Study from 1998-2005. The SRRB is a referral organization providing comments relevant to its mandate for preliminary screenings and environmental assessments.

4. 3. 3. RENEWABLE RESOURCE COUNCILS (RRCs)

Under S. 13.9 of the *SDMCLCA* , each community in the SSA has its own Renewable Resource Council (RRC), which is responsible for conservation, research, and wildlife management on behalf of their community members as well as providing harvester assistance. The RRCs provide grassroots knowledge for their local area and have an advisory relationship with the SRRB.

The RRC is a referral organization providing comments relevant to its mandate for preliminary screenings and environmental assessments.

4. 3. 4. SAHTÚ LAND AND WATER BOARD (SLWB)

The Sahtú Land and Water Board (SLWB) is a regional panel of the MVLWB. It is the regulatory authority responsible for the management of land and water use and the deposit of waste in the SSA. Under the *MVRMA*, it issues, amends, and renews land use permits and water licences on public lands, on Sahtú Settlement Lands, and on private lands. The SLWB is the lead preliminary screener in the SSA. The SLWB receives feedback on permits and licences from review organizations such as Designated Sahtú Organizations, community organizations, government departments and agencies, and other co-management Boards.

4. 3. 5. MACKENZIE VALLEY LAND AND WATER BOARD (MVLWB)

The Mackenzie Valley Land And Water Board (MVLWB) has three main functions:

- issuing land use permits and water licenses in the unsettled claims area until the balance of the land claims are settled in the Mackenzie Valley;
- processing trans-boundary land and water use applications in the Mackenzie Valley; and
- ensuring consistency in the application of the legislation throughout the Mackenzie Valley.

For example, the MVLWB would be the regulatory authority involved in a proposed land use activity that would affect both the SSA and the Gwich'in Settlement Area.

The MVLWB consists of:

- The SLWB, the Gwich'in Land and Water Board (GLWB), and the Wek'èezhìı Land and Water Board (WLWB);
- Four additional members (2 nominated by First Nations, 1 nominated by the GNWT, and 1 other pursuant to the *MVRMA* S. 99); and
- A Chairperson nominated by a majority of the members and appointed by the federal Minister of Indigenous and Northern Affairs Canada (INAC).

4. 3. 6. MACKENZIE VALLEY ENVIRONMENTAL IMPACT REVIEW BOARD (MVEIRB)

While the Mackenzie Valley Environmental Impact Review Board (MVEIRB) does not issue any authorizations, it is responsible for conducting environmental assessments and recommending to the Minister of Northern Affairs Canada (NAC) whether or not a project should proceed and under what conditions. The process for determining the conformity of land uses with the land use plan will have preceded the Review Board's assessments.

The Review Board's Plan implementation role includes: understanding and being aware of the relevant Conformity Requirements (e.g. scoping assessments to include values identified for the area in the Plan); giving consideration to the information and objectives described for the zones in which the development is proposed; and considering relevant Recommendations in its decisions.

RE

The MVEIRB is responsible for environmental assessment and public review of developments throughout the Mackenzie Valley. When a project is referred to an environmental assessment, the MVEIRB conducts a thorough study of a proposed development's application as a means to determine whether the development would have significant adverse impacts to the environment and/or cause public concern. With this in mind, the MVEIRB may recommend to the federal Minister if a project should proceed to regulatory permitting and licensing with a list of measures, reject the project, or order an environmental impact review by an independent panel, which would be a more detailed review than that of an environmental assessment. The environmental impact review process is a more comprehensive examination based on a public process that is designed to ensure that the concerns of Indigenous people and other members of the public are considered before making any decisions as to whether a project should move forward.

In the SSA, a proposed development can be referred to the MVEIRB by:

- a regulatory authority;
- a designated regulatory agency (the Canada Energy Regulator - CER);
- a department or agency of the federal or territorial government;
- the SSI; or

- a local government if the development will occur or have an impact on the environment within its boundaries. The MVEIRB may also conduct an environmental assessment on its own motion.

Steps in the Regulatory Environment include:

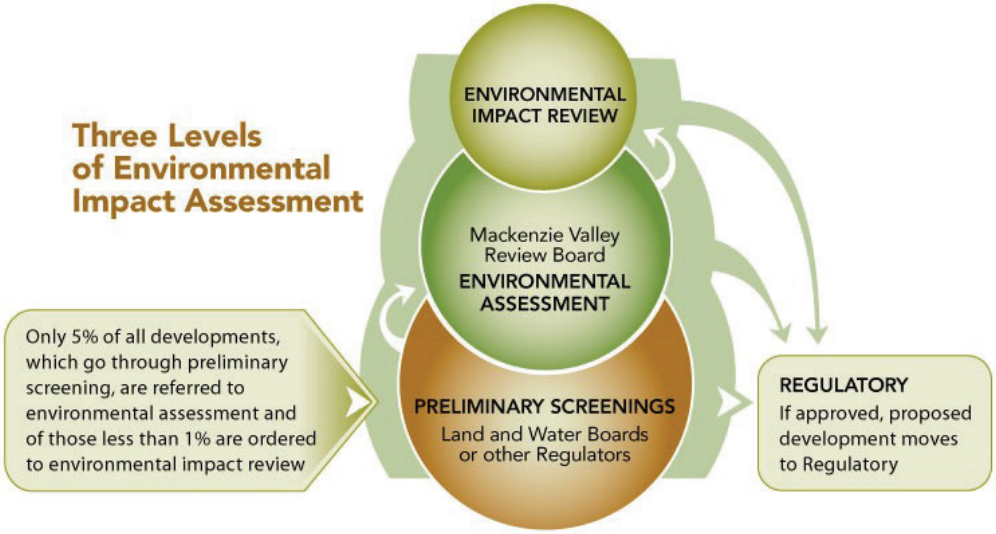
- Preliminary Screening,
- Environmental Assessment, and
- Environmental Impact Review.

They are nested within each other and go through the co-management boards listed above. See Figure 12. Three Levels of Environmental Impact Assessment on page 153 for an illustration of the co-management boards' place in the system.

4. 3. 7. SAHTÚ RENEWABLE RESOURCES BOARD (SRRB)

Though the Sahtú Renewable Resources Board (SRRB) does not issue permits, licences, or authorizations, it is involved in implementing the Conformity Requirements of the SLUP through its participation in the review of applications for land use permits or water licences. The SRRB plays a central role in implementing Actions and Recommendations related to renewable resources.

FIGURE 12. THREE LEVELS OF ENVIRONMENTAL IMPACT ASSESSMENT



Source: NWT Board Forum, Resource Management Information for the NWT website[204]

204 "NWT Board Forum, Resource Management Information for the NWT". Accessed May 5 2022. http://nwtboardforum.com/process/regulatory-system-in-the-mackenzie-valley-region/

4.4 GOVERNMENT OF THE NORTHWEST TERRITORIES (GNWT)

4. 4. 1. DEPARTMENT OF LANDS

The Department of Lands is the lead department in coordinating GNWT input into the SLUP and the Minister of Lands approves the SLUP on behalf of the GNWT. The department was established following the devolution of powers from the federal government to the GNWT in 2014. Their mandate

> *"is to manage, administer, and plan for the sustainable use of public land in the Northwest Territories in a fair and transparent manner that reflects the interests of the people of the Northwest Territories"*

with approximately 97% of land in the NWT being public land.[205]

The Department of Lands is also responsible for administering the following acts across the NWT:

- *Northwest Territories Lands Act, 2014;*
- *Commissioner's Land Act, 1988;*
- *Area Development Act, 1988;*
- *Surface Rights Board Act, 2016;*
- *NWT Devolution of Lands and Resources Agreement, 2011;* and the
- *Mackenzie Valley Resources Management Act, 1998.*

RE

The Department of Lands is also involved in the regulatory review of land use permits, providing input to regulators. The Department of Lands is a referral organization providing comments relevant to its mandate for preliminary screenings and environmental assessments. It is also responsible for issuing authorizations related to land leases, as well as monitoring of projects that received a land use permit, including inspection and enforcement of conditions associated with the land use permit.

4. 4. 2. DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES (ENR)

The Department of Environment and Natural Resources (ENR) is responsible for promoting the wise use and protection of the NWT's natural resources. ENR's regional office in the SSA is in Norman Wells.

ENR is responsible for administering the following Acts across the NWT:

- *Environmental Protection Act, 1988;*
- *Environmental Rights Act, 2019;*
- *Pesticide Act, 1988;*
- *Forest Management Act, 1988;*
- *Forest Protection Act, 1988;*

205 "Our Mandate", (Department of Lands, Government of the Northwest Territorie). https://www.lands.gov.nt.ca/en/about-us

RE

- *Natural Resources Conservation Trust Act, 1988;*
- *Protected Areas Act, 2019;*
- *Reindeer Act, 2014;*
- *Species at Risk (NWT) Act, 2010;*
- *Waste Reduction and Recovery Act, 2003;*
- *Waters Act, 2014;*
- *Water Resources Agreements Act, 1988;* and the
- *Wildlife Act, 2013.*

ENR is responsible for overseeing the protection of natural areas within the territories. It is involved in Conservation Network Planning in the NWT, which is an initiative to create a conservation network as

> *"an effective and equitable way to ensure the NWT's cultures, land and water stay healthy for future generations."*[206]

Conservations networks include "protected areas and conservation areas at various sizes that collectively contribute to ecological, economic and social stability more effectively than individual sites could alone", while "ensur[ing] the landscape is connected and provides corridors and reproductive areas for wildlife, aiding species migration and adaptation".[207] An example of an area established as part of this strategy is the Ts'udé Nɬı́ı́né Tuyeta Protected Area, established under the NWT *Protected Areas Act*.

RE

ENR is involved in the regulatory review of water licence applications, providing input related to the management of wildlife, forests, air, and water, as well as evaluating proposals and licences issued by the land and water boards. ENR is a referral organization providing comments relevant to its mandate for preliminary screenings and environmental assessments. It is also responsible for issuing authorizations related to wildlife and forestry use, and responsible for wildlife research and issuance of Wildlife Research Permits. It is also responsible for documenting resident and non-resident wildlife harvests, as well as monitoring of projects that have received a water licence, including inspection and enforcement of conditions associated with the water licence.

Furthermore, the *SDMCLCA* (S. 25.1.4) and the *MVRMA* (S. 146) provide for the establishment of a mechanism to monitor the cumulative impact on the environment of concurrent and sequential uses of land and water and deposits of waste in the Mackenzie Valley. The *NWT Cumulative Impact Monitoring Program* (CIMP) was

206 "Conservation Network Planning", Department of Environment and Natural Resources, Government of the Northwest Territories. Accessed May 5 2022. https://www.enr.gov.nt.ca/en/services/conservation-network-planning

207 Ibid.

established to fulfill these requirements. CIMP is intended to monitor cumulative impacts of land and water uses and waste deposits, fill in key monitoring gaps, build community capacity and provide reports and information on the state of the environment to independent audits, decision-makers and the public.

The *CIMP 2021-25 Action Plan*'s goals are:

- Identify and promote cumulative impact monitoring priorities of key decision-makers for caribou, water and fish;
- Identify how NWT CIMP can better consider, support and facilitate Indigenous knowledge in resource management decisions;
- Ensure that Indigenous governments and organizations continue to guide the design and implementation of NWT CIMP through the Steering Committee;
- Develop and implement a ENR *Cumulative Impact Framework*;
- Conduct and support regional environmental cumulative impact monitoring, using Indigenous and scientific approaches;
- Address high priority cumulative impact monitoring and research questions of key decision-makers for caribou, water and fish;
- Support and promote Indigenous Knowledge cumulative impact monitoring projects;
- Report relevant NWT CIMP-supported monitoring and research results directly to co-management boards;
- Ensure NWT CIMP monitoring and research results are accessible to communities and the public; and
- Facilitate the NWT Environmental Audit every five years in accordance with the *Mackenzie Valley Resource Management Act* (*MVRMA*).

RE

4. 4. 3. DEPARTMENT OF INDUSTRY, TOURISM AND INVESTMENT (ITI)

ITI was established in April 2005 to promote economic self-sufficiency in the NWT by promoting natural resource development in industries and supporting tourism, trade and investment, and business.[208]

The Department of Industry, Tourism and Investment (ITI) works in partnership with businesses and others to promote and support the economic development opportunities across the NWT and within its communities. ITI delivers their services across several specified sectors to ensure industry is given the rights tools to succeed.

208 "Industry, Tourism and Investment Establishment Policy". (ITI-GNWT, 2015). Accessed May 9 2022. https://www.eia.gov.nt.ca/sites/eia/files/content/63.01-industry-tourism-and-investment-establishment-policy.pdf

RE

These[209] include the following:

- Agriculture and Fisheries;
- Arts, Crafts, and Film;
- Business and Economic Development;
- Commercial Fishing;
- Diamonds;
- Mines & Minerals;
- NWT Geological Survey;
- Oil & Gas;
- Parks;
- Tourism;
- Traditional Economy; and
- Knowledge Economy.

ITI administers a number of Acts and Regulations governing economic development and tourism within the NWT. The following is a list of Acts administered under ITI:

- *Agricultural Products Marketing Act,1988;*
- *Freshwater Fish Marketing Act, 1990;*
- *Herd and Fencing Act, 1988;*
- *NWT Business Development and Investment Corporation Act, 2005;*
- *Co-operative Associations Act, 1988;*
- *Oil and Gas Operations Act, 2014;*
- *Petroleum Resources Act, 2014;*
- *Territorial Parks Act, 1988;* and
- *Tourism Act, 2007.*

ITI is involved in the regulatory review of land use permit and water licence applications, providing input related to minerals and oil and gas development, energy development, and tourism.

ITI is a referral organization providing comments relevant to its mandate for preliminary screenings and environmental assessments. It is also responsible for issuing authorizations related to tourism including Tourism Operator Licences. All businesses that offer "guided commercial tourism activities" need such a licence.[210]

209 "Sectors", (INI-GNWT). Accessed May 9 2022. https://www.iti.gov.nt.ca/en/sectors

210 Ibid.

RE

RE

4. 4. 4. OFFICE OF THE REGULATOR OF OIL AND GAS OPERATIONS (OROGO)

The Office of the Regulator of Oil and Gas Operations (OROGO) regulates oil and gas operations in the Northwest Territories under the Oil and Gas Operations Act, outside federal areas and the Inuvialuit Settlement Region, for the primary purposes of ensuring safety, environmental protection, and the conservation of oil and gas resources.[211]

The Office of the Regulator of Oil and Gas Operations (OROGO) responsibilities' include:

- Application reviews;
- Regulating seismic and drilling operations;
- Pipeline and well regulation;
- Inspection and compliance;
- Emergency response and investigation.

OROGO also has responsibilities under the:

- *Petroleum Resources Act, 1985;* and the
- *Mackenzie Valley Resource Management Act, 1998.*

RE

4. 4. 5. DEPARTMENT OF MUNICIPAL AND COMMUNITY AFFAIRS (MACA)

MACA contributes funding to communities to assist them in providing services to their residents.

The Department of Municipal And Community Affairs (MACA) administers Commissioner's Lands, provides advice and assistance to community governments on land use and community planning, performs property assessments, and provides technical mapping and surveying services to community governments and the public. Its mission is to work with community governments and other partners in supporting community residents as they organize and manage democratic, responsible and accountable community governments. However, these functions are not directly relevant to the SLUP as the SLUP does not apply to lands within community boundaries.

MACA is responsible for administering the following acts, amongst many other pieces of legislation:

- *Charter Communities Act, 2004;*
- *Cities, Towns and Villages Act, 2004;*

211 Oil and Gas Operations Act, SNWT 2014,c.14. (GNWT, 2014). https://www.justice.gov.nt.ca/en/files/legislation/oil-and-gas-operations/oil-and-gas-operations.a.pdf

RE

- *Hamlets Act, 2004;*
- *Indian Act (Federal), 1985;*
- *Planning Act, 2013;*
- *Property Assessment and Taxation Act, 1988;* and
- *Tłı̨chǫ Community Government Act, 2004.*

4. 4. 6. DEPARTMENT OF INFRASTRUCTURE (INF)

The mandate of the Minister and Department of Infrastructure is to provide services to the Government of the Northwest Territories with respect to the planning, design, construction, acquisition, operation and maintenance of government infrastructure; and to promote the development and increased use of energy efficient technologies.[212]

The Department of Infrastructure (INF) is responsible[213] for:

- Disposal of surplus property and goods;
- Environmental impact assessment/regulatory review and approval;
- Information management and technology;
- Marine Transportation Services;
- Mechanical/electrical regulatory services;
- Motor and vehicle services;
- Planning, design, construction, acquisition, operation and maintenance of public buildings and transportation infrastructure and systems;
- Procurement shared services;
- Programming aimed at energy conservation and efficiency and reducing energy costs in the NWT;
- Property management;
- Remediation of public infrastructure; and
- Strategic planning of public transportation infrastructure and energy production and distribution systems.

RE

212 "INF Establishment Policy". (Department of Executive and Indigenous Affairs, Government of the Northwest Territories, 2022). Accessed May 9 2022. https://www.eia.gov.nt.ca/sites/eia/files/content/31.00-infrastructure-estbalishment-policy.pdf

213 "Mandate", (Department of Infrastructure, Government of the Northwest Territories, 2020). Accessed May 9 2022. https://www.inf.gov.nt.ca/en/mandate-and-responsibilities

As such, part of its responsibilities include constructing and maintaining the NWT highway system, which consists of 2,200 kilometres of all-weather highway, 1,450 kilometres of publicly constructed winter roads, five ferry and ice crossings, 27 community airports, as well as docks for the marine transportation system.

INF administers and is governed by the following NWT legislation (and their associated Acts):

- *All Terrain Vehicles Act, 1988;*
- *Architects Act, 2001;*
- *Boilers and Pressure Vessels Act, 1993;*
- *Deh Cho Bridge Act, 2003;*
- *Electrical Protection Act, 1988;*
- *Gas Protection Act, 1988;*
- *Motor Vehicles Act, 1988;*
- *Public Airports Act, 2006;*
- *Public Highways Act, 1988;*
- *Purchasing Management Association Act, 1991-1992;* and
- *Transportation of Dangerous Goods Act, 1988.*

This department may be involved in the regulatory review of land use permit and water licence applications, providing input related to transportation. INF is a referral organization providing comments relevant to its mandate for preliminary screenings and environmental assessments. Often, it is an applicant in the regulatory process, as it requires land use permits and water licences to construct winter roads and transportation infrastructure.

4.5 GOVERNMENT OF CANADA

4. 5. 1. CROWN-INDIGENOUS RELATIONS AND NORTHERN AFFAIRS CANADA (CIRNAC)

Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC) is responsible for Canada's northern lands and territories, and one of two departments with responsibility for policies related to Indigenous and Métis peoples in Canada (the other being Indigenous Services Canada). These two departments were created following the dissolution of INAC in 2019. Furthermore, CIRNAC is overseen by two cabinet ministers, them being the Minister of Crown-Indigenous Relations, whose portfolio includes treaty rights and land negotiations, and the Minister of Northern Affairs.

CIRNAC supports indigenous people (First Nations, Inuit and Métis) and Northerners in their efforts to:

- improve social well-being and economic prosperity;
- develop healthier, more sustainable communities; and,
- participate more fully in Canada's political, social and economic development- to the benefit of all Canadians.

CIRNAC is one of the federal government departments responsible for meeting Canada's obligations and commitments to First Nations, Inuit and Métis and for fulfilling the federal government's constitutional responsibilities in the North.

> *CIRNAC's mandate states that it "continues to renew the nation-to-nation, Inuit-Crown, government-to-government relationship between Canada and First Nations, Inuit and Métis; modernize Government of Canada structures to enable Indigenous peoples to build capacity and support their vision of self-determination; and lead the Government of Canada's work in the North."*[214]

RE

It administers or has responsibilities under several pieces of legislation, including:

- *The Canada Petroleum Resources Act, 1985;*
- *The Canada Oil and Gas Operations Act, 1985;* and
- *The Mackenzie Valley Resource Management Act, 1998.*

Following the devolution of powers to the GNWT in 2014, much of the federal legislation that was administered by CIRNAC have been mirrored as territorial legislation, and the responsibility of the GNWT.

Some of its core programs and responsibilities related to planning include:

- Coordinating federal input on land use planning and approving the SLUP;
- Management and cleanup of federal contaminated sites;

214 "Mandate", (Crown-Indigenous Relations and Northern Affairs Canada, Government of Canada, 2019). Accessed May 9 2022. https://www.rcaanc-cirnac.gc.ca/eng/1539285232926/1539285278020

RE

4. 5. 2. FISHERIES AND OCEANS CANADA (DFO)

Fisheries and Ocean Canada (DFO) is responsible for developing and implementing policies and programs in support of Canada's scientific, ecological, social, and economic interests in oceans and fresh waters.

> *Their mandate includes the protection and management of Canada's fisheries, including aquaculture; the protection of oceans, freshwater, and aquatic ecosystems and species from the negative impact of humans and invasive species; maintenance of waterways year-round so they are safely navigable; and marine operations and response.*[215]

DFO is primarily responsible for managing fish and fish habitat. It administers the *Fisheries Act* and associated regulations and has responsibilities under the federal *Species at Risk Act* for aquatic species, including fish and aquatic plants. DFO is responsible for issuing authorizations for activities that will cause the harmful alteration, disruption or destruction of fish habitat. It is a referral organization providing comments relevant to its mandate for preliminary screening and environmental assessments. DFO participates in project reviews and provides comments related to fish, habitats that support fish, marine mammals, and aquatic plants.

It administers or has responsibilities under several pieces of legislation, which includes but is not limited to:

- *Canada Shipping Act, 2001;*
- *Department of Fisheries and Oceans Act, 1985;*
- *Fisheries Act, 2019;* and the
- *Species at Risk Act, 2022.*

RE

4. 5. 3. ENVIRONMENT AND CLIMATE CHANGE CANADA (ECCC), CANADIAN WILDLIFE SERVICE (CWS), AND PARKS CANADA AGENCY (PCA)

ENVIRONMENT AND CLIMATE CHANGE CANADA (ECCC)

Environment and Climate Change Canada's (ECCC) mandate is related to[216]:

- Preserving and enhancing the quality of the natural environment, including water, air, and soil, and the coordination of the relevant policies and programs of the Government of Canada;
- Renewable resources, including migratory birds and other non-domestic flora and fauna;

215 "Mandate and Role", (Fisheries and Oceans Canada, 2020). Accessed May 9 2022. https://www.dfo-mpo.gc.ca/about-notre-sujet/mandate-mandat-eng.htm

216 "Mandate and Role: Who We Are and What We Do, (Environment and Climate Change Canada, 2019). Accessed May 9 2022. https://www.canada.ca/en/environme"nt-climate-change/corporate/mandate.html

RE

- Meteorology; and
- Enforcement of rules and regulations.

ECCC implements a number of statutes. Some of its key statutes are the:

- *Department of Environment Act, 1985;*
- *Pollution Prevention Provisions of the Fisheries Act, 1985;*
- *Canadian Environmental Protection Act, 1999;*
- *Migratory Birds Convention Act, 1994;*
- *Canada Wildlife Act, 1985;*
- *The Wild Animal and Plant Protection and Regulation of International and Interprovincial Trade Act, 1992;* and
- *Species at Risk Act, 2002.*

THE CANADIAN WILDLIFE SERVICE (CWS)

The Canadian Wildlife Service (CWS) is Canada's national wildlife agency. It handles wildlife matters that are the responsibility of the federal government, including the protection and management of migratory birds and nationally important wildlife habitat, endangered species, research on nationally important wildlife issues, control of international trade in endangered species, and international treaties. It has been requested to serve as the sponsoring agency for several areas to establish as National Wildlife Areas.

RE

PARKS CANADA (PC)

Parks Canada's (PC) mandate is as follows:

> *"On behalf of the people of Canada, Parks Canada protects and presents nationally significant examples of Canada's natural and cultural heritage and fosters public understanding, appreciation and enjoyment in ways that ensure their ecological and commemorative integrity for present and future generations".*[217]

PC manages national parks, national marine conservation areas, and national historic sites on behalf of Canadians. It is a separate agency of the Government of Canada that derives its mandate from several pieces of legislation, with those following being relevant to land use planning:

- *Parks Canada Agency Act, 1998;*
- *Canada National Parks Act, 2000;*
- *Canada National Marine Conservation Areas Act, 2002;*

217 "The Parks Canada Mandate and Charter", (Parks Canada Agency, 2018). Accessed May 9 2022. https://www.pc.gc.ca/en/agence-agency/mandat-mandate

- *Historic Sites and Monuments Act, 1985;* and
- *Species at Risk Act, 2002.*

ECCC, the CWS, and PCA are all involved in regulatory reviews of projects and provide comments relating to areas within their respective mandates. ECCC and the CWS are both referral organizations providing comments relevant to their mandate for preliminary screenings and environmental assessments.

4. 5. 4. TRANSPORT CANADA (TC)

Transport Canada (TC) is responsible for transportation policies and programs. It ensures that air, marine, road and rail transportation are safe, secure, efficient and environmentally responsible.[218]

TC's mission is to:

> *"serve the public interest through the promotion of a safe and secure, efficient and environmentally responsible transportation system in Canada".*[219]

TC has the responsibility and authority to propose and enforce laws and regulations to ensure safe, secure, efficient and clean transportation. The following are only a few key pieces of legislation that TC has authority for:

- *Bridges Act, 1985;*
- *Canada Shipping Act, 2001;*
- *Canada Transportation Act, 1996;*
- *Canadian Navigable Waters Act, 1985*, including Navigable Water Protection statutes;
- *Department of Transport Act, 1985;*
- *Motor Vehicle Safety Act, 1993;*
- *Motor Vehicle Transport Act, 1985;*
- *Public Safety Act, 2002;*
- *Transportation of Dangerous Goods Act, 1992;*
- *Canadian Environmental Assessment Act, 2012;* and
- *Canadian Environmental Protection Act, 1999.*

TC is a referral organization providing comments relevant to its mandate for preliminary screenings and environmental assessments.

218 "Transport Canada", (Transport Canada, 2021). Accessed May 9 2022. https://tc.canada.ca/en

219 "About Transport Canada – Corporate Information", (Transport Canada, 2019). Accessed May 9 2022. https://tc.canada.ca/en/corporate-services/about-transport-canada-corporate-information

RE

RE

4. 5. 5. CANADIAN NUCLEAR SAFETY COMMISSION (CNSC)

The mandate of the Canadian Nuclear Safety Commission (CNSC) is the following:

> *"The Canadian Nuclear Safety Commission regulates the use of nuclear energy and materials to protect the health, safety, security and the environment; to implement Canada's international commitments on the peaceful use of nuclear energy; and to disseminate objective scientific, technical and regulatory information to the public".*[220]

Under the *Nuclear Safety and Control Act*, CNSC's mandate involves four major areas:

- regulation of the development, production and use of nuclear energy in Canada to protect health, safety and the environment;
- regulation of the production, possession, use and transport of nuclear substances, and the production, possession and use of prescribed equipment and prescribed information;
- implementation of measures respecting international control of the development, production, transport and use of nuclear energy and substances, including measures respecting the non-proliferation of nuclear weapons and nuclear explosive devices;
- dissemination of scientific, technical and regulatory information concerning the activities of CNSC, and the effects on the environment, on the health and safety of persons, of the development, production, possession, transport and use of nuclear substances".[221]

RE

Organizations applying for licences are subject to rules and regulations that make nuclear energy and materials safe. The CNSC administers these regulations, including the *Nuclear Safety and Control Act* and *Regulations*, and *Nuclear Liability Act*. The CNSC however, does not regulate exploration for uranium until advanced stages of exploration, specifically underground development.

The CNSC implements Canada's bilateral agreement with the International Atomic Energy Agency on nuclear safeguards verification and conducts environmental assessments on projects related to nuclear energy under the *Canadian Environmental Assessment Act*.

220 "Mandate – The Commission", (Canadian Nuclear Safety Commission, 2018). Accessed May 9 2022. https://www.cnsc-ccsn.gc.ca/eng/the-commission/index.cfm

221 "Our Mission", (Canadian Nuclear Safety Commission, 2014). Accessed May 9 2022. http://nuclearsafety.gc.ca/eng/about-us/our-mission.cfm

RE

4. 5. 6. CANADA ENERGY REGULATOR (CER)

Previously known as the National Energy Board (NEB), the Canada Energy Regulator (CER) "is a departmental corporation and agent of the Crown established under the *CER Act*". [222] It is "a Board-governed departmental corporation [and] operates with a level of day-to-day independence from the Minister. However, the CER is ultimately accountable to the Minister of Natural Resources and supports the Minister's accountability to the Prime Minister and to Parliament for CER's overall performance".[223]

The Regulator's mandate includes:

- *"making transparent decisions, orders and recommendations with respect to pipelines, power lines, offshore renewable energy projects and abandoned pipelines;*
- *Overseeing the construction, operation and abandonment of pipelines, interprovincial power lines and international power lines and overseeing work and activities authorized under Part 5 as well as abandoned facilities;*
- *Making orders with respect to traffic, tolls and tariffs and overseeing matters relating to traffic, tolls and tariffs;*
- *Making decisions and orders and giving directions under Part 8 with respect to oil and gas interests, production and conservation;*
- *Advising and reporting on energy matters;*
- *Providing alternative dispute resolution processes;*
- *Exercising powers and performing duties and functions that are conferred on the Regulator under any other Act of Parliament; and*
- *Exercising its powers and performing its duties and functions in a manner that respects the Government of Canada's commitments with respect to the rights of the Indigenous peoples of Canada."*[224]

RE

Other responsibilities include:

- "To ensure that pipelines and power lines as well as facilities, equipment or systems related to offshore renewable energy projects, are constructed, operated and abandoned in a manner that is safe, secure and efficient and that protects people, property and the environment;

222 "Memorandum of Understanding (MOU) between the Canada Energy Regulator (CER) and Transport Canada (TC)", (Canada Energy Regulator, 2022). Accessed May 9 2022. https://www.cer-rec.gc.ca/en/about/acts-regulations/other-acts/cooperative-agreements/memorandum-of-understanding-between-canada-energy-regulator-and-transport-canada.html

223 "CER and Government of Canada: Government of Canada Policy" (Canada Energy Regulator, 2022). Accessed May 9 2022. https://www.cer-rec.gc.ca/en/about/who-we-are-what-we-do/governance/transition-binder-for-minister-of-natural-resources/transition-binder-for-minister-of-natural-resources-cer-and-government-of-canada.html?=undefined&wbdisable=true

224 "Governance of the Canada Energy Regulator – Mandate, Roles and Responsibilities" (Canada Energy Regulator, 2022). Accessed May 9 2022. https://www.cer-rec.gc.ca/en/about/who-we-are-what-we-do/governance/governance-canada-energy-regulator-mandate-roles-responsibilities/index.html#s2

RE

- To ensure that the exploration for and exploitation of oil and gas, as defined in section 2 of the *Canada Oil and Gas Operations Act*, is carried out in a manner that is safe and secure and that protects people, property and the environment;
- To regulate trade in energy products; and
- To ensure that regulatory hearings and decision-making processes related to those energy matters are fair, inclusive, transparent and efficient". [225]

The CER's mandate, responsibilities, and powers are established under the following Acts:

- *Canadian Energy Regulator Act, 2019;*
- *Canada Oil and Gas Operations Act, 1985;*
- *Canada Petroleum Resources Act (sections 28 and 35), 1985;*
- *Oil and Gas Operations Act, 1985;* and
- *Petroleum Resources Act, 1985.*

The CER also has responsibilities under other Acts, with the relevant ones for the SSA being:

- *Canadian Environmental Protection Act, 1999;*
- *Energy Administration Act, 1985;*
- *Impact Assessment Act, 2019;*
- *Mackenzie Valley Resource Management Act, 1998;*
- *Northern Pipeline Act, 1985;* and the
- *Species at Risk Act, 2002.*

RE

225 Ibid.

4. 5. 7. NATURAL RESOURCES CANADA (NRCAN)

"Natural Resources Canada develops policies and programs that enhance the contribution of the natural resources sector to the economy, improve the quality of life for all Canadians and conducts innovative science in facilities across Canada to generate ideas and transfer technologies."[226]

Natural Resources Canada (NRCan) is a leader in science and technology in the fields of energy, forests, and minerals and metals. It builds and maintains an up-to-date knowledge base of Canada's landmass and develops policies and programs that enhance the contribution of the natural resources sector to the economy.

NRCan has a very wide mandate of roles and responsibilities. The Department:

- regulates many professional and labour roles,
- has powers over many fuel and energy provisions, including:
  - energy efficiency and supplies,
  - energy transport through pipelines,
  - sustainability measures, and
  - monitoring efforts;
- issues authorizations for explosives materials and blasting,
- administers many raw material acts, and
- supervises pollution policies.

RE

NRCan's powers are established under the following Acts that are relevant to the NWT, for which the Minister of Natural Resources is responsible:

- *Arctic Waters Pollution Prevention Act, 1985;*
- *Canadian Energy Regulator Act, 2019;*
- *Canada Foundation for Sustainable Development Technology Act, 2001;*
- *Canada Labour Code, 1985;*
- *Canada Lands Surveyors Act, 1998;*
- *Canada Lands Surveys Act, 1985;*
- *Canada Oil and Gas Operations Act, 1985;*
- *Canada Petroleum Resources Act, 1985;*
- *Canadian Ownership and Control Determination Act, 1985;*
- *Cooperative Energy Act, 1980;*
- *Department of Natural Resources Act, 1994;*
- *Emergency Management Act, 2007;*
- *Energy Administration Act, 1985;*

226 "About us". (Natural Resources Canada, 2022). Accessed May 9 2022. https://www.nrcan.gc.ca/home/about-us/10838

RE

- *Energy Efficiency Act, 1992;*
- *Energy Monitoring Act, 1985;*
- *Energy Supplies Emergency Act, 1985;*
- *Explosives Act, 1985;*
- *Export and Import of Rough Diamonds Act, 2002;*
- *Extractive Sector Transparency Measures Act, 2014;*
- *Forestry Act, 1985;*
- *Northern Pipeline Act, 1985;*
- *Nuclear Energy Act, 1985;*
- *Nuclear Fuel Waste Act, 2002;*
- *Nuclear Liability and Compensation Act, 2015;*
- *Nuclear Safety and Control Act, 1997;*
- *Oil Substitution and Conservation Act, 1985;* and
- *Resources and Technical Surveys Act, 1985.*

Index

R

S

Index

List of Tables

CH. 1. SOCIETY AND CULTURE

CH. 2. BIOPHYSICAL ENVIRONMENT

TABLE 7. ECOREGIONS IN THE SAHTÚ SETTLEMENT AREA

Sources: Reproduced in part from Ecological Regions of the Northwest Territories – Taiga, Shield & Cordillera reports:

Ecosystem Classification Group. Ecological Regions of the Northwest Territories - Taiga Plains. (Yellowknife: Department of Environment and Natural Resources, Government of the Northwest Territories, 2007-rev 2009). viii + 173 pp. + folded insert map;

Ecosystem Classification Group. Ecological Regions of the Northwest Territories - Cordillera. (Yellowknife: Department of Environment and Natural Resources, Government of the Northwest Territories, 2010). x + 245 pp. + insert map;

Ecosystem Classification Group. Ecological Regions of the Northwest Territories - Taiga Shield. (Yellowknife: Department of Environment and Natural Resources, Government of the Northwest Territories, 2008). viii + 146 pp. + insert map.

TABLE 8. COSEWIC ASSESSMENT

Sources: "About us," COSEWIC, 2021. Accessed May 5 2022. https://www.cosewic.ca/index.php/en-ca/about-us.html

TABLE 9. SSA SPECIES ON THE COSEWIC LIST (AS OF OCTOBER 2021)

Sources: COSEWIC. Canadian Wildlife Species At Risk, October 2021. Committee on the Status of Endangered Wildlife in Canada. Accessed May 5, 2022. https://wildlife-species.canada.ca/species-risk-registry/virtual_sara/files/species/CSAR%20EN%202021.pdf

TABLE 10. NWT SPECIES AT RISK IN THE SSA

Sources: Environment and Climate Change Canada, "Species at Risk Public Registry" (Government of Canada, 2019). Accessed May 4 2022. https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry.html;

"NWT Species at Risk" (GNWT, 2013). Accessed May 4 2022. https://www.nwtspeciesatrisk.ca/

TABLE 11. CORE SEASONAL RANGES OF BLUENOSE-EAST AND BLUENOSE-WEST HERDS (1993-2012)

Sources: Key Caribou Habitat, Department of Environment and Natural Resources, Government of the Northwest Territories, Department of Environment, Government of Nunavut, Caslys Consulting Ltd., 2015.

TABLE 12. SPECIES CONSIDERED IN THE IWA REPORT THAT OCCUR IN THE SSA

Sources: Wilson, J.M., and Haas, C.A., Important Wildlife Areas in the Western Northwest Territories, Manuscript Report No. 221, (ENR - GNWT, Yellowknife, NT, 2012.) https://www.enr.gov.nt.ca/sites/enr/files/221_public_no_appendix_c.pdf

TABLE 13. IWAS LOCATED IN THE SSA

Sources: Wilson, J.M., and Haas, C.A., Important Wildlife Areas in the Western Northwest Territories, Manuscript Report No. 221, (ENR - GNWT, Yellowknife, NT, 2012.) https://www.enr.gov.nt.ca/sites/enr/files/221_public_no_appendix_c.pdf

CH. 3. ECONOMIC DEVELOPMENT & NATURAL ENVIRONMENT

TABLE 14: OIL AND GAS RIGHTS ISSUANCE PROCESS IN THE NWT

Sources: "Oil and Gas Rights Management, Rights Issuance", (ITI-GNWT). Accessed May 9 2022. https://www.iti.gov.nt.ca/en/services/oil-and-gas-rights-management/rights-issuance

TABLE 15: STAGES OF OIL AND GAS EXPLORATION AND DEVELOPMENT

Sources: "Petroleum Resources Act," (Government of the Northwest Territories, 2019). https://www.justice.gov.nt.ca/en/files/legislation/petroleum-resources/petroleum-resources.a.pdf

"Questions & Answers, Significant Discovery Declarations and Directly Affected Persons", (Office of the Regulator of Oil and Gas Operations, Government of the Northwest Territories). https://www.orogo.gov.nt.ca/sites/orogo/files/sdd_questions_and_answers.pdf

TABLE 16: FIVE STAGES OF MINERAL EXPLORATION AND DEVELOPMENT

Sources: INAC. Citizen's Guide to Mining in the NWT 2006, (Ottawa: INAC, Mineral and Petroleum Resources Directorate - DIAND, 2006). AANDC Catalogue No. R2-321/2006E;

Minister of Public Works and Government Services Canada. Citizen's Guide to Mining in the NWT 2010, (Ottawa: INAC, 2010). Catalogue No. R2-321/2010E-PDF;

INAC. Stages of Mineral Exploration & Development in the Northwest Territories, (Ottawa: INAC, 2007). AANDC Catalogue No. R2-466/2007.

TABLE 17: LICENCES AND APPLICATIONS FOR MINERAL EXPLORATION AND DEVELOPMENT

Sources: "Understanding the Proposed Mineral Resources Act", (ITI-GNWT, 2019). Accessed May 9 2022. https://www.iti.gov.nt.ca/en/UnderstandTheMRA

TABLE 18: MACKENZIE VALLEY WINTER ROAD

Sources: Department of Infrastructure, "Winter Roads Average Open/Close Dates, Highways, Ferries, and Winter Roads", (INF-GNWT, 2020). Accessed May 9 2022. https://www.inf.gov.nt.ca/en/services/highways-ferries-and-winter-oads/winter-roads-average-openclose-dates

List of Map References and Data Sources

CH. 1. SOCIETY AND CULTURE

MAP 1. SAHTÚ SETTLEMENT AREA

- Community Boundaries- Department of Municipal and Community Affairs, Government of the Northwest Territories, 2010-2012;
- Digital Elevation Model- CDEM, Natural Resources Canada, Government of Canada;
- National Park and Historic Site / Established Protected Area- Multiple Datasets:
  - National Parks and Historic Sites, Parks Canada Agency, Government of Canada.
  - Established Protected Area, Environment and Natural Resources, Government of the Northwest Territories.
- Rivers & Lakes- CanVec 1:1,000,000, Natural Resources Canada, Government of Canada, 2017;
- Sahtú District Boundary- Sahtú GIS Project, 2007;
- Sahtú Settlement Area Boundary- National Framework Canada Lands Administrative Boundary (CLAB) Level 1, Natural Resources Canada, Government of Canada, 2017;

MAP 2. SAHTÚ SETTLEMENT LANDS

- Community Boundaries- Department of Municipal and Community Affairs, Government of the Northwest Territories, 2010-2012;
- Digital Elevation Model- CDEM, Natural Resources Canada, Government of Canada;
- National Park and Historic Site / Established Protected Area- Multiple Datasets:
  - National Parks and Historic Sites, Parks Canada Agency, Government of Canada.
  - Established Protected Area, Environment and Natural Resources, Government of the Northwest Territories.
- Rivers & Lakes- CanVec 1:1,000,000, Natural Resources Canada, Government of Canada, 2017;
- Sahtú District Boundary- Sahtú GIS Project, 2007;
- Sahtú Settlement Area Boundary- National Framework Canada Lands Administrative Boundary (CLAB) Level 1, Natural Resources Canada, Government of Canada, 2017;
- Sahtú Settlement Lands- NRCan Surveyed Cadastral Data, Natural Resources Canada, Government of Canada.

MAP 3. TRADITIONAL CULTURAL GROUPS

- Community Boundaries- Department of Municipal and Community Affairs, Government of the Northwest Territories, 2010-2012;
- Digital Elevation Model- CDEM, Natural Resources Canada, Government of Canada;
- National Park and Historic Site / Established Protected Area- Multiple Datasets:
  - National Parks and Historic Sites, Parks Canada Agency, Government of Canada.
  - Established Protected Area, Environment and Natural Resources, Government of the Northwest Territories.
- Rivers & Lakes- CanVec 1:1,000,000, Natural Resources Canada, Government of Canada, 2017;
- Sahtú District Boundary- Sahtú GIS Project, 2007;
- Sahtú Settlement Area Boundary- National Framework Canada Lands Administrative Boundary (CLAB) Level 1, Natural Resources Canada, Government of Canada, 2017;
- Sahtú Settlement Lands- NRCan Surveyed Cadastral Data, Natural Resources Canada, Government of Canada;
- Traditional Cultural Groups- Rakekeé Gok'e Godı: Places We Take Care Of, The Sahtu Heritage Places and Sites Joint Working Group, 2000.

MAP 4. SIGNIFICANT CULTURAL AREAS

- Cabins, Camps, and Tent Sites- Multiple Datasets:
  - DIAND Traditional Knowledge Study, Government of Canada, 1992;
  - Fort Good Hope Traditional Knowledge Study, Chevron, 1988;
  - Current Trails Mapping and Resource Mapping Project, Sahtú Land Use Planning Board, 1998-2001;
  - Tulita Forest Land Management Plan, Documentation of Traditional Land Use Knowledge Practices, Tulita Dene Band, Digitized by the Forestry Corp, 2001.
- Community Boundaries- Department of Municipal and Community Affairs, Government of the Northwest Territories, 2010-2012;
- Cultural, Sacred, and Grave Sites- Multiple Datasets:
  - DIAND Traditional Knowledge Study, Government of Canada, 1992;
  - Fort Good Hope Chevron Traditional Knowledge Study, Chevron, 1988;
  - Current Trails Mapping and Resource Mapping Project, Sahtú Land Use Planning Board, 1998-2001;
  - Tulita Forest Land Management Plan, Documentation of Traditional Land Use Knowledge Practices, Tulita Dene Band, Digitized by the Forestry Corp, 2001.
- Digital Elevation Model- CDEM, Natural Resources Canada, Government of Canada;

- Plant Harvesting Areas- Multiple Datasets:
  - SLUPB TK
- Recreational Areas & Historical Sites- Multiple Datasets:
  - DIAND Traditional Knowledge Study, Government of Canada, 1992;
  - Fort Good Hope Chevron Traditional Knowledge Study, Chevron, 1988;
  - Current Trails Mapping and Resource Mapping Project, Sahtú Land Use Planning Board, 1998-2001;
  - Tulita Forest Land Management Plan, Documentation of Traditional Land Use Knowledge Practices, Tulita Dene Band, Digitized by the Forestry Corp, 2001.
- Rivers & Lakes- CanVec 1:1,000,000, Natural Resources Canada, Government of Canada, 2017;
- Sahtú District Boundary- Sahtú GIS Project, 2007;
- Sahtú Settlement Area Boundary- National Framework Canada Lands Administrative Boundary (CLAB) Level 1, Natural Resources Canada, Government of Canada, 2017;
- Timber Harvesting & Berry Picking- Multiple Datasets:
  - DIAND Traditional Knowledge Study, Government of Canada, 1992
  - Current Trails Mapping and Resource Mapping Project, Sahtú Land Use Planning Board, 1998-2001.

MAP 5. DENE AND METIS TRADITIONAL TRAILS

- Community Boundaries- Department of Municipal and Community Affairs, Government of the Northwest Territories, 2010-2012;
- Digital Elevation Model- CDEM, Natural Resources Canada, Government of Canada;
- National Park and Historic Site / Established Protected Area- Multiple Datasets:
  - National Parks and Historic Sites, Parks Canada Agency, Government of Canada.
  - Established Protected Area, Environment and Natural Resources, Government of the Northwest Territories.
- Rivers & Lakes- CanVec 1:1,000,000, Natural Resources Canada, Government of Canada, 2017;
- Sahtú District Boundary- Sahtú GIS Project, 2007;
- Sahtú Settlement Area Boundary- National Framework Canada Lands Administrative Boundary (CLAB) Level 1, Natural Resources Canada, Government of Canada, 2017;
- Traditional Dene and Metis Trails- Dene Nation Traditional Trails Mapping, 1982.

MAP 6. HERITAGE SITES

- Community Boundaries- Department of Municipal and Community Affairs, Government of the Northwest Territories, 2010-2012;
- Digital Elevation Model- CDEM, Natural Resources Canada, Government of Canada;
- National Park and Historic Site / Established Protected Area- Multiple Datasets:
  - National Parks and Historic Sites, Parks Canada Agency, Government of Canada.
  - Established Protected Area, Environment and Natural Resources, Government of the Northwest Territories.
- Heritage Sites- Rakekée Gok'é Godı: Places We Take Care Of, The Sahtu Heritage Places and Sites Joint Working Group, Tom Andrews, 2000;
- Rivers & Lakes- CanVec 1:1,000,000, Natural Resources Canada, Government of Canada, 2017;
- Sahtú District Boundary- Sahtú GIS Project, 2007;
- Sahtú Settlement Area Boundary- National Framework Canada Lands Administrative Boundary (CLAB) Level 1, Natural Resources Canada, Government of Canada, 2017.

CH. 2. BIOPHYSICAL ENVIRONMENT

MAP 7. GEOLOGICAL PROVINCES

- Community Boundaries- Department of Municipal and Community Affairs, Government of the Northwest Territories, 2010-2012;
- Digital Elevation Model- CDEM, Natural Resources Canada, Government of Canada;
- National Park and Historic Site / Established Protected Area- Multiple Datasets:
  - National Parks and Historic Sites, Parks Canada Agency, Government of Canada.
  - Established Protected Area, Environment and Natural Resources, Government of the Northwest Territories.
- Geological Provinces- Geological Map of Canada Map D1860A, Geological Provinces, Geological Survey of Canada, Natural Resources Canada, Government of Canada, 1997;
- Rivers & Lakes- CanVec 1:1,000,000, Natural Resources Canada, Government of Canada, 2017;
- Sahtú District Boundary- Sahtú GIS Project, 2007;
- Sahtú Settlement Area Boundary- National Framework Canada Lands Administrative Boundary (CLAB) Level 1, Natural Resources Canada, Government of Canada, 2017.

MAP 8. PERMAFROST AND TREELINE

- Community Boundaries- Department of Municipal and Community Affairs, Government of the Northwest Territories, 2010-2012;
- Digital Elevation Model- CDEM, Natural Resources Canada, Government of Canada;
- National Park and Historic Site / Established Protected Area- Multiple Datasets:
  - National Parks and Historic Sites, Parks Canada Agency, Government of Canada.
  - Established Protected Area, Environment and Natural Resources, Government of the Northwest Territories.
- Permafrost Extent- Circum-Arctic Map of Permafrost and Ground-Ice Conditions, Version 2, J. Brown, O. Ferrians, J.A. Heginbottom, E. Melnikov, NSIDC: National Snow and Ice Data Center, 2002;
- Rivers & Lakes- CanVec 1:1,000,000, Natural Resources Canada, Government of Canada, 2017;
- Sahtú District Boundary- Sahtú GIS Project, 2007;
- Sahtú Settlement Area Boundary- National Framework Canada Lands Administrative Boundary (CLAB) Level 1, Natural Resources Canada, Government of Canada, 2017.
- Treeline- Circum-Arctic Map of Permafrost and Ground-Ice Conditions, Version 2, J. Brown, O. Ferrians, J.A. Heginbottom, E. Melnikov, NSIDC: National Snow and Ice Data Center, 2002.

MAP 9. MAJOR AND REGIONAL WATERSHEDS

- Community Boundaries- Department of Municipal and Community Affairs, Government of the Northwest Territories, 2010-2012;
- Digital Elevation Model- CDEM, Natural Resources Canada, Government of Canada;
- Major Watersheds- National Hydrological Network 2022, Natural Resources Canada, Government of Canada, 2022;
- National Park and Historic Site / Established Protected Area- Multiple Datasets:
  - National Parks and Historic Sites, Parks Canada Agency, Government of Canada.
  - Established Protected Area, Environment and Natural Resources, Government of the Northwest Territories.
- Rivers & Lakes- CanVec 1:1,000,000, Natural Resources Canada, Government of Canada, 2017;
- Sahtú District Boundary- Sahtú GIS Project, 2007;
- Sahtú Settlement Area Boundary- National Framework Canada Lands Administrative Boundary (CLAB) Level 1, Natural Resources Canada, Government of Canada, 2017.

MAP 10. COMMUNITY DRINKING WATER CATCHMENTS

- Community Boundaries- Department of Municipal and Community Affairs, Government of the Northwest Territories, 2010-2012;
- Digital Elevation Model- CDEM, Natural Resources Canada, Government of Canada;
- National Park and Historic Site / Established Protected Area- Multiple Datasets:
  - National Parks and Historic Sites, Parks Canada Agency, Government of Canada.
  - Established Protected Area, Environment and Natural Resources, Government of the Northwest Territories.
- Rivers & Lakes- CanVec 1:1,000,000, Natural Resources Canada, Government of Canada, 2017;
- Sahtú District Boundary- Sahtú GIS Project, 2007;
- Sahtú Settlement Area Boundary- National Framework Canada Lands Administrative Boundary (CLAB) Level 1, Natural Resources Canada, Government of Canada, 2017;
- Source of Community Drinking Water Catchments, and Community Water Intake- Government of the Northwest Territories, 2010.

MAP 11. FORTY-YEAR FIRE FOOTPRINT (1980-2019)

- Community Boundaries- Department of Municipal and Community Affairs, Government of the Northwest Territories, 2010-2012;
- Digital Elevation Model- CDEM, Natural Resources Canada, Government of Canada;
- National Park and Historic Site / Established Protected Area- Multiple Datasets:
  - National Parks and Historic Sites, Parks Canada Agency, Government of Canada.
  - Established Protected Area, Environment and Natural Resources, Government of the Northwest Territories.
- Forty-Year Fire Footprint- Biologic and Ecologic Data, Environment and Natural Resources (ENR), Government of the Northwest Territories, 2019;
- Rivers & Lakes- CanVec 1:1,000,000, Natural Resources Canada, Government of Canada, 2017;
- Sahtú District Boundary- Sahtú GIS Project, 2007;
- Sahtú Settlement Area Boundary- National Framework Canada Lands Administrative Boundary (CLAB) Level 1, Natural Resources Canada, Government of Canada, 2017.

MAP 12. LEVEL II ECOREGIONS

- Community Boundaries- Department of Municipal and Community Affairs, Government of the Northwest Territories, 2010-2012;
- Digital Elevation Model- CDEM, Natural Resources Canada, Government of Canada;
- Level II Ecoregions- Ecologically Based Land Classification Data, Government of the Northwest Territories, 2013.
- National Park and Historic Site / Established Protected Area- Multiple Datasets:
  - National Parks and Historic Sites, Parks Canada Agency, Government of Canada.
  - Established Protected Area, Environment and Natural Resources, Government of the Northwest Territories.
- Rivers & Lakes- CanVec 1:1,000,000, Natural Resources Canada, Government of Canada, 2017;
- Sahtú District Boundary- Sahtú GIS Project, 2007;
- Sahtú Settlement Area Boundary- National Framework Canada Lands Administrative Boundary (CLAB) Level 1, Natural Resources Canada, Government of Canada, 2017.

MAP 13. LEVEL III & IV ECOREGIONS

- Community Boundaries- Department of Municipal and Community Affairs, Government of the Northwest Territories, 2010-2012;
- Digital Elevation Model- CDEM, Natural Resources Canada, Government of Canada;
- Level III & IV Ecoregions- Ecologically Based Land Classification Data, Government of the Northwest Territories, 2013.
- National Park and Historic Site / Established Protected Area- Multiple Datasets:
  - National Parks and Historic Sites, Parks Canada Agency, Government of Canada.
  - Established Protected Area, Environment and Natural Resources, Government of the Northwest Territories.
- Rivers & Lakes- CanVec 1:1,000,000, Natural Resources Canada, Government of Canada, 2017;
- Sahtú District Boundary- Sahtú GIS Project, 2007;
- Sahtú Settlement Area Boundary- National Framework Canada Lands Administrative Boundary (CLAB) Level 1, Natural Resources Canada, Government of Canada, 2017.

MAP 14. SENSITIVE SPECIES AND FEATURES

- Area of Ice Patches- NWT Ice Patch Study, Prince of Wales Northern Heritage Centre, Government of the Northwest Territories, 2011;
- Community Boundaries- Department of Municipal and Community Affairs, Government of the Northwest Territories, 2010-2012;
- Density of Mineral Licks- Wilson, J.M., Hass, C.A., Important Wildlife Areas in the Western Northwest Territories, Wildlife Division, Department of Environment and Natural Resources, Government of the Northwest Territories, 2012 (with 2014 update);
- Digital Elevation Model- CDEM, Natural Resources Canada, Government of Canada;
- Glacial Refugia- Dyke, A.S., Moore, A., Robertson, L., Deglaciation of North America Open File 1574, Geological Survey of Canada, Government of Canada, 2003;
- Hot and Warm Springs- Wilson, J.M., Hass, C.A., Important Wildlife Areas in the Western Northwest Territories, Wildlife Division, Department of Environment and Natural Resources, Government of the Northwest Territories, 2012 (with 2014 update).
- Karst- Ford, D., Hamilton, J., Kearney, S. (digitising), Mapping Known and Potential Karst Areas in the Northwest Territories, Department of Environment and Natural Resources, Government of the Northwest Territories, 1996 (data) and 2007 (digitised);
- Karst- Duk-Rodkin, A., Hughes, O.L., Kearney, S. (digitising), Surficial Geology, Maps 1989A, 1741A, 1784A, 1783A, 1788A, Geological Survey of Canada, 1989-2000 (reports) and 2007 (digitised);
- May-be-at-Risk Plants- NWT Virtual Herbarium and May-be-at-Risk Plants, Departmentof Environment and Natural Resources, Government of the Northwest Territories, 2014;
- National Park and Historic Site / Established Protected Area- Multiple Datasets:
  - National Parks and Historic Sites, Parks Canada Agency, Government of Canada.
  - Established Protected Area, Environment and Natural Resources, Government of the Northwest Territories.
- Rivers & Lakes- CanVec 1:1,000,000 (Edited), Natural Resources Canada, Government of Canada, 2017;
- Sahtú District Boundary- Sahtú GIS Project, 2007;
- Sahtú Settlement Area Boundary- National Framework Canada Lands Administrative Boundary (CLAB) Level 1, Natural Resources Canada, Government of Canada, 2017.

MAP 15. SPECIAL HARVESTING AREAS & GROUP TRAPPING AREA

- Community Boundaries- Department of Municipal and Community Affairs, Government of the Northwest Territories, 2010-2012;
- Digital Elevation Model- CDEM, Natural Resources Canada, Government of Canada;
  - National Park and Historic Site / Established Protected Area- Multiple Datasets:
  - National Parks and Historic Sites, Parks Canada Agency, Government of Canada.
- Established Protected Area, Environment and Natural Resources, Government of the Northwest Territories.
- Rivers & Lakes- CanVec 1:1,000,000, Natural Resources Canada, Government of Canada, 2017;

- Sahtú District Boundary- Sahtú GIS Project, 2007;
- Sahtú Settlement Area Boundary- National Framework Canada Lands Administrative Boundary (CLAB) Level 1, Natural Resources Canada, Government of Canada, 2017;
- Special Harvesting Areas (moose) & Group Trapping Area- Sahtu Dene and Metis Comprehensive Land Claim Agreement (SDMCLCA), 1993.

MAP 16. SAHTÚ RENEWABLE RESOURCES BOARD (SRRB) HARVEST STUDY

- Community Boundaries- Department of Municipal and Community Affairs, Government of the Northwest Territories, 2010-2012;
- Digital Elevation Model- CDEM, Natural Resources Canada, Government of Canada;
- Harvesting of Small and Large Mammals (count per 10 km^2 Grid)- Harvest Study, Sahtú Renewable Resources Board, 1996-2002;
- National Park and Historic Site / Established Protected Area- Multiple Datasets:
  - National Parks and Historic Sites, Parks Canada Agency, Government of Canada.
  - Established Protected Area, Environment and Natural Resources, Government of the Northwest Territories.
- Rivers & Lakes- CanVec 1:1,000,000, Natural Resources Canada, Government of Canada, 2017;
- Sahtú District Boundary- Sahtú GIS Project, 2007;
- Sahtú Settlement Area Boundary- National Framework Canada Lands Administrative Boundary (CLAB) Level 1, Natural Resources Canada, Government of Canada, 2017;

MAP 17. BARREN-GROUND AND WOODLAND CARIBOU RANGES

- Barren Ground Caribou (Bluenose West and East Fall-Winter Core Ranges)- Key Caribou Habitat, Department of Environment and Natural Resources, Government of the Norwest Territories; Department of Environment, Government of Nunavut, Caslys Consulting Ltd., 2015;
- Boreal Woodland Caribou Range- Anthropogenic Disturbance Footprint Within Boreal Caribou Ranges Across Canada, As Interpreted from 2015 Landsat Satellite Imagery, Landscape Science and Technology Division, Environment Canada, Government of Canada, 2015;
- Community Boundaries- Department of Municipal and Community Affairs, Government of the Northwest Territories, 2010-2012;
- Digital Elevation Model- CDEM, Natural Resources Canada, Government of Canada;
- National Park and Historic Site / Established Protected Area- Multiple Datasets:
  - National Parks and Historic Sites, Parks Canada Agency, Government of Canada.
  - Established Protected Area, Environment and Natural Resources, Government of the Northwest Territories.
- Northern Mountain Woldland Caribou (South Nahanni Herd Summer and Rut Range; Redstone Herd Calving and Early to Midsummer Range)- Wilson, J.M., Haas, C.A., Important Wildlife Areas in the Western Northwest Territories, Manuscript Report No. 221, Department of Environment and Natural Resources, Government of the Northwest Territories, 2012;
- Northern Mountain Woodland Caribou (Redstone Herd Annual Range)- Department of Environment and Natural Resources, Government of the Northwest Territories; Department of Environment, Yukon Government, 2014;
- Rivers & Lakes- CanVec 1:1,000,000, Natural Resources Canada, Government of Canada, 2017;
- Sahtú District Boundary- Sahtú GIS Project, 2007;
- Sahtú Settlement Area Boundary- National Framework Canada Lands Administrative Boundary (CLAB) Level 1, Natural Resources Canada, Government of Canada, 2017;

MAP 18. DALL'S SHEEP

- Community Boundaries- Department of Municipal and Community Affairs, Government of the Northwest Territories, 2010-2012;
- Dall's Sheep Harvesting (SRRB Study) (count per 10 km^2 Grid)- Harvest Study, Sahtú Renewable Resources Board, 1996-2002;
- Dall's Sheep Important Wildlife Area- Important Wildlife Areas in the Western Northwest Territories, Wildlife Division, Environment and Natural Resources, Government of the Northwest Territories, 2012;
- Digital Elevation Model- CDEM, Natural Resources Canada, Government of Canada;
- National Park and Historic Site / Established Protected Area- Multiple Datasets:
  - National Parks and Historic Sites, Parks Canada Agency, Government of Canada.
  - Established Protected Area, Environment and Natural Resources, Government of the Northwest Territories.
- Norm Simmons Dall's Sheep Study- Dall's Sheep Observations, Department of Resources, Wildlife, and Economic Development, Government of the Northwest Territories and WWF-

Canada, 1966-1975;

- Rivers & Lakes- CanVec 1:1,000,000, Natural Resources Canada, Government of Canada, 2017;
- Sahtú District Boundary- Sahtú GIS Project, 2007;
- Sahtú Settlement Area Boundary- National Framework Canada Lands Administrative Boundary (CLAB) Level 1, Natural Resources Canada, Government of Canada, 2017;

MAP 19. WATERFOWL HABITAT

- Community Boundaries- Department of Municipal and Community Affairs, Government of the Northwest Territories, 2010-2012;
- Digital Elevation Model- CDEM, Natural Resources Canada, Government of Canada;
- Mean Predicted Relative Waterfowl Density (Predicted Pairs per Km^2)- Barker et al. Modelling distribution and abundance of multiple species: Different pooling strategies produce similar results. Ecosphere;
- National Park and Historic Site / Established Protected Area- Multiple Datasets:
  - National Parks and Historic Sites, Parks Canada Agency, Government of Canada.
  - Established Protected Area, Environment and Natural Resources, Government of the Northwest Territories.
- Rivers & Lakes- CanVec 1:1,000,000, Natural Resources Canada, Government of Canada, 2017;
- Sahtú District Boundary- Sahtú GIS Project, 2007;
- Sahtú Settlement Area Boundary- National Framework Canada Lands Administrative Boundary (CLAB) Level 1, Natural Resources Canada, Government of Canada, 2017;

MAP 20. WATERFOWL & BIRDS

- Community Boundaries- Department of Municipal and Community Affairs, Government of the Northwest Territories, 2010-2012;
- Digital Elevation Model- CDEM, Natural Resources Canada, Government of Canada;
- Habitat/Harvesting (DIAND TK)- DIAND TK Study, Government of Canada, 1992;
- Key Terrestrial Habitat Sites (CWS)- Key Migratory Bird Terrestrial and Marine Habitat Sites in the Northwest Territories and Nunavut, Canadian Wildlife Service, Environment Canada, Government of Canada, 2008;
- National Park and Historic Site / Established Protected Area- Multiple Datasets:
  - National Parks and Historic Sites, Parks Canada Agency, Government of Canada.
  - Established Protected Area, Environment and Natural Resources, Government of the Northwest Territories.
- Rivers & Lakes- CanVec 1:1,000,000, Natural Resources Canada, Government of Canada, 2017;
- Sahtú District Boundary- Sahtú GIS Project, 2007;
- Sahtú Settlement Area Boundary- National Framework Canada Lands Administrative Boundary (CLAB) Level 1, Natural Resources Canada, Government of Canada, 2017;
- Special Harvesting Areas (migratory birds)- Sahtu Dene and Metis Comprehensive Land Claim Agreement (SDMCLCA), 1993.

MAP 21. IMPORTANT WILDLIFE AREAS

- Community Boundaries- Department of Municipal and Community Affairs, Government of the Northwest Territories, 2010-2012;
- Digital Elevation Model- CDEM, Natural Resources Canada, Government of Canada;
- Important Wildlife Area (Barren Ground Caribou, Beaver, Grizzly Bear, Lynx, Marten, Moose, Muskox, Unique Areas, and Mineral Lick Density)- Important Wildlife Areas in the Western Northwest Territories, Wildlife Division, Environment and Natural Resources, Government of the Northwest Territories, 2012;
- National Park and Historic Site / Established Protected Area- Multiple Datasets:
  - National Parks and Historic Sites, Parks Canada Agency, Government of Canada.
  - Established Protected Area, Environment and Natural Resources, Government of the Northwest Territories.
- Rivers & Lakes- CanVec 1:1,000,000, Natural Resources Canada, Government of Canada, 2017;
- Sahtú District Boundary- Sahtú GIS Project, 2007;
- Sahtú Settlement Area Boundary- National Framework Canada Lands Administrative Boundary (CLAB) Level 1, Natural Resources Canada, Government of Canada, 2017;

MAP 22. BEARS

- Community Boundaries- Department of Municipal and Community Affairs, Government of the Northwest Territories, 2010-2012;
- Digital Elevation Model- CDEM, Natural Resources Canada, Government of Canada;
- Bears Habitat/Harvesting (DIAND TK)- DIAND TK Study, Government of Canada, 1992;
- Bears Harvesting (SRRB Study) (Count per 10 km^2 Grid)- Harvest Study, Sahtú Renewable Resources Board, 1996-2002;
- Grizzly Bear Important Wildlife Area- Important Wildlife Areas in the Western Northwest Territories, Wildlife Division, Environment and Natural Resources, Government of the Northwest Territories, 2012;
- National Park and Historic Site / Established Protected Area- Multiple Datasets:
  - National Parks and Historic Sites, Parks Canada Agency, Government of Canada.
  - Established Protected Area, Environment and Natural Resources, Government of the Northwest Territories.
- Rivers & Lakes- CanVec 1:1,000,000, Natural Resources Canada, Government of Canada, 2017;
- Sahtú District Boundary- Sahtú GIS Project, 2007;
- Sahtú Settlement Area Boundary- National Framework Canada Lands Administrative Boundary (CLAB) Level 1, Natural Resources Canada, Government of Canada, 2017;

MAP 23. BARREN-GROUND CARIBOU

- Community Boundaries- Department of Municipal and Community Affairs, Government of the Northwest Territories, 2010-2012;
- Digital Elevation Model- CDEM, Natural Resources Canada, Government of Canada;
- Barren-Ground Caribou Habitat/Harvesting (DIAND TK)- DIAND TK Study, Government of Canada, 1992;
- Barren-Ground Caribou Harvesting (SRRB Study) (Count per 10 km^2 Grid)- Harvest Study, Sahtú Renewable Resources Board, 1996-2002;
- Barren Ground Caribou Important Wildlife Area- Important Wildlife Areas in the Western Northwest Territories, Wildlife Division, Environment and Natural Resources, Government of the Northwest Territories, 2012;
- National Park and Historic Site / Established Protected Area- Multiple Datasets:
  - National Parks and Historic Sites, Parks Canada Agency, Government of Canada.
  - Established Protected Area, Environment and Natural Resources, Government of the Northwest Territories.
- Rivers & Lakes- CanVec 1:1,000,000, Natural Resources Canada, Government of Canada, 2017;
- Sahtú District Boundary- Sahtú GIS Project, 2007;
- Sahtú Settlement Area Boundary- National Framework Canada Lands Administrative Boundary (CLAB) Level 1, Natural Resources Canada, Government of Canada, 2017;

MAP 24. FISH

- Community Boundaries- Department of Municipal and Community Affairs, Government of the Northwest Territories, 2010-2012;
- Digital Elevation Model- CDEM, Natural Resources Canada, Government of Canada;
- Fish Habitat/Harvesting (DIAND TK)- DIAND TK Study, Government of Canada, 1992;
- Fish Harvesting (SLUPB TK)- Current Trails Mapping and Resource Mapping Projects, Sahtú Land Use Planning Board, 1998-2001;
- Fish Harvesting (SRRB Study) (Count per 1 km^2 Grid)- Harvest Study, Sahtú Renewable Resources Board, 1996-2002;
- National Park and Historic Site / Established Protected Area- Multiple Datasets:
  - National Parks and Historic Sites, Parks Canada Agency, Government of Canada.
  - Established Protected Area, Environment and Natural Resources, Government of the Northwest Territories.
- Rivers & Lakes- CanVec 1:1,000,000, Natural Resources Canada, Government of Canada, 2017;
- Sahtú District Boundary- Sahtú GIS Project, 2007;
- Sahtú Settlement Area Boundary- National Framework Canada Lands Administrative Boundary (CLAB) Level 1, Natural Resources Canada, Government of Canada, 2017;
- Special Harvesting Areas (fish)- Sahtu Dene and Metis Comprehensive Land Claim Agreement (SDMCLCA), 1993.

MAP 25. FURBEARERS

- Community Boundaries- Department of Municipal and Community Affairs, Government of the Northwest Territories, 2010-2012;
- Digital Elevation Model- CDEM, Natural Resources Canada, Government of Canada;
- Habitat/Harvesting (DIAND TK)- DIAND TK Study, Government of Canada, 1992;
- Harvest Areas (SLUPB TK)- Current Trails Mapping and Resource Mapping Projects, Sahtú Land Use Planning Board, 1998-2001;
- Furbearers Harvesting (SRRB Study) (Count per 10 km^2 Grid)- Harvest Study, Sahtú Renewable Resources Board, 1996-2002;
- Furbearers Important Wildlife Areas- Important Wildlife Areas in the Western Northwest Territories, Wildlife Division, Environment and Natural Resources, Government of the Northwest Territories, 2012;
- National Park and Historic Site / Established Protected Area- Multiple Datasets:
  - National Parks and Historic Sites, Parks Canada Agency, Government of Canada.
  - Established Protected Area, Environment and Natural Resources, Government of the Northwest Territories.
- Rivers & Lakes- CanVec 1:1,000,000, Natural Resources Canada, Government of Canada, 2017;
- Sahtú District Boundary- Sahtú GIS Project, 2007;
- Sahtú Settlement Area Boundary- National Framework Canada Lands Administrative Boundary (CLAB) Level 1, Natural Resources Canada, Government of Canada, 2017;

MAP 26. MOOSE

- Community Boundaries- Department of Municipal and Community Affairs, Government of the Northwest Territories, 2010-2012;
- Digital Elevation Model- CDEM, Natural Resources Canada, Government of Canada;
- Habitat/Harvesting (DIAND TK)- DIAND TK Study, Government of Canada, 1992;
- Moose Harvesting (SRRB Study) (Count per 10 km^2 Grid)- Harvest Study, Sahtú Renewable Resources Board, 1996-2002;
- Moose Important Wildlife Areas- Important Wildlife Areas in the Western Northwest Territories, Wildlife Division, Environment and Natural Resources, Government of the Northwest Territories, 2012;
- National Park and Historic Site / Established Protected Area- Multiple Datasets:
  - National Parks and Historic Sites, Parks Canada Agency, Government of Canada.
  - Established Protected Area, Environment and Natural Resources, Government of the Northwest Territories.
- Rivers & Lakes- CanVec 1:1,000,000, Natural Resources Canada, Government of Canada, 2017;
- Sahtú District Boundary- Sahtú GIS Project, 2007;
- Sahtú Settlement Area Boundary- National Framework Canada Lands Administrative Boundary (CLAB) Level 1, Natural Resources Canada, Government of Canada, 2017;
- Special Harvesting Areas (moose)- Sahtu Dene and Metis Comprehensive Land Claim Agreement (SDMCLCA), 1993.

MAP 27. MUSKOX

- Community Boundaries- Department of Municipal and Community Affairs, Government of the Northwest Territories, 2010-2012;
- Digital Elevation Model- CDEM, Natural Resources Canada, Government of Canada;
- Harvesting Area (SLUPB TK)- Current Trails Mapping and Resource Mapping Projects, Sahtú Land Use Planning Board, 1998-2001;
- Muskox Harvesting (SRRB Study) (Count per 10 km^2 Grid)- Harvest Study, Sahtú Renewable Resources Board, 1996-2002;
- Muskox Important Wildlife Areas- Important Wildlife Areas in the Western Northwest Territories, Wildlife Division, Environment and Natural Resources, Government of the Northwest Territories, 2012;
- National Park and Historic Site / Established Protected Area- Multiple Datasets:
  - National Parks and Historic Sites, Parks Canada Agency, Government of Canada.
  - Established Protected Area, Environment and Natural Resources, Government of the Northwest Territories.
- Rivers & Lakes- CanVec 1:1,000,000, Natural Resources Canada, Government of Canada, 2017;
- Sahtú District Boundary- Sahtú GIS Project, 2007;
- Sahtú Settlement Area Boundary- National Framework Canada Lands Administrative Boundary (CLAB) Level 1, Natural Resources Canada, Government of Canada, 2017;
- Special Harvesting Areas (moose)- Sahtu Dene and Metis Comprehensive Land Claim Agreement (SDMCLCA), 1993.

CH. 3. ECONOMIC DEVELOPMENT & NATURAL ENVIRONMENT

MAP 28. OIL & GAS POTENTIAL

- Community Boundaries- Department of Municipal and Community Affairs, Government of the Northwest Territories, 2010-2012;
- Digital Elevation Model- CDEM, Natural Resources Canada, Government of Canada;
- National Park and Historic Site / Established Protected Area- Multiple Datasets:
  - National Parks and Historic Sites, Parks Canada Agency, Government of Canada.
  - Established Protected Area, Environment and Natural Resources, Government of the Northwest Territories.
- Oil & Gas Potential- NWT Open Report 2005-004 (Compiled Hydrocarbon Play Polygons for Mainland Northwest Territories), Northwest Territories Geoscience Office, Government of the Northwest Territories, 2005;
- Rivers & Lakes- CanVec 1:1,000,000, Natural Resources Canada, Government of Canada, 2017;
- Sahtú District Boundary- Sahtú GIS Project, 2007;
- Sahtú Settlement Area Boundary- National Framework Canada Lands Administrative Boundary (CLAB) Level 1, Natural Resources Canada, Government of Canada, 2017.

MAP 29. OIL & GAS RIGHTS

- Community Boundaries- Department of Municipal and Community Affairs, Government of the Northwest Territories, 2010-2012;
- Digital Elevation Model- CDEM, Natural Resources Canada, Government of Canada;
- National Park and Historic Site / Established Protected Area- Multiple Datasets:
  - National Parks and Historic Sites, Parks Canada Agency, Government of Canada.
  - Established Protected Area, Environment and Natural Resources, Government of the Northwest Territories.
- Oil & Gas Rights- Oil and Gas Rights (Exploration licence, Production Licence, Pioneer Licence, Significant Discovery Licence), Industry, Tourism, and Investment, Government of the Northwest Territories, 2021;
- Rivers & Lakes- CanVec 1:1,000,000, Natural Resources Canada, Government of Canada, 2017;
- Sahtú District Boundary- Sahtú GIS Project, 2007;
- Sahtú Settlement Area Boundary- National Framework Canada Lands Administrative Boundary (CLAB) Level 1, Natural Resources Canada, Government of Canada, 2017.

MAP 30. KNOWN MINERALIZATION

- Community Boundaries- Department of Municipal and Community Affairs, Government of the Northwest Territories, 2010-2012;
- Digital Elevation Model- CDEM, Natural Resources Canada, Government of Canada;
- Mineralization- Known Mineralization in the Sahtú Settlement Area, Northwest Territories Geoscience Office, Government of the Northwest Territories, 2010;
- National Park and Historic Site / Established Protected Area- Multiple Datasets:
  - National Parks and Historic Sites, Parks Canada Agency, Government of Canada.
  - Established Protected Area, Environment and Natural Resources, Government of the Northwest Territories.
- Rivers & Lakes- CanVec 1:1,000,000, Natural Resources Canada, Government of Canada, 2017;
- Sahtú District Boundary- Sahtú GIS Project, 2007;
- Sahtú Settlement Area Boundary- National Framework Canada Lands Administrative Boundary (CLAB) Level 1, Natural Resources Canada, Government of Canada, 2017.

MAP 31. ACTIVE MINERAL CLAIMS AND MINERAL LEASES

- Active Mineral Claims and Mineral Leases- Mineral Tenure, Mining Recorder's Office, Government of the Northwest Territories, 2022;
- Community Boundaries- Department of Municipal and Community Affairs, Government of the Northwest Territories, 2010-2012;
- Digital Elevation Model- CDEM, Natural Resources Canada, Government of Canada;
- National Park and Historic Site / Established Protected Area- Multiple Datasets:
  - National Parks and Historic Sites, Parks Canada Agency, Government of Canada.
  - Established Protected Area, Environment and Natural Resources, Government of the Northwest Territories.
- Rivers & Lakes- CanVec 1:1,000,000, Natural Resources Canada, Government of Canada, 2017;
- Sahtú District Boundary- Sahtú GIS Project, 2007;
- Sahtú Settlement Area Boundary- National Framework Canada Lands Administrative Boundary (CLAB) Level 1, Natural Resources Canada, Government of Canada, 2017.

MAP 32. GRANULAR DEPOSITS

- Community Boundaries- Department of Municipal and Community Affairs, Government of the Northwest Territories, 2010-2012;
- Digital Elevation Model- CDEM, Natural Resources Canada, Government of Canada;
- Granular Deposits- Potential granular aggregate resources in Northwest Territories and northern Yukon: an updated assessment integrating seismic shot hole drillers' logs and surficial geology maps, Open File 6849, Geological Survey of Canada, Natural Resources Canada, Government of Canada, 2011;
- National Park and Historic Site / Established Protected Area- Multiple Datasets:
  - National Parks and Historic Sites, Parks Canada Agency, Government of Canada.
  - Established Protected Area, Environment and Natural Resources, Government of the Northwest Territories.
- Rivers & Lakes- CanVec 1:1,000,000, Natural Resources Canada, Government of Canada, 2017;
- Sahtú District Boundary- Sahtú GIS Project, 2007;
- Sahtú Settlement Area Boundary- National Framework Canada Lands Administrative Boundary (CLAB) Level 1, Natural Resources Canada, Government of Canada, 2017.

List of Figures

CH. 1. SOCIETY AND CULTURE

FIGURE 8. PERCENTAGE OF INDIGENOUS PEOPLE WHO SPEAK AN INDIGENOUS LANGUAGE

Sources: "Northwest Territories: Sahtu Regional Summary, (September 2019)," NWT Bureau of Statistics https://www.statsnwt.ca/community-data/Summary%20of%20 Community%20Statistics2019.pdf

FIGURE 9. PARTICIPATION IN TRADITIONAL ACTIVITIES

Sources: "Northwest Territories: Sahtu Regional Summary, (September 2019)," NWT Bureau of Statistics https://www.statsnwt.ca/community-data/Summary%20of%20 Community%20Statistics2019.pdf

CH. 3. ECONOMIC DEVELOPMENT & NATURAL ENVIRONMENT

FIGURE 10. RIGHTS MANAGEMENT PROCESS

Sources: SLUPB, 2010.

CH. 4. REGULATORY ENVIRONMENT

FIGURE 11. REGULATORY BODIES IN THE SSA

Sources: SLUPB, 2022.

FIGURE 12. THREE LEVELS OF ENVIRONMENTAL IMPACT ASSESSMENT

Sources: "NWT Board Forum, Resource Management Information for the NWT". Accessed May 5 2022. http://nwtboardforum.com/process/regulatory-system-in-the-mackenzie-valley-region/

SAHTÚ LAND USE PLANNING BOARD
PO Box 235, Yamoga Building
Fort Good Hope, Northwest Territories
X0E 0H0

Phone+
+1 867-598-2055

Fax
+1 867-598-2545

Email
info@sahtulanduseplan.org

Social Media
@SLUPB

Web
www.sahtulanduseplan.org