SOCIAL SCIENCE RESEARCH TRENDS IN NUNAVUT (2004-2019)

WHAT IS HAPPENING WHERE? AN EVALUATION OF SOCIAL SCIENCE RESEARCH TRENDS IN NUNAVUT (2004-2019)

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LAY ABSTRACT

Many Inuit feel they are not involved in the research process or seeing benefits from research outcomes. For my MA research, I am working with the Nunavut Research Institute (NRI) licensing database analyzing summaries of social science research applications from 2004-2019.

The objectives are to:
1) Identify research topics addressed in social science projects;
2) Determine the variation of research topics across Nunavut over the past 16 years;
3) Develop new metrics to improve tracking of research topics;
4) Contribute to the development of a Nunavut research database making NRI research applications publicly accessible

Through this analysis we learned that social science research in Nunavut has increased over time. Research projects are mainly led by Canadian academics, focused on cultural topics, and concentrated in Iqaluit. Community engagement has also increased over time in Nunavut and appears to be linked with the availability of research-related capacity and infrastructure in a community. This research is an important starting point in making research trends more accessible to Nunavummiut (people of Nunavut). This work is also an initial step contributing to Nunavut-specific approaches to Inuit self-determination in research.

ABSTRACT

Many Inuit feel they are not benefitting from research activities that come from colonial research licensing practices and laws enabling state control over research. In Nunavut, research licensing also helped to increase community engagement in research. The Nunavut Research Institute (NRI), based in Iqaluit, Nunavut manages research and issues physical/natural, health, and social science research licenses in the Territory. In partnership with the NRI, we examined social science and Inuit knowledge research licensed between 2004-2019, to understand the scope of research trends in Nunavut. Using the 568 project summaries from social science research licenses, thematic content analysis was conducted to: i) identify research topics in social science and Inuit knowledge projects; ii) determine frequency and diversity of topics according to leadership, location, and timeframe; iii) develop new metrics to improve tracking of research topics; and, iv) contribute to the development of a Nunavut research portal making NRI research applications/reports public. Through this analysis we learned that social science research in Nunavut increased over time. Research projects are predominantly led by Canadian academics, with the highest concentration of research being in Iqaluit. Social science research is mainly focused on cultural topics, conducted using interviews, and shared in peer-reviewed journal articles. Community engagement has also increased over time in Nunavut, and research intensity appears to be connected to the availability of research-related capacity and infrastructure in a community. This research is an important starting point in making research trends more accessible to Nunavummiut (people of Nunavut), and more useable by decision-makers regarding research intensity and potential fatigue in some Nunavut communities. Long term, improving tracking of metrics such as funding sources and reporting mechanisms can contribute to policy reform and to advancing the NRI licensing database. This is an initial step contributing to Nunavut-specific approaches to Inuit self-determination in research.

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LIST OF ABBREVIATIONS

Abbreviation	Definition
ACUNS	Association of Canadian Universities for Northern Studies
CHARS	Canada High Arctic Research Station
DEW	Distant Early Warning
H	Health science research
IQ	Inuit Qaujimajatuqangit (Inuit knowledge and values)
KHS	Kitikmeot Heritage Society
KIA	Kitikmeot Inuit Association
NAC	Nunavut Arctic College
NRI	Nunavut Research Institute
NTI	Nunavut Tunngavik Incorporated
NU	Nunavut
P	Physical Science Research
PCSP	Polar Continental Shelf Program
PI	Principal Investigator
QHRC	Qaujigiartiit Health Research Centre
QIA	Qikiqtani Inuit Association
RA	Research Assistant
SINED	Strategic Investment Northern Economic Development Program
SS	Social Science and Traditional Knowledge Research
SSHRC	Social Sciences and Humanities Research Council
UAV	Unmanned Aerial Vehicle

CHAPTER 1.0: INTRODUCTION

Many Inuit feel they are not adequately involved in research happening in and around their communities, and that they are not seeing sufficient local benefits from research outcomes (Carter et al, 2019; ITK, 2018; ITK & NRI, 2007; Pulsifer et al., 2014). This is a result of the problems associated with the colonial research legacy in Canada's north. For years, researchers visited Inuit Nunangat using academic and public funding to answer research questions for their own benefit (ITK, 2018a). Consequently, Inuit suffered from unequal research relationships and were unable to address research questions of their own (ITK, 2018a). To transform research relationships, Inuit, governments, and research institutions are working together to reclaim their land (Brunet et al., 2016; ITK, 2018a). Through collaborative efforts between southern researchers and Inuit communities, the inclusion of Inuit in decision-making was made critical for all research activities on their homeland (ITK, 2018a, b). Government agencies have also recognized the importance of incorporating Inuit knowledge as the priority for undertaking research in the territory of Nunavut (Figure 1.1) (NIRB, n.d).

Figure 1.1: Map of Nunavut communities

Despite such efforts, the capacity of research considering Nunavummiut (people of Nunavut) demands ongoing improvement (Gearheard & Shirley, 2007; ITK & NRI, 2007; Shirley, 2005). Efforts to improve community engagement in research include the establishment of a northern research licensing process, which is administered by the Nunavut Research Institute (NRI) (NRI, 2015). The NRI has been responsible for developing, facilitating, and promoting scientific research in Nunavut since 1994. The NRI works to foster a resource for the wellbeing of Nunavummiut (people of Nunavut) and administers Scientific Research Licensing under Nunavut's Scientists Act. The Scientists Act applies to research in the Physical and Natural Science (P), Health Science (H), and Social Science and Traditional Knowledge (SS), which is over half (60%) of research occurring in Nunavut (Polidoro et al, 2022). Research on wildlife, migratory birds, archaeology, and parks is licensed under different legislation and is not included in this research (See Chapter 2). For my thesis research, social science and traditional knowledge research licenses will be referred to as SS, however I will generally use Inuit knowledge throughout when referring to traditional knowledge.

Through a partnership with McMaster and Carleton University, NRI is updating the technology and organization of their digital research licensing database. Currently, the database is only accessible to NRI staff and research partners. The database helps to organize and administer licensing review, permitting, and reporting processes . The database includes information on each research license issued, such as principal investigator, team members, project location, timeframe, and license reviewers. Updating the database assists daily operations and is a critical first step to developing a Nunavut

Research Database where community members and policymakers can publicly access research information. For my MA thesis, I am contributing to this larger project by cross-checking the NRI licensing database and evaluating topical trends in the social science and Inuit knowledge discipline. My research examines the scope of social and cultural topics, research methods, reporting tools, and community engagement addressed in Nunavut over the past 16 years (2004-2019) . Through my research, I help facilitate a long-term goal of this project, which is to increase Inuit involvement in the research process through creating a publicly accessible research tracking system. I am working closely with Jamal Shirley (Director, Innovation and Research at the NRI) discussing all phases of this research project, ensuring that this new technology will increase Inuit involvement in the research licensing process. This research is part of a collaborative partnership with the Nunavut Research Institute (NRI) and my thesis supervisor Dr. Gita Ljubicic.

1.1 Project evolution

My thesis project is a result of the collaborative efforts between Gita and Jamal beginning in 2005. Together, they edited the ITK & NRI (2007) *Guide for Negotiating Research Relationships with Inuit Communities*. Since then, they have collaborated on a formal research partnership through a Social Science and Humanities Research Council (SSHRC) Partnership Engage Grant to analyze research trends in Nunavut. This funding paved the way for my initial involvement in the project as an undergraduate and graduate research assistant (RA) for two summer terms (2019 and 2020), undertaking initial cross-

checking and validation of the licensing database entries (see Chapter 3). Between the first and second RA term, my involvement in the project expanded as I accepted an offer at McMaster University to pursue graduate studies and contribute to the analysis of research trends in Nunavut. For my MA research (beginning September 2020), we agreed that I would specifically focus on interpreting trends in social science and traditional knowledge research in Nunavut. My involvement in the larger project expanded as part of my MA work and included developing relationships with key participants in the project (see Section 3.3) and mentoring two undergraduate students who were undertaking similar research focused on physical/natural science and health research in Nunavut. My skills as an early career researcher have also expanded through conference presentations and involvement with a research team (led by my supervisor). Most recently, Gita and Jamal have secured additional funding for the next five years through a SSHRC Insight Grant to build on initial results and engaged in a Nunavut-wide consultation to improve the research licensing process.

1.2 Rationale

Studies reveal that the most successful northern research engages community members and organizations in their research from planning to dissemination (Carter et al, 2019; Gearheard & Shirley, 2007). This collaborative project aims to address gaps in the SS research landscape in Nunavut through an improved understanding of research intensity and fatigue. Additionally, my research contributes to increased Inuit engagement by providing results that will hopefully encourage future research projects

targeted to address Inuit research priorities. My results are also contributing to a public research database that will increase accessibility to research occurring in Nunavut. These collaborative efforts between myself and the NRI are an initial step in contributing to Nunavut-specific approaches to Inuit self-determination in research.

1.3 Research Question and Objectives

My MA research seeks to answer the question "What are the Social Science and Traditional Knowledge research trends in Nunavut?". To address my research question, I have four objectives, including to:

1) Identify research leadership, location, and community engagement in social science and Inuit knowledge projects;
2) Determine frequency and diversity of leadership, location, and community engagement according to topics, methods, and reporting;
3) Develop new metrics to improve tracking of research trends in the future; and,
4) Contribute to the development of a Nunavut research portal to make NRI research applications and reports publicly accessible.

1.4 Positionality statement

I am a white woman of western European descent living in Hamilton, Ontario. Both my maternal and paternal grandparents are from Italy. I am closely connected to my heritage through the traditions of my ancestors. I identify as a non-Indigenous researcher, and I am aware that the learning opportunities I have had in my life are different than those of my northern research partners. In my undergraduate career, I was wired to derive conclusions from theories based on tangible evidence, which is very different from the

Indigenous epistemologies of learning through oral histories and experience that I am exposed to in graduate studies. As a southern-based non-Indigenous researcher, I recognize that the colonial legacy of my European ancestors negatively impacted Inuit communities across Canada. I am aware that my way of learning and thinking may therefore be different from my northern research collaborators. To date I have not had the opportunity to be in Nunavut, or experience time on the land. I am continually working towards increasing my understanding of Indigenous – and specifically Inuit – epistemologies so I can uphold relational accountability in research.

1.5 Thesis outline

This thesis is divided into six chapters, where Chapter 1 addresses background information, objectives, and the importance of why I am undertaking the investigation of social science research trends in Nunavut. Additional context is provided in Chapter 2 including the history of research practices in Nunavut from coerced to collaborative. A broad scope of SS research in Nunavut is also explored in Chapter 2. Moving forward, Chapter 3 describes my community-based research approach and the methods used in Thematic Content Analysis (TCA). I explain how I systematically reviewed existing NRI licensing documentation and compendia for all research licenses and analyzed 568 project summaries to investigate SS research trends in Nunavut between 2004 and 2019. The results from TCA are presented in Chapter 4 according to research leadership, location, topics, methods, reporting tools, and community involvement of SS project summaries, and how those variables have changed over time. Chapter 5 provides

interpretation of the results presented in Chapter 4 with an emphasis on how the data collected reflects what is published in available literature, and how the project summaries used in data collection only reflect what is proposed, not what is occurring. Chapter 6 concludes my thesis with a summary of key findings, recommendations, and considerations for future research directions.

CHAPTER 2.0: LITERATURE REVIEW

2.1 Introduction

Many Inuit feel they are not adequately involved in research happening in and around their communities, and that they are not seeing sufficient local benefits from research outcomes (Carter et al, 2019; ITK, 2018; ITK & NRI, 2007; Pulsifer et al., 2014). This is attributed to the colonial research legacy in Canada's north. For years, researchers have had the privilege to visit land claim regions within Inuit Nunangat using institutional funding to answer research questions for their own benefit (ITK, 2018a). This is illustrated in previous social science research where researchers undertook experiments to investigate Inuit culture and ways of life (Anderson & Bonesteel, 2010; Macdonald et al, 2014; Mosby, 2013; Wiseman, 2015). This has led to a history of unethical research practices and traumatic experiences for Inuit. Consequentially, Inuit were unable to address research questions of their own (ITK, 2018a). Research relationships have transformed from unethical to collaborative as Inuit communities, organizations, and southern-based researchers work together to produce documentation regarding how to improve research relationships and achieve self-determination in research (Brunet et al., 2016; ITK, 2018a). Common themes in available documentation include the importance of consultation throughout all phases in the research process including addressing community priorities to create meaningful results that will benefit communities in return.

Researchers are referenced in my thesis as those who are working with Inuit communities to better understand and collaborate on research topics regarding sociocultural phenomena. Inevitably, there are other researchers (physical and health scientists) who may have alternative interests; however, my literature review will focus on social science only. The current scope of social science research considers a focus on multiple topics and community-based research practices. Topics of study include cultural studies, Inuit Qaujimajatuqangit (IQ), and education. This also includes adapting Inuit approaches to research in community-based practices.

Efforts to facilitate oversight and control of research by the Federal Government also include the establishment of research licensing across all four land claim regions in Canada. My thesis research focuses on Nunavut-based research practices and will be discussed thoroughly in this Chapter. In Nunavut, the NRI is responsible for brokering partnerships between researchers and communities while licensing research related to Nunavut's people, land, air, and water (NRI, 2015). Policies and procedures used in Nunavut such as research licensing require a thorough application process encouraging transparency between the researcher and community itself while mitigating power dynamics between both parties. A common theme of research practices across Inuit Nunangat is the necessity for researchers to communicate proposed research activities in exchange for community approval of the proposed project. Additionally, each land claim region emphasizes the importance of improving research relationships with a focus on achieving Inuit self-determination in research (Aurora Research Institute, 2021;

Government of Yukon, 2021; Makivik, 2021; Nunastiavut Research Centre, 2021; NRI, 2021).

For my thesis research, I thought it would be appropriate to explore the current scope of SS research in Nunavut, and how the history of research practices in Nunavut has transitioned from unethical to co-production between both Nunavummiut and researchers. I wrote this chapter to outline the history, scope, and licensing process of SS research across Nunavut, and how researchers are working with Inuit to produce meaningful and collaborative research, and how those efforts improve the research licensing process in Nunavut.

2.2 Scope of social Science research in Nunavut

Inuit have lived off the land for generations as a nomadic society. Their ways of life have interested many social scientists since the late 1800's (Government of Canada, 2016; MacDonald, 2018). Early research practices in the North were highly unethical and led to several untimely deaths of innocent Inuit adults and children. Over time, Inuit advocated against unethical research practices and demand more control over research activities occurring on their homeland (Gamble, 1978; Korsmo & Graham, 2002). This led to the shift from Inuit as subjects to facilitating self-determination in research. Additionally, efforts improving Inuit involvement in the research process include Inuit-developed models for researchers to learn how to conduct meaningful research on their land (Aqqiumavvik, 2018; Oceanwise, 2018; QHRC, 2021; Wilson et al, 2020). The gradual shift towards increased collaboration in projects between researchers and Nunavummiut has led to multiple community-research partnerships in various social

science disciplines. Common themes across such efforts include relationship building, co-production of knowledge, community engagement, and leadership. This is relevant to improving the research licensing process as the NRI is using the database to effectively monitor and track research methods and topics across Nunavut to investigate how well research is serving Nunavummiut.

The current scope of SS research in Nunavut spreads across various topics, such as cultural studies, Inuit Qaujimajatuqangit (IQ), and education. Researchers are curious to learn about Inuit approaches to various aspects of everyday life, and how their culture various from western worldviews. This includes adapting Inuit approaches to research in community-based practices. For my thesis research, I thought it would be appropriate to explore the current scope of SS research in Nunavut, and how the history of research in Nunavut has transitioned into co-production of knowledge between both Nunavummiut and researchers. This section will also highlight varying levels of emphasis on topics and community-research partnerships that seem to be leading the way in certain areas.

2.2.1 Evolution of community-based research

The earliest practices of social science research in Canada's north date back to 1821 (Government of Canada, 2016; Macdonald, 2018). This marked the beginning of multiple Arctic expeditions led by European explorers throughout the 19th and early 20th century in hopes of furthering their knowledge of Inuit values and cultural practices. At this point in time, there was no recognition of Inuit values, and researchers did not facilitate meaningful community-based work. Despite the growing popularity of practicing social

science through Inuit cultural studies, research activities were not beneficial to northern inhabitants. Unfortunately, many of the expeditions that occurred during this time led to suffering and loss for many Inuit communities (MacDonald, 2018; Martin; 2009; Qanatsiaq Anoee et al., 2017; Tester & Irniq, 2008). For many years into the mid 1900's, the implementation of federal policy and colonial science stripped Inuit sovereignty through various actions such as residential schooling and identification numbers on military-style dog tags (Anderson & Bonesteel, 2010). Nutritional experiments such as forced malnutrition was implemented to explore the effects in Indigenous population (Macdonald et al, 2014; Mosby, 2013), in addition to military experiments related to cold exposure and physiology studies of Inuit populations (Wiseman, 2015). Research experiments during this time were highly unethical and traumatic experiences for Inuit people. Inuit continued to be victims of selfish desire and institutional curiosity for several years after. Although this cultural observation signifies the beginning of executing social science in the Arctic, research relationships were nonexistent (Pongerard, 2018). Personal encounters from northern residents describe their relationships with southerners as "frightening" as a result of following all protocol including "things that were against our own customs" (Brody, 1976, p.245).

A turning point in how Indigenous knowledge was considered was during the *Berger Inquiry*. This federally funded assessment investigated the social, economic, and physical implications of the McKenzie Valley Pipeline designed to transport natural gas from the western Arctic to southern Canada (Gamble, 1978). By this point in time, Inuit expressed their continuous exhaustion with Industrialization and demanded land-claim and self-

government institutions. This request was related to the frustration of research activities and the negative impacts on Indigenous land, such that of the proposed Makenzie Valley Pipeline (Korsmo & Graham, 2002). Another key turning point of Inuit leadership is the *Inuit Land Use and Occupancy Study* in 1973. This was a milestone in the research process providing the foundation for establishing Nunavut and Inuvialuit Land Claims (Aporta, 2011; Freeman, 2011). Both events act as a milestone in recognizing the importance of Indigenous knowledge when proposing large projects on Indigenous land. This was a forward step in the direction of more participatory and collaborative research in Canada.

By 1976, the early stages of participatory research practices continued through the federal government publication *Guidelines for Scientific Activities in Northern Canada,* emphasizing the importance of community consultation before the research begins. Although there is little information available regarding the federal guidelines, it was a forward step allowing for community consultation in the research planning stage (Korsmo & Graham, 2002, Freeman, n.d). Research practices recognized by Inuit, such as community consent for proposed research are missing from this document (Freeman, n.d). This gap in the documents suggests the early stages of research guidelines in the north as more collaborative research practices were not widely recognized.

Improvements to documentation regarding Inuit research practices were exhibited in 1982 through *Ethical principles for conducting research in the north*. Between 1982-2003 the Association of Canadian Universities for Northern Studies (ACUNS) revised

their Ethical principles to advance northern scholarship through community partnership (ACUNS, 2003; Korsmo & Graham, 2002, Graham, 2003). Continuous revision of the document was executed to adapt to the changing "needs and concerns of northern communities" (ACUNS, 2003, p.4). Recognizing the needs and priorities is a key theme in Inuit self-determination in research. Since then, Inuit organizations have increased their governance and capacity in defining research goals and requirements for undertaking research. Examples include the development of a National Inuit Strategy on Research, calls to action, community research models, and guides for researchers who wish to conduct successful community-based research in the north (Table 2.1) (Aqqiumavvik Society, n.d; ITK, 2018a, b; ITK & NRI, 2007; QHRC, n.d; Wilson et al, 2020).

Table 2.1: Key themes and principles regarding meaningful community-based research with Inuit communities

Recommendation	Overview	References
Collaboration/ co-production of knowledge	- Advancing Inuit governance in research - Co-leadership with community - Shared understanding of terms	Aqqiumavvik Society (n.d); Gearheard & Shirley (2007); ITK (2018); ITK & NRI (2007); McGrath (2018); Oceanwise (2018); QHRC (2019); Wilson et al (2020_; Wong et al (2020)
Relationship building & meaningful community engagement	- Engage with community members outside of key research collaborators - Develop common goals	ACUNS (2003); Aqqiumavvik Society (n.d); Gearheard & Shirley (2007); ITK (2018); ITK & NRI (2007); McGrath (2018); Oceanwaise (2018); QHRC (2019); Wilson et al (2020), Wong et al (2020)
Addressing community priorities	- Community meetings - Speaking with elders - Understanding community needs and desired outcomes	ACUNS (2003); Aqqiumavvik Society (n.d); Gearheard & Shirley (2007); ITK (2018); ITK & NRI (2007); McGrath (2018); Oceanwaise (2018); QHRC (2019); Wilson et al (2020), Wong et al (2020)
Data ownership	- Community access to data - Community-based methods for collecting data	ACUNS (2003); Aqqiumavvik Society (n.d); ITK (2018); ITK & NRI (2007); QHRC (2019); Wong et al (2020)
Reporting results	- Collectively validating data with community - Making actions for next steps	ACUNS (2003); Aqqiumavvik Society (n.d); Gearheard & Shirley (2007); Henri et al (2019); ITK (2018); ITK & NRI (2007); Oceanwise (2018); QHRC (2019)
Funding	- Adjudication for projects including Indigenous methodologies and priorities - Transparency of funded projects	ACUNS (2003); Gearheard & Shirley (2007); ITK (2018); ITK & NRI (2007); Wong et al (2020)
Research decisions/ policy/ action	- Developing Inuit-specific values for research - Greater Inuit representation in decision-making - Inuit-specific research ethics	ACUNS (2003); Gearheard & Shirley (2007); ITK (2018); ITK & NRI (2007); McGrath (2018); Wilson et al (2007); Wong et al (2020)

Through inclusivity and reciprocity, there is an unlimited potential to facilitate meaningful research between principal investigators and northern inhabitants. Available

documentation includes themes of co-leadership and consultation throughout all phases of the research process. It is valuable for researchers to coordinate planning meetings with project collaborators in the North to establish a common research goal. In connection to my thesis research, it was important to familiarize myself with the NRI database and establish relationships with NRI officials to meaningfully engage and understand why the NRI is doing the work they are currently doing. Additionally, it is important to make sure research results are communicated in a meaningful way and are accessible to all Inuit (ITK, 2018). This is described in the literature by means of translated documents, community presentations, and digital sharing of resources (ITK, 2018). Drawing on existing documentation is critical for this thesis as research licensing in Nunavut relies on Inuit approaches to research. To elaborate, funding agencies and licensing bodies require researchers to facilitate community engagement and consultation throughout all phases of the research (Gearheard & Shirley, 2007). Researchers are also expected to incorporate Inuit knowledge into their work while addressing community priorities throughout their research agenda. Implementing research licensing as an essential component to undertaking research in Nunavut is valuable for researchers, as it encourages individuals to think about the work they are doing, and why it must be communicated with surrounding communities. The common themes from Table 2.1 support the research licensing process and aid in facilitating transparent and collaborative research between Nunavummiut and outside researchers.

2.2.2 Current scope of social science research

It is challenging to identify and discuss all components of social science and traditional knowledge research. The literature reviewed in my thesis is a representative sample of broad social science research topics that I gathered from graduate coursework, JSTOR, Web of Science, and McMaster University Library databases. Literature was chosen through searching topics like "Education in Nunavut" and selecting relevant publications related to my research. broad social science research topics like language did not show up in the scope of literature I gathered, and therefore was not included (Table 2.2). In Nunavut, the literature reviewed in my thesis is connected to topics concerning Inuit culture (Brody, 2018; Castleton et al., 2012; Martin, 2009; Qanatsiaq Anoee et al, 2017; Wisinewski et al., 2008) (Table 2.2). Culture itself remains a broad topic and is often associated with other topics in northern research, such as Inuit knowledge/ Inuit Qaujimajatuqangit (IQ), language, education, wildlife, and climate change (Aylward, 2007; Cameron et al., 2015; Hentiuk, 2017; Igloliorte, 2017; Laugrand & Oosten, 2009; McGregor, 2012).

Table 2.2: Scope of published social science research undertaken in Nunavut

Topic	Sub-topic	Source
Culture & society	- Nunavummiut use of technology - Drum dances - Connections to homeland - Tourism and impacts - Inuit perspectives of shipping traffic - Gender dynamics - Oral histories - Cultural values	Aporta (2009); Coelho (2018); Dawson et al (2020); Henitiuk (2017); Kral et al (2011); Laugrand (2018); Levesque (2014); Martin (2009); McCann et al (2016); McGregor & McGregor (2017); Potter (2020); Quintal-Marineau (2017); Robertson et al (2020); Stewart et al (2000); Wisinewski (2008)
Inuit Qaujmajatuqangit (IQ)	- IQ principles in everyday life - Places to transfer knowledge - IQ in education system - IQ and weather/ climate - IQ and art - Combining western science and IQ	Igloliorte (2017); Pedersen et al (2020); Simonee et al (2021); Snow et al (2021); Tester & Irniq (2008); Van Dam (2009); Wiseman & Kreuger (2019)
Land use & traditional activities	- Seal hunting - Wildlife management - Inuit connections to wildlife and wellbeing - Country food and subsistence	Dylan (2021); Keenan et al (2018); Lysenko & Schott (2019); Ndeloh et al (2020); Robertson & Ljubicic (2019); Searles (2019); Vanderkaden (2019)
Education	- Cultural relevance in education - Inuit-specific education practices - Nunavut teacher education - Early childhood education	Bentham (2017); Garakani (2014); Higgins (2010); MacDonald & Minister (2017); McGregor (2013); McKechnie (2021); Mearns et al (2020); Preston (2017); Qanatsiaq Anoee et al (2017); Wiseman & Kreuger (2019)
Policy & governance	- Mining impacts - Inuit self-determination - Land rights - Land use planning - Policymaking	Bernauer (2019); Dyck (2019); Gaviria (2016); Kuokkanen (2020); Lupton (2019); McComber (2010); Ritesma et al (2015); Robinson (2017); Rice (2016); Rodon (1998, 2014); Scobie & Rogers (2019); Snook et al (2018); White (2009); Wilson et al (2020)
Community-based research practices	- Forming responsible research relationships - Decolonizing research practices - Research ethics	Brunet et al (2016); Carter et al (2019); Castleden et al (2012); Felt & Natcher (2011); Grimwood et al (2012); Held (2020); Ikummaq & Ljubicic (2020); Johnson et al (2015); Louis (2007); McGregor (2018); Nickels & Knotsch (2015); Tondu et al (2014); Van Den Scott (2012);

It is important to note that Table 2.2 illustrates examples of the current focus of SS research. The Table does not reflect the actual scope or rationale of different topics or areas of study as that goes beyond the scope of my thesis research. A concentrated area of study in the social science considers IQ, or Inuit knowledge. Although Table 2.2 does not suggest a large variety of published literature with respect to other research topics, Inuit knowledge and ways of life are grounded in other research topics, such as IQ in education, policy, storytelling, and collaborative research partnerships. In addition, researchers are exploring the impacts of integrating IQ into a western education system (Levesque, 2014; McGregor, 2013). Since community engagement initiatives are highly encouraged in the NRI application process (NRI, 2021), it is assumed licensed research in Nunavut suggests consultation with district education authorities (DEAs) based on these findings. A similar suggestion could be made for research topics regarding land use & traditional activities, as researchers would likely consult with local hunter and trapper organizations to learn more about Inuit connections to wildlife and wellbeing.

However, it is challenging to find direct connections between the scope of social science research in Nunavut and research licensing. Literature is unavailable regarding the long-term impacts associated with regulating research in Nunavut, making it a challenge to formulate a hypothesis. My thesis hopes to provide a broad analysis of social science research trends that reveal community-engaged research over time. The connectivity between research licensing and community-based research, however, remains up for question. There are examples of researchers working with communities to improve research relationships (Carter et al, 2019; Wilson et al, 2020) which can help

simplify the research application review process in the long run. To learn more about the research application process, it is important to discuss the evolution of licensing over time.

2.3 Research licensing practices in Inuit Nunangat

Land claim regions employ research licensing protocols requiring research to identify potential threats to communities resulting from their work and how it will be mitigated (Aurora Research Institute, 2021; Government of Yukon, 2021; Makivik, 2021; Nunatsiavut Research Centre, 2021; NRI, 2021). Transparency in research proposals can facilitate relationship building between both parties (ITK, 2018a) while mitigating challenges both researchers and communities face when conducting research, such as power dynamics (Louis, 2006; Martin, 2009; McGregor et al., 2010; Tester & Irniq, 2008). There is a risk of research activities resulting in conflict, confusion, or termination of the research project if challenges or potential threats are not addressed (Gearheard & Shirley, 2007; ITK & NRI, 2007).

Power dynamics in research question who has the power to make decisions, which is often based on affiliation and funding **(**Castleten et al., 2012, Gearheard & Shirley, 2007; Nickels & Knotsch, 2015). In the past, funding agencies heavily relied on quantitative approaches (McNie et al., 2016) for adjudication contrasting Inuit-based research practices and interests (ITK, 2018a; Louis, 2006; Martin, 2009; McGregor et al., 2010; Pfiefer, 2018; Tester & Irniq, 2008). The institutional approach of funding adjudication is a delicate matter for Inuit communities due to the colonial legacy associated with

southern researchers in the past (Coburn et al., 2013; Held, 2020; McGregor et al., 2010). As a result, emerging research requirements in Canada's North have a focus on engaging researchers and how community research priorities will be addressed (Aurora Research Institute, 2021; Government of Yukon, 2021; Makivik, 2021; Nunatsiavut Research Centre, 2021; NRI, 2021). Research licensing efforts currently in place do not provide reporting on funding adjudication, however, there is some capacity to monitor and engage communities with activities occurring in their homeland through research licensing databases (Aurora Research Institute, 2021; NRI, 2021).

Another critical component of the research engagement process is ensuring researchers are taking the time to interact and provide leadership for Inhabitants of the proposed research location or surrounding areas. Examples of engagement include workshops, meetings, sharing circles, and meaningful involvement the project as an assistant or co-leader (Brunet et al., 2016; Shirley, 2005; Gearheard & Shirley, 2007; ITK &NRI, 2007). Funding-related challenges in the past result from the funding recipient itself. Typically, funding is issued to government researchers or southern-based university researchers (ITK, 2018a) who are non-Indigenous. It was also recently discovered through NRI licensing data that 54% of licensed research in Nunavut is facilitated by southern universities (NRI, 2021). Financial incentives are a key player in facilitating research activities that result in an unfortunate consequence of western research practices, specifically with northern studies (ITK, 2018a; McNie, Parris, Sarewitz, n.d; Pfiefer, 2018). This is a problem many Inuit communities face, as some researchers in the past obtained a sense of authority, leaving communities without a voice

and distanced from what is occurring in their homeland **(**Castleten et al., 2012, Gearheard & Shirley, 2007; Nickels & Knotsch, 2015**)**. In contrast, institutional funding also acts as a resource for communities where locals are hired as guides, outfitters, or interpreters (Gearheard & Shirley, 2007; ITK & NRI, 2007, Tondu et al., 2014). In recent years, however, researchers have moved beyond the focus of hiring individuals to a focus on engagement and co-production of knowledge (ITK, 2018a). For meaningful engagement to occur, researchers must understand the importance of familiarizing oneself with the community, however, this requires time, effort, and resources which funding agencies and academic calendars often fail to incorporate (Brunet et al., 2016; Castleten et al., 2012; ITK, 2018a, b; McNie et al., 2016; McGregor et al., 2010; Pfiefer, 2018).

To increase community engagement and co-production of knowledge, Inuit land claim regions established protocols monitoring proposed research projects through the administration of a research license (Gearheard & Shirley, 2007; ITK & NRI, 2007, Tondu et al., 2014). Land claim regions Nunavut, Nunatsiavut, Inuvialuit and require a thorough license application process where researchers are required to submit community consultation initiatives as a part of their proposed project application (Aurora Research Institute, 2021; Government of Yukon, 2021; Nunatsiavut Research Centre, 2021; NRI, 2021). Additionally, the Aurora Research Centre in the Northwest Territories provides capacity supporting community-based monitoring and leadership in projects that community members prioritize (Aurora Research Centre, 2021). Overall, research licensing practices are implemented across Canada's north with the common goal to

increase Inuit self-determination in research, and to provide capacity for northern leadership and control in proposed research activities.

2.3.1 Inuvialuit

Aside from the NRI, the land claim region of Inuvialuit includes both the Yukon and Northwest Territories where each territory houses their own research licensing protocol. The territorial government of the Yukon requires researchers in the science and natural resources discipline to complete a two-page Application for license under the Yukon Scientists and Explorers Act (2002) (Government of Yukon, 2021), like the protocol followed by the NRI. Although research licenses are only required for physical science research, the government of Yukon monitors health and social science research through an interactive research compendium enhancing accessibility and access to research licensing information for public consumption (Government of Yukon, 2021). Despite the tracking tools used for research outside of the physical science, the Yukon requires all researchers to consult with the people of Inuvialuit and submit two reports at the end of the fieldwork period and upon project completion (Government of Yukon, 2021).

Additionally, the Northwest Territories (NWT) operates the Aurora Research Institute, where researchers who do not fall under Wildlife or Archaeology Legislation require a scientific research license. License applications in the NWT are submitted through a government portal system called POLAR (Aurora Research Institute, 2021). The Aurora research institute also employs a functional research database where users

can query current and previous research projects by Principal Investigator, community, region, and topic (NWT Research Database, 2021). The research database used by NWT incorporates spatial querying abilities as well. Using a public database and regulating research through license application processes supports community engagement and data ownership for Inuit land claim regions. The Aurora Research Institute also provides capacity for developing workshops for community member eager to address priorities through social science and traditional knowledge (Aurora Research Institute, 2021).

2.3.2 Nunatsiavut

Nunatsiavut also employs a government-issued research application. According to the Nunatsiavut government, "any researcher who would like to conduct research in Nunatsiavut must contact the Inuit research advisor…before proceeding" (Nunatsiavut Research Centre, 2021). Researchers will not be granted a license, but approval from the Nunatsiavut Government Research Advisory Committee (Nunatsiavut Research Centre, 2021). Upon approval, research projects in the region will be included in the Nunatsiavut research compendia which is not made available to the public. Approval from the Nunatsiavut government solidifies the emergence of self-determination in Arctic regions as inhabitants of Inuit Nunangat are gaining control over research activities in their homeland.

2.3.3 Nunavik

Instead of administering research licenses, the Nunavik Research Centre carries out their own scientific research and administer programs which directly respond to the

needs of communities in the Nunavik region (Makivik, 2021). Studies conducted by the Nunavik Research Centre are often in partnership with southern-based institutions and government agencies (Makivik, 2021). External research requires personal communication from the researcher and must be addressed by Nunavik Research officials as well (Makivik, 2021). By executing their own projects Nunavik research officials obtain majority of control over research activities that occur on their homeland ensuring all aspects of the research project are completed, such as community dissemination. This supports the importance of southern-based institutions collaborating with Inuit research officials to work towards producing community-specific results.

2.3.4 Nunavut

Nunavut research licensing practices governed by the NRI incorporate a thorough consultation process enabling local organizations to evaluate and comment on proposed projects which is an essential step in facilitating Inuit self-determination in research (NRI, 2019, 2021). Other permitting agencies such as Parks Canada, Department of Fisheries and Oceans (DFO), and Government of Nunavut Departments of Environment, and Culture approach engagement differently, as different application processes are required for research licensed outside of the NRI's criteria. Nunavummiut have also addressed the need for "making local consultation, engagement, and communication integral parts of the research design" (Gearheard & Shirley, 2007, p.72) as an effective tool in reducing potential power dynamics in research. This allows for communication in the earliest possible stages of the research process, thus working towards a positive approach to establishing positive research relationships (Castleten et al., 2012; Felt &

Natcher, 2015; ITK, 2018a, b; ITK & NRI, 2007; Korsmo & Graham, 2002; Nickels & Knotsch, 2015).

2.4 Nunavut Research Institute and scientific research licensing

The NRI was first created in 1984 in conjunction with the Science Institute of the Northwest Territories (NRI, 2021), where the organization was responsible for administering research licenses. Since then, the Institute has grown into an organization guided by a mandate "to develop, facilitate, and promote scientific research as a resource for the wellbeing of people in Nunavut" (NRI, 2021). This includes making sure research results are reported back to Nunavut (Ljubicic et al., 2019). The NRI is also responsible for providing "mentorship, guidance, and support to scientists working throughout the territory", while also helping to "broker research partnerships that address needs and concerns of Nunavummiut" (NRI, 2015). It is evident that research activities in Nunavut must be in the best interest of the community to achieve self-determination. Research partnerships brokered by the NRI extend across various affiliations, including academic researchers, government agencies, and industry (NRI, 2021). The NRI also functions as the science division of Nunavut Arctic College and is mandated to support development of research capacity at NAC through outreach, college programs, and youth initiatives (NRI, 2021).

Research licensing protocols in Nunavut are essential for Nunavummiut ownership and management of research activities in their territory, in addition to controlling what activities are occurring where. My thesis supports the management and

systematic review of the NRI research licensing database where research data is owned and controlled by northerners in addition to providing communities with research trends in their communities, and how certain trends have changed over time.

In contrast, challenges the associated with research licensing in Nunavut correspond with the diversity of research licensing mechanisms across various disciplines of research, leading to potential gaps in uniformly monitoring research trends.

2.4.1 The research licensing process

There is a great emphasis on licensing research in the Canadian Arctic ensuring proper communication is established between communities and the researcher (ACUNS, 2021; Aurora College, 2021; NRI, 2015). Research licensing is regarded as the foundation acknowledging the people and territories of research (ACUNS, 2021). Research licensing in Nunavut is legislated by the *Scientists Act*, a territorial law governing research activities in Nunavut. It is important to note that some scientific activities led by government agencies, Inuit organizations, and by individual Nunavummiut do not require licensing under the Scientists Act, therefore the number of projects led by Nunavut-PI's is likely under-represented (Polidoro et al, 2022).

Principle Investigators applying for a scientific research license in Nunavut must fill out a research application form (Appendix 1) in addition to a 500-word plain language summary in both English and Inuktitut providing the project title, PI name, affiliation, project location, timeframe, duration of research, project description including goals and objectives, methodology and justification of community, short/long term use of data,

reporting tools, and an ethical review (NRI, 2021). This detailed application is designed to ensure transparency between the researcher and the communities where research is occurring, while also regulating research throughout Nunavut **(**NRI, 2015; NRI, n.d). Furthermore, the NRI consults with community organizations ensuring the research is acceptable to the community and does not pose harm to the community (Ljubicic et al, 2019). The license application review committees of these organizations are responsible for suggesting changes to the proposed research activities to best prioritize the needs of their home communities (NRI, 2021). This supports the NRI's mandate to increase Nunavummiut involvement in the research process through collaboration and decision-making. Furthermore, the NRI will only deny a research license if there is evidence that the research proposed could result in harm or disruption (Gearheard & Shirley, 2007). This also emphasizes the importance of consulting with additional organizations ensuring community safety when conducting research in Nunavut.

When completing a NRI research license application, the researcher is "responsible for identifying and applying for all of the authorizations necessary to conduct their projects" (NRI, 2015). For example, social scientists who may be investigating wildlife populations and their impact on cultural practices must also obtain a wildlife research permit as well as their respective NRI scientific license application (NRI, 2015; 2021). For the physical science, there are multiple research monitoring efforts in place considering biological subjects in clinical trial involving animals and humans. Vasbinder & Locke (2016) illuminate the global variation of laws regarding animal welfare in the research process, and the gap in such information for the social

science is up for question. This is supported in the additional or separate permit requirements in Nunavut-based research, where seven out of the ten additional license requirements (Table 2.1) are associated with physical science research, and two are focused on social science related projects. Research regarding parks, archaeology, or wildlife require separate research licenses and is not tracked by the NRI itself (NRI, 2021). Additionally, research projects under the physical science discipline must undergo separate screening by the Nunavut Impact Review Board (NIRB) (Table 2.3). NIRB screening for physical science projects ensures assessment of potential impacts prior to approval of the project from NRI officials (NIRB, n.d). Ultimately, it is the responsibility of the researcher to understand their role and requirements for conducting research to ensure community awareness and collaboration, including which application to fill out.

Table 2.3: list of supplementary research licenses in Nunavut, where GN = Government of Nunavut.

Authorization	**Required for, or separate from NRI license?**	**Issuer**	**Description**
Wildlife research permit	Separate	Dept. of Environment – GN*	Studies of terrestrial wildlife
License to collect fish for scientific purposes	Separate	Department of Fisheries and oceans Canada	Studies of marine/ freshwater mammals, fish, invertebrates, fish habitat
Species at Risk Act research license	Separate	GN	Any species listed in the Species at risk act
Archaeology & Paleontology research permit	Separate	Department of Culture - GN	Archaeological sites
National parks research permit	Separate	Parks Canada – Nunavut field unit	Research activities in a national park
Migratory birds	Separate	Canadian wildlife service	Research involving any migratory birds issued under section 4 and 19 of the Migratory Bird Regulations
Migratory birds' sanctuary	Separate	Canadian wildlife service	Research activities in a Migratory Bird Sanctuary in Nunavut, issued by the Canadian Wildlife Service under section 9 of the Migratory Bird Sanctuary Regulations
Nunavut wildlife area permit	Separate	Canadian wildlife service	Research activities in a National Wildlife Area in Nunavut, issued by the Canadian Wildlife Service under section 4 of the Wildlife Areas Regulation
Special approval to conduct research in schools	Required	Department of education – GN	Research that will involve students or school staff
NIRB screening decision letter	Required	Nunavut Impact Review Board	Physical science projects taking place on Nunavummiut land

A key challenge identified in the NRI research licensing process is the ability to identify interdisciplinary projects. According to the NRI, projects that are

multidisciplinary will require multiple applications (NRI, 2021), however, there is little information publicly available regarding what defines a certain discipline. Researchers are encouraged to contact the Manager of Research Liaison to help identify disciplines if uncertain. When creating a research license application, researchers must select a health, physical/ natural, or social science/ traditional knowledge research license application from the NRI's website (NRI, 2021), however, there is no definition or example of each discipline on the webpage prior to filling out the application. This potentially affects the evaluation of research trends in Nunavut as the definition of a discipline is subjective to the definition of the applicant. Additionally, there is a risk of duplicate entries in the database if multidisciplinary projects require two separate applications.

A broad scope of research discipline topics is visible in a document titled *Obtaining a Research License under Nunavut's Scientist Act: A Guide for Applicants* (2021). This document provides examples of SS research (Table 2.4), and researchers are expected to review this document prior to filling out a research licensing application (NRI, 2021). If unread, this could leave researchers confused and uncertain of which discipline to select for their research. The guide also suggests consultation of the NRI's compendia of licensed research for detailed examples of research projects under each discipline, however, since this document is not mandatory for review, researchers who undertake interdisciplinary projects may not be aware of which discipline their research corresponds best to. The NRI monitors research projects (and their respective disciplines) in Nunavut through their research licensing database. The database is used as a tool to manage and track the administration of research licenses in the territory.

Table 2.4: Examples of research topics for SS research license applications in Nunavut (NRI, 2021)

Licensable Social Science Research Topics
Anthropology, human geography, sociology
Linguistics
Education
Political Science
Law
Economics

2.4.2 The research licensing database

The NRI maintains the longest running digital research licensing database in Nunavut operating since 1994 (Ljubicic et al, 2019). The database underwent multiple changes throughout the years with the overall goal of acting as a data management system. The system contains all information regarding scientific research licenses and fields in the license application (Appendix 1). The NRI is in the process of converting the licensing database from MS Access to a new platform called Nunaliit. Nunaliit is a document oriented (Nunaliit, 2021) database designed for users to make changes where necessary to tell the story and highlight relationships (Nunaliit, 2021) of the dataset. A key functionality of Nunaliit is the ability to support data ownership through user editing, allowing for NRI officials to extract and modify information to communicate results with Nunavummiut when needed. The database is an essential component of this project providing the data necessary to analyze SS research trends in Nunavut. Creating a research licensing database aims to further Nunavummiut understanding to research regarding why topical changes occur and how they can be addressed according to the needs of community members.

A problem with the NRI database is that while information is stored and accessible to NRI officials, it is not available for public consumption. This presents a challenge as research being done in Nunavut is not consistently published, nor is there a tracking mechanism put into place to monitor what research is published and what is not. In contrast, there are multiple functions within the NRI database currently in place supporting community engagement and data ownership.

2.4.2.1 Receiving and processing applications

The NRI uses their research licensing database to process applications as a database entry. Each entry in the database is connected to an application that was reviewed by the NRI. After the entry is submitted into the database, editors are required to validate entries with physical licenses ensuring information is as complete and correct as possible (Ljubicic et al, 2019). Information must be consistent and accurate for dissemination of research trends that will lead to further community-based engagement and dissemination.

2.4.2.2 Managing review process

Managing the review process is a critical component to improving the research licensing process overall. This method of research tracking is a form of storage management compiling information into an easily accessible format where researchers can be easily identified and contacted if documentation is missing such as research reports (McHugh et al, 1997). The database allows NRI officials to access specific components of the research license application without the hassle of navigating large

documents, such as the research license application itself (Appendix 1). At the end of each year, the NRI creates a compendium highlighting research being conducted in Nunavut each year as a means of broader research reporting and management of results (NRI, 2021).

2.4.2.3 Track license approvals and renewals

A critical component of the research licensing database is the ability to track who approves research licenses, and if the license is a new or recurring entry in the database. The NRI will send license applications to reviewer committee's including Inuit organizations, hamlets, government, and hunters and trappers' organizations.

NRI officials are responsible for identifying key agencies potentially impacted or engaged in the proposed research which is an ongoing challenge of research licensing in Nunavut (NRI, 2021). As a reviewer, it is their role to provide feedback, suggested changes, and provide community approval for a research license (Ljubicic et al, 2019). A list of reviewer organizations was integrated into Nunaliit to visualize and understand which organizations are reviewing what kinds of research. This feature will also be useful long-term, where Nunavummiut will be able to fully engage with research and understand who is reviewing proposed research activities. Additionally, tracking license approvals is also essential for understanding if community priorities are addressed through research license administration, and where gaps are in the current research landscape.

2.5 Connecting the literature

Studies reveal that the most successful northern research engages community members and organizations from the planning stages to dissemination (Carter et al, 2019; Gearheard & Shirley, 2007). Meaningful engagement allows for Nunavummiut to voice their priorities in hopes of co-producing meaningful results with the researcher. The literature illustrates a transition regarding Inuit involvement in research, as there is a shift from unethical and traumatic research practices **(**Macdonald et al, 2014; Martin, 2009; Mosby, 2013), to self-determination and co-leadership in all phases of the research process (ACUNS, 2003; Aqqiumavvik Society, n.d; Gearheard & Shirley, 2007; ITK, 2018; ITK & NRI, 2007; McGrath, 2018; Oceanwise, 2018; QHRC, 2019; Wilson et al, 2020; Wong et al, 2020). Since the early stages of northern research in the 1800's, Inuit ways of life and epistemologies have sparked much interest in researchers across the world (Benjamin, 2001; MacDonald, 2014). Inuit have recognized the growing interest in northern research and are working towards regaining control over their land and increasing governance over research activities (ITK & NRI, 2007; NRI, 2021). Community-engaged research practices support those encouraged by Inuit organizations themselves (Aqqiumavvik, 2018; ITK, 2018; QHRC, 2019). With these initiatives put into place, it remains unknown if the successful outcomes of community-based research connect to research licensing practices put into place. It is challenging to associate successful community-engaged research because of research licensing due to the limited amount of literature, and capacity of the NRI licensing database.

First, the available documentation regarding key themes of meaningful community-based research in the North do not specifically pertain to just the social science, but rather as a guide for researchers of any discipline (Aqqiumavvik, 2019; ITK, 2018; QHRC, 2019; Wilson et al, 2020). This makes it difficult for social scientists who might be eager to participate and interact with communities but do not know where to begin. Additionally, the documentation provides little detail about improper research practices of the past. When considering the research licensing process in Nunavut, it would be valuable for researchers to have examples of previous unethical research practices to facilitate self-reflection of potential impacts of their research in the communities they are working in while preparing their NRI research license application.

Second, there is limited availability of literature detailing the research licensing process itself. Although each region in Inuit Nunangat exhibits research protocols to some effect, there is little information available regarding whether research licensing is effective in Northern research, specifically in Nunavut. In terms of social science research undertaken in Nunavut, there is a significant emphasis on Inuit culture and IQ **(**Aylward, 2007; Cameron et al., 2015; Hentiuk, 2017; Igloliorte, 2017; Laugrand & Oosten, 2009; McGregor, 2012**).** Literature recognizes how Inuit ways of life are put into practice in terms of knowledge translation **(**Brody, 2018; MacDonald, 2014; Richler, 2018**),** and curriculum development (Aylward, 2007; Garakani, 2014; Martin, 2009; McGregor, 2012; Richler, 2018; Qanatsiaq Anoee et al., 2017). IQ was recognized as a means of cultural preservation resulting from colonial research practices (Coburn et al., 2011; Held, 2020; ITK, 2018a; McGregor et al., 2010; Schnarch, 2003; Tester & Irniq,

2008). Additionally, there are published articles from social scientists that were viewed in this Chapter highlighting the importance of collaboration regarding community engagement.

Third, there are limitations in the Nunavut research licensing process making it a challenge to effectively track and monitor trends in the territory. The lack of clarity in defining disciplines in the application process emphasizes a need for streamlined approaches to research licensing itself and monitoring research trends in Nunavut. Additionally, the double application process (NRI, 2021) for interdisciplinary projects could result in unnecessary duplication of entries in the database. It is also hard to monitor research trends of independent Nunavummiut researchers as they are not required to apply for a research license. It is also noted that the NRI is not responsible for research involving wildlife or fish populations which are an essential component to Inuit tradition (NRI, 2021), which could impose implications in monitoring research trends as the full scope of SS research is not being captured.

This broad review of literature interacts with multiple sources addressing the evolution of community-based research, scope of current SS research, and the research regulation process throughout Inuit Nunangat, specifically in Nunavut. There are various models, publications, and protocols addressed in Chapter 2 connecting to the importance of relationship building and transparency between researchers and community members. Although the involvement of community members in SS research has increased in recent years, there is still much work that needs to be done

to improve the knowledge gaps connecting to research licensing which current literature does not address. By addressing the limitations listed in this Chapter, researchers will be enriched with a new perspective of community-based social science research, and how to research licensing can improve research relationships by supporting Inuit research priorities and governance in Nunavut.

CHAPTER 3.0: METHODS: INVESTIGATING SOCIAL SCIENCE RESEARCH TRENDS IN NUNAVUT

3.1 Research partners

My thesis project is a result of the collaborative efforts between Gita and Jamal beginning in 2005. Together, they edited the ITK & NRI (2007) *Guide for Negotiating Research Relationships with Inuit Communities*. Since then, they collaborated on a formal research partnership through a Social Science and Humanities Research Council (SSHRC) Partnership Engage Grant to update and analyze the licensing database. This funding opportunity paved the way for my initial involvement in the project as an undergraduate and graduate research assistant (RA) for two summer terms. In summer 2020, between the first and second RA term, my involvement in the project expanded as I accepted an offer at McMaster University to pursue my MA. We agreed that I would continue the investigation and management of the NRI database for my Master's research, with a specific focus on characterizing social science and traditional knowledge research trends. Once I began graduate studies my project involvement increased significantly by developing relationships with key participants in the project and mentoring two undergraduate students who were also undertaking similar research. I worked together with key partners (Table 3.1) to improve the useability of the NRI licensing database with the shared goal of enhancing Inuit self-determination in research .

Table 3.1: Key team members in my thesis research

Person/ Role	Description of contributions
Alexis Polidoro Master's Student	MA student at McMaster University collaborating on the Research Trends in Nunavut project. My involvement in this project began as an undergraduate RA where I cross-checked the digital research licensing database for accuracy and consistency, inserted any missing records, and uploaded project summaries and their translations (as requested by the NRI). My involvement in the project developed as I am now undertaking a topical coding analysis of social science research topics, and how they have changed over time. Describing my involvement in this community engagement plan supports the vision of Jamal Shirley and the NRI who have guided my thesis research to further explore research methods and reporting tools as well. I continue to work closely with the community and my research partners to better understand Nunavut research trends and how we can deliver these trends to facilitate Inuit self-determination in research.
Gita Ljubicic Project Co-Lead	Supervisor for my MA thesis and is an Associate professor at McMaster University. Gita is recognized as a Tier 2 Canada Research Chair in Community-Engaged research for Northern Sustainability, supporting this community engagement plan. Gita has over 19 years experience of working with Inuit communities. As a project co-lead, she co-guides the project design and methodology, and has worked closely with Jamal and other research partners ensuring locally identified priorities as the forefront of importance. Gita hired me as a research assistant to begin working on the NRI database in August 2019.
Jamal Shirley Project Co-Lead	Director, Research and Innovation at the NRI. Jamal has over 22 years experience in the research process across all disciplines in Nunavut. Shirley has worked closely with researchers and communities over the years in designing and developing research projects and programs. As the Co-Lead of this project, Shirley is also responsible for guiding the path of my MA thesis and suggesting any changes when needed. Jamal is my primary contact of for community-engaged initiatives in this project as he speaks on behalf of the NRI.
Amos Hayes Collaborator	Technical advisor of the Geomatics and Cartographic Research Centre at Carleton University. Hayes is responsible for the creation of the Nunaliit platform supporting the new digital research licensing database. Amos was one of the first people I collaborated with on this project as he shared knowledge with myself about database structure, functionality, and how to approach the database both a user and behind-the-scenes. Amos provided me with tutorials regarding different functions in the database, such as uploading documents and project summaries. Moving forward, I will be contacting Peter Pulsifer (Appendix B) for any database-related inquiries
Alison Perrin PhD Student	Alison is a PhD candidate at Carleton University, where her research evaluates research policy and practice in the Canadian North supporting evidence-based decision-making. Her research has contributed to the systematic review of the NRI research licensing database. I began collaborating with Alison as an undergraduate research assistant in 2019 where we underwent several planning meetings to familiarize myself with the structure and workflow of the NRI database. Over time, Alison has become a great mentor in my Master's career.
Regena Sinclair Master's Student	Regena is a Master's student at McMaster University. She is also a GIS specialist making her an asset to the spatial representation of research in Nunavut. Regena's

	contributions to this project include making maps of research trends in different Nunavut communities.
Jared Chestnut Undergraduate thesis student	Jared was an Undergraduate thesis student at McMaster University in the data collection phase of the project. His thesis focused on the collection of physical Science research trends in Nunavut. I had the opportunity to mentor Jared throughout his thesis and guide his workflow.
Saud Haseeb Undergraduate independent study student	Saud was an Independent Study student at McMaster University in the data collection phase of the project. His research paper focused on the collection of health science research trends in Nunavut. I had the opportunity to mentor Saud throughout his time working on the project, in addition to guiding his workflow.

3.2 Community-based research approach

The need to undertake an engaged research approach is critical for understanding multiple stages of planning, preparing, engaging, and reporting between all project collaborators. The nature of my thesis project limited interaction with community members as I executed research through a database, however, there were key organizations that were involved in the preparation of the coding framework, such as the Aqqiumavvik Society and Nunavut Tunngavik Incorporated. For the scope of my MA research, the "community" was represented by Jamal Shirley, who represents the NRI on behalf of Nunavummiut as a whole. My consistent consultation with Shirley on behalf of the NRI ensured my commitment to community engagement and investigating social science research trends in Nunavut.

My thesis research was guided by the principles of a community-based participatory research framework based on reciprocity and respect between researcher and community members (Healey & Tagak, 2014). I drew on the Piliriqatigiinniq Partnership Model for Community Health Research developed by the Qaujigiartiit Health Research Centre

(QHRC) (Figure 3.1), which prioritizes respectful research and addressing community priorities (QHRC, 2019).

The QHRC is based in Iqaluit and focuses their "research on the priority issues of our communities in a way that harnesses our strengths and builds on our knowledge" (QHRC, 2019). The Piliriqatigiinniq Model (Figure 3.1) supports meaningful community research in Nunavut through four Inuit principles such as Pittiarniq (being good or kind), Inuuqatigiinniq (being respectful of others), Unikkaaqatigiinniq (the power and meaning of storytelling), and Iqqaumaqatigiinniq (when ideas or thoughts come into "one") (Healey & Tagak, 2014; Ljubicic et al., 2020; QHRC, 2019). The model represents "the web of relationships" (Healey & Tagak, 2014, p. 3) amongst researchers, youth, community members, and policymakers in community-based research. Each principle is based on Inuk values to achieve wellness (Healey & Tagak, 2014). Although this model targets health-related projects, it connects to my thesis as it contributes to strengthening Inuit capacity in research (QHRC, 2019). Overall, this model illustrates the interconnectedness between researchers, Inuit organizations, and community members through meaningful engagement.

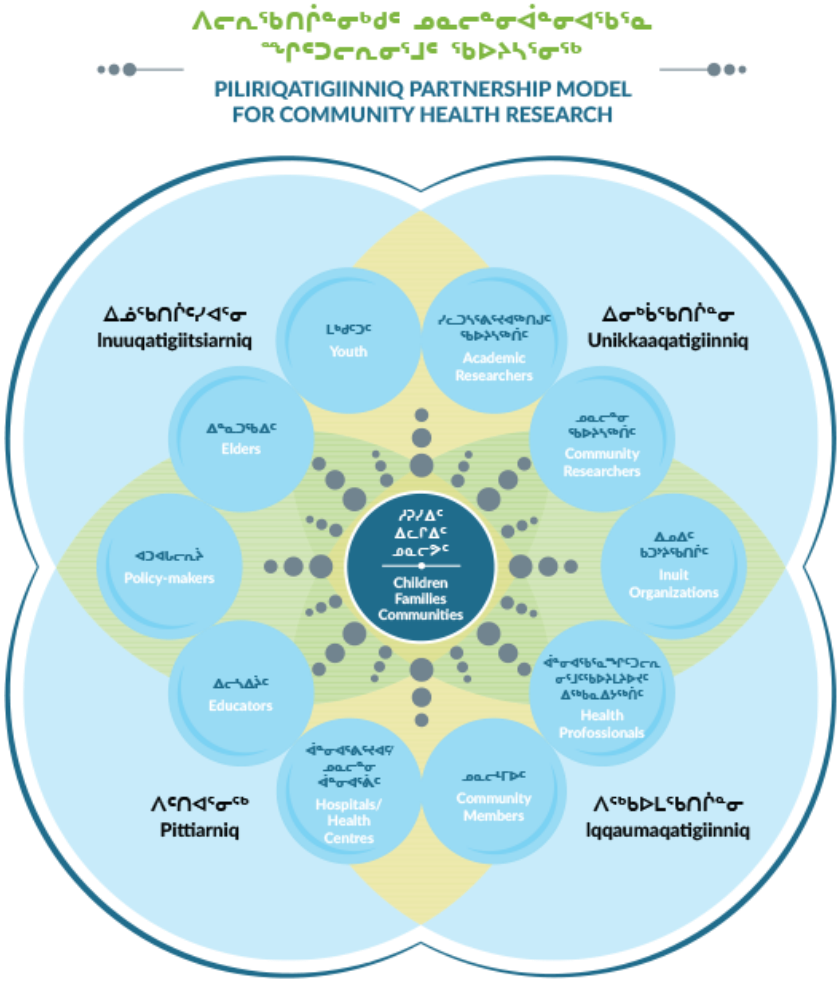

Figure 3.1: The Qaujigiartiit Health Research Centre's Piliriqatigiinniq Partnership Model for Community Health Research (QHRC, 2019)

A research cycle was created using the Piliriqatigiinniq Partnership Model for Community Health Research as inspiration. Figure 3.2 illustrates the connection between Inuit principles for meaningful community-based research and how those concepts connect to relationship-building, data collection, analysis, and reporting stages of my thesis research. The community is at the center of my diagram in red, representing

Nunavummiut as the heart for community-based research. Additionally, there are four sections surrounding the community of equal size, recognizing the equal value of each Inuit concept from the Piliriqatigiinniq Partnership Model. It is noted that all these concepts, such as "Pittiarniq" are employed throughout the entirety of the research process, as we strive to be the best community-based researchers we can be, however, this diagram articulates how each component of the model reflects different aspects of my research process.

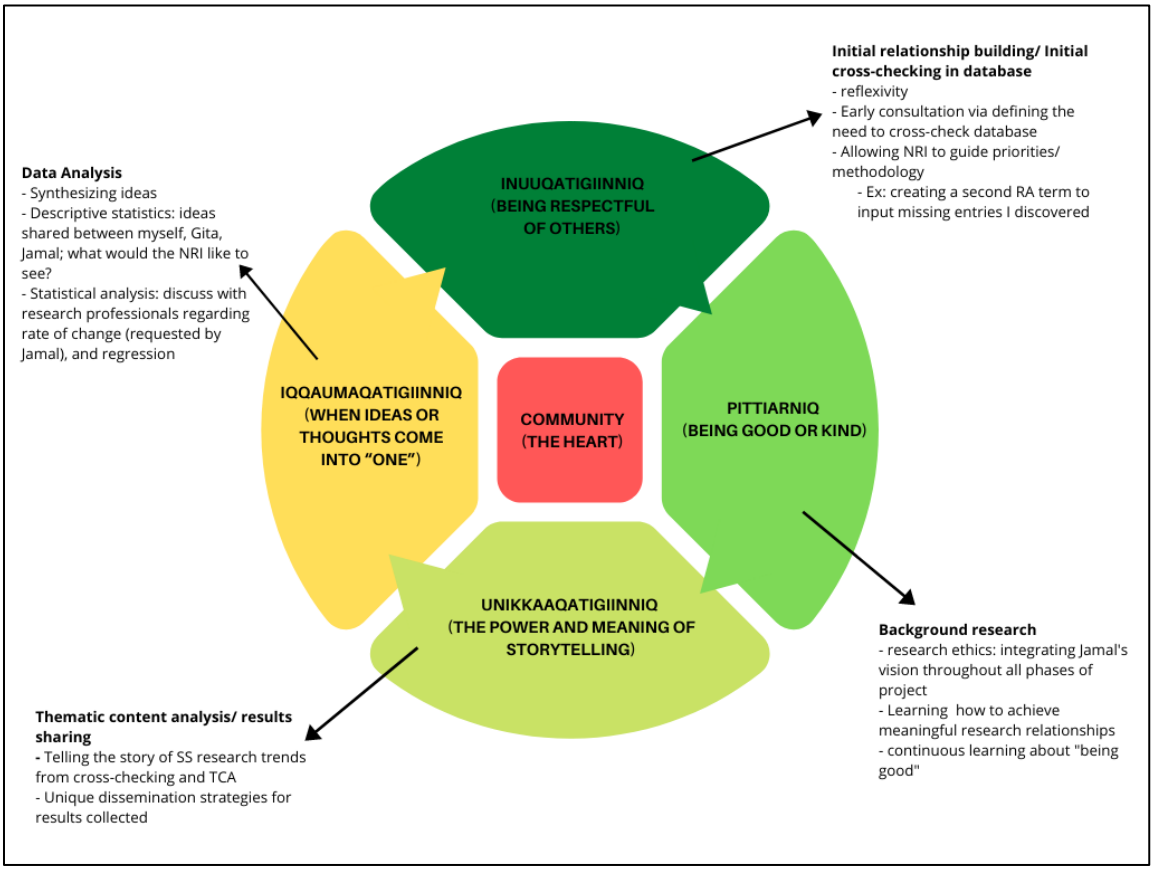

Figure 3.2: Research cycle (Adapted from the Piliriqatigiinniq Partnership Model)

3.2.1 Pittiarniq (being good or kind)

This concept relates to the emergence of research ethics recognizing the importance of consent, protection of stories, and accountability when executing research with Indigenous communities (Healey & Tagak, 2014). It is important to understand Inuit values and how they contribute to meaningful research relationships in northern-based research (ITK, 2018; ITK & NRI, 2007). Although "being good" is described as subjective (Healey & Tagak, 2014), it is important for researchers to understand Indigenous research ethics and collaboration, whether it is through literature, conversation, or graduate coursework. For my thesis, conducting background research improved my understanding of being a "good" researcher. This principle was specifically put into practice during the planning stages of my research, where I continuously worked with Jamal and followed his guidance to address NRI priorities that best represented the needs of communities. I continuously reflect on what it means to be a "good" researcher, and I expect this reflection to continue throughout my life.

3.2.2 Inuuqatigiinniq (being respectful of others)

Building positive relationships between researchers and community members is at the heart of meaningful engagement (Healey & Tagak, 2014; ITK, 2018; ITK & NRI, 2007). This concept encourages researcher reflexivity, encouraging researchers to ask themselves why they are doing research (Healey & Tagak, 2014). This connects to early stages of my thesis research as preliminary consultation with Jamal considered the engagement, acknowledgment, and awareness of Nunavummiut values research practices, such as increasing Inuit governance in research. Jamal guided all phases of my

research exemplifying the importance of northern governance and control in research activities occurring throughout Nunavut.

3.2.3 *Unikkaaqatigiinniq (the power and meaning of storytelling)*

Storytelling is a sacred aspect of Inuit tradition (Healey & Tagak, 2014, Martin, 2009; Stewart et al., 2000; Wisniewski, 2008). For generations, Inuit exchanged knowledge about history, life, values, and morals through storytelling (Healey & Tagak, 2014). Stories provide a process of decision-making derived from the spoken experiences of survival and wellbeing (McGregor et al., 2010). It is critical for researchers to understand the meaning of storytelling and how these knowledge practices can be incorporated into community-based research. Unikkaaqatigiinniq encompasses the importance of including narrative in the presentation of research, rather than just providing the data. This was a challenge in my thesis, as it was critical to make sure my research effectively tells the stories of SS research trends that come from the database analysis. It important to share research results in a way that enables individuals to derive messages relevant to their own experiences (Healey & Tagak, 2014) as the story of research trends over time unfolds.

3.2.4 Iqqaumaqatigiinniq (when ideas or thoughts come into "one")

This concept addresses data analysis as a means of connecting results to the research question itself (Healey & Tagak, 2014). Researchers often "immerse" themselves in their data and reflect on the results, discussing with their research partners and collaborators (Healey & Tagak, 2014). This synthesis of ideas challenges researchers

in “finding meaning and understanding” (Healey & Tagak, 2014, p. 8) of the data collected and how it will benefit Nunavummiut and their research partners. I work closely with Jamal who represents the NRI in my research, continually checking in to ensure that the results appropriately represent priorities of Nunavummiut. Data analysis in my research has thus emerged because of discussion and sharing ideas between myself, Gita, and Jamal to best represent results in a way that relevant and useful to the NRI.

3.3 Data Source

The data used in this thesis research belongs to the Nunavut Research Institute and is managed by the NRI in their Research Licensing Database. The database contains details of each research license issued by the NRI between 2003 and 2019 in the physical/natural science, social science/traditional knowledge, and health science disciplines. However, for the scope of this research I focused specifically on database entries from the social science discipline between 2004 and 2019. Research licenses issued before 2004 do not have publicly accessible research licensing documents that are required for checking the accuracy and completeness of records.

The NRI previously managed research licenses through using a Microsoft Access Database; however, this platform does not support the Institute’s long-term goal of creating a publicly accessible research portal. As a result, the NRI partnered with the Geomatics and Cartographic Research Centre (GCRC) at Carleton University, to transfer data into an updated and more flexible database format using the GCRC open source Nunaliit Platform. The transfer is still in progress as it is not functionally set up to

completely replace the NRI's in-house database from MS Access to Excel. Nunaliit is a database platform designed for more tailored data exploration and user-friendliness. Currently, the database is only accessible to users with login credentials as it remains in the prototype stage; however, the long-term goal is to develop this into a Nunavut Research Portal that will be publicly accessible to Nunavut organizations, community members, and researchers. With appropriate account permissions, the login function allows users to modify entries as needed within the NRI database. Once the database becomes public, community leaders, policymakers, and Nunavummiut will be able to view and search what research occurs in their home communities with respect to leadership, topic, location, and timeframe.

3.3.1 Database structure

The NRI database (Figure 3.3) is organized where each row represents a licensed project, and each column represents a field pertaining to the research license issued. For example, key fields include Project Title, Objectives/Summary, Contact Information, Team Members, among others (Appendix 2). After I clicked on a project of interest all fields in the database pertaining to that research project appeared in a window to the right of the table format. This option for a detailed view provides the opportunity to view all project details by scrolling to sections of interest. The database also as the capacity for querying and spatial representation. The database includes the ability to search for entries by word or license number to retrieve information from an entry in the database. A long-term goal of Nunaliit includes an interactive map providing spatial representation of

licensed research projects. This Research Project Location module of the database is in the early stages of development and will not be used in this thesis research. However, mapping functionality will be valuable in the future to provide options for visual exploration of research intensity based on geographical location.

3.3.2 Supporting documentation

The first step to investigate research trends in Nunavut included validating information in the database with the original license document and associated application materials. All available license documents were shared by the NRI through Google Drive. I accessed the NRI-CU google drive folder to validate each license entry between 2004 and 2019. Within each year folder is a "project" and "licenses" folder. The "licenses" folder includes the research license itself, whereas the "project" folder includes the research license application, annual report, or any other relevant information pertaining to the research license.

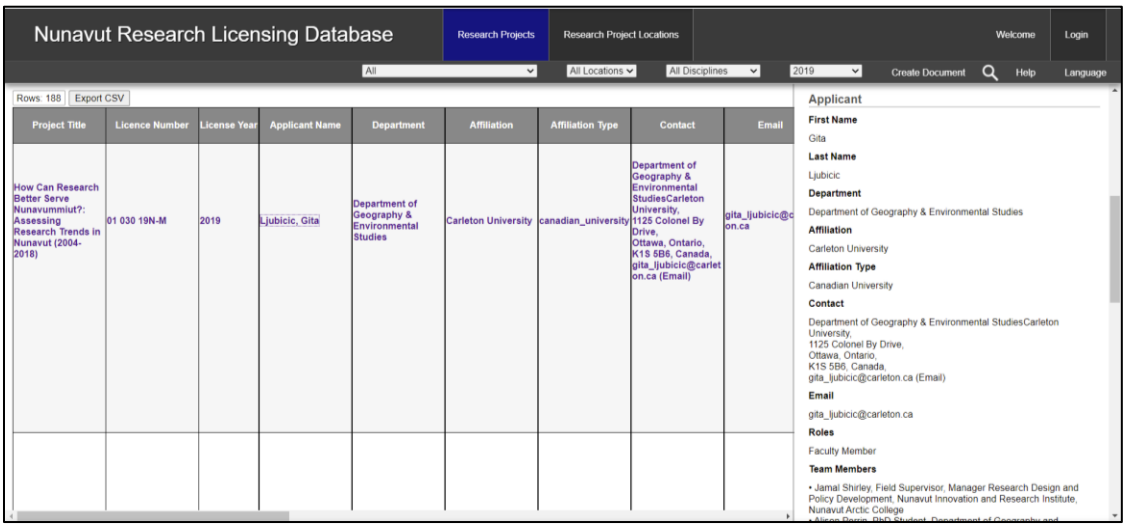

Figure 3.3: Pop-up window appears after clicking on the record in the database

3.4 Research phases and associated methods

It is essential to understand Northern-based concepts of data management and ownership as my thesis research relies on secondary data owned by the NRI. Currently, Nunavummiut do not have access to research activities occurring in their home communities. It is important to mitigate those gaps through research licensing so Inuit can "have access to information and data about themselves and their communities" (FNIGC, n.d, p.2). Researchers have integrated Inuit knowledge and cultural values into information communication technology platforms through the Exchange for Local Observations and Knowledge of the Arctic (ELOKA) project (ELOKA, 2021; Johnson et al., 2015; McCann et al., 2016; Pulsifer et al., 2012). ELOKA is a data management system "fostering collaboration between resident Arctic experts and visiting researchers" (McCann, et al., 2016, p.127).

It is important to recognize the success of ELOKA when discussing the research phases of my work, as the NRI database facilitates knowledge translation between researchers and outside communities (Johnson et al, 2015; Pulsifer et al, 2012). The phases of my research (Figure 3.4) were followed by an iterative process established by the needs and priorities of the NRI. Red lines illustrate my own workflow, and the dashed lines represent where consultation with Jamal took place. My methodology was also recorded over time as well (Appendix 3).

3.4.1 Background knowledge review

Conducting background research was a critical first step acquiring the appropriate knowledge to begin my thesis research. As a southern-based researcher who has no Indigenous ancestry and has never been in Nunavut, it was important to learn as much as I could about Inuit culture and appropriate research practices. I conducted a literature review (Chapter 2) to gain background context including the history of research practices and licensing in Nunavut, social science research topics undertaken in Nunavut, and community engagement in northern research. Background readings were also supported by government and Inuit organizations reports, review of websites and media, as well as discussions in graduate-level courses and with collaborators on this project (Table 3.2).

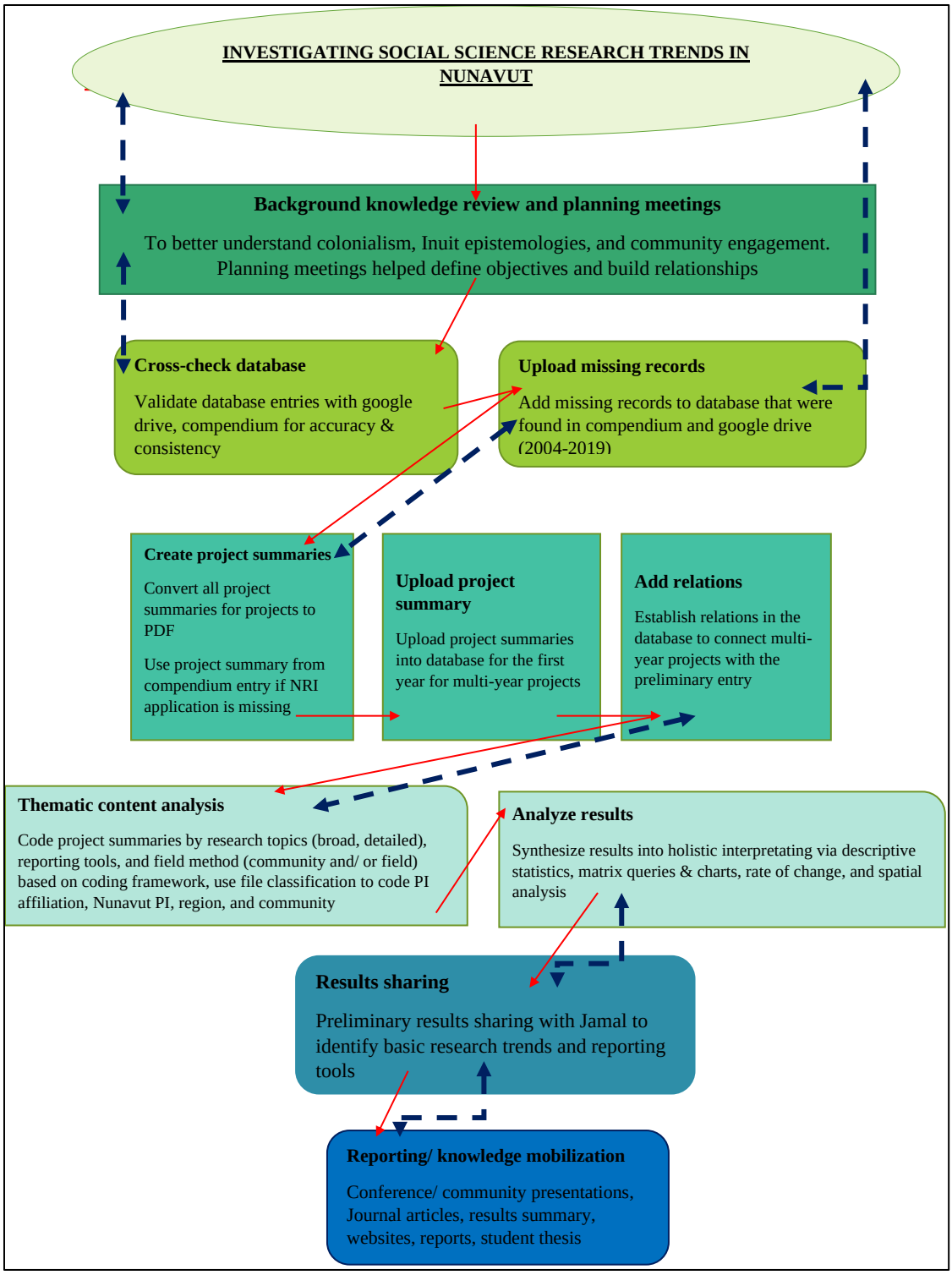

Figure 3.4: Research diagram form my MA project

Table 3.2: Background research required for this project

Concept	Explanation	Sources
Inuit culture	As an individual who (before this project) had minimal to zero knowledge about Indigenous or northern ways of life, I was eager to learn more about Inuit culture and their perceptions of research occurring in the north. This furthered my knowledge of how I can better prepare myself for meaningful engagement with communities, for example, through casual conversation rather than formal interviews.	•City of Iqaluit Facebook Page •Government of Nunavut Facebook page •Isuma TV •GEOG 715 guest speakers
Nunavut Research Institute	Learning more about the NRI, the scientists act, and their overall goals and objectives helped guide my own objectives for my MA and further my understanding of the importance of Inuit-self determination	• Conversations with Jamal • Gearheard & Shirley (2007) • NRI (2015,2021) • Shirley (2005)
Research licensing	Familiarizing myself with the research licensing process. The first phase of this project included the cross-checking of existing research licenses; therefore, it was essential to understand the licensing process and what encompasses the research license application process in Nunavut. This also assisted my understanding of the importance of documentation regarding reporting tools and how engagement could be facilitated between researchers and community members.	• Conversations with Jamal, Gita • Aurora research institute (2021) • Government of Yukon (2021) • Nunatsiavut research centre (2021) • Makivik (2021) • Thursby et al (2007)
The project itself	Understanding the purpose of this project considered evaluating the existing NRI license applications and the NRI's website. Engaging with other team members such as Alison Perrin furthered my engagement in this project as I learned about the value of interpreting research trends through multiple team members from both a traditional and western point of view.	• Conversations with Jamal, Gita • SSHRC PEG grant proposal • NRI website
Inuit self-determination	Important to understand the meaning of Inuit self-determination and how it will be applied to my research project long-term. My MA project itself does not directly facilitate Inuit self-determination (for community members who may access the database publicly) however it is important to have an understanding through literature to acknowledge it as a long-term goal for the database and NRI itself.	• ITK (2018) • ITK & NRI (2007) • Shirley (2004)
Database manipulation and operation	Understanding database structure involved consultations and meetings with other partners in the project such as Alison Perrin and Amos Hayes. It was important to engage with my research partners to fully	• Conversations with Amos, Alison, Peter • Nunaliit, (n.d)

	understand the operational aspect of the Nunaliit platform and the overall purpose.	
Undertaking research in the north	Reading up on literature was important to consider for myself but also for scholarship applications. Understanding the overall value of research in the north provided additional insight from both a community and scientific perspective.	• Conversations with Jamal, Gita • Armitage et al (2011) • Garakani (2014) • McGrath (2003) • McNie et al (2016) • Research frameworks from QHRC and Aqqiumavvik • GEOG 715 guest speakers
History of research practices	Background information regarding improper research practices solidifies my understanding of why it is important to have a research licensing process in Nunavut.	• Coburn et al (2013) • ITK (2018) • MacDonald (2018) • Martin (2009) • Qanatsiaq Anoee (2017) • Tester & Irniq (1008)
Community engagement **Community engagement continued**	Enrolling in a graduate course to better understand the importance of community engagement and the importance of developing research relationships. My knowledge of community engagement has expanded through guest talks, textbook readings, and conversation with other students.	• Bi-weekly discussions with GEOG 715 class • MacDonald & Wachowich (2018)
Qualitative research methods	Enrolling in a graduate-level course assisted my personal knowledge of qualitative research methods and how we can apply methods such as thematic coding to my research agenda. However, it is always important to consult with community stakeholders prior to facilitating the next phase of the research project.	•GEOG 734 course •Hay (2010)
Community engagement	I will always work towards improving myself as a southern-based Arctic researcher, therefore I will continue to investigate the importance of community engagement practices and listen to the voices of community members (perhaps from local media outlets rather than literature) to better understand their perceptions and desires for improving research relationships.	•SUN team meetings •GEOG 715 class discussions •Ongoing, moving forward
Statistical analysis	The analytical component of my research must be further investigated through literature and how it connects to northern social science work.	•Conversations with Gita and Jamal •MS Excel •NVivo help
Dissemination	Through further investigation of research trends over time and community consultation with Jamal I must	•Ongoing conversations with Jamal

	consider how I will report my results to community members or other interested parties in the future.	
Important individuals to contact	As I think about this project long-term, it is important to consider how this project may grow in the future. Investigating government websites and identifying important individuals enhances community engagement but also allows for the project to increase stakeholders and the scope of the overall project.	•Corresponding with Jamal for contact info •Aqqiumavvik, QHRC websites

3.4.2 Preliminary planning meetings

Planning meetings occurred during the same time as I was collecting background research. This overlap period was a valuable time to gain Insight on the project and develop a basic understanding of the functionality of the NRI database. The type of meetings evolved over time, as the earliest planning meetings were focused on learning about the project, while later meetings included discussions of dissemination strategies.

Preliminary planning meetings provided a foundation for defining the objectives of my thesis research while establishing rapport with the NRI. Initiating community contact was described in *Negotiating research relationships with Inuit communities* (2007) as a critical component of the research project, specifically when the researcher has no contact or first-hand knowledge of the community itself (ITK & NRI, 2007). Through meeting Jamal Shirley on behalf of the NRI, I began to develop a relationship with a research partner who guided my research to effectively tell the story of social science research trends in Nunavut from 2004 to 2019.

The first planning meetings of this research included personal introductions with Jamal, Gita, and Alison (Table 2.1). Early planning meetings facilitated relationship

building using Zoom. Jamal frequently used his phone to call into our Zoom meetings as the internet connection in Iqaluit was limiting. Additionally, background information regarding who the NRI is, what a research licensing database does, and why there is a need for publicly accessible information regarding research activities was also discussed. I was also introduced to Amos Hayes (Table 2.1) who helped develop the NRI database. From this, I gained familiarity regarding the functionality of the database and how my role as a research assistant would contribute to NRI's overall goal of improving their licensing review process and investigate social science research trends in Nunavut. During this time, I was not involved in the project as a thesis student, therefore I did not have any concerns over methodology, and Jamal maintained control in the design and preliminary stages of the project (ITK & NRI, 2007). In October 2019, I participated in a group call with Jamal discussing our overall progress during the summer and next steps as the database needed further refinement. This solidified a second RA term in the following summer; however, I was now contributing to the project as part of my MA thesis.

During my second RA term, Jamal, Gita, and I worked more closely together to refine the NRI licensing database review. Jamal requested I make note of all missing records in the database, so I spent the summer of 2020 sorting through all license entries and compendia issued from the NRI between 2004 and 2019. I engaged in bi-weekly meetings with Jamal where we discussed progress and concerns regarding the database. Listening to feedback from Jamal guided my research agenda as I furthered my knowledge of research licensing and the importance of completeness in the database. I

began engaging in phone calls and email exchanges with Jamal independently. By this point in the project, Jamal was developing trust in myself as a researcher, while we worked collaboratively to investigate social science research trends in Nunavut

Once database cross-checking was nearly complete, meetings in fall 2020 focused on refining my role in the project related to my thesis research goals. Jamal emphasized the need to evaluate research topics, methods, and reporting tools over time. With this feedback I decided to focus on analyzing all social science and traditional knowledge research projects in the NRI database, while two undergraduate students undertook the analysis of health and physical science research projects. I mentored Jared Chestnut and Saud Haseeb (Table 3.1) as they undertook their analysis as part of their undergraduate thesis, and independent study research, respectively. During this time, it was also important to apply for funding and evaluate the overall objectives of my thesis project. Jamal, Gita, and I worked collaboratively to review and refine my applications for the SSHRC Master's Scholarship and ACUNS Student Scholarship, where Jamal supported my efforts with a letter of reference. Additionally, I supported Gita and Jamal's successful application for a SSHRC Insight Grant to build on the initial cross-checking of the database that I started.

3.5 Initial database preparation

3.5.1 Cross-checking database with Google Drive

The first step to better understand the scope of SS research trends in Nunavut included a systematic process of cross-checking the NRI research licensing

database entries for accuracy and completeness. This review was necessary to: i) address any fields that were missing due to the transfer to Nunaliit (e.g., Region); ii) address inconsistencies in spelling and format of entries; iii) address variability in NRI data entry content and format over the years; and, iv) add new entries that were not yet included in the database. Alison, Gita, and I (Table 2.1) worked together to create a workflow document (Appendix 4) supporting cross-checking of future years in the NRI database. License entries were cross-checked with the available research licensing supporting documentation in the Google Drive folder (Section 3.3.5). To complete the cross check between the database and the Google Drive, each field within the database entry (Appendix 2) had to be validated using the existing licensing docs in the Google Drive, such as the NRI license, including license reviewers (Appendix 5) and license application (Appendix 1). During the cross-checking stage, it was critical to modify and add information as needed to ensure completeness and consistency of entries in the database. If any information was missing or from the Google Drive, a note was added in the database entry. Examples of notes included: i) "*Application missing, unable to confirm team member information"* ii) *"Information missing from google drive, unable to update*, and iii) *"reviewers list missing, unable to update distribution list"*. It was also assumed that if the project folder was missing from the google drive, the reviewers list and application was missing as well.

It is also important to mention that multiple fields were not cross-checked, such as Methodologies, Final Report Received, Annual Report Received, Funding, and Additional funding source details. Methodologies was a new field added for future use to

share an in-depth research landscape with Nunavummiut. Although there is a reporting requirement to renew licenses there is no required reporting format, and due to the high variability of report formats received by the NRI I was unable to use them in the analysis of my research. Additionally, the NRI does not have sufficient documentation to cross-check funding sources for social science research projects. In contrast, some examples of key fields that were cross-checked include License Number, Affiliation Type, and Community/ Region.

3.5.1.1 License Number

License numbers were cross-referenced with the research license. License numbers are issued based on geographic location and year of project and its year of occurrence, further described in Table 3.3. It was important to make sure each license number was complete and included all components for facilitate queries and analysis of projects in the future. It was also essential to make sure the spacing of license number was consistent to support the NRI's goals of a consistent and accurate research licensing database.

Table 3.3: NRI Research license number structure

License Number Example: 04 065 12N-M		
Component	**Meaning**	**Description**
First two numbers (04)	Region where research is located	01 = South Baffin 02 = North Baffin 03 = Kivalliq 04 = Kitikmeot 05 = multi-region 06 = Outside Nunavut
Second three numbers (065)	Number of licenses issued in that particular year	"065" = 65th license issued for Kitikmeot
Third two numbers (12)	Year the license was issued	"12" = 2012
Letters at the end (N-M)	Whether or not the license is new or a renewal, and annual or multi-year	"N-M" = new multiyear research project
Registry or amended	Special conditions sometimes listed for a license	Registry = license granted without full review, low risk Amended = license amended at some point in the year

3.5.1.2 Affiliation and Affiliation type

An essential component of investigating research trends in Nunavut was learning about who is leading the research, and how leadership has changed over time. This information is related to the Principal Investigator of the research license application and the associated Affiliation field in the database. The Affiliation field represents the specific institution or organization name associated with the research license and application. The licensing documents were cross-referenced with the database entry to ensure the affiliation was correctly input. Affiliation type is the next field in the database that refers to a representative type of organization selected from a dropdown menu within the database (Table 3.4).

Table 3.4: Affiliation types used to categorize Principal Investigator affiliations in NRI research licenses

Affiliation Type
Canadian College
Canadian non-profitable organization
Canadian University
Consultant/ Industry
Government of Canada
Government of Nunavut
Hospitals
Institutions of public government
International College/ University
Nunavut Inuit organizations
Nunavut municipalities
Nunavut-based not profitable organization
Other (Community-based/ independent researchers, small business)
Other territorial/ provincial government

3.5.1.3 Region and Community Location

Research locations are critical for analyzing social science research trends to better understand what research is happening where in Nunavut. In the database, research locations were crosschecked so that both Community and Region fields were populated if the information was available. Locations were cross-referenced with the research license document and application, to check that no community (or remote field site) locations were missed. Additionally, I also confirmed the regions where the research took place (Table 3.5). There are check boxes in Nunaliit that I selected to apply the appropriate Region option. Some projects occur in more than one community, or even in more than one region.

There are three research license administration regions in Nunavut (Qikiqtani (Includes North, South Baffin), Kivalliq, and Kitikmeot) (Figure 1.1). In the NRI database, there are five different region options listed as check boxes (Table 3.5), the Qikiqtani region was only selected if the research in that administration region was occurring in both North and South Baffin, otherwise the singular Baffin region would be checked, and the Qikiqtani region would be left unchecked. The NRI tracks research in North and South Baffin Separately, as many physical/ natural research projects occur in remote communities in North Baffin. The check boxes representing research regions in Nunavut supported the analytical component of this research that investigated the connections between research location and other variables, such as leadership, timeframe, and topic.

Table 3.5: Research regions and the communities located in each region in Nunavut (See Figure 1.1 for visual representation)

Region	**Communities in region**
Qikiqtani	All North and South Baffin Communities
North Baffin	Arctic Bay, Clyde River, Grise Fiord, Hall Beach (Now Sanirajak), Igloolik, Pond Inlet, Resolute Bay
South Baffin	Cape Dorset (Now Kinngait), Iqaluit, Kimmirut, Pangnirtung, Qikiqtarjuaq, Sanikiluaq
Kivalliq	Arviat, Baker Lake, Chesterfield Inlet, Coral Harbour, Rankin Inlet, Repulse Bay, Whale Cove
Kitikmeot	Bathurst Inlet, Cambridge Bay, Gjoa Haven, Kugaaruk, Kugluktuk, Taloyoak, Umingmaktok

3.5.2 Cross-checking database with compendia

The NRI issues an Annual Compendium of Licensed Research which provides an overview of all research projects licensed by the NRI in a given year (NRI, 2021). The

compendium is considered the official reference for licensed projects, while some entries were missing from the licensing database. Therefore, it was important to cross-check database entries each year with the NRI compendium to ensure completeness. The compendium only includes Project Title, Summary, License Number (2007 onwards), Number of Team Members, and Community Location. Information that was not found in the compendium was left blank. I went through each entry in each compendium from 2004 and 2019 and searched for the matching record in the NRI database ensuring the information in the database matched official NRI documentation. I also expanded on existing project summaries in the database if the compendia project summary was longer to best confirm license completeness. It was also important to update the date the record was last updated while also making sure Step One Review was checked, since that record was now as complete as possible.

3.5.2.1 Adding missing records

It was previously mentioned that the purpose of cross-checking the NRI licensing database for accuracy and consistency due to the transfer of information from the previous MS access platform to Nunaliit, and the changing roles of individuals who were involved in uploading license information. Missing entries in the database were identified when they appeared in the Compendium but there was no corresponding entry in the NRI licensing database. In the situation where a project was missing from the database, a new document was created using appropriate information from the Google Drive and Compendia (Section 3.5.1). Once the record was added to the database, it was important

to note the entry was “added from compendium” ensuring entries are as complete as possible. I also left Step One Review unchecked signifying the entries added from the compendium needed to be validated with the Google Drive. There were 332 records added from the Compendium.

At that point in the cross-checking process, all records besides those added from the Compendium were as complete as possible and had Step one Review completed. It was then necessary to filter out reviewed documents in the database by selecting the Exclude Step One Reviewed Documents option. This allowed new records added from the compendium to appear and made cross-referencing with the Google Drive easier. While cross-checking those entries with the database, however, there were cases where licensing documents on a project existed in the Google Drive but were missing from both the database and Compendium. When that situation occurred, I followed the same protocol of adding a new record into the database (Appendix 4) and noted the entry was missing from the Compendium, as it was not previously detected. After adding missing documentation from the Google Drive, all records had Step One Review completed, which was validated by selecting the Exclude Step One Review option ensuring no records would appear for the years 2004 to 2019. That validation satisfied one of my thesis objectives (Chapter 1.3) and goals for the NRI as entries in the database were now as consistent and accurate as possible.

3.5.3 Creating and uploading project summary documents

While project summaries are available as a field in the database (Appendix 2), the future goal of this database is to be a public accessible resource. This meant that it was important to start implementing a new format and functionality of the database to work towards that future vision. One important aspect of this was making project summaries available for viewing and downloading as PDF documents in all languages it was provided to the NRI (Appendix 1). Project summaries were also an important step to create summary documents used in the analysis of social science research trends. PDF documents were selected as they can be opened using a web browser and cannot be as easily modified compared to MS word or similar documents, which require a separate program to read files (Tyndale, 2020). Rather than storing all project summaries in the designated Google Drive folder, uploading project summaries into the research licensing database provided an excellent opportunity to store all research-related documents in one location, optimizing the usability of the database.

Project summaries are submitted with the NRI research license application (Appendix 1); therefore the same project summary applies for all years of a multi-year license. Project summaries were created using existing summaries from the NRI research license application, or from the field in the database if the project summary was missing from the google drive (I.e., what was input based on the compendium entry). Project summaries were only created for Annual (one-year) projects or the first year of multi-year projects. This minimized redundancy in the database and unnecessary duplication of

documents. Project summaries were an essential component of the analysis of my research as this is the only consistent documentation submitted by researchers when applying for a NRI license (see Section 3.5.1). Project summaries were downloaded into a folder on my desktop containing PDF project summaries for all available languages using a naming convention (Table 3.6).

Table 3.6: Naming convention for project summaries

Sheppard_2010_4-D-visioning-for-climate-decision-making-clyde-river_0209510N-M_IN	
Colour/ section	**Definition**
Sheppard (Red)	Last name of PI
2010 (Orange)	Year of project (would add 2010-2012 if multiple entries existed in database)
4-D-visioning-for-clymate-change-decision-making-clyde-river (Green)	Truncated title with dashes in between words
0209510N-M (Blue)	NRI license number
IN (Purple)	Language of project summary (IN=Inuktitut, EN=ENGLISH, INN=Inuinnaqtun, FR=French)
Black	Underscores to separate each section

If the project summary was available in a MS Word document as part of their NRI research license application, it would have been in the Google Drive with the respective research licensing documentation. The file was printed as a PDF document and saved to the folder on my desktop using the associated naming convention (Table 3.6). The process was duplicated for entries as well if there were translated project summaries in the Google Drive, such as Inuktitut, Inuinnaqtun, and French. It was important to create

project summaries for all languages ensuring completeness and consideration of Inuit communities who may explore the database in the future.

If the project summary was available as a PDF document in the Google Drive, all translations were downloaded using the naming convention (Table 3.6) and stored in the project summary folder I created on my desktop. This was the easiest of the project summaries to create.

If no original licensing document was present in the Google Drive, a project summary document had to be created based on the contents in the Objectives/Summary field in the Database, as this was the most detailed and official version of the project summary (Section 3.5.2). The contents of that field were pasted into MS Word and PI name, research license number, and affiliation was added to the document as this is information is not available in the summary field. The document was saved as a PDF on my desktop using the given naming convention (Table 3.6). Project summaries resulting from the Summary field in the database were only available in English as this is the only information the NRI had access to.

Once each of the SS project summaries were created, they were uploaded in association with the first year of the project. The folder on my desktop containing all project summaries was also uploaded to the Google Drive ensuring all information is stored in the same place.

3.5.4 Adding multi-year project relations in the database

Associating multi-year projects with one another ensured completeness and accessibility of the NRI database as users will be able to better identify project durations. It will also provide great benefit to those who may use the database in the future to understand the scope of long-term projects in their home communities. It also optimizes functionality of the NRI database as it would otherwise be very difficult to assess the continuity or length of multi-year projects. Multi-year project relations were created by identifying multi-year database entries with project summaries uploaded to their record. Related years for each multi-year project were identified using a search function within the editing window. I searched for the title of the project and made sure the project summaries within the database were similar. This process was very important for my research and for the NRI as it will later help the NRI track the duration of multi-year projects. It also helped associate project summary coding with all years of the same project.

3.6 Thematic Content Analysis

Understanding research trends in Nunavut is supported by thematic content analysis (TCA) of project summaries using NVivo software. NVivo software supports TCA as it easily allows for understanding and identification of themes throughout a given set of files (Friese et al., 2018; Nowell et al., 2014). Thematic coding is essential for the future vision of the NRI in terms of how research trends will be communicated with Nunavummiut. It was important to take this approach to better inform Nunavummiut

about research occurring in their home communities and assist the NRI in addressing research concerns such as intensity and fatigue on their own accord.

3.6.1 Creating the coding framework

Thematic coding is a method of identifying a given set of themes within a body of text (Dunn, 2010) in correspondence with a given set of codes. For this research, codes were established using a coding framework created in collaboration with Jamal Shirley on behalf of the NRI, Dr. Gita Ljubicic, Alison Perrin, and Inuit organizations such as the Aqqiumavvik Society and Qaujigiartiit Health Research Centre (QHRC). Input from Inuit organizations also provided an opportunity for community members and leaders to provide input on research projects occurring on their land, as local knowledge is a powerful source for supporting research (ITK & NRI, 2007). Additionally, a document was created (Appendix 5) with Gita, Jared, Saud, and me outlining specific details of the coding process. This was a valuable document for the coding process as this took multiple weeks.

The following categories were created for the coding framework and treated as parent codes: i) Social Science Broad Topics; ii) Social Science Detailed Topics; iii) Health Broad Topics; iv) Health Science Detailed Topics; v) Physical Science Broad Topics; vi) Physical Science Detailed Topics; vii) Community-based Research Methods; viii) Field Research Methods; ix) Reporting Tools; x) Interdisciplinary Projects; xi) Project Duration; and xii) Years Project Occurred. The codes were complied with descriptions into a codebook (Appendix 6) and were manually inputted into NVivo as parent codes

and associated child codes. For example, social science broad topics was a parent code, and the associated child codes were list of broad topics pertaining to that category (Table 3.7). Additionally, social science detailed codes was listed as a parent code, and the associated detailed research topics were listed as child codes (Table 3.7). There were 12 parent codes and 308 child codes in total. Once this process was completed for all codes, the project summaries were ready to be uploaded into the software for thematic coding.

Table 3.7: Parent and child codes for social science research topics

Social Science and Traditional Knowledge		
Parent (Broad) Codes	**Child (Detailed) Codes**	
• Archaeology • Arts • Colonization Impacts • Culture/society • Economy • Education • Geography • Gender • History • Inuit Qaujimajatuqangit (Inuit knowledge) • Justice/Law • Land use and traditional activities • Policy/governance • Reconciliation • Sovereignty/self-determination • Other: _____	• Agriculture/aquaculture • Architecture • Community planning • Corrections • Crafting • Cultural values/skills/ practices/systems • Cumulative effects • Curriculum development • Decolonization • Digital technologies • Disaster preparedness/ resilience • Early years education • Economic development • Educational outcomes • Emergency response • Employment/ workplace • Energy and mineral resources management • Entrepreneurship • Environmental management • Family supports/parenting • Fishing/fisheries • Gender studies • Harvesting • Heritage sites • Housing • Human response to light/darkness • Hunting • Infrastructure and transport management	• Institutions of public governance • Labour/training studies • Land claims implementation • Land use planning • Language • Literacy • Literature • Mobility/migration • Mining and society • Mixed economy • Music • On the land travel/navigation • Parks/protected areas • Performing arts • Politics • Poverty • Religion • Resilience • Restorative justice • Shipping • Social economy • Social services • Student success • Sustainable development • Tourism • Traditional economy • Trapping • Visual arts • Water security • Wildlife management/conservation • Women's studies • Other: _____

3.6.2 Applying the coding framework

There were 568 English project summaries created and uploaded in the NRI-CU's Google Drive (Section 3.5.3) that were uploaded into NVivo. The files were then

sorted in alphabetical order based on the naming mechanism of each project summary. Sorting files in alphabetical order improved workflow and simplified tracking of progress while conducting thematic coding.

After I clicked the desired project summary to code, the document was first carefully read, and observed for relevant codes (Appendix 6). After an initial scan, I selected the entire document to code the entire selection based on what is talked about in the project summary and what is in the coding framework (Appendix 6). It was important to be as explicit as possible with the coding framework to reduce interpretation of the project summaries provided. Due to the explicit coding process, the number of codes associated with a project were limited to the text available in the project summary, which varied by length in each proposal. This means that a project could have had more research that they were investigating, but since it was not talked about explicitly in the project summary, it was not coded, and therefore not captured in my analysis.

The process was repeated for all projects. Each file was coded according to each of the 12 key themes if the information was available. To elaborate, if a project summary did not discuss reporting tools, no codes associated with reporting tools were coded to that specific file. For each project summary at least one broad code would be selected, with additional broad or related detailed codes also used depending on the level of detail in the summary. This allows the NRI to track general themes of research in a simplified manner and communicate broader themes to a wider audience, such as community members. This means that a project pertaining to educational outcomes would be coded

to the detailed code “educational outcomes”, as well as the broad code “education”. There were also circumstances where interdisciplinary projects had social, health, and physical science codes all within the same summary

3.6.2.1 Dealing with overlap in the coding process

It was very common for projects to focus on more than one topic in their research, and as a result, multiple broad codes could be associated with one project. To elaborate, culture and society, and Inuit Qaujimajatuqangit (IQ) focus on Inuit culture and values, and IQ was often coded alongside projects dealing with culture and society; however, culture and society was not always coded alongside projects pertaining to IQ. For example, if a researcher was proposing to undertake an IQ assessment of a provincial park, then “IQ” and “parks” would be coded, but there is no information explicitly stating an investigation of Inuit culture or society itself. In contrast, if a researcher was conducting interviews to investigate local knowledge on Inuit ways of life, then both “culture and society” and “IQ” would be coded.

3.6.2.2 File Classification

After key themes were identified using the codebook, it was important to track leadership and location of social science and traditional knowledge research projects as well. A different coding mechanism called file classification was used to provide an additional aspect of interpreting project summaries and research trends in Nunavut. File classification was not initially included as these variables were not part of the original coding framework, however, after further consultation with Gita, it was deemed

necessary to investigate additional research trends to inform the NRI about additional research trends like PI affiliation, Nunavut PI, region, and community location. PI affiliation refers to the employer/ institution associated with the applicant (Table 3.4), whereas "Nunavut PI" identifies whether the applicant is Nunavut-based. This is a critical variable to understand different kinds of leadership in the territory in connection to what research topics and methods local researchers are implementing. The additional variables were referenced from the database entry itself by identifying and associating classifications to each project summary in NVivo. File classifications allowed the user to create predetermined groups of information (QSR International, n.d) using a classification table (Appendix 6) where each of the 568 files were associated to the table. The classification table varies from coding the document as you are not required to select text within the document and associate a code, but rather associate classifications to the entire file.

3.7 Data Analysis

The next step of my thesis research included the analysis of research trends in Nunavut based on the data collected in NVivo. This was an essential component of my thesis research where I synthesized my results into a holistic interpretation (Healey & Tagak, 2014) of social science research trends. The key aspects of data analysis used in my thesis research included descriptive statistics, matrix analysis, colour-coded tables, rate of change, and spatial analysis. Each of these aspects played a key role in

determining associations between variables, and how certain variables have changed over time.

3.7.1 Descriptive Statistics

Descriptive statistics were an important starting point to understand the data, and to provide an important over of key attributes (Appendix 6). Variables from my TCA such as number of projects each year were quantified (Vaismoradi et al, 2013) and analyzed with descriptive statistics in accordance with regions, community locations, discipline, and topic of study. I analyzed all variables in accordance with one another to fully immerse myself in the research landscape in Nunavut, and to also find results that I thought were most interesting. Characteristics from the TCA dataset were also visualized using line, pie, and bar charts (Table 3.8) to identify social science research trends, such as the most popular child codes from each parent code (Appendix 6).

Bar charts were used to communicate information about codes, and how many project summaries used a specific code. This was an important analytical aspect of my research results as it was critical for these trends to be easily communicated to Nunavummiut to achieve meaningful community engagement.

Line charts were used in my research to tell the story of research trends over time. Line charts are commonly used in research where time-related data needs visualization (Peebles & Ali, 2015; Rosen & Quadri, 2007). This was essential for developing a greater understanding of the research landscape in Nunavut to identify topics of research intensity and fatigue.

Third, two pie charts were used to visualize the different physical and health Science codes used in my thesis research. It was important to explore different visualization techniques to better understand and communicate research trends in Nunavut which is why I also included pie charts as part of my analysis.

Table 3.8: Distribution of different graphs used to analyze social science research trends

Bar Chart	Line Chart	Pie Chart
- Community location - PI Affiliation - Broad and detailed code comparison by discipline - Top 10 research topic - Top five broad SS codes - Top five SS detailed codes - Interdisciplinary research - Top 5 reporting tools - Top 5 community-based research methods - Community-involved research - Top five field research methods - Top five broad health codes - Top five detailed health codes - Top five broad physical science codes - Top five detailed physical science codes	- Duration of research licenses - Use of top 10 codes between 2004-2019 - Use of top 5 reporting tools between 2004-2019 - Use of community-based research in SS - NAC involvement between 2004-2019 - Regional distribution between 2004-2019 - Nunavut-based PI between 2004-2019 - Total number of projects each year - Interdisciplinary projects between 2004-2019 - Top 5 community-based research methods between 2004-2019 - Top 5 field research methods between 2004-2019 - Community locations between 2004-2019 - PI affiliation between 2004-2019	- Top five physical science codes (broad and detailed combined) - Top five health science codes (broad and detailed combined)

3.7.2 Matrix Queries

The use of Matrix Queries in NVivo enabled an investigation of relationships between codes (QSR International, n.d). This analytical method was supported by the "wizard" function within the application and was used in my thesis research so I could ask myself questions about the dataset and view patterns based on those questions (QSR International, n.d). Since the goal of this research was to determine the general scope of research trends, I explored multiple matrices using a variety of combinations of codes to characterize research location, leadership, Nunavut-PI research, and community engagement by topical focus, methods used, and reporting (Table 3.9). I used matrix queries to compare what different project summaries said about a specific code (QSR International, n.d), in addition to exploring how certain codes were used in a specific context. For example, I used matrix queries to investigate the duration of SS research in Nunavut by region (Table 3.10**)**. An important variable that was considered while using matrix queries was the scope of research by Nunavut-based PI's, as it was valuable to understand the difference in the research landscape from community-based and outside researchers.

Some PI affiliations had to be grouped together to established categories, where academic includes both Canadian and international colleges and universities, while government leadership includes government of Canada, Nunavut, and other provincial territory and government (Table 3.4). Local government, such as Nunavut municipalities were not included as part of the government analysis, as they are usually considered

community organizations (also referred to as ‘communities’) in The NRI’s daily research discourse. Lastly, an important component of my data analysis and for the NRI is to understand the trends of research led by Nunavummiut, and the landscape of research that surrounds projects led by those who are representing Nunavut-based affiliations. It is important to address that a Nunavut-based PI is a project leader who is employed by an organization with the affiliation address in Nunavut (Appendix 2), therefore includes, but is not limited to Nunavut-specific PI affiliations such as Nunavut Inuit organizations, and charities. Some active PIs work for Nunavut-based organizations and do not live in Nunavut permanently. The reverse could also occur if there was an individual who lived in Nunavut but was leading projects for an organization or company located outside of the territory.

NVivo provided a powerful platform to thoroughly investigate the relationships between all codes in the coding framework to better understand research trends in Nunavut. This was also critical for research licensing as the NRI can use my matrix query outputs to better understand the scope of research topics, and better prepare communities for the kinds of research occurring in a specific location.

Table 3.9: List of all matrix queries conducted in NVivo for my thesis research

Matrix Queries conducted in NVivo		
• Region vs SS broad topics • Region vs Field research method • Region vs community-based research method • Region vs project duration • Region vs reporting tool • Region vs affiliation • Community-research partnerships vs Community-based research methods • Field research methods vs community-research partnerships	• Community vs reporting tool • Community vs SS broad topic • Community vs community-based research method • Community vs project duration • Community vs PI affiliation • Community vs Field research method • PI Affiliation vs Community-based research method • PI Affiliation vs Reporting tool • PI affiliation vs SS broad topic • PI Affiliation vs project duration • PI Affiliation vs Field research method	• Community-connected projects vs SS broad codes • Community-connected projects vs Community-based research methods • Community-connected projects vs Field research methods • SS broad topics vs Nunavut-based PI • Project Duration vs Nunavut-based PI • Community-based research methods vs Nunavut-based PI • Reporting tools vs Nunavut-based PI • Community location vs Nunavut-based PI • Field research methods vs Nunavut-based PI

Table 3.10: Sample Matrix Query Output from NVivo

	Qikiqtani	**Kivalliq**	**Kitikmeot**	**Other**
2-year	43	16	15	0
3-year	28	17	8	0
4-year	22	8	12	0
5-year	4	6	3	0
Annual	290	131	80	1
Over 5-year	6	1	6	0

3.7.3 Matrix Charts

It was essential to visualize the story of research trends in Nunavut that were discovered using matrix queries. Although NVivo includes the ability to visualize matrix table outputs is 3-D charts, the software is limiting, as there is a maximum quantity of 50 variables that can be used in each axis when visualizing the data, which was not ideal as some parent codes had over 50 child codes (Appendix 6). Additionally, NVivo does not allow the user to format axis size or bar colour, resulting in the use of MS Excel to visualize the outputs as Bar Charts. MS Excel provided a more user-friendly interface to visualize the data and format axes as needed.

The matrix tables created in NVivo were copied and pasted into MS Excel, where I created 2-dimensional (2-D), and 3-dimensional (3-D) bar charts based on that data. 2-D bar charts were used to investigate the reporting tools, affiliation, methods, and broad topics associated with projects including NAC Involvement, Community connection, Nunavut PI, or Community-research partnership respectively. Since I was only analyzing the scope of a specific parent code to a specific type of project (I.e., NAC Involvement), there was no need to make this analysis a 3-D visualization, as 3-D bar charts were used to compare multiple groups of codes to one another across all project summaries (NCSS, n.d). The bar charts used in my thesis research provided powerful insights regarding the relationships between different categories of codes, as I was able to visually identify which research trends were most associated with one another.

A final approach used in this analysis better understanding matrix queries was colour-coding each matrix table using conditional formatting. This function assigned a colour to a cell based on a specified rule. For this research, the rule selected was "format cells based on their values" where lower values were blue, middle values were white, and highest values were red. I chose a blue, red colour gradient compared to the default option of a red, green gradient as this is the most common form of colour blindness (Allred et al, 2014). Colour-coding matrix tables provided a unique visualization technique to understand research trends without over-complicating the analysis of this research.

3.7.4 Trend analysis

Another essential component of data analysis was understanding the rate of change (ROC) of social science research trends using the linear trendline in MS Excel. I chose to use a linear trendline as it represents the line of best fit for simple linear datasets, such as the data I used in my research (Microsoft, 2021) The scale used for ROC analysis was projects/ year, as I was using the count data extracted from the project summaries coded in NVivo. It was important for the NRI to understand how certain variables were increasing or decreasing over time, and how quickly these variables were changing. This helps the NRI better interpret and prepare for the anticipated scope of research trends in the years to come.

I calculated the rate of change for the top five most used child codes for each parent code (except for field research methods), community-connection, community-

research partnerships, region, NAC involvement, Nunavut PI, Total number of projects, and Interdisciplinary research. For each parent code, I graphed the top five child codes respectively where I used the equation from linear trendline to find the ROC for each child code. Once I had the equation, I graphed all child code trendlines on one figure to illustrate the difference of child codes between one another.

3.7.5 Spatial analysis

Although I did not facilitate any spatial analysis myself, I assisted Regena Sinclair (Table 3.1) in facilitating spatial representation of Nunavut communities. I collaborated with her by sharing the number of projects in each community and region so she could provide maps of SS research intensity by each geographic area. This was an important component of my analysis to for myself and the NRI to visually understand research intensity and fatigue.

3.8 Results sharing with Jamal

An essential component to the completion of my thesis is collaborating with Jamal Shirley, and other NRI officials in Iqaluit to gain additional insights and perspectives on SS research trends in Nunavut. A major gap in the current research licensing process includes the lack of streamlined requirements for applicants, resulting in an inconsistency in the level of information provided. Through collaboration with Jamal who is based in Iqaluit, we exchanged knowledge and thoughts regarding how to streamline the research license application and better understand the meaning behind my results. It was important to have these conversations with Jamal to address the priority of creating a research

licensing process that fully integrates Nunavummiut into the research licensing process, to better understand what is occurring in their home communities, and how it has changed over time. The results I shared with Jamal included i) total number of SS/K research over time and the duration of research licenses ii) methods and reporting tools used in SS projects iii) Community-research involvement, such as topics, methods, and reporting tools most associated with community-based research iv) top 10 topics and top 10 topics associated with those top 10 topics, and v) reporting tools, methods, and topics associated with SS project including NAC involvement. Sharing these results with Jamal was extremely important to refine what was most important for the NRI to understand to improve the research licensing process in Nunavut. It was also important to consider how my results need to be refined to be communicated across a variety of audiences, specifically community members upon my travel to Iqaluit where I was responsible for sharing key results with Nunavummiut.

3.8.1 Knowledge mobilization

An important component of my research results was finding the appropriate method of communicating these results. I shared my results with Nunavummiut (community members), decision-makers (Government and Inuit organizations), and researchers, therefore it was critical to develop different outputs that reach and connect with each group of people. I participated in four academic conferences throughout my Master's career where I shared my project with fellow researchers. It was unfortunate to

have participated in these conferences in a virtual platform, however, it was an excellent opportunity to share my results with those interested in the work I am doing.

The second component of knowledge mobilization in my thesis research was to share my results in-person in Iqaluit, however I was unable to travel due to COVID-19 restrictions. In person results sharing would have been an opportunity for my research to be shared with community members who are interested or impacted by research activities in their home communities. Presenting results in-person would be an excellent opportunity to emphasize commitment to northern research and provide opportunities for Inuit engagement. This may occur in the future though small workshops at the NRI, where representatives from local research organizations, land claim organizations, co-management boards, the Government of Nunavut, and other research-oriented organizations could gather to learn more about research trends across the Territory. Lastly, a form of broader dissemination includes sharing results through a potential Nunavut-wide radio show broadcast. This would allow for a broad public audience to gain insight on this topic without gathering in-person. The broadcast would occur in collaboration with the NRI and my supervisor.

My research team and I also collaborated on a larger project where the research trends for SS, P, and H projects were consolidated and visualized in community, regional, and national reports that were shared with Jamal, community members, and other government officials. It was extremely important to share results for all research

disciplines so Nunavummiut can understand the research landscape for all disciplines of research licensed by the NRI.

3.9 Limitations

There were four key areas of limitations that were related to the project summaries, coding process, and functionality of NVivo that are worthy of discussion.

First, there are limitations with the project summaries used in this research that should be identified. The project summaries only state what is proposed of the research, meaning this may not be representative of what occurred. This had to be kept in mind when reviewing and interpreting results in my research. Additionally, compendium-based project summaries were usually truncated form the original, however sometimes they were the only option available, specifically if the project was missing from the database and added from the compendium (Section 3.5.2). Compendium project summaries did not contain a complete record of what was in the application, therefore important parent codes such as reporting tools and methods were not always captured from those proposed summaries, resulting in a lack of consistency in the available information used in this research. Compendium project summaries were heavily used between the years 2004-2006 where licensing information was almost entirely missing in the Google Drive**.** Some project summaries were also less detailed and did not include important information regarding research trends. Out of the 568 project summaries used in my analysis, there were 165 projects that did not discuss reporting tools and 14 projects that did not discuss research methods. There were also two projects where region

was unable to be identified, and community was missing from 10 projects. This issue reflects the ongoing limitation of this project as the data analyzed only reflects what was proposed in the research summary of the NRI research licensing application.

Second, a challenge identified in thematic content analysis includes the ability to maintain a consistent coding workflow. I completed all coding for SS project summaries ensuring consistency of the interpretations related to this discipline, however there could be more variation between social, physical, and health science due to different people involved (Table 3.1). We conducted pilot coding with few project summaries in the early stages of the project for Gita to validate and discuss ensuring our coding practices were as similar as possible, however the risk of human error comes to light when discussing limitations of manual coding (Dunn, 2010). Human error was minimized where possible by creating code descriptions in the original coding framework document (Appendix 5) in addition to taking frequent breaks from the computer screen for mental clarity.

Third, a limitation to the analysis of this research was the inability to use majority of the analysis tools provided in NVivo, as the software limits its text, cluster, and word frequency analysis to the text within the documents coded, not the code itself (NVivo, n.d). We did not want to analyze the number of times a code was mentioned in a project summary, but rather how many different project summaries referenced a specific code. Therefore, techniques exploring the association of text within documents such as cluster analysis in NVivo, could not be used. This was an unfortunate discovery and limitation to my research as it would have been interesting to quantify how

associated certain codes are with one another. Unique analytical approaches to this research were implemented as the limitations of the software were recognized later in the research. However, with those limitations in place, matrix tables created in NVivo supported the iterative methodology of the qualitative data used to help identify SS research trends (NVivo, n.d).

Fourth, the data I was working with does not represent all SS research occurring in the territory. A fair number of unlicensed social science research projects have been carried out in Nunavut over the years, and these are not captured in my analysis. It is also important to reiterate that the NRI only administers approximately 60% of all licensed research in Nunavut (Table 2.3), and that Nunavut-based PU are not required to apply for a research license. (Polidoro et al, 2022)

CHAPTER 4.0: RESULTS

4.1 Understanding the length of social science research in Nunavut

It is essential to understand the duration of research projects (Figure 4.1) in Nunavut to better identify the scope of long-term research projects and how communities are affected by short-term or long-term research. Most research licenses granted by the NRI are annual licenses (412), which reflects a project duration of one year. Longer project durations are less common and continue to decrease from two-year (62) to greater than five-year licenses (10). There was one research project where the license number was unavailable, therefore I was unable to determine the duration of the project.

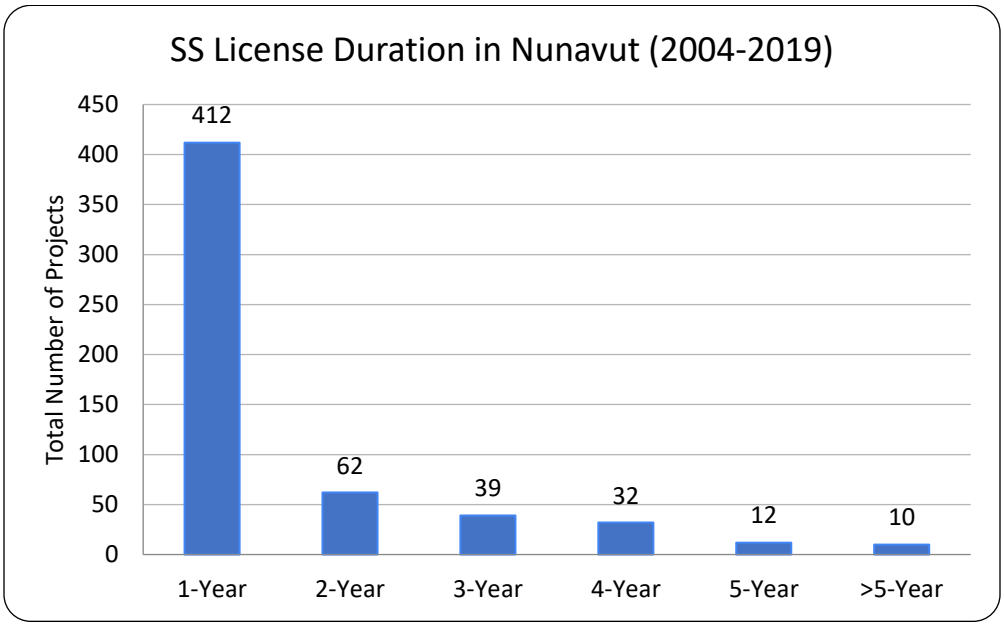

Figure 4.1: Duration of SS/ TK projects in Nunavut (2004-2019)

In contrast the number of issued SS research licenses in Nunavut between 2004-2019 has gradually increased over time (Figure 4.2). The years 2004 and 2006 with the

lowest number of issued SS research licenses (42), whereas the year 2018 demonstrates a peak in the number of research projects occurring in Nunavut (76).

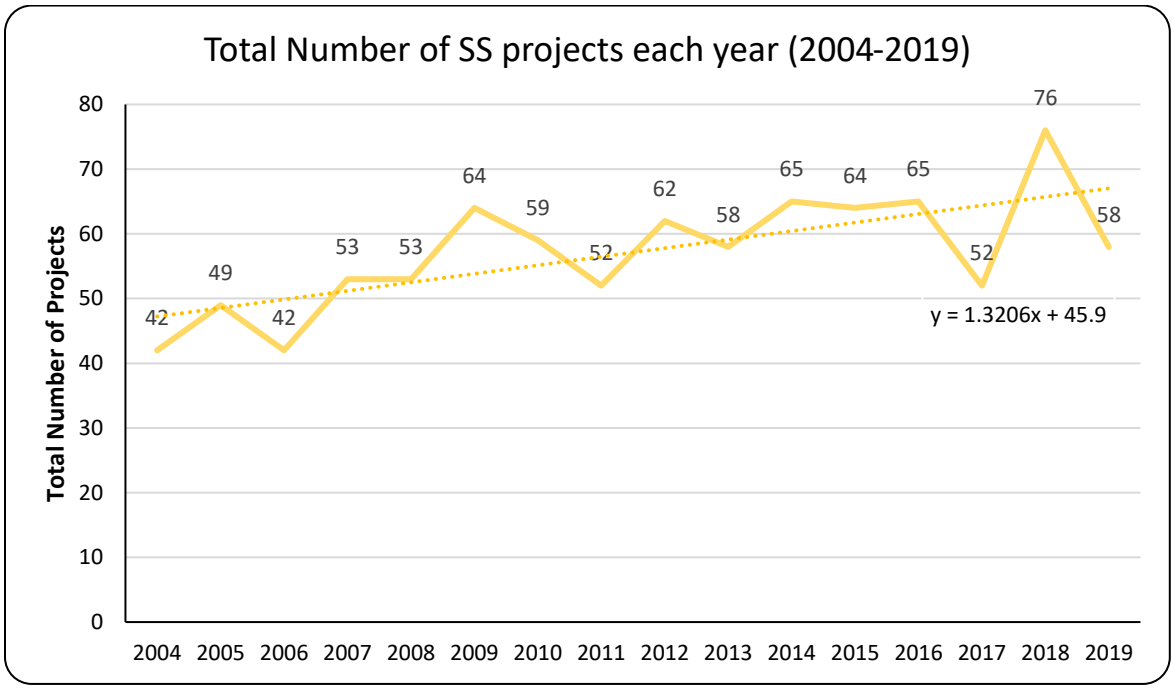

Figure 4.2: Total number of SS projects each year between 2004-2019

4.2 Where social science research is happening in Nunavut communities

My analysis enabled the investigation of social science and traditional knowledge (SS) research trends in Nunavut in terms of region and community. Out of the 568 SS projects reviewed in this research, approximately 70% of research (394) occurred in the Qikiqtani region, followed by the Kivalliq (179) and Kitikmeot (124) regions. Additionally, only one project occurred outside of Nunavut in the Northwest Territories. Within these regions, research is most heavily concentrated in the territory's capital of Iqaluit (229 projects), followed by Pond Inlet (88) and Pangnirtung (82). The top three

communities occur in the Qikiqtani region, illustrating the concentration of SS research in this region of Nunavut (Figure 4.3). In contrast, communities in the Kitikmeot region such as Bathurst Inlet (26) and Umingmaktok (24) experience the lowest number of SS research. During the research period, 16 projects were Nunavut-wide, while 5 projects occurred outside of Nunavut communities. There was also one project that occurred outside of Nunavut. The number of projects in each community (Figure 4.3; Figure 4.4) is larger than the total number of research projects analyzed in my research as one research project can occur in more than one community.

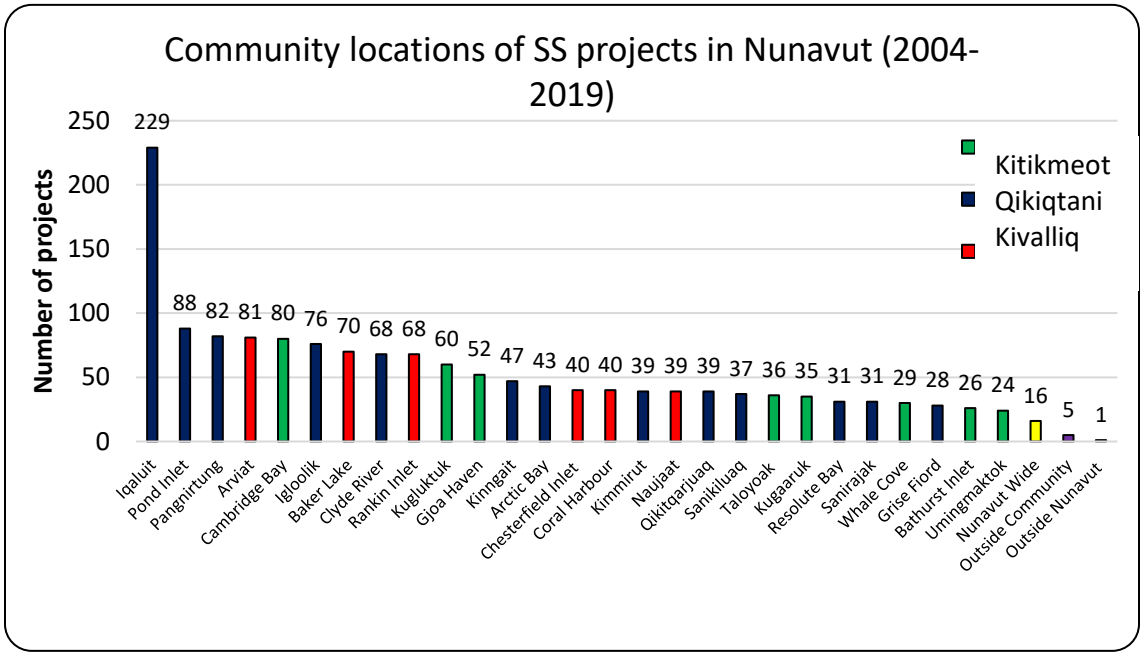

Figure 4.3: SS research by region and community

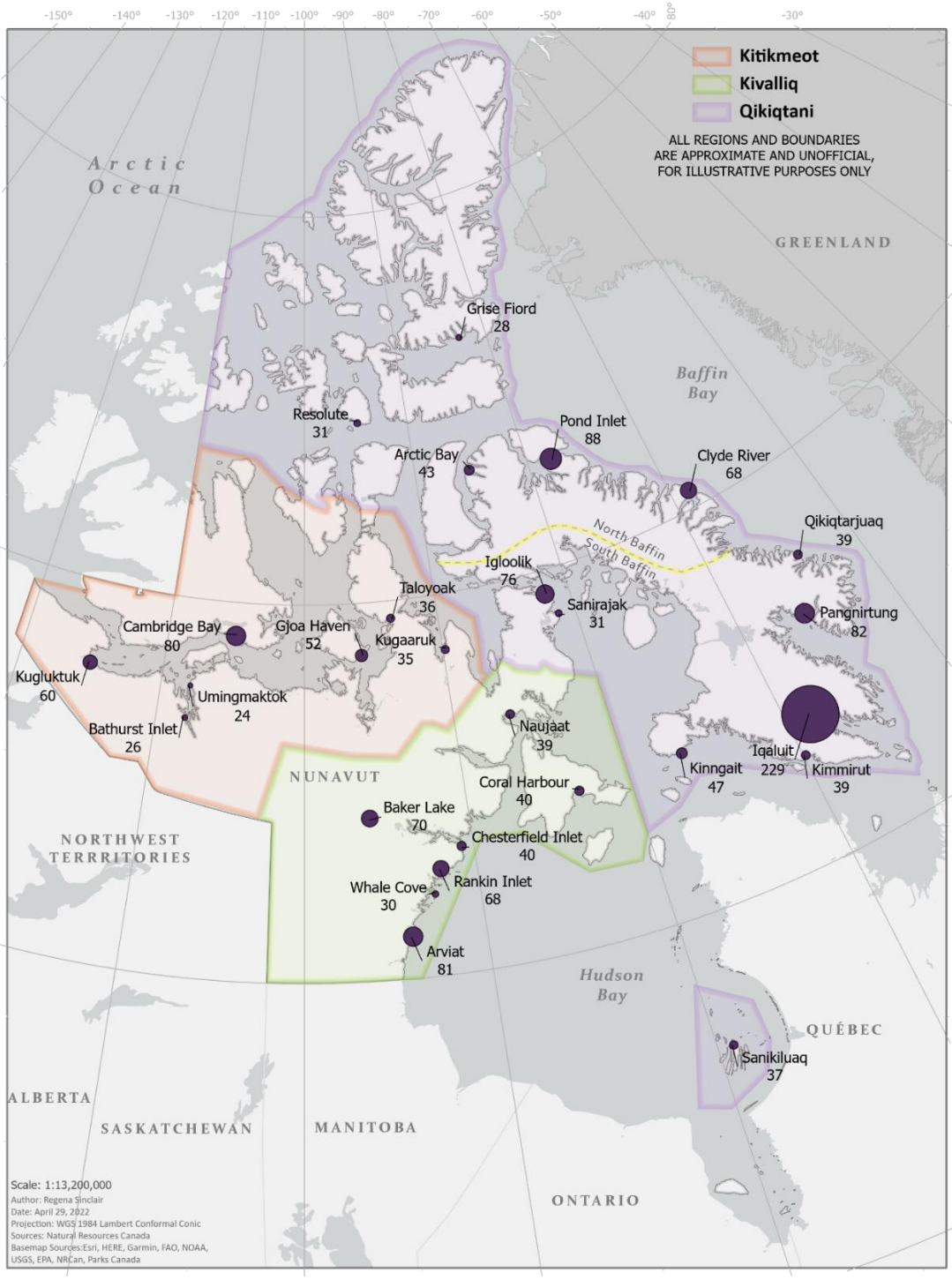

Figure 4.4: Map of SS research in Nunavut by community

Another critical component to investigating the scope of SS research trends in Nunavut is the distribution of research in Nunavut regions and communities, and how it has changed over time. This will help the NRI better prepare for anticipated SS research in the future. There is a slight increase in research projects across all regions in Nunavut, and Kitikmeot overtook Kivalliq in 2013 (Figure 4.5). Research in the Qikiqtani region is increasing at the quickest rate, followed by the Kitikmeot and Kivalliq region respectively (Appendix 7). There was a decrease in research across all regions in 2017, while there were peaks in research in 2012 and 2018 for all three disciplines. In terms of community location (Appendix 7), Iqaluit, Sanirajak, Gjoa Haven, and Arctic Bay have had no change in the last two years, whereas Clyde River, Igloolik, Qikiqtarjuaq, and Arctic Bay have increased in recent years (Appendix 7). In contrast, 15 communities are decreasing over time, suggesting a decline in SS research activities across majority of Nunavut communities (Appendix 7).

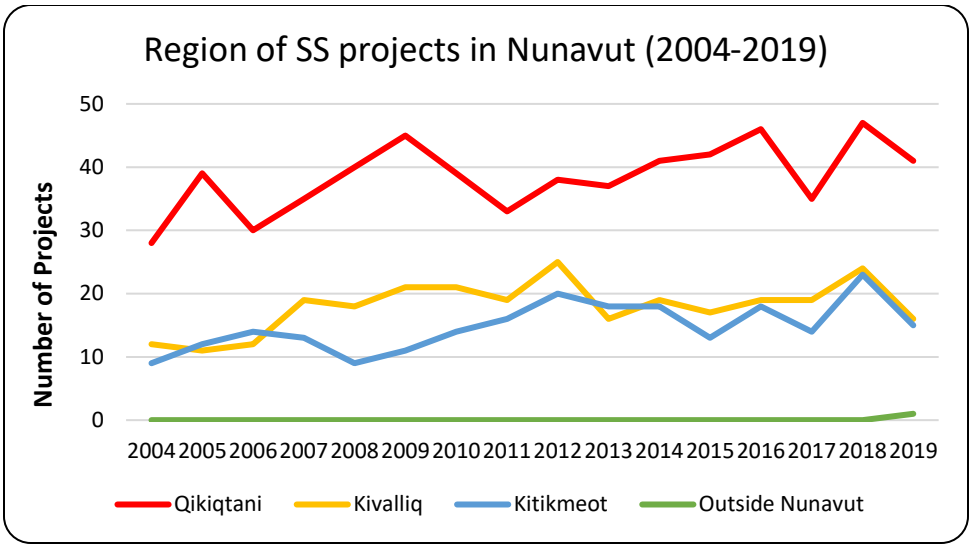

Figure 4.5: Distribution of SS research by region between 2004-2019

4.3 Who is leading social science research in Nunavut

To better understand the scope of SS research in Nunavut, the affiliation of researchers leading projects in Nunavut communities was important to analyze. The results reveal over three quarters (79%) of research in Nunavut is led by academics, where 373 projects are affiliated with Canadian universities, 68 projects with international colleges/ universities, and 6 with Canadian colleges (Figure 4.6). Consultant/ industry is another common affiliation (40 projects), whereas affiliation such as Hospitals (2) experience less SS research in Nunavut. Additionally, the number of Nunavummiut/ Nunavut-based organizations participating in research projects is much greater than the number identified as research leaders (PIs).

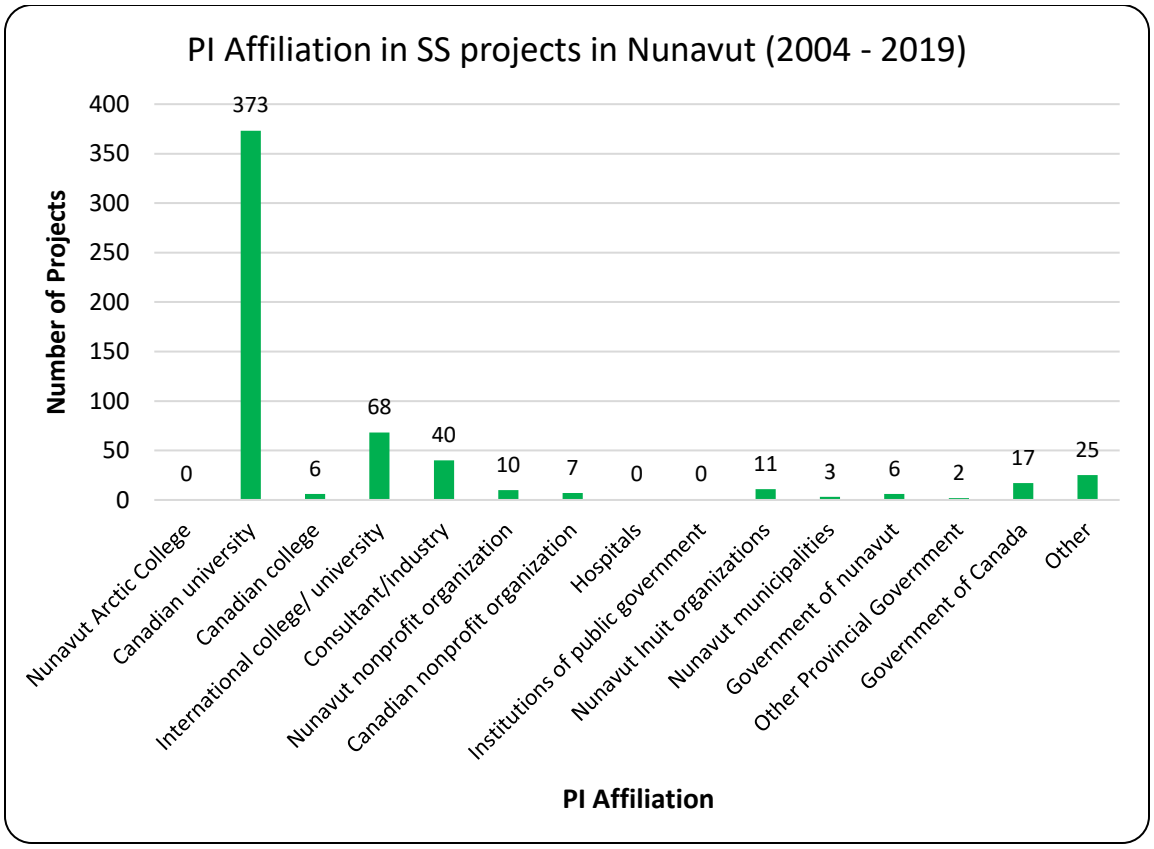

Figure 4.6: Distribution of PI affiliation of SS projects in Nunavut (2004-2019).

It was also important for me to analyze the variation of PI affiliation over time (Appendix 8). This was important for understanding how leadership as changed over time, and what affiliations are currently increasing or decreasing in Nunavut. SS research led by academics has experienced fluctuations throughout the research period, where Canadian Universities experienced a large decrease in 2017. Research led by consultants/ industry decreased between 2010-2018, however it increased in 2019. Over the research period, projects led by the Government of Canada have also increased since 2004 and peaked in 2018 and are the second-largest PI affiliation for SS projects at the end of the research period. Research led by Canadian universities each year is also increasing at the

highest rate, whereas research led by consultants and international college/ university is decreasing slightly over time (Appendix 8).

4.3.1 Nunavut-based principal investigator

It is important for the NRI to understand the number of research projects led by Nunavut-based researchers to understand how well research is serving Nunavummiut. Out of the 568 SS projects reviewed in this research, 15% of projects (84) were led by researchers whose PI affiliation address is in Nunavut. Examples of Nunavut-based PIs includes Nunavut non-profit organizations (10 projects), Inuit organizations (11 projects), and Nunavut municipalities (3 projects) (Figure 4.7).

Additionally, research led by Nunavut-based principal investigators is generally increasing over time (Figure 4.6), where it increased from 2004-2009 with an overall peak in 2009, followed by a decrease until 2011. Since then, Nunavut-based PI's have increased with another peak in 2018, followed by a decrease in 2019.

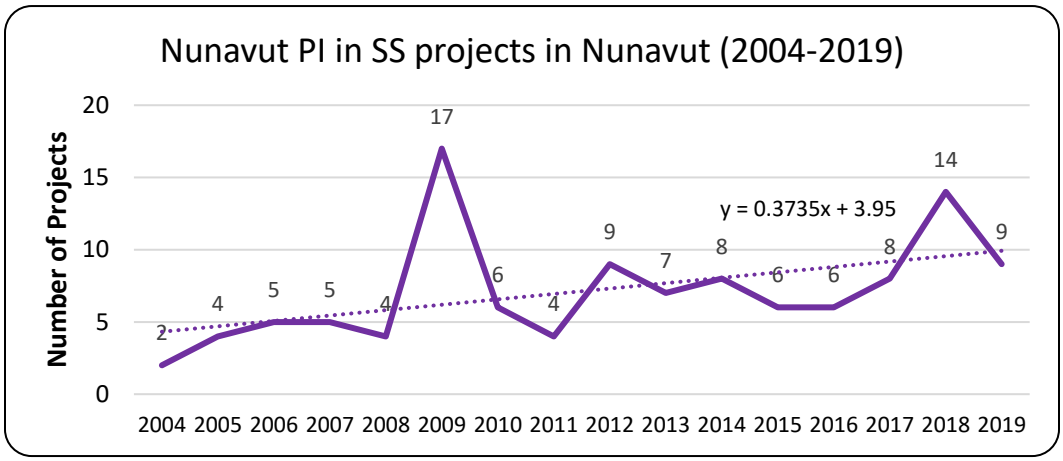

Figure 4.7: Nunavut-based PI leadership between 2004-2019 in SS Projects in Nunavut

4.4 Topical focus of social science research projects in Nunavut

I wanted to capture the scope of the topical focus of SS research based on the coding framework used in my Analysis (Appendix 6), and I thought it would be most fitting to discuss the variation of general and specific research topics in Nunavut, and how they have changed over time. The scope of health and physical science research topics is also explored in this section as SS research included topics in those disciplines. Topical focus is an important trend to understand, specifically in terms of understanding research intensity and fatigue. There was variation throughout each discipline regarding the scope of general and more specific research topics which is worthy of discussion.

Specific research topics from the health science discipline were used 180 times, compared to general topics that were studies less (61). There was an equal amount of research investigating both general and specific research topics in the social science (536). SS topics were also used the most throughout my research and this is logical considering the scope of my own work. In contrast, the general topics in the physical science (173) was more popular than specific research topics (120) (Figure 4.8). Overall, the number of general and specific research in SS projects varies by discipline, however the use of specific topics (836) was used more often than general research topics (770).

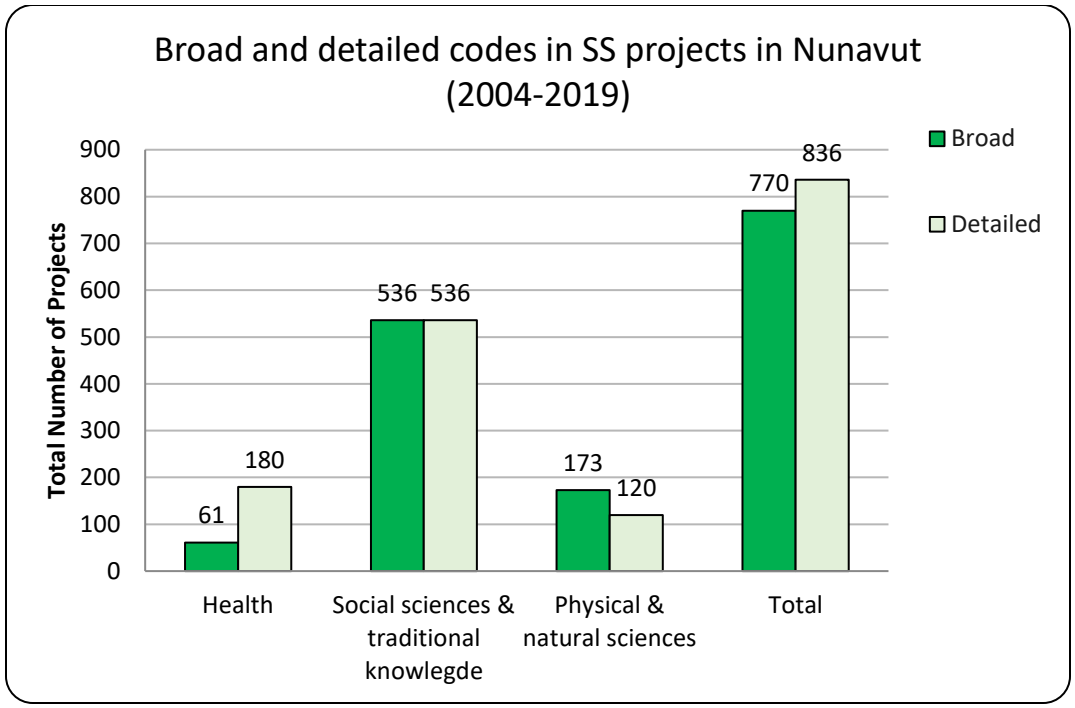

Figure 4.8: Use of broad and detailed codes for P, SS, and H disciplines in SS projects in Nunavut (2004-2019)

The most common research topic identified in social science and traditional knowledge research is cultural values/ skills/ practices/systems (295 projects). Following this research topic includes culture & society (273), Inuit Qaujimajatuqangit (234), land use & traditional activities (128), and education (91). Three out of the top 10 codes in SS research projects include codes from other disciplines, such as youth issues & engagement (H), climate change (P), and wildlife (P) (Figure 4.9). It is also important to note that research topics did overlap with one another. For example, a project could have more than one broad code, such as culture/ society and Inuit Qaujmajatuqangit, however, codes were not associated to a project if it was not explicitly stated in the coding

framework. Additionally, each project was coded to have at least one broad code, which is why educational outcomes appears under the umbrella of education-based research.

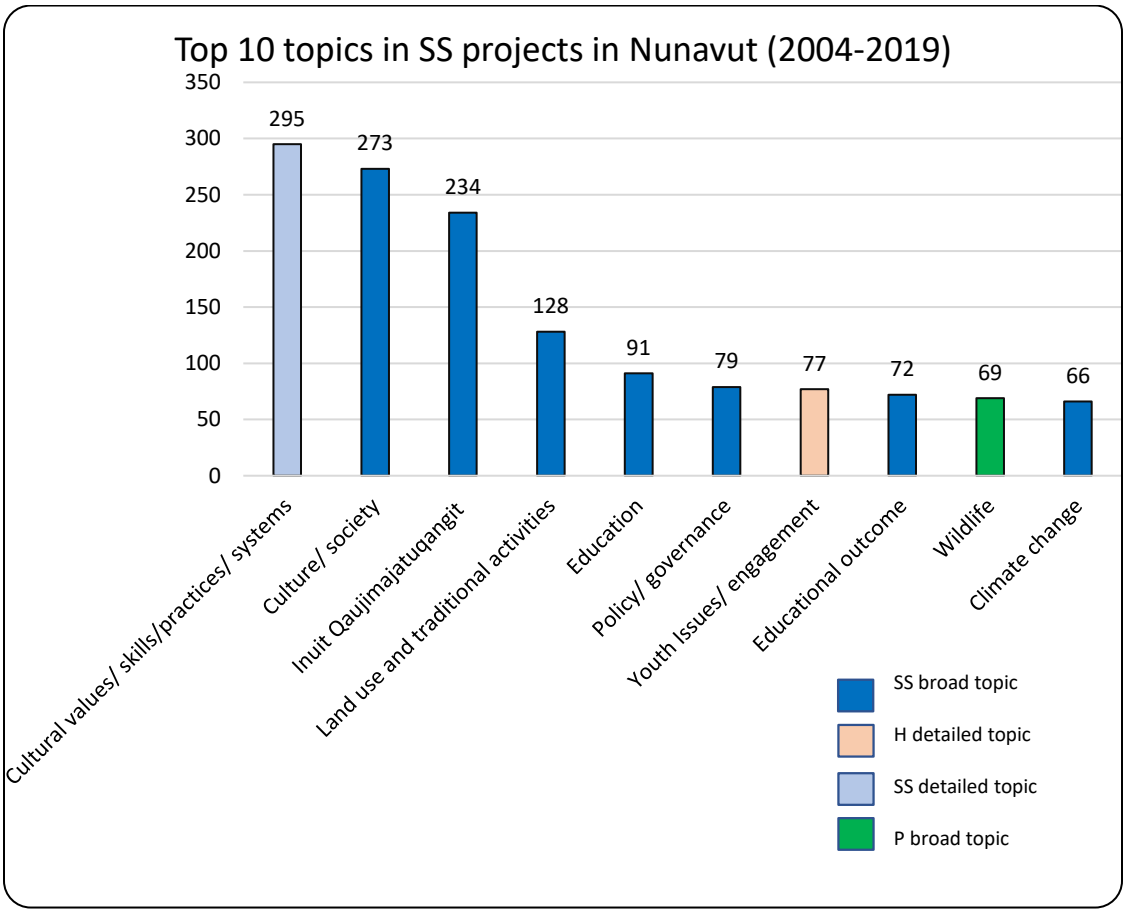

Figure 4.9: Top 10 most common research topics in SS projects in Nunavut (2004-2019)

An additional component of my analyses was the investigation of the top 10 research topics from 2004 and 2019. This was critical for developing an improved understanding of research trends in Nunavut and how they have changed over time. The variation of the top 10 research topics throughout SS research projects resembles no clear trend and shows considerable variability over time (Figure 4.10). There is a consistent higher emphasis on the top four research topics, and there is an overall increasing trend

for all top 10 topics (Appendix 9). Both culture & society and cultural values/ skills/ practices follow a similar pattern in terms of use, including a peak for most references in 2012 (25, 42 projects respectively). The same number of Inuit Qaujimajatuqangit studies (30) were executed between 2007-2009. This was followed by a long-term decrease until 2018 with an overall peak of 38 studies. Each of the top 10 research topics experience a peak in 2018 followed by a decrease at the end of the research period. This could be a result of the peak in overall distribution of social science research license by the NRI in 2018.

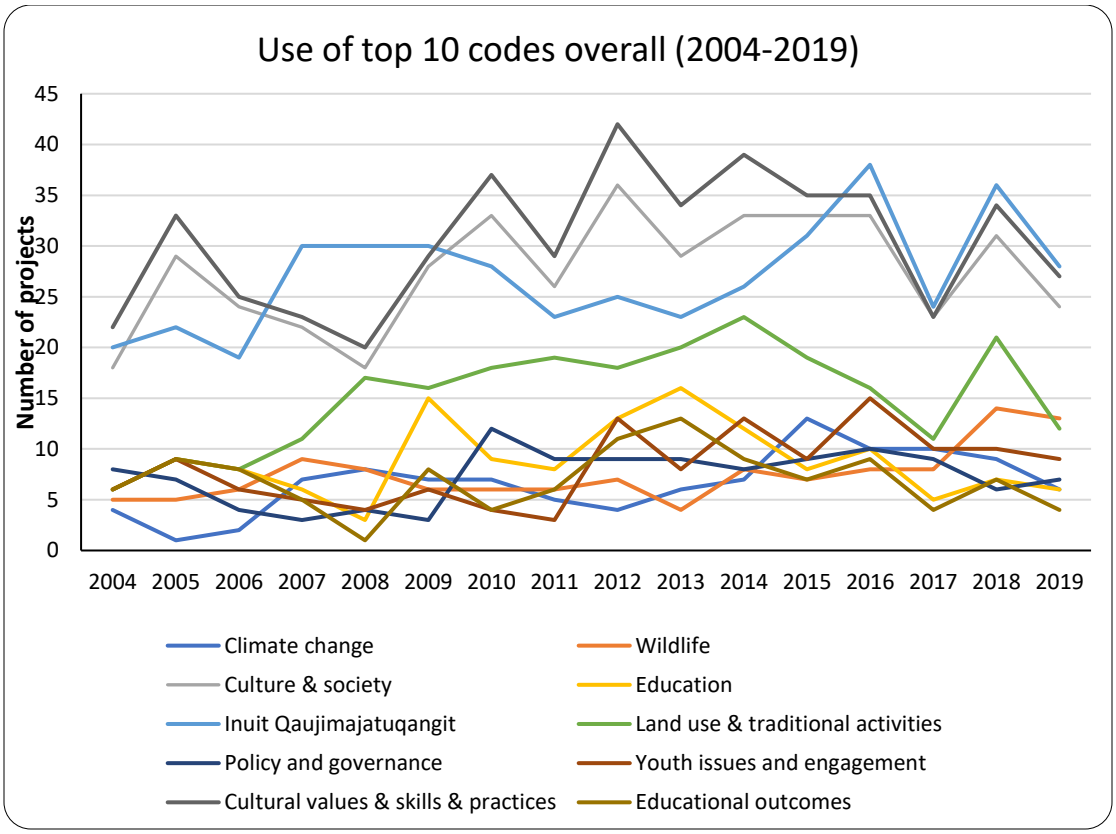

Figure 4.10: Use of the top 10 codes in SS research projects in Nunavut (2004-2019)

4.4.1 The use of social science and traditional knowledge research topics

It is critical to recognize which topics are more or less frequently used in my analyses to better identify research gaps in Nunavut. The top 10 most common SS general research topics in my analyses were culture & society (273), Inuit Qaujimajatuqangit (234), land use & traditional activities (128), education (91), policy & governance (79), sovereignty/ self-determination (66), History (59), Economy (43), Gender (28), and Arts (26) (Figure 4.11) Additionally, the most researched SS specific topics were also captured. Cultural values/ skills/ practices/ systems were the most

frequently used SS detailed code (295), followed by educational outcomes (72), wildlife management & conservation (65), environmental management (63), IK & SK (59), mining and society (55), curriculum development (42), institutions of public governance (36), language (32), and social economy (32) (Figure 4.12). The first and second most popular SS specific research topic emphasizes the popularity of cultural studies in northern social science research. Out of the 77 SS research topics (Appendix 6), 14 specific topics were researched in less than five projects, and trapping was the only topic not researched (Appendix 9). All general research topics in the social science discipline were researched in more than five projects.

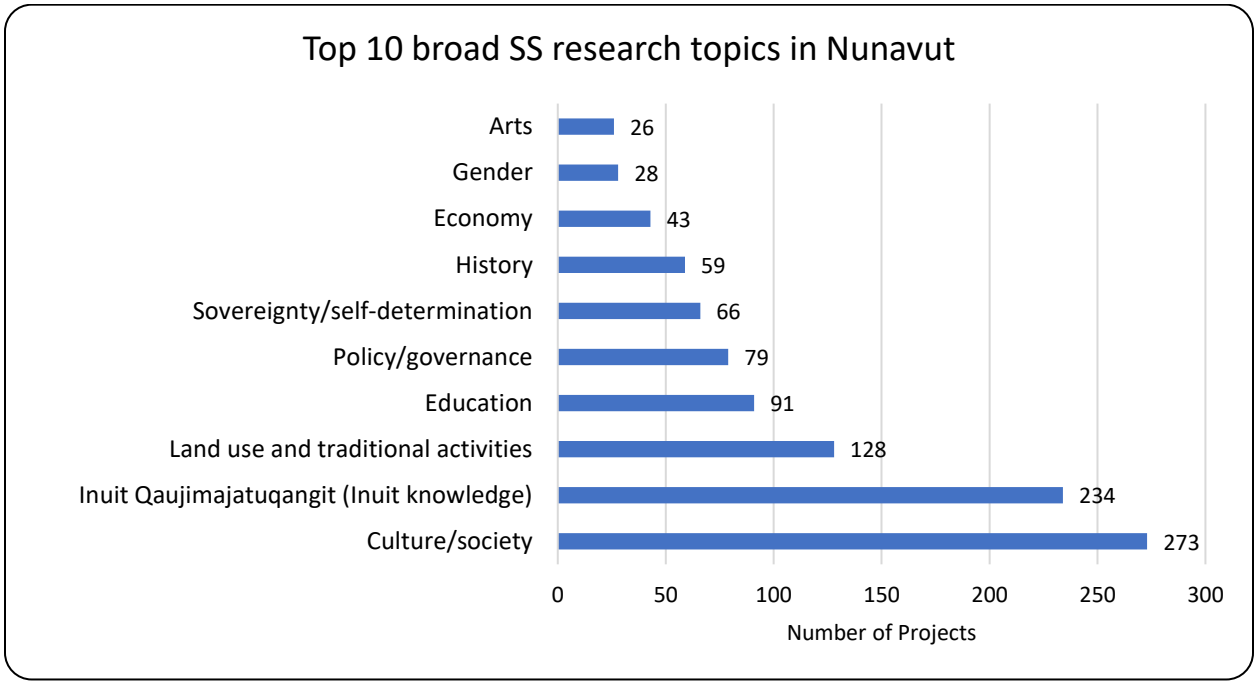

Figure 4.11: Top 10 SS general topics in SS projects in Nunavut (2004-2019)

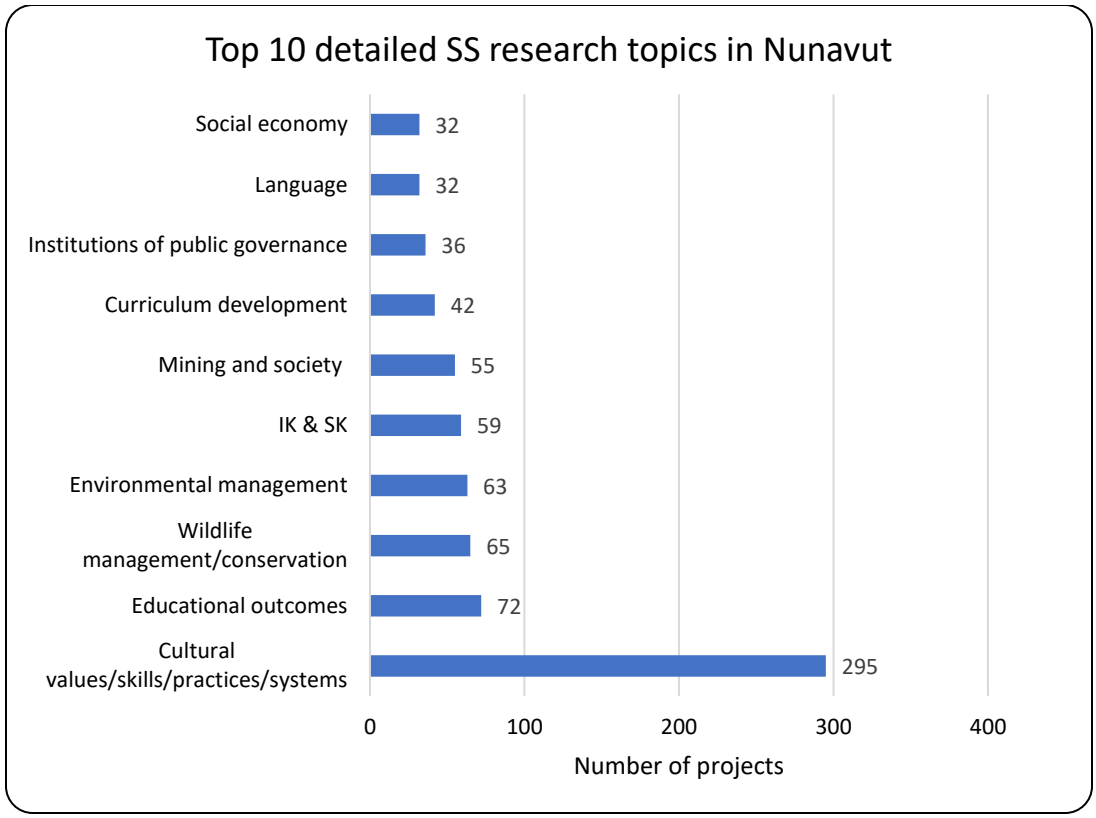

Figure 4.12: Top 10 SS detailed codes used in SS projects in Nunavut (2004-2019)

I also investigated the trends of the top 10 general and specific SS research topics over time to better understand the scope of SS research in Nunavut (Appendix 9). In terms of general topics, there is a dominance of culture & society and IQ research that generally increases over time. Both research topics overtake each other at various pints throughout the research and follow and opposite pattern until 2017, where both topics peaked, followed by a rapid decline in 2017, then rapid incline in 2018. This illustrates the difference in cultural and IQ studies in the earlier years of SS research in my analyses. Eight out of the top 10 general research topics are increasing over time, except for history and gender which are experiencing a decline.

The top 10 specific SS research topics over time in Nunavut (Appendix 9) also illustrates the dominance of cultural values/ skills/ practices/ systems. The number of projects regarding this topic fluctuates dramatically throughout the research period, where it peaked in 2012 and is generally decreasing from that year, however, this topic is also increasing at the highest rate over the research period (Appendix 9). The other specific research topics follow similar patterns and overtake one another, where educational outcomes peaked in 2013, and wildlife management and conservation are the second most researched specific topic from 2018 to 2018. The only specific research topic that is experiencing a decline over time is language.

4.4.2 Social science research that includes health and physical topics

I was really interested in understanding interdisciplinary research as current licensing protocols do not really allow for this (see section 2.4.1). The coding framework established by the NRI (Appendix 6) allowed myself to capture the scope of H and P research topics that came to light in SS research, as I had the freedom to use all codes in the framework when it was appropriate to do so. Out of the 283 interdisciplinary projects in SS research (Figure 4.13), physical science research is most connected to social science (145 projects), followed by health science (109), and all three disciplines interconnecting (29). Interdisciplinary projects were also investigated over time (Figure 4.14), where it was discovered that projects including H & P & SS research topics slightly decreased, P & SS projects increased, and H & SS projects remained relatively unchanged (despite minor fluctuations between years) in the research period.

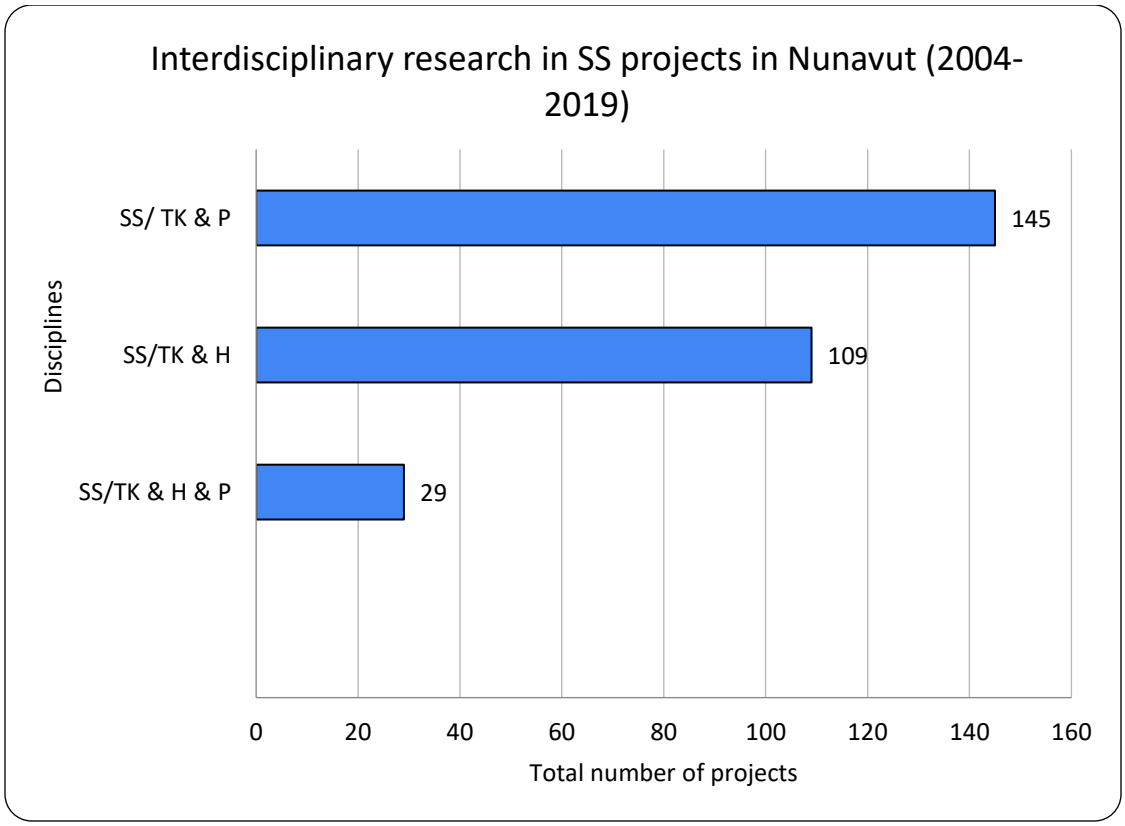

Figure 4.13: Interdisciplinary projects research involving SS projects in Nunavut (2004-2019)

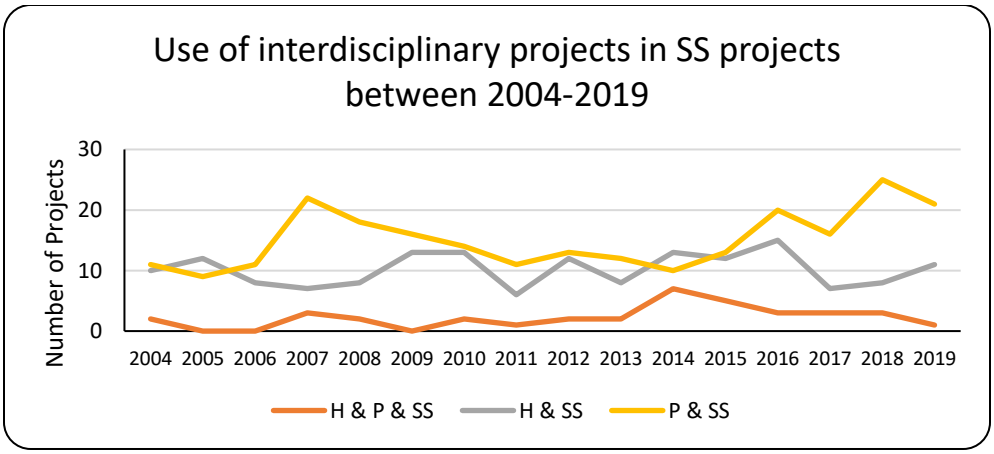

Figure 4.14: Interdisciplinary projects between 2004-2019

Furthermore, the use scope of SS projects that also included research topics from the health science discipline (H) is important to note as well. Almost half of all SS projects involving H research topics include the topic of youth issues and engagement (41.8%, 77 projects). This is followed by program evaluation (17.4%, 32 projects), wellbeing (14.7%, 27 projects), food security (14.7%, 27 projects), and community wellness (11.4%, 21 projects). Of the 61 project summaries referencing general H topics, wellbeing (27) and community wellness (21) were the most popular (Appendix 9). This is followed by public health and health promotion (12), health services (6), population health (3), rehabilitation (3), health practitioners/ workers/ learners (2), environmental health (1), and health systems and monitoring (1). The broad H codes not used in social science/ traditional knowledge research projects include clinical & medical research, epidemiology, and professional training & accountability.

The top 10 most used specific H research topics in SS research (Appendix 9) includes youth issues & engagement (77), followed by program evaluation (32), food security (27), country food (18), family relations and wellbeing (16), Inuit pathways to wellbeing (16), mental health (15), healing (8), health-related impacts of climate change (8), and suicide (7). There were 55 specific H research topics available from the coding framework (Appendix 6), and 14 of them were not used in SS research projects, including internal medicine, remote medicine, and cancer (Appendix 9).

When considering SS projects that include physical science research topics (Appendix 9), almost one-third (31.4%, 69 projects) of research licenses involve wildlife.

This is followed by climate change research in the social science (30%, 66 projects), climate change adaptation and vulnerability (16.4%, 36 projects), marine (11.4%, 25 projects), and wildlife population dynamics (10.9%, 24 projects). It is important to mention the total number of research topics from my analyses is larger than the quantity of interdisciplinary projects itself, and this is a result of one research project involving multiple research topics. To elaborate, the total number SS projects incorporating P topics is 145, however the sum of the top 10 general P topics is 205. This illustrates the interconnectedness of various research disciplines within SS projects themselves.

There were 18 general P research topics identified within SS projects, and five of them were not used (Appendix 9). The top 10 most popular general research topics from the physical science include wildlife (69), climate change (66), marine (25), ecosystems (9), climate & weather (9), hazards (7), infrastructure (7), resource development (6), plants (5), and freshwater (2) (Appendix 9). Additionally, the top 10 most popular specific research topics from the physical science included climate change adaptation & vulnerability (36), wildlife population dynamics (24), sea ice (16), wildlife health (13), technology innovation (9), waste management (8), mining and environment (7), vegetation change (6), contaminants and environmental health (5), and habitat (5) (Figure 4.5 in appendix 4). Out of the 60 specific topics in the physical science, 48 were used less than five times, and 3 were not used at all (Appendix 9).

4.5 Dissemination strategies for social science research projects in Nunavut

An important component of my thesis work is to better understand how research results are being communicated through Nunavut. All license holders are required to submit an annual summary report to the NRI to renew a license, however, there are currently no standardized reporting templates in place regarding research reporting in the NRI application process (Appendix 1). With this limitation at hand, I only had access to documentation where proposed research activities were described, and not what actually occurred. Out of the 568 total project summaries in my research, almost three-quarters (403 projects, 71%) use a minimum of one reporting tool. This means that not every project is describing how they are communicating their results, and that my results are only a sample of what is occurring in SS research across Nunavut. I analyzed SS project summaries using the listed reporting tools for my research where there were 19 potential options (Appendix 6). Figure 4.15 illustrates the distribution of the top 10 reporting tools for SS research projects. The most popular reporting tool in this study is journal articles, mentioned in 207 of the coded project summaries. Journal articles were followed by report (163), student thesis (144), community presentation (135), conference presentation (81), results summary (68), website (56), book (44), community meetings (41), and radio presentation (37). This puts an emphasis on the academic presence in the North as four out of the five most used reporting tools is academically focused. In contrast, the least used reporting tools in SS research include individual meetings/updates (4), TV (7), and newspaper (11). Refer to Appendix 10 for a complete breakdown of reporting tools.

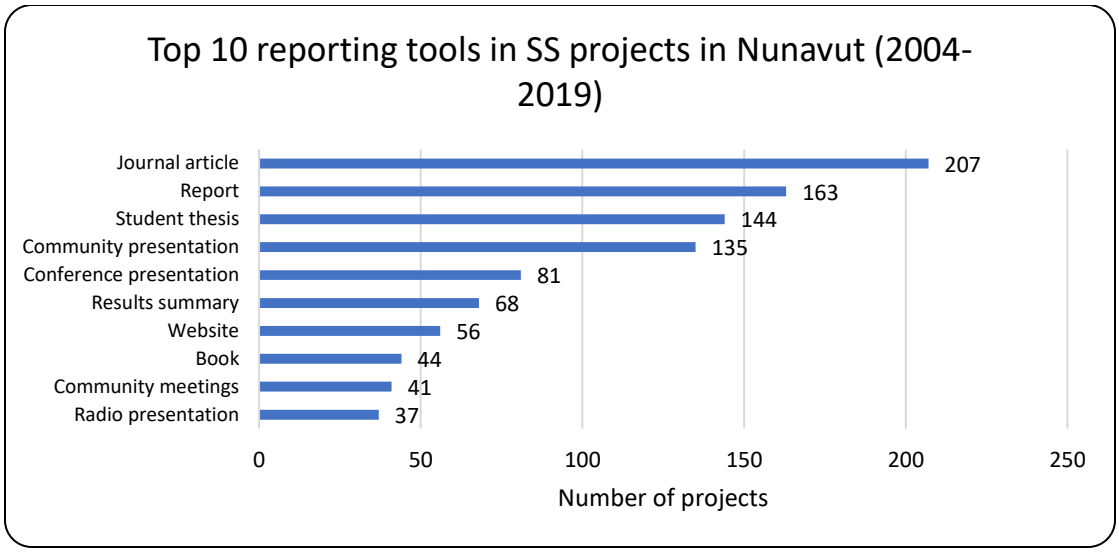

Figure 4.15: Top 10 Reporting tools used in SS projects in Nunavut (2004-2019).

I also analyzed the scope of the top 10 most used reporting tools over time, and this was a valuable component to my thesis, as improvements of the NRI research licensing database partially result from the lack of available reporting tools for community members. The top 10 reporting tools in SS research projects gradually increased in the research period (Figure 4.16). Journal articles experienced the greatest increase overall, with the lowest use in 2004 (2), to its peak in 2018 (38). In contrast, conference presentations experienced the lowest change from 2004 (1) to its peak in 2016, 2018, and 2019 (14). The year 2018 illustrates a peak for all proposed reporting tools in SS project summaries, and community presentations was the second-largest reporting tool in this year (27). This is an improvement for northern-based research when considering community engagement in the process of project dissemination.

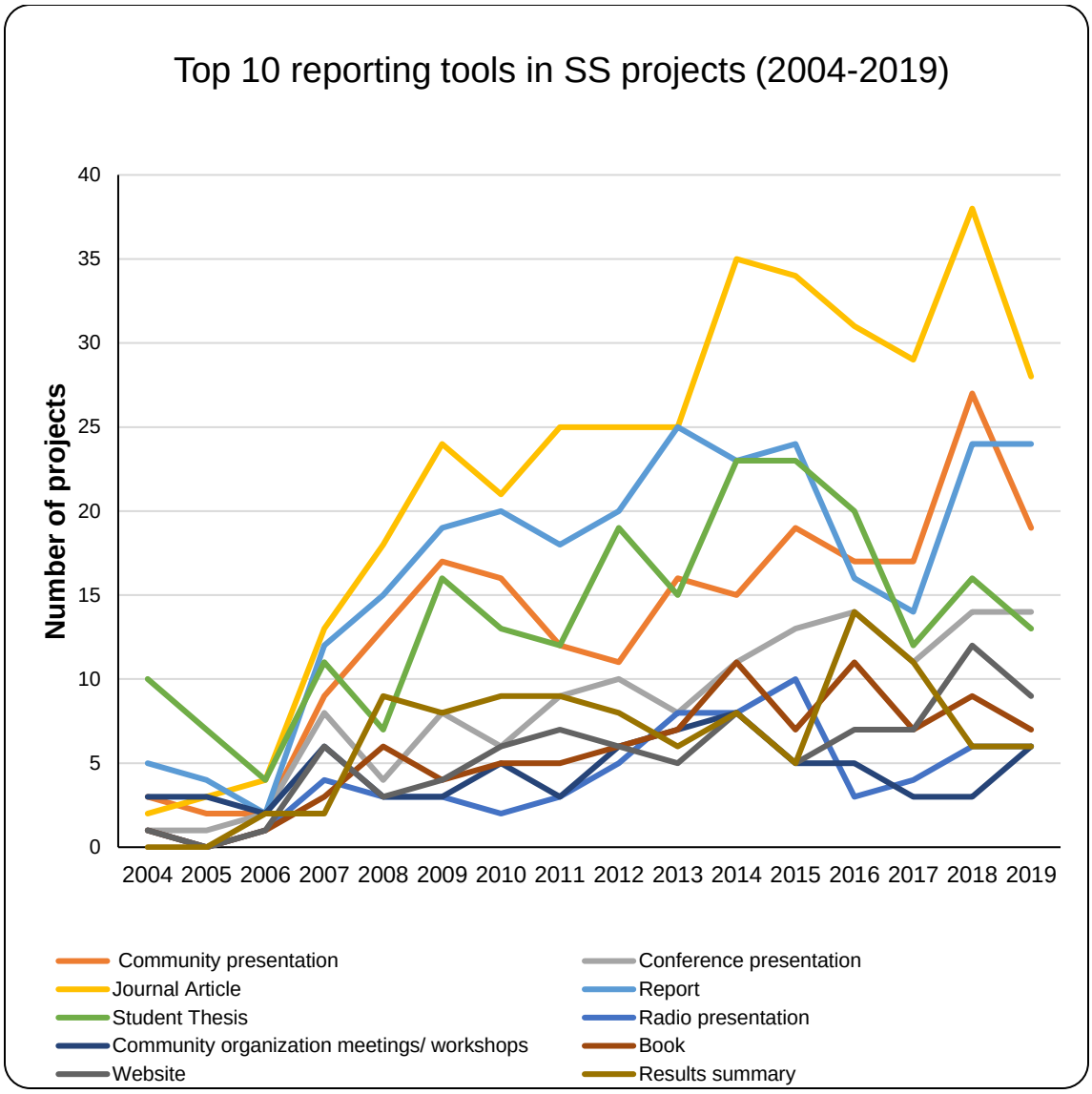

Figure 4.16: Use of top ten reporting tools in SS/ TK projects in Nunavut (2004-2019)

4.6 How social science research is being done in Nunavut

4.6.1 Community-based research methods

Analyzing how community-based research was being done within SS projects summaries involved 25 potential community-based research methods (Appendix 6). The

only community-based research method not mentioned in the project summaries was epidemiological studies. The top 10 most used community-based methods were interviews (368), followed by community connection (166), audio recordings (133), research/training workshops (83), focus groups (77), experiential learning and observation (73), literature review (68), surveys (using questionnaires) (60), people/ community photography (60), video recording (48), and participatory action research (36) (Figure 4.17). It is also important to note that 45 research projects state the presence of a community research partnership, highlighting that one third (37%) of research projects explicitly state community involvement, whether it is through connected research or a formal partnership.

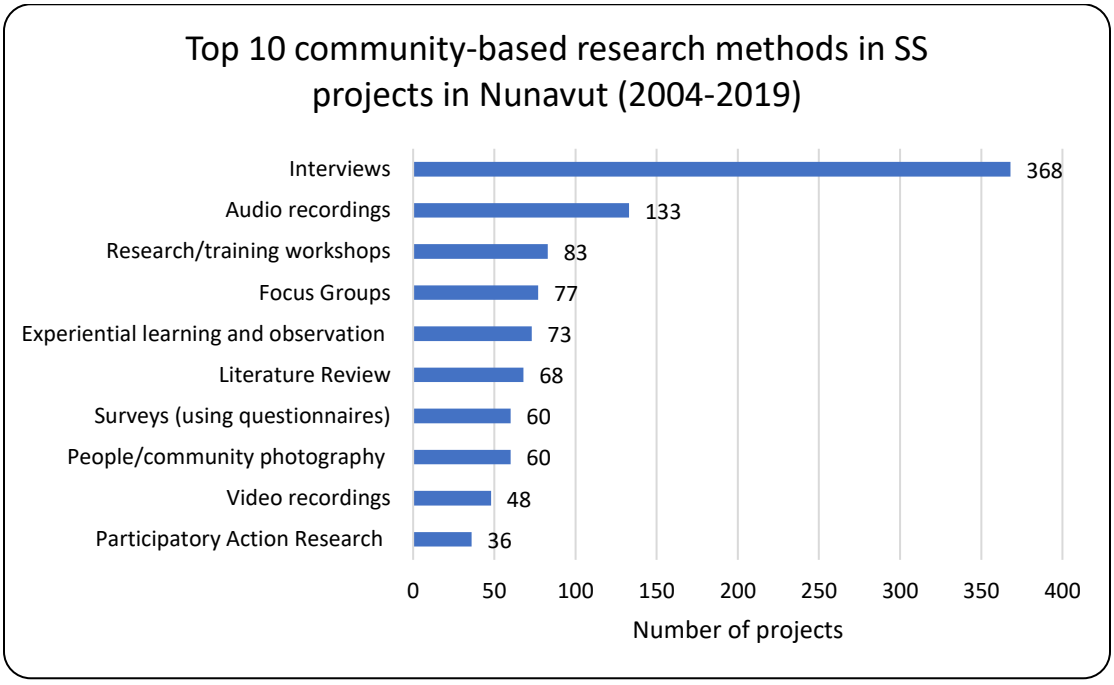

Figure 4.17: Top 10 Community-based methods used in SS projects in Nunavut (2004-2019)

The top 10 community-based research methods over time were also investigated in this thesis research (Figures 4.18). The use of community-based research methods over time is valuable to know when considering community involvement and capacity in northern-based SS projects. Out of the top 10, interviews were employed the most in 2015 (55) projects. The least frequent use of community-based research methods was focus groups in 2005-2006 (1). The general trend for the use of top 10 community-based research methods was a decline (2004-2006), followed by a gradual increase (2007-2015), decrease (2015-2017), sharp increase in 2018, and sharp decrease in 2018. Each reporting tool is also generally increasing over time, suggesting an increase in research dissemination across Nunavut communities (Appendix 10).

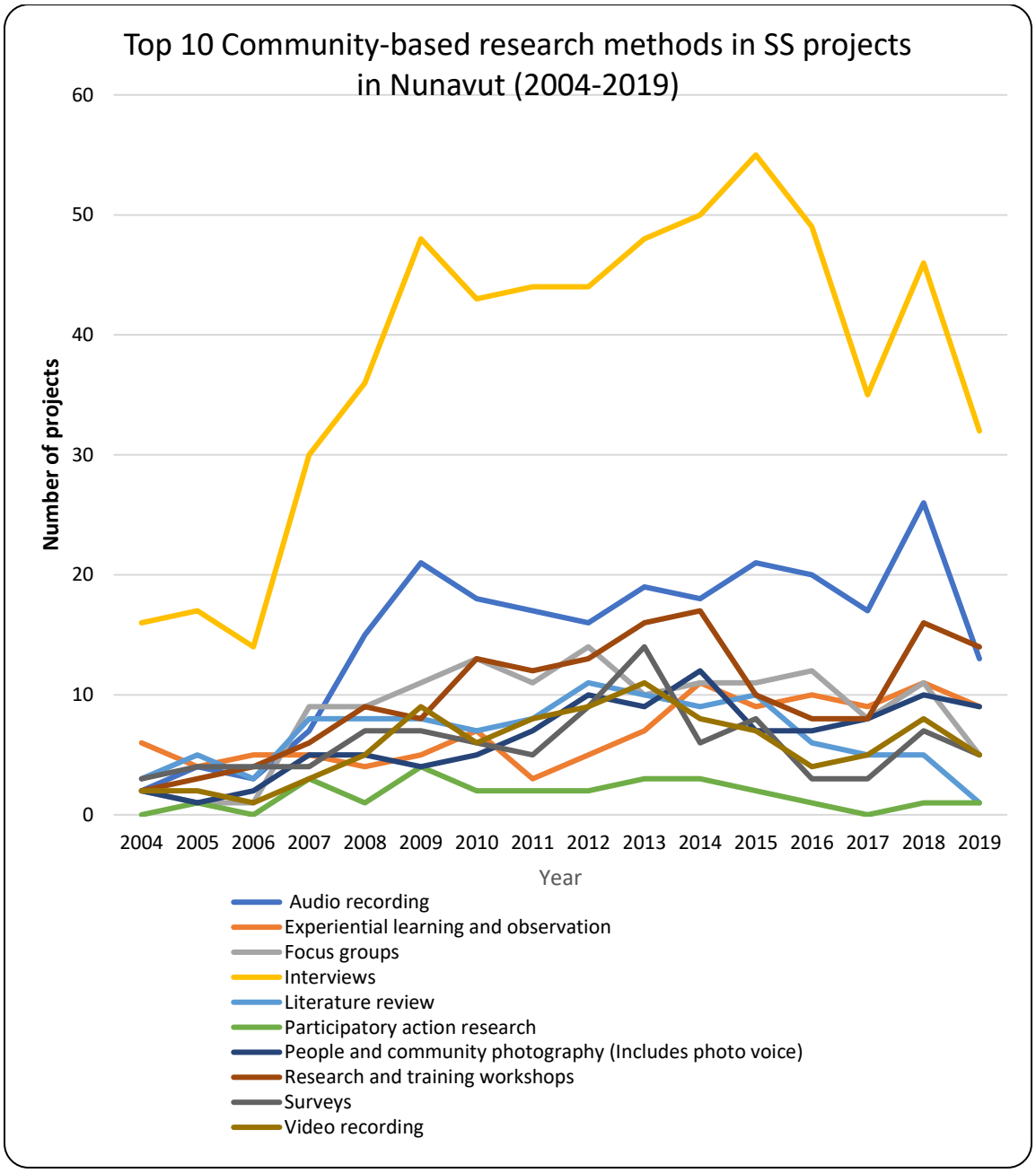

Figure 4.18: Top 10 community-based research methods (2004-2019)

4.6.2 Field research methods

Out of the 568 SS projects, only 55 projects mention the use of field research methods (usually connected with remote field sites, not research occurring within communities). Majority of SS projects using field methods were interdisciplinary with P research topics. Wildlife monitoring as the most used field research method (16), followed by environmental observation (12), weather monitoring (7), water sampling (6), and vegetation sampling (6) (Appendix 11). Additionally, there is a great amount of fluctuation in the use of the top five field research methods (Appendix 11). Environmental observation and wildlife monitoring were both used the most in a single year (5 times), however environmental observation peaked in 2009 and wildlife monitoring peaked in 2018. Each of the top five field methods occurred zero times in at least two years of the research period, solidifying the great deal of fluctuation of their use in SS research projects (Appendix 11).

4.7 How Nunavut communities are engaging with social science research

When considering the importance of community engagement in northern research, it is critical to discuss the number of SS research projects with community involvement. Out of the 586 research projects coded in this research, approximately one-third (37%) of projects explicitly state their involvement with communities in their research license application (Figure 4.19). This includes 168 community-connected research projects which refers to projects that are connected with communities in some capacity, such as hiring of local guides, translators, or team members, and 45 community-research

partnerships involving a formal research partnership between a PI and the community of the proposed research location.

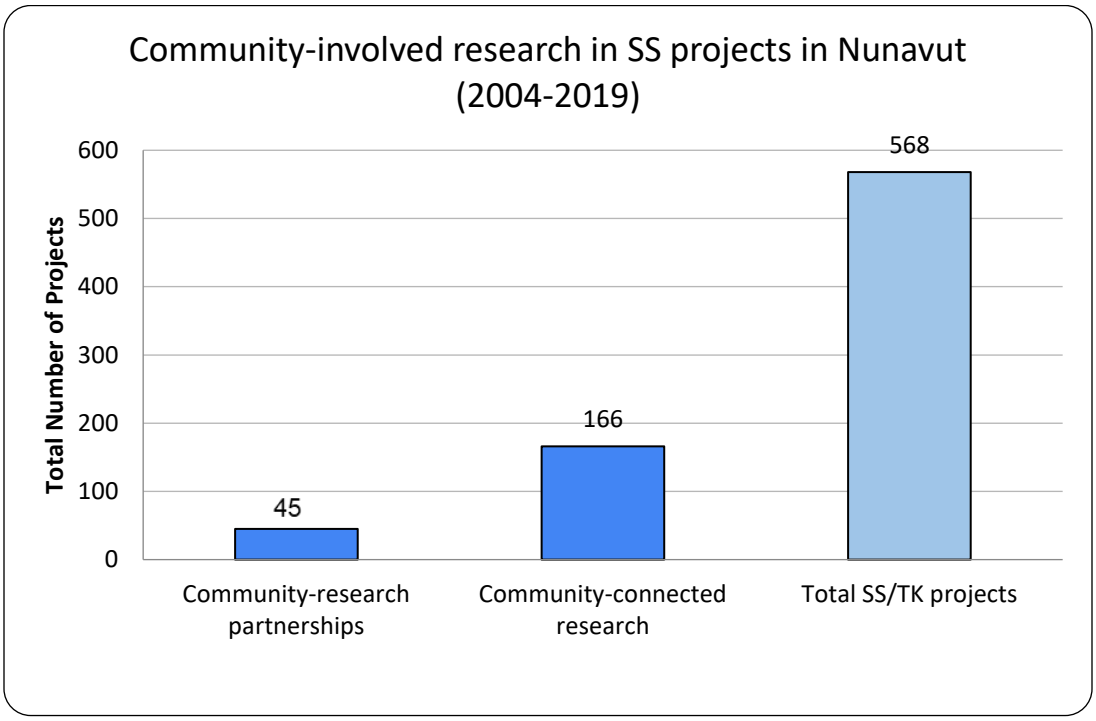

Figure 4.19: Community research involvement in SS projects in Nunavut (2004-2019)

The use of community connected research and community research partnerships over time was also explored (Figure 4.20). It is clear the involvement of community members has gradually increased between the research period when looking at the use of community connected research between 2004-2019, however, the use of community-research partnerships remains relatively unchanged. The largest amount of community research partnerships in a single year (7) occurred 2018, while five community research partnerships were used in 2005, 2008, 2009, 2017, and 2019. The increase in community

connected research is further elaborated through 8 uses in 2004 followed by 23 uses in 2019.

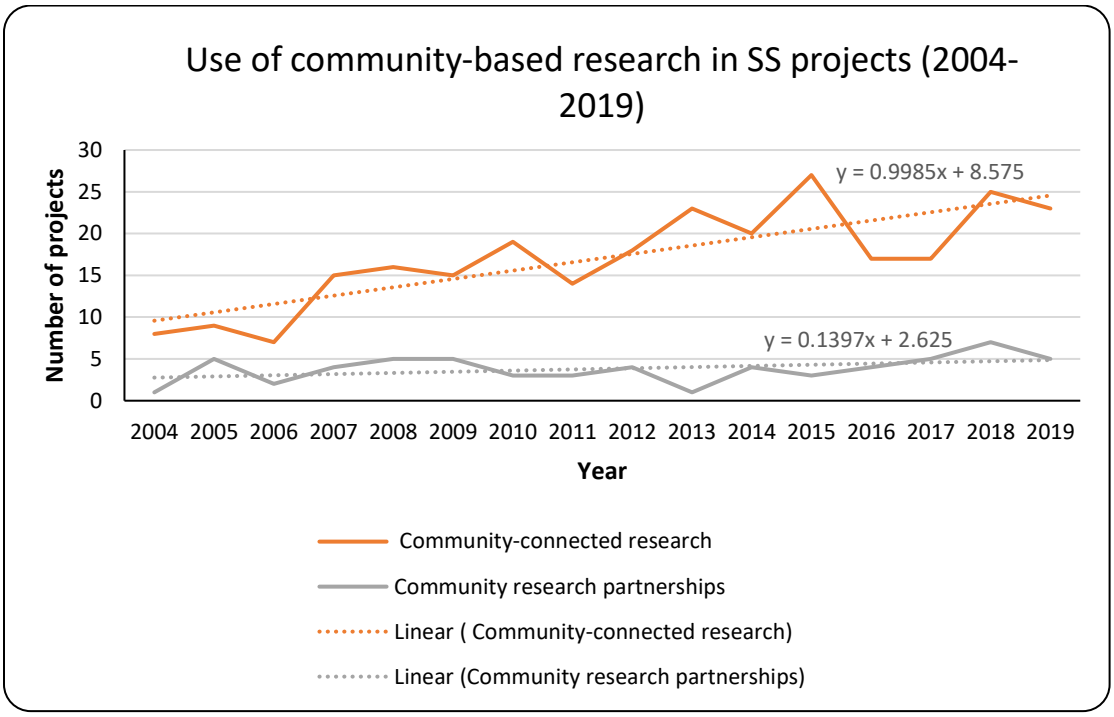

Figure 4.20: The use of community-based research projects in SS research projects in Nunavut (2004-2019)

Nunavut Arctic College (NAC) involvement was also investigated over time. The NRI works closely with NAC in the facilitation of programs and promotion of education and research activities across the territory. The highest level of NAC affiliation (6) was recorded in the years 2007, 2012, 2013, and 2014. SS projects with NAC affiliation typically ranged from 2-4 projects per year, but 2019 was the lowest (1) (Appendix 11).

CHAPTER 5.0: ANALYSIS AND DISCUSSION

5.1 Introduction

Interpreting the results of my research licensing analysis for SS projects involves a more in-depth review of project summaries to build on the quantitative and thematic analysis in Chapter 4. In this Discussion I will expand on analyses of community research intensity, leadership, topics, methods, reporting, and community engagement according to the most active researchers in Nunavut.

The "most active" researchers are defined as Principal Investigators (PIs) who have three or more SS projects in the NRI database. The top 12 PIs account for 9% (53) out of the 568 total SS project summaries (Table 5.1, Appendix 19). The most active Nunavut-based PIs include 9 researchers who account for 4% (24) out of the 568 total SS project summaries. These additional analyses through the lens of research leadership and intensity are important to understand how PIs most engaged in SS research are similar to, or different from, the general trends identified in Chapter 4.

Table 5.1: Top 12 most active PIs

PI Name	PI Affiliation type	Specific PI Affiliation	Number of projects
Heidi Klein	Consultant/ industry	• Gartner Lee • Sanammanga Solutions • MMG Resources	7
George Wenzel	Canadian University	• McGill University	6
Shirley Tagalik	Nunavut Hamlets, Nunavut charitable organizations	• Arviat Wellness Centre • Hamlet of Arviat • Arviat Health Committee	5
Gita Ljubicic (Laidler)	Canadian University	• Carleton University • University of Toronto • McMaster University	5
Shari Fox (Gearheard)	International college/ university	• University of Colourado at Boulder	5
Karen Routledge	Government of Canada	• Parks Canada	4
Maryse Mahy	Government of Canada	• Parks Canada	4
Kent Gustavson	Consultant/ Industry	• Rescan Environmental Services	4
Sylvie Blangy	International college/ university	• Université Montpellier • French National Research Centre	4
Natalie Carter	Government of Canada/ Canadian university	• Environment and Climate Change Canada • University of Ottawa	3
Thierry Rodon	Canadian university	• Carleton University • University of Laval	3
Lisa-jo Van den Scott	International college/ university	• Northwestern University	3

Table 5.2: Top nine most active Nunavut-based PIs

PI Name	PI Affiliation Type	Specific PI Affiliation	Number of projects
Shirley Tagalik	Nunavut Hamlets, Nunavut charitable organizations	• Arviat Wellness Centre • Hamlet of Arviat • Arviat Health Committee	5
Maryse Mahy	Government of Canada	• Parks Canada	4
Darren Keith	Nunavut charitable organizations	• Kitikmeot Heritage Society	3
Jason Akearok	Government of Canada	• Environment Canada	2
Navarana Beveridge	Nunavut Inuit Organization	• Qikiqtani Inuit Association	2
Kim Crockatt	Nunavut based charitable organization	• Nunavut Literacy Council	2
Camilius Egeni	Canadian university, government of Nunavut	• Government of Nunavut	2
Ceporah Mearns	Nunavut charitable organizations	• Qaujigiartiit Health Research Centre	2
Bethany Scott	Nunavut Inuit organizations	• Qikiqtani Inuit Association	2

My discussion is divided into four key sections. The first section aims to characterize SS research intensity in Nunavut, followed by a regional analysis and the respective top five high and low communities where SS research is occurring. The second section discusses research duration, the variety in long-term vs short-term projects, and the potential factors influencing the dominance of annual projects. This section is not specific to research led by the most Active PIs, as researchers can undertake one project for multiple years. The third section illustrates the scope of research leadership and the trends associated with PI affiliations, including Academics, Government, Consultant, and Nunavut-PI based research, while the last section explores community engagement in SS research and how researchers are talking about community involvement in their project summaries.

5.2 Social science research in Nunavut over time

Social science research is generally increasing over time in Nunavut between 2004 and 2019 (Figure 4.2). Research intensity was the lowest in 2004 and 2006 (42

projects). During this time, researchers were likely preparing for the upcoming International Polar Year (IPY) in 2007. Research intensity then peaked in 2009 during the last year of IPY. SS projects during periods of low research intensity cover a wide range of topics, such as local knowledge (Akearok, 2004; Blakney, 2004; Doubleday, 2004; Gray, 2004; Johns, 2004; Klein, 2004; Leduc, 2004; Smit, 2004), policy and governance (Blakney, 2004; Deisel, 2004, Dobbins, 2004; Dorais, 2004; Dowsley, 2004; Hitch, 2004; Leduc, 2004), and education (Berger, 2006; Chambers, 2005; Huxtable, 2005; Looker, 2004; Pulpan, 2005). During this time, communities in the Kitikmeot and Kivalliq regions were contributing significant amounts of time collaborating with resource development officials including the Jericho Project, Doris North Gold Project, and Meadowbank Gold Project (NTI, 2006).

Intensity slightly decreased after 2007 and was followed by a peak in 2012. Research capacity increased in Nunavut following the expansion of NRI research facilities and accommodations in Iqaluit that were completed in 2011. Additionally, the NRI built affordable research accommodations in Arviat (in the Kivalliq Region), and Igloolik (in the Qikiqtani region) which may have supported a peak in research around that time. Furthermore, SS research intensity dropped significantly in 2017, followed by a record high in 2018 (76). The sudden increase in research intensity in Nunavut occurred after new construction of federally funded infrastructure was completed in 2017, including the Environment and Climate Change Canada Research Station in Pond Inlet (in the Qikiqtani Region) and the Canadian High Arctic Research Station (CHARS) in Cambridge Bay (in the Kitikmeot Region).

As of 2018, there were also a number of Inuit-led initiatives contributing to SS research priorities and Inuit self-determination. One example is the development of Inuit language programming in the Kitikmeot Region (NTI, 2018-2019). Additionally, the Kivalliq Region aimed to increase capacity for cultural-based research and programming though development of the first Kivalliq Inuit Association Cultural Centre in Chesterfield Inlet (NTI, 2018-2019). Nunavummiut have also expanded partnerships in Nunavut supporting economic development and employment (NTI, 2018-2019). A focus on research partnership and community-based research more broadly is also reflected in the National Inuit Strategy on Research (See Section 2.2.1; Table 2.1; ITK, 2018).

Research trends by region and community are discussed in the following sections. I conducted an analysis for each region in Nunavut (Table 5.3) including an investigation of the nuances in SS research intensity and factors that could influence research capacity. To focus the discussion, I characterize the top five highest and lowest community research locations in Nunavut (Figure 4.3) in relation to number of projects over time, number of PIs, research topics, methods (community and field-based), reporting, and community engagement (Appendix 12, 15). I support this regional analysis by providing additional context wherever possible on the history of research in each high/low community, long-term research projects, the presence of active research organizations, and locally available research infrastructure.

5.2.1 Social science research in the Qikiqtani region over time

Social science research is most concentrated in the Qikiqtani region (See Chapter 4.2), and majority of NRI-licensed projects occur in the City of Iqaluit, which represents 229 out of the 274 SS projects in the region (Table 5.3). Other popular community locations for SS research in the region include Pond Inlet and Pangnirtung, while research locations that are less common for SS research include Sanirajak, Grise Fiord, and Resolute Bay (Table 5.3). Another popular location for SS/K research that is not in the top five communities is Igloolik, which hosts a variety of research accommodations and facilities (NRI, 2021), however there is a greater focus on physical science research in the community. A key difference between research intensity in the high and low community research locations is the availability of infrastructure and accommodations that support social science research (among other kinds of research).

Table 5.3: Overview of the regional analysis undertaken

	Qikiqtani	**Kivalliq**	**Kitikmeot**
Community	•Iqaluit (229) •Pond Inlet (88) •Pangnirtung (82) •Igloolik (76) •Clyde River (68) •Kinngait (47) •Arctic Bay (43) • Kimmirut (39) •Qikiqtarjuaq (39) •Sanikuluaq (37) •Resolute Bay (31) •Sanirajak (31) •Grise Fiord (28)	• Arviat (81) • Baker Lake (70) • Rankin Inlet (68) • Chesterfield Inlet (40) • Coral Harbour (40) • Naujaat (39) • Whale Cove (30)	• Cambridge Bay (80) • Kugluktuk (60) • Gjoa Haven (52) • Taloyoak (36) • Kugaaruk (35) • Bathurst Inlet (26) • Umingmaktok (24)
PI Affiliation	• Canadian University (270) • International college/ university (52) • other/ independent research (18) • Consultant/ industry (16) Government of Canada (14)	• Canadian University (112) • International college/ university (13) • Consultant/ industry (13) • other/ independent researcher (12) • Government of Canada (6)	• Canadian university (70) • Consultant/ industry (18) • International college/ university (11) • Other/ independent researcher (7) • Nunavut Inuit organizations (6)
Topic	• Culture & Society (188) • IQ (159) • Land use and Traditional Activities (78) • Education (68) • Policy and Governance (66) • Sovereignty and Self-determination (53) • History (40), • Economy (25) • Arts (21) • Colonization Impacts (21)	• Culture and society (84) • IQ (66) • Land use and traditional activities (42) • Education (37) • Policy and governance (19) • Sovereignty and self-determination (15) • Economy (15) • Gender (15) • History (14) • Arts (7)	• IQ (53) • Culture and society (52) • Land use and traditional activities (52) • Education (25) • Policy and governance (21) • Sovereignty and self-determination (15) • History (13) • Economy (12) • Gender (6) • Archaeology (6)
Community Research Method	• Interviews (263) • Audio recording (87) • Focus groups (53) • Experiential learning and observation (50) • Research and training workshops (48)	• Interviews (110) • Audio recording (43) • Surveys (29) • Focus groups (28) • Research and training workshops (25) Literature review (25)	• Interviews (76) • Audio recordings (32) • Research and training workshops (27) • Surveys (15) • Focus groups (15)
Field Research Method	• Environmental observation (9) • Wildlife management and observation (9) • Environmental observation (6) • Weather monitoring (5) • Ground truthing (4)	• Wildlife monitoring (3) • Water sampling (3) • Wildlife sampling (2) • Recording GPS locations (2) • Soil sampling (2)	• Wildlife monitoring (8) • Vegetation sampling (3) • Wildlife sampling (2) • Environmental observation (2) • Water sampling (1) • Environmental photography (1) • Weather monitoring (1) • Ship-based research (1) • Human specimen collection (1) • Waste sampling (1)

			• Air sampling (1)
Reporting	• Journal Article (147) • Report (112), Student thesis (104) • Community presentation (101) • Conference presentation (58)	• Journal article (65) • Report (53) • Student thesis (45) • Community presentation (40)	• Journal article (43) • Report (40) • Community presentation (27) • Student thesis (18) • Website (17)

Over time, the region has experienced variability in the amount of SS research, with its highest intensity in 2009 (45), its lowest point in 2004 (28 projects), and a general increase since 2011 (Figure 4.5, Appendix 7). In the Qikiqtani region, research is mostly focused on topics related to culture/society (188) (Appendix 15), interviews are the most commonly used research method (23) (Appendix 15), and journal articles are the most prevalent reporting tool (Appendix 15).

5.2.1.1 Research in Iqaluit

Social Science research in Nunavut is most concentrated in Iqaluit (Table 5.3). Over time, research in Iqaluit was the highest in 2009 (27 projects) and the lowest in 2004 and 2006 (15 projects) (Figure 5.1). Research intensity in the city increased from 2004 to 2009 and peaked in 2012 following a period of less research in 2011. The number of research projects has remained fairly consistent since 2017 at around 20 projects per year.

There are 208 individual researchers who have worked in Iqaluit between 2004-2019 out of 229 projects in the city. Research is dominated by academics (191), followed by independent researchers, consultants, and Canadian charitable organizations (Table

5.3). Of the top 12 most active researchers, seven have worked in Iqaluit on projects related to mining projects (Gustavson, 2011; Klein, 2008), education (Gearheard, 2014; Rodon, 2012), ship traffic routes (Carter, 2019), community needs for weather, water, ice, and climate (Ljubicic, 2019), and food security (Wenzel, 2014). Two of the most active Nunavut PIs work in Iqaluit and have led research on Inuit language development (Beveridge, 2011), government training programs evaluation (Egeni, 2005), and public behavior (Egeni, 2005). Other notable researchers particularly active in Iqaluit include Nancy Doubleday, who has led projects related to the impacts of changing arctic tree lines (Doubleday, 2007), and Inuit identity through wildlife management (Doubleday, 2004), and Priscilla Ferrazzi who has led projects related to criminal justice (Ferrazzi, 2012; 2017). With Iqaluit being the hub of territorial government, it is notable that SS research in the city is not being led by Nunavut municipalities, Institutions of public government, Hospitals, or by other Nunavut-based organizations.

The topical focus for research in Iqaluit has transitioned from exploratory to collaborative over time, with a strong focus on cultural studies (Figure 5.1). In the late 20th and early 21st Century, researchers explored the significance of cultural practices in Iqaluit (Jacques-Dorais & Sammons, 2000; Shearwood, 2001). Over time, the importance of Inuit culture in research was recognized and led to the creation of Inuit-led research centres and organizations in Iqaluit that support and promote community-based research and partnerships, such as the Qaujigiartiit Health Research Centre (Aqiumavvik Society, n.d; Healey, 2014; Healey et al, 2011; Healey et al, 2019; Healey and Tagak, 2014; ITK, 2018; QHRC, 2019). Researchers writing about their own interpretations of arctic policy

(e.g., Stenbaek, 1985), transitioned to Nunavummiut conducting their own studies on self-government (NTI, 2019). Education research has also evolved to focus more on understanding culturally relevant schooling in Nunavut, and the importance of bilingual education (Aylward, 2009, 2010; Tulloch et al, 2016). The top methods used in Iqaluit-based SS research includes interviews (166), and the top reporting tools proposed by PIs in the city include journal articles (90), student thesis (67), and reports (64) amongst others (Appendix 12).

While the NRI's primary function is to administer licensing and to provide logistics support for research, individual staff of both NRI and NAC has been directly involved in undertaking a range of research projects, including studies of climate change impacts on harvesting activities (NRI, 2004). The NRI has undertaken community level research needs assessments on key issues such as climate change impacts and adaptation (Shirley, 2004), and has participated in studies examining community consultation and engagement in scientific permitting processes (Gearheard & Shirley, 2007). NRI has also worked closely with Inuit organizations to support researchers to improve collaborative and partnership approaches (ITK & NRI, 2007). A key focus for NRI's current research is to examine Physical, Health, and Social Sciences research trends in Nunavut in collaboration with southern universities (Carleton University, 2017; Ljubicic, 2019; Polidoro et al, 2022; Queens University, n.d). Additionally, the NRI encourages researchers to share their results when visiting Iqaluit to increase community dissemination (NRI, 2021).

Iqaluit may be a particularly attractive SS research location because of the institutional support available, research infrastructure, accessibility, and cost effectiveness. First and foremost, the logistical and in-kind support provided by the NRI is a critical contribution for many researchers working in Iqaluit. A new NRI building was supported by Canada Arctic Research Infrastructure Funding in 2011 (NRI, 2021). NRI staff are always available to provide advice, to help connect with community members or organizations, and to provide logistical support related to use of vehicles, internet access, and work/meeting space. The NRI also has a research bunkhouse where researchers can stay at rates much more affordable than local hotels, and discounted rates are available to student researchers.

In addition to the NRI, the QHRC has grown considerably since 2006 and has greatly enhanced Iqaluit research capacity (Healey, 2007; ICHR, 2022; QHRC, 2019; 2014; 2010). The QHRC leads a range of research projects, mostly related to Inuit health, and partners with a variety of external researchers depending on the project. The QHRC was founded by researcher Gwen Healey-Akearok in an effort to address local health concerns, Inuit culture, and research collaboration (ICHR, 2022). Research led by the QHRC shows up more strongly when analyzing health research licenses, however this is beyond the scope of this thesis. In terms of SS research, Healey as investigated the "determinants of school completion, post-secondary education, and education success in Nunavut" (Healey, 2017), while other QHRC employees such as Ceporah Mearns supported Gwen to lead projects evaluating children who participated in educational support programs (Mearns, 2019).

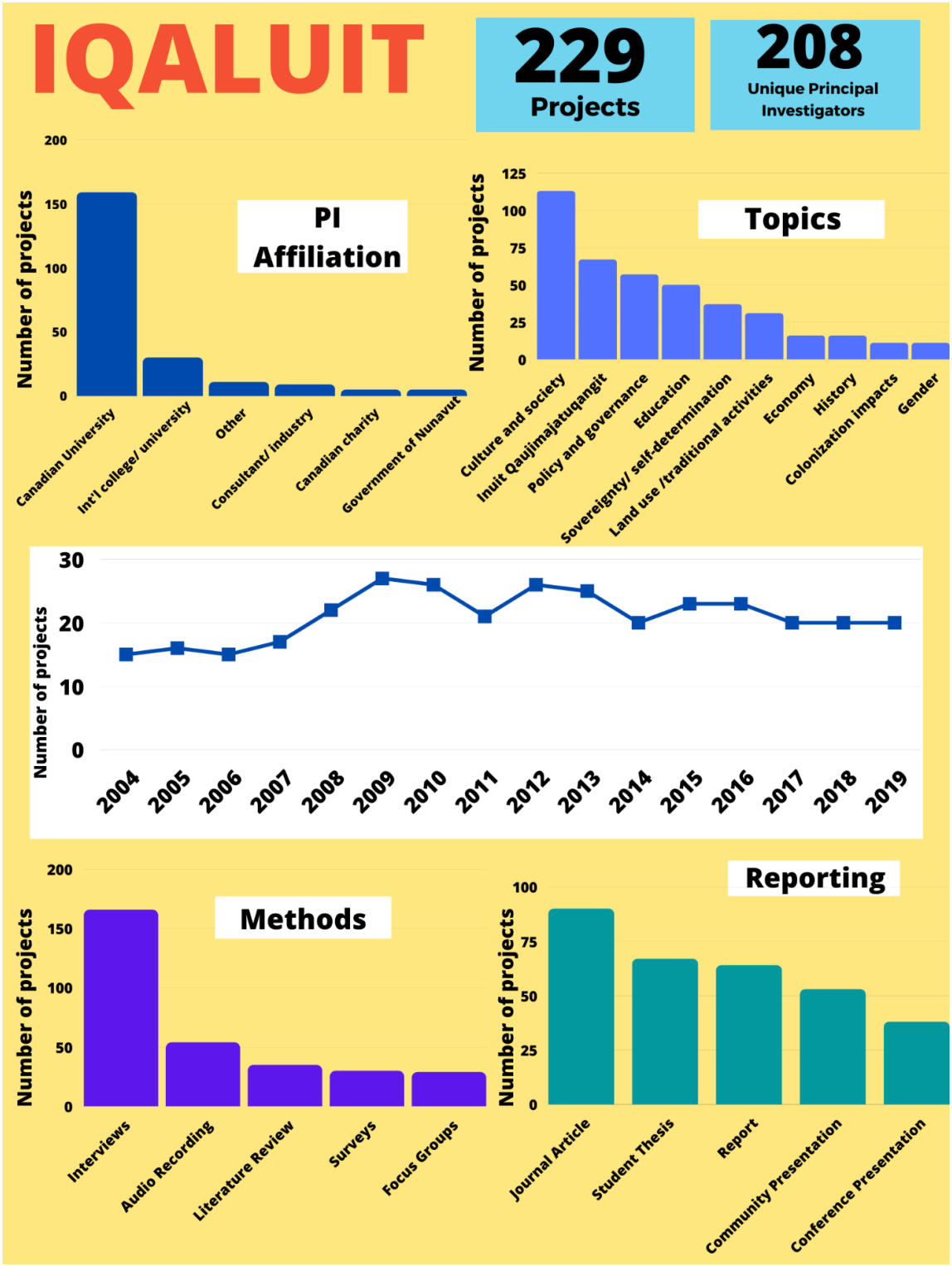

Figure 5.1: Research trends in Iqaluit, Nunavut

The QHRC has also partnered with other researchers to track community perspectives on climate change and health adaptation from 2008-2011. Inuit land claim organizations (Nunavut Tunnvagik Incorporated and Qikiqtani Inuit Association), along with the Inuit Heritage Trust, also play active research leadership and support roles (IHT, 2003; Henderson, 2008; NTI, n.d; QIA, 2022).

Iqaluit is also a hub for research licensing review, not only for the city itself but for many projects occurring across Nunavut. Institutions of public governance such as the Nunavut Planning Commission (NPC), Nunavut Surface Rights Tribunal (NSRT), Nunavut Wildlife Management Board (NWMB), as well as NTI, QIA, IHT, QHRC, and of course the NRI, are all based in Iqaluit and are regularly sent SS license applications to review. The NPC and NWMB are most often involved in the research review of physical science applications and the QHRC with health research; however, these organizations are involved in SS reviews when there is potential risk to wildlife, Inuit lands, or wellbeing (NPC, 2022; NWMB, n.d; QHRC, 2019). NTI receives almost all research license applications to review, as part of their responsibility to ensure that research activities abide by the Nunavut Agreement (NTI, n.d).

Another characteristic making Iqaluit an attractive research location is the availability of daily direct flights from Ottawa, and lower flight costs than other communities in the Qikiqtani region. For example, trip flight from Toronto to Iqaluit (with a layover in Ottawa) would cost approximately $1200 (Porter/ Canadian North), compared to the increased cost and time involved in travelling to a community further

north such as Resolute Bay (approximately $8,000 round-trip, and requiring additional layovers).

5.2.1.2 Research in Pond Inlet

Pond Inlet is the community with the second highest concentration of SS research in the Qikiqtani region (Figure 5.2). Over time, research in Pond Inlet peaked in 2005 (17 projects) and declined until its lowest in 2010 (5 projects). Since then, research has slightly increased, including a peak in 2016 (Figure 5.2).

There were 88 projects undertaken in the Hamlet from 2004 to 2019, led by 84 unique PIs. Research in Pond Inlet is dominated by academics, like all SS research in Nunavut, where Canadian universities represent 57 projects, followed by international college/ university, and consultants (Figure 5.2). Of the top 12 most active PIs in Pond Inlet, four have worked in the community on projects evaluating professional success of Nunavut post-secondary graduates (Rodon, 2012), identifying community uses of weather, water, ice, and climate information (Ljubicic, 2019), IQ of earthquakes and tidal waves (Wenzel, 2018), and national park management (Mahy, 2016). Additionally, four of the top 9 most active Nunavut PIs have led projects related to impacts of resource development (Scott, 2014). Active PI Ceporah Mearns has also led projects in Pond Inlet relating to educational outcomes (Mearns, 2019), and climate change and health adaptation (Mearns, 2014). Another notable researcher working in Pond Inlet include Katherine Wilson, who partnered with Sikumiut (the local SmartICE management committee) in 2017 to develop travel safety resources for Mittimatalingmiut (people of

Pond Inlet) (StraightUpNorth, n.d; Wilson et al, 2021 a,b; Wilson et al, 2020; Wilson, 2018). In contrast, PI affiliations such as Nunavut Arctic College, Hospitals, Institutions of Public Government, Government of Nunavut, and other provincial/ territorial government have not led SS research In Pond Inlet.

SS research in Pond Inlet is also heavily focused on cultural studies, as the most common research topic was culture/society (39), closely followed by IQ (Figure 5.2). Early SS research in the community included investigations of narwhal hunting (Wenzel, 2004), and a community-led project by Inuit Heritage Trust researching and mapping Inuit place names (NTI, 2005). The Inuit Heritage Trust was also leading a field school in Pond Inlet with a focus on archaeological studies (NTI, 2005), and a project focused on training for heritage workers (NTI, 2010). In recent years, collaborative research was co-led by community members themselves fostering an approach to work towards achieving Inuit self-determination in research (Carter et al, 2019; Henri et al, 2019; McGrath, 2018; Wilson et al, 2020).

Inuit organizations such as Ikaarvik are also fostering Inuit self-determination in research through leading projects of their own. For the past 10 years, Ikaarvik has been working closely with Inuit youth to bridge the gap between western and traditional with a focus on climate change (Carter et al, 2019; Ikaarvik, n.d; Johnson et al, 2016; Pedersen et al, 2020). The organization does not show up strongly in the Licensing Database as Nunavummiut are not required to apply for NRI research licenses (See Section 2.4.1). Ikaarvik is leading community-driven research in Pond Inlet (Ikaarvik, n.d) supporting

the call for more research partnerships by Inuit themselves (ITK, 2018). Another community-based research organization is ArcticConnexion, leading projects grounded in equality and leadership with a strong focus in physical science (ArcticConnexion, n.d; Gora et al, 2020; Nunatsiaq News, 2014; Nunavut Arctic College, 2014; Watt et al, 2021); however, their work is beyond the scope of this thesis research. The most common research methods used in Pond Inlet include interviews (48), and the most proposed reporting tool in the community was journal articles (28), followed by reports, community presentations, amongst others (Figure 5.2).

The popularity of Pond Inlet amongst researchers could be influenced by the presence of physical science research infrastructure such as the Environment and Climate Change Canada research Station that was built in 2017 (Nunavut News, 2017). Other infrastructure includes the Bylot Island research station offering amenities that help support research activities in addition to dry laboratory equipment, microscopes, electronic scales, and glassware (CNNRO, 2016). The Bylot Island research station is co-owned by the University of Laval and Parks Canada, and typically houses researchers focusing on wildlife and tundra vegetation studies (CNNRO, 2016). Social scientists could be using these research station for research involving the surrounding physical environment, however information in project summaries is limited regarding researcher accommodations.

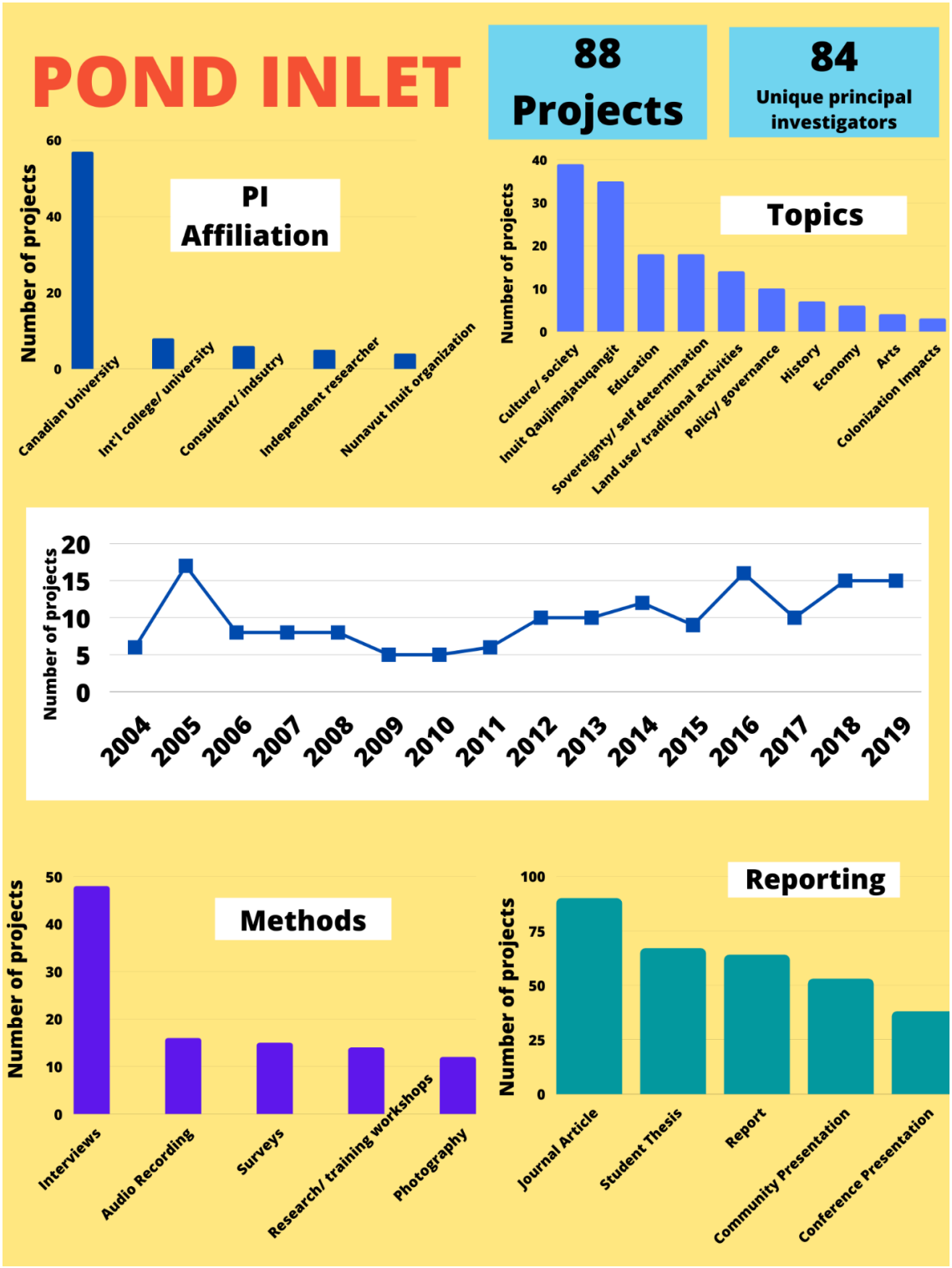

Figure 5.2: Research trends in Pond Inlet, Nunavut

5.2.1.3 Research in Pangnirtung

The Hamlet of Pangnirtung (Figure 5.3) is the third most prominent community for SS research. Research in Pangnirtung had the lowest number of SS research at the start of the research period in 2004 (4 projects). However, after that, the number of SS research slowly increased and remained relatively constant for a few years before dropping in 2011. After 2011, SS research slowly increased to its 2018 (16 projects), however, research in Pangnirtung is currently on the decline.

There are 75 individual researchers who have led 82 different projects in the community (Figure 5.3). Research in Pangnirtung is dominated by Canadian Universities (54), followed by government of Canada (7) (Figure 5.3). Of the top 12 most active researchers, four have worked in Pangnirtung leading projects related to national parks management and health (Mahy, 2015; 2017; Routledge, 2015), and educational monitoring and programming (Ljubicic, 2016; Rodon, 2012). Nunavut PIs working or based in Pangnirtung include Maryse Mahy, who is also part of the top 12 most active researchers (Appendix 19). Jason Akearok has also facilitated research related to IQ of wildlife population dynamics in Pangnirtung (Akearok, 2010). Other researchers facilitating multiple projects in Pangnirtung include Ian Mauro, who investigated Inuit knowledge and climate change (Mauro, 2006; 2018). SS research in Pangnirtung was not led by Nunavut Arctic College, hospitals, institutions of public government, Nunavut municipalities, or other provincial/ territorial government.

The topical focus of SS research in the community is IQ (35), followed by culture and society (26) (Figure 5.3). Other popular research topics in Pangnirtung include education and political studies (Figure 5.3). It is also important to note that the use of physical science broad code climate change was used in 10 projects, which is more than some of the SS broad topics researched in the community (Appendix 12). Common research methods proposed in projects based in Pangnirtung included interviews as the most popular (53), followed by audio recordings and research and training workshops (Figure 5.3). Reports were the most used reporting tool amongst researchers in Pangnirtung (24 projects), followed by journal articles and student thesis (Figure 5.3).

Early research in Pangnirtung considered the cultural importance of Pangnirtung Tapestries (Cross, 2003), which continued to spark the interest of researchers over ten years later (Igloliorte, 2017). SS research in Pangnirtung covered a variety of topics, including the studies on American and Inuit Whalers in 2008 (Municipality of Pangnirtung, n.d). The evolution of collaborative research was also prominent in the community during this time, researchers fostered co-production of knowledge for aquatic species (Idrobo & Berkes, 2012). Additionally, community-based sea ice and weather forecasting projects were undertaken between 2007 and 2009 (Municipality of Pangnirtung, n.d). In recent years social science research could be declining in Pangnirtung due to an increase in physical science research focusing on climate change (Akearok et al, 2019).

Although there is not an abundance of research facilities or Inuit organizations supporting community-led research in Pangnirtung, its proximity to Auyuittuq National Park and capacity within the Hamlet itself make it one of the most concentrated locations for SS research. Parks Canada researchers Maryse Mahy and Karen Routlege have led projects in Pangnirtung (Appendix 19). Additionally, the community of Pangnirtung has initiated a compilation of various research projects and reports based in their community (Municipality of Pangnirtung, n.d). The dominance of cultural studies in the community is also supported by the presence of the Uqqurmiut Inuit Arts Centre, including tapestry studios. Additionally, the Pangnirtung Visitor Centre acts as a cultural vessel for displays of Inuit traditional life (AAID, 2016). Elders are frequently in the facility, and staff are present to act as interpreters when needed (AAID, 2016). The capacity for knowledge translation in the Pangnirtung Visitor's Centre emphasizes the concentration of cultural research and capacity in the community.

5.2.1.4 Research in Resolute Bay

Resolute Bay (Figure 5.4) is one of the communities with a lower concentration of SS research in Nunavut, and this is attributed to the community being a hub for physical/natural science research logistics. Research was most concentrated in 2005 (8), and the lowest in 2015 (1). The quantity of SS research over time in Resolute has fluctuated, where research declined from 2005 to 2011, until peaking again in 2012 (5) (Figure 5.4). The decline in SS research during 2007-2009 occurred during the International Polar Year, which involved researchers from over 60 countries coming

together in Resolute Bay, but perhaps with greater emphasis on natural science. There are 31 SS projects that have occurred in Resolute between 2004 to 2019, led by 31 individual researchers. Social science research is dominated by Canadian universities (19), followed by consultants (Figure 5.4). Only one out of 12 active PIs in Nunavut has led research in the Hamlet with a focus on local knowledge of marine areas (Carter, 2016). Additionally, Jason Akearok was the only active Nunavut-based PI who led research in the Hamlet, regarding local knowledge of marine birds (Akearok, 2004). About half of SS research topics in Resolute Bay are Nunavut-wide projects, focused on topics such as educational outcomes (Bartlett, 2018; Berger, 2010; Healey, 2017; Looker, 2004). Research in Resolute was not led by Nunavut Arctic College, hospitals, Nunavut municipalities or Inuit organizations (Appendix 15).

SS research in Resolute primarily focus on IQ (12) and culture and society (11). Community-based research methods employed by PIs consist of interviews (16) and surveys (10), whereas mixed methods and people/community photography were used less (3) (Figure 5.4). Most other community-based research methods were not used in Resolute Bay (Appendix 15), which could be attributed to the scope of physical science research in the community. In terms of research dissemination, journal articles were the most common (7), and websites were the least (4).

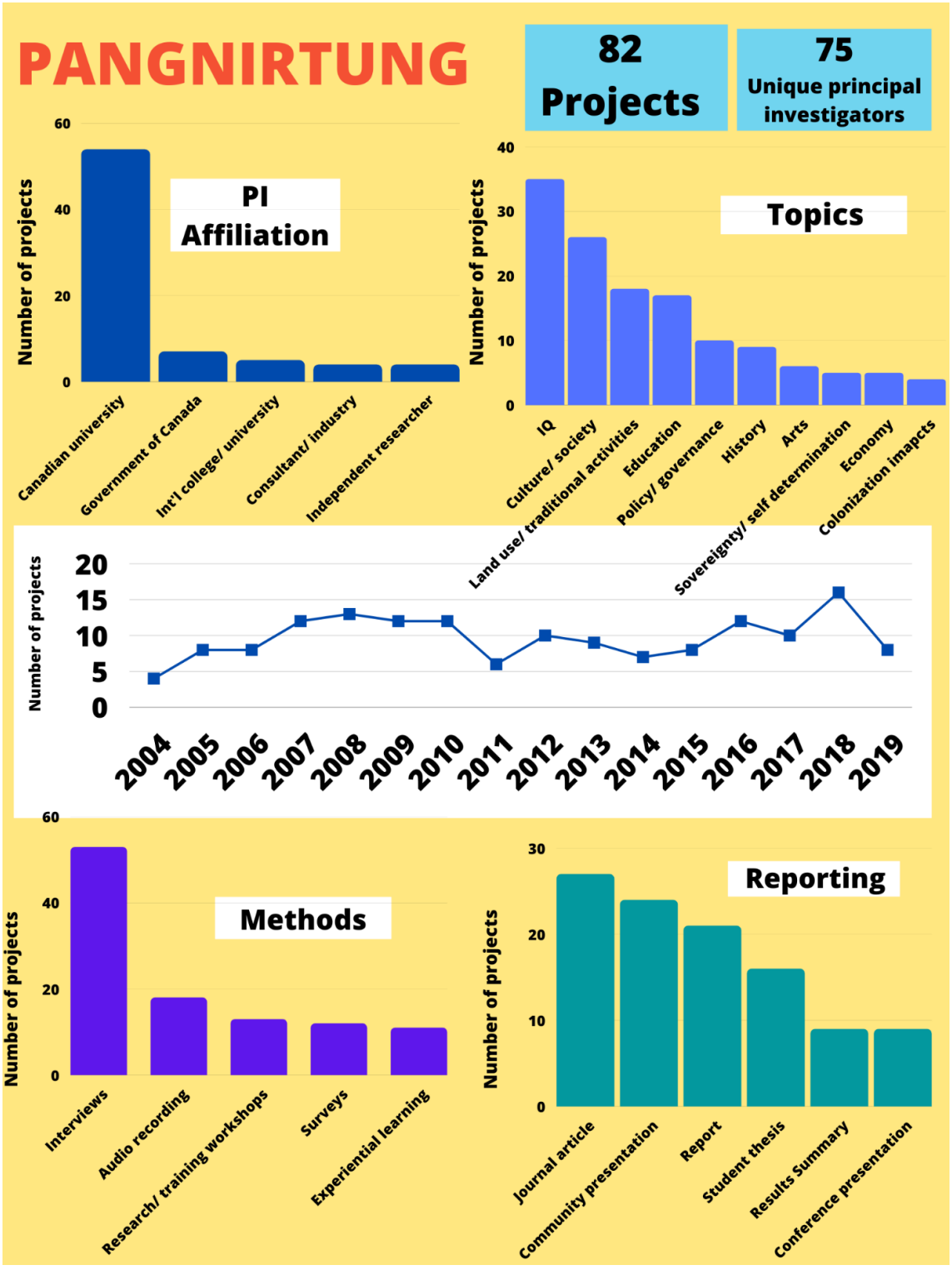

Figure 5.3: Research trends in Pangnirtung, Nunavut

Prior to the 2000's, the Hamlet of Resolute Bay was used for weather stations and monitoring during the late 1940s (Government of Canada, 2017). The weather station is still active to this day and continues to forecast weather and climate data for community and research use (Government of Canada, 2021). Around this time, military personnel were constructing Distant Early Warning (DEW) lines across the territory in an effort to better detect threats such as bombs and other war-related activity (National Defense, 2007).

After the weather station and DEW lines were built, a hub for natural science was developed. The Polar Continental Shelf Program (PCSP) was established in 1958 and, where researchers gather to facilitate research based on the surrounding arctic marine environment which remains active to this day (Government of Canada, 2017). The hub is still operational and remains prominent for researchers as a base for field research logistics and transportation. The PCSP offers chartered transportation to many locations distance from Resolute Bay (PCSP, 2016). Additionally, Resolute Bay is home to the oldest stratospheric ozone measurements in the world which date back to 1966 (CNNRO, 2016). Other early projects in the community include the Flashline Mars Research Station designed to simulate the harsh conditions humans would experience when travelling to Mars (Michaels, 2004), which ended in 2017 (The Mars Society, 2017). The peak in research in 2012 could be a result of the expansion to the Polar Continental Shelf Program research logistics hub in 2011, which included the refabrication of the facility to accommodate 237 people and research spaces like offices, labs, meeting rooms, and fitness areas (NRCan, 2021). Research being done at the facility must be licensed by the

NRI (2007-2008). Although the facility is designed for physical science research, special consideration is given to projects involving Inuit Traditional Knowledge (NRCan, 2021). Since research led by the PCSP focuses on physical science, there is reduced opportunity for social scientists to undertake projects here.

5.2.1.5 Research in Sanirajak

Sanirajak (formerly known as Hall Beach), is also among the lowest concentration of SS research in Nunavut. In 2004 it had the lowest number over time (2 projects) and increased to its peak research intensity in 2007 and 2008 (6) (Figure 5.5). Research remained constant between 2009-2011 at 4 projects per year, and has fluctuated since then, although is relatively consistent since 2018 at 5 projects per year (Figure 5.5). There are 31 projects and 30 unique PIs who have worked in Sanirajak. The majority of projects are led by academics (16), followed by consultants, independent researchers, and Nunavut charitable organizations (Figure 5.5). None of the most active researchers (including Nunavut-based) led projects in Sanirajak. Unique projects that have occurred in the community include violence reduction amongst male youth and adults (Michaels, 2018), Inuit knowledge systems (Feltaous, 2008), and coastal restoration needs identified by the community (Owen, 2018). SS research in Sanirajak focuses on IQ and education (13), amongst others (Figure 5.6). Research in Sanirajak most involved the use of interviews (16), and reports were the most common form of reporting (11), which varies from the regional dominance of journal articles.

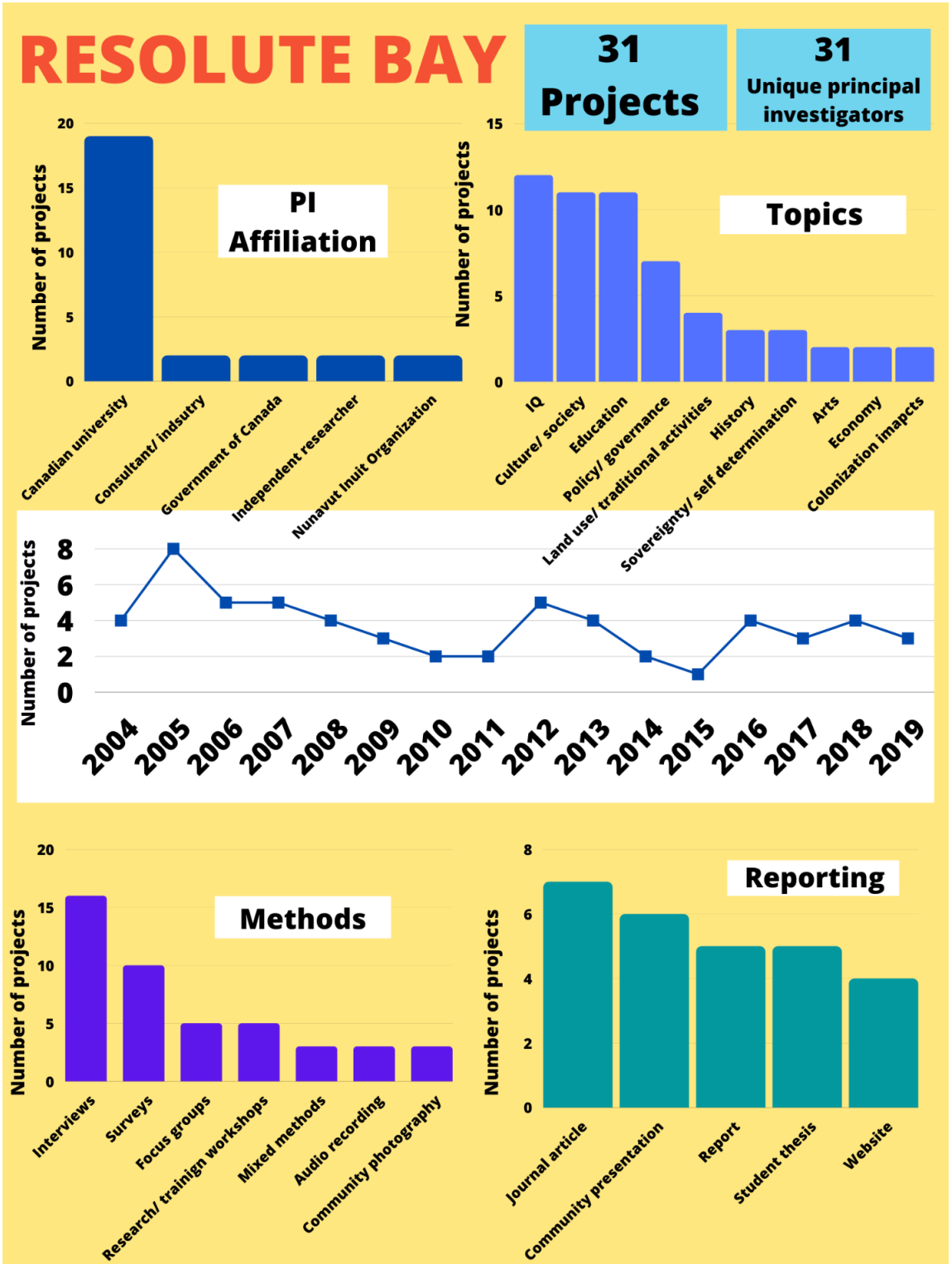

Figure 5.4: Research in Resolute Bay, Nunavut

The community has a greater capacity for physical science research due to its proximity to Foxe Basin. Much of the research led in Foxe Basin is led by government officials such as the Foxe Basin Polar Bear project which occurred between 2007-2012 (Government of Nunavut, n.d). Additionally, more recent research near Foxe Basin included participatory mapping workshops to observe and evaluate changing coastal conditions (Coastal Restoration Nunavut, n.d). It is also important to note that Sanirajak was home to the Thule People. The Thule people were ancestors of the Inuit, and Sanirajak is the location for many archaeological sites of the Thule People, in addition to the expeditions of William Edward Parry and George Francis Lyon (MacDonald, 2018; Travel Nunavut, n.d). Archaeological research requires a separate research license issued outside of the NRI (Table 2.3), which is why this kind of work is not included in the NRI research licensing database.

5.2.1.6 Research in Grise Fiord

Out of all Nunavut communities, social science research is least concentrated in Grise Fiord (Figure 4.3). Over time, SS research in Grise Fiord peaked between 2005-2008 (5 projects) and reached its lowest point in 2011 (1), followed by a peak in 2012. Research intensity then declined and remained constant at about three projects per year between 2013-2017 (Figure 5.6). Research peaked again in 2018 and is currently on the decline (Figure 5.6).

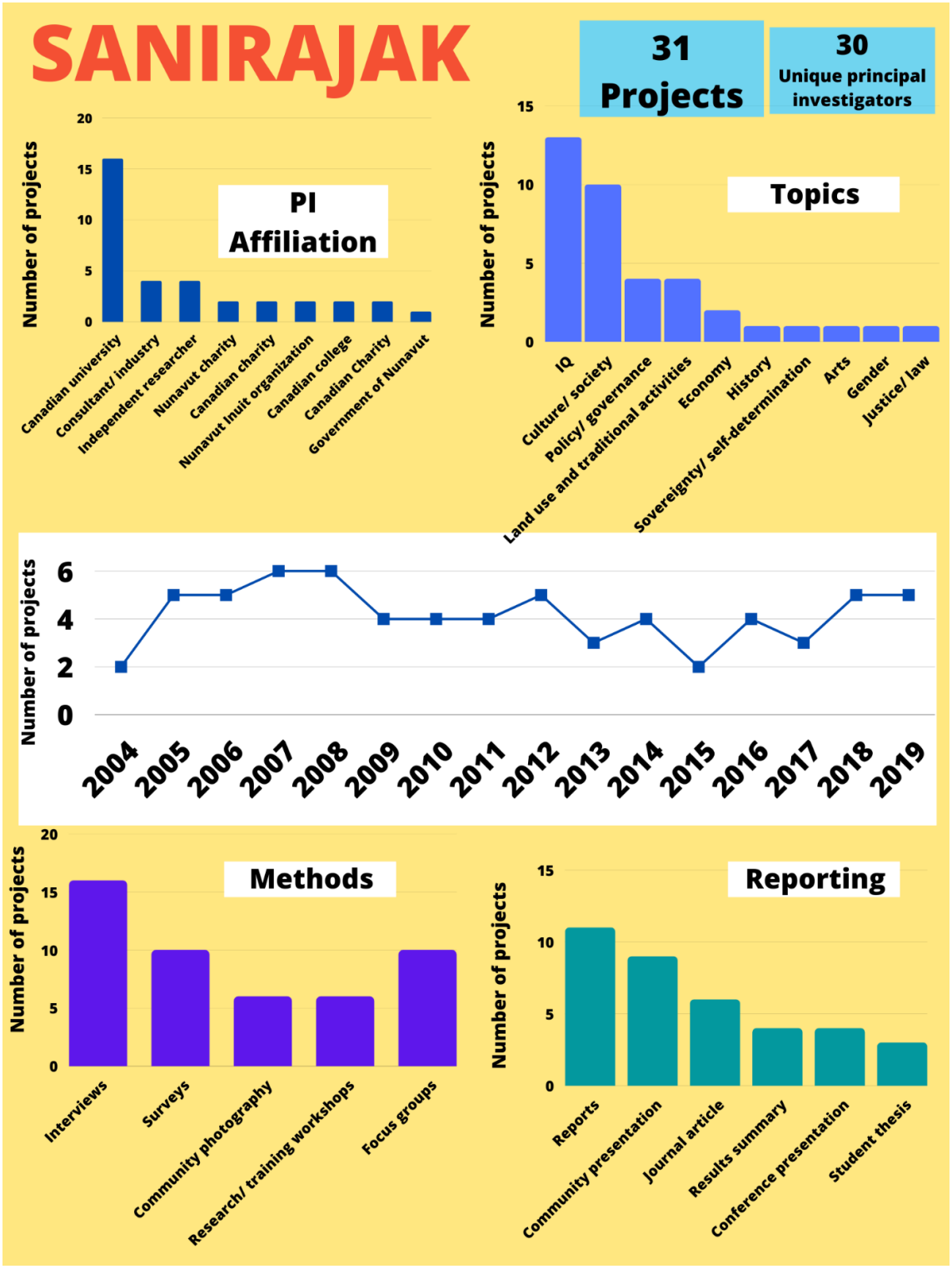

Figure 5.5: Research Trends in Sanirajak, Nunavut

There are only 28 SS projects that have occurred in Grise Fiord between 2004 and 2019, and each project has been undertaken by a different PI (Figure 5.6). Social science research in Grise Fiord is mostly led by Canadian universities (16), followed by community/ independent researchers (Figure 5.6). None of the most active researchers in Nunavut have undertaken research in Grise Fiord, however, examples of research led in Grise Fiord include updating oral history (Frampton, 2008), job satisfaction (Lamarche, 2007), multiculturalism (Zinga, 2004), coastal restoration (Owen, 2018), and teaching (Berger, 2010; Looker, 2004). Research in Grise Fiord was not led by Nunavut-based organizations (Appendix 15).

SS research in Grise Fiord focuses on IQ (12), followed by culture and society, and education (Appendix 13). The most commonly used research methods amongst SS researchers in Grise fiord include interviews (15) and surveys (10) (Figure 5.6). The most common form of research reporting in SS projects include reports (4) (Figure 5.6). Most PIs working in Grise Fiord did not indicate reporting tools in the project summaries. There was an emphasis on physical science research in Grise Fiord in the late 20th century, with a focus on belugas and marine mammal behaviour (Finley & Evans, 1983; Richard et al, 1998). Inuit food sources remain of interest more recently as well, but with a focus on food insecurity (Wenzel et al, 2016). Community-led projects in earlier years involved the development of training programs to strengthen the Inuit workforce (NTI, 2005). Economic development is an ongoing theme of research in Grise Fiord, as the territory established the *Nunavut Economic Development Strategy*, with a focus on built infrastructure that includes both scientific and Inuit knowledge (NTI, 2009). During

periods of low research intensity, Grise Fiord artists were commissioned do a large carving to honor the 20th anniversary of the Nunavut Land Claims Agreement (NTI, 2011, 2012). The unveiling of the artwork was a major event for the community and many dignitaries and government officials visited during this time (NTI, 2011). In recent years, the Hamlet completed the building of a new community learning centre in collaboration with Nunavut Arctic College (NAC, 2018). The educational facility supports post-secondary education and could relate to the popularity of educational research in the community (Figure 5.6). It is noted P research has always been much stronger in Grise Fiord Compared to SS projects (Polidoro et al, 2022). This is illustrated in recent years where SS research in the Hamlet is currently declining, however there continues to be a prominence of Physical Science research such as the Grise Fiord diesel powerplant project (BBA, 2022). There are a number of reasons why Grise Fiord may have the lowest concentration of SS research in Nunavut, including:

- It is furthest and most expensive to travel to (Canadian North, n.d).
- It has the smallest population of all Nunavut communities (Government of Nunavut, 2010).
- It endures some of the harshest climates in the world (BBA, 2022); and,
- There are no locally based research organizations.

However, the Hamlet is near Nirjutqavvik National Wildlife Area and the Quttinirpaaq National Park which houses the Ward Hunt Island Observatory Research Station owned by the University of Laval (CNNRO, 2016). The station is an ideal

location for researchers in the physical science. The remote location of the research station makes it less ideal for social scientists aiming to work with community members. Moreover, the Hamlet has become a tourist destination in recent years, and this could be a priority for the community in terms of economic development and the short travel season, limiting the opportunity for researchers to collaborate with community members during the travel window (Travel Nunavut, n.d).

5.2.2 Social science research in Kivalliq over time

The Kivalliq region is the second most common location for SS research in Nunavut and includes 179 projects (Chapter 4.2). Approximately half of the SS research in the Kivalliq region occurred in the Hamlet of Arviat (81), which is the only community in the Kivalliq region in the top five most concentrated SS research communities in Nunavut (Figure 4.3). Whale Cove was the only community in the Kivalliq region among the lowest research intensity in all of Nunavut (Figure 4.2). Over time, research in the Kivalliq region was lowest in 2005 (12) followed by a progressive increase and peak in the number of SS projects in 2012 (25). The amount of SS research in Kivalliq decreased since then and peaked again in 2018, however the number of SS projects in the region licensed by the NRI is currently declining. Research in Kivalliq is heavily concentrated on topics regarding culture and society (84), and IQ (66) (Table 5.3). The scope of SS research is also dominated by Canadian universities (112), with interviews (110) as the most common community-based research method (Table 5.3). Lastly, the most common reporting tool in the Kivalliq region is journal articles (65) (Table 5.3).

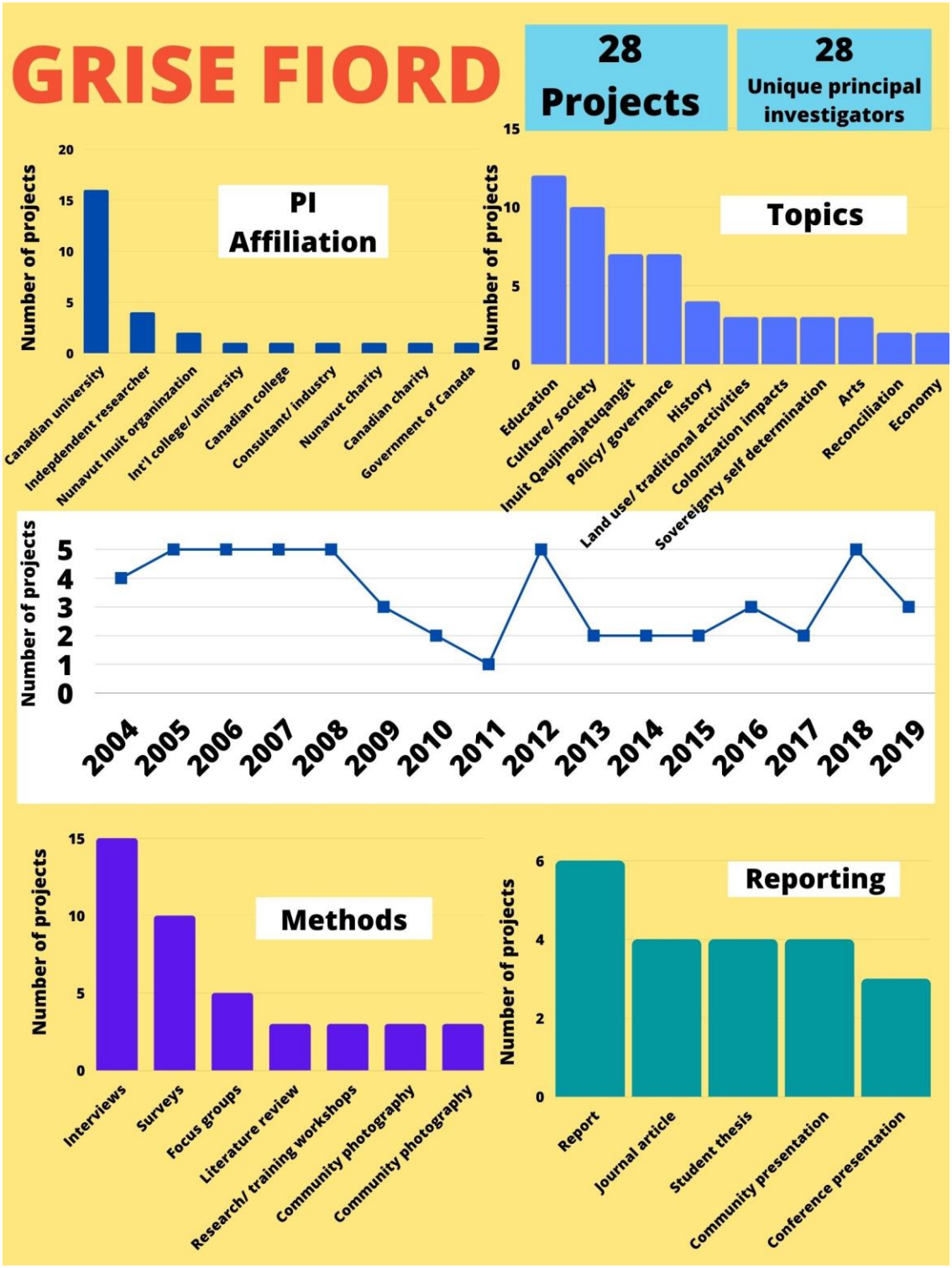

Figure 5.6: Research trends in Grise Fiord, Nunavut

5.2.2.1 Research in Arviat

The Hamlet of Arviat is the fourth most common location for SS research in Nunavut and has the highest concentration in the Kivalliq region (Figure 4.3). Research intensity in Arviat has fluctuated over time, with the lowest points occurring in 2004 and 2015 (5), and the highest in 2009 (13) (Figure 5.7). Research intensity in the hamlet peaked in 2018 and is currently on the decline (Figure 5.7).

There are 61 unique individuals who have conducted research in Arviat from 2004 to 2019 (Figure 5.7). Most research in Arviat is led by Canadian Universities (49), followed by international universities, and consultants (Figure 5.7). Six out of the 12 most active PIs have led research in the community including the investigation of community needs for weather, water, ice, and climate information (Ljubicic, 2019) in addition to baseline studies of Ukkusiksalik National Park (Mahy, 2016). Four out of the top nine most active Nunavut PIs also undertook research in Arviat (Appendix 19, 22), regarding alcohol prohibition (Uluadluak, 2009) and community controls of education (Kaluraq, 2019).

Shirley Tagalik is the most active researcher in Arviat in the current scope of SS research, where she has contributed significantly to Inuit wellness (Tagalik, 2014; 2017). Tagalik has undertaken five research projects in Arviat between 2014 and 2018 and has helped develop the Young Hunters program (Tagalik, 2018) and the Arviat Engaging Climate Change Project (Tagalik, 2014; 2015). Tagalik has connections with Arviat-based organization the Aqqiumavvik Society (formerly known as the Arviat Wellness

Committee) and is the Chair of the board of directors. Since 2002, the Aqqiumavik Society emphasizes the importance of research that is led by Arviarmiut (people of Arviat) (Arviat Community Wellness Plan, 2011), and addresses community concerns while expanding local research capacity to achieve wellness (Aqqiumavvik, n.d). The Aqqiumavvik Society has also collaborated with numerous visiting researchers, as long as they recognize the importance of addressing local priorities and working together for the common good (Aqqiumavvik, n.d). The richness of support from the Aqqiumavvik society makes Arivat an ideal location to facilitate research projects. A challenge for researchers would be aligning interests ensuring community-identified priorities are the forefront of the project, as community-based research is grounded in the interests of the community (ACUNS, 2003; Aqqiumavvik Society, n.d; Gearheard & Shirley, 2007; ITK, 2018; ITK & NRI, 2007; McGrath, 2018; Oceanwise, 2018; QHRC, 2019; Wilson et al, 2020; Wong et al, 2020).

Other notable projects that have occurred in Arviat include Greg Henry's research on berry productivity (Henry, 2014; 2015), Nancy Doubleday's investigation of the impacts of Arctic treelines (Doubleday, 2007), Janet McGrath's project on decolonizing research in Nunavut, and Heather McGregor's projects on educational change and outcomes (McGregor, 2013; 2016). Research in Arviat was not led by Nunavut Arctic College, hospitals, institutions of public governance, Government of Nunavut, or other provincial/ territorial government (Appendix 12).

The topical focus for research in Arviat includes culture/society (33) and IQ (31) (Figure 5.7). The most common community-based research methods used in Arviat include interviews (45) and surveys (16), where the most common reporting tools were reports (24) followed by journal articles (Figure 5.7). Cultural studies have remained prominent in the community's history, as projects undertaken in the late 20th century included investigation of the Inuit use of sea ice (Riewe, 1991), and have evolved into collaborative research (Carter et al, 2019; Ferrazzi et al, 2018; Henri et al, 2019; Tondu et al, 2014). The dominance of Inuit culture and knowledge continued with a shift in focus on community wellness. This marked the beginning of health and wellbeing research which is identified as a community research priority (Aqqiumavvik, n.d). In 2009, a community wellness plan was established to identify community health-related priorities to improve the wellbeing of community members (Arviat Community Wellness Plan, 2011). Since then, the Arviat community wellness plan has inspired a range community-led research.

There are multiple reasons why Arviat is one of the most common research locations for SS research in Nunavut, including the leadership of the Aqqiumavvik Society, the availability of local accommodations, proximity to the McConnell River Migratory Bird Sanctuary (Travel Nunavut, n.d), and an abundance of wildlife. The NRI also has a research facility in Arviat that offers affordable accommodations for visiting researchers (CNNRO, 2016) (See Section 5.2.1.1). Researchers who have used the NRI bunkhouse in Arviat tend to focus on wellness, sociology, environmental science, and human/terrestrial biology (CNNRO, 2016).

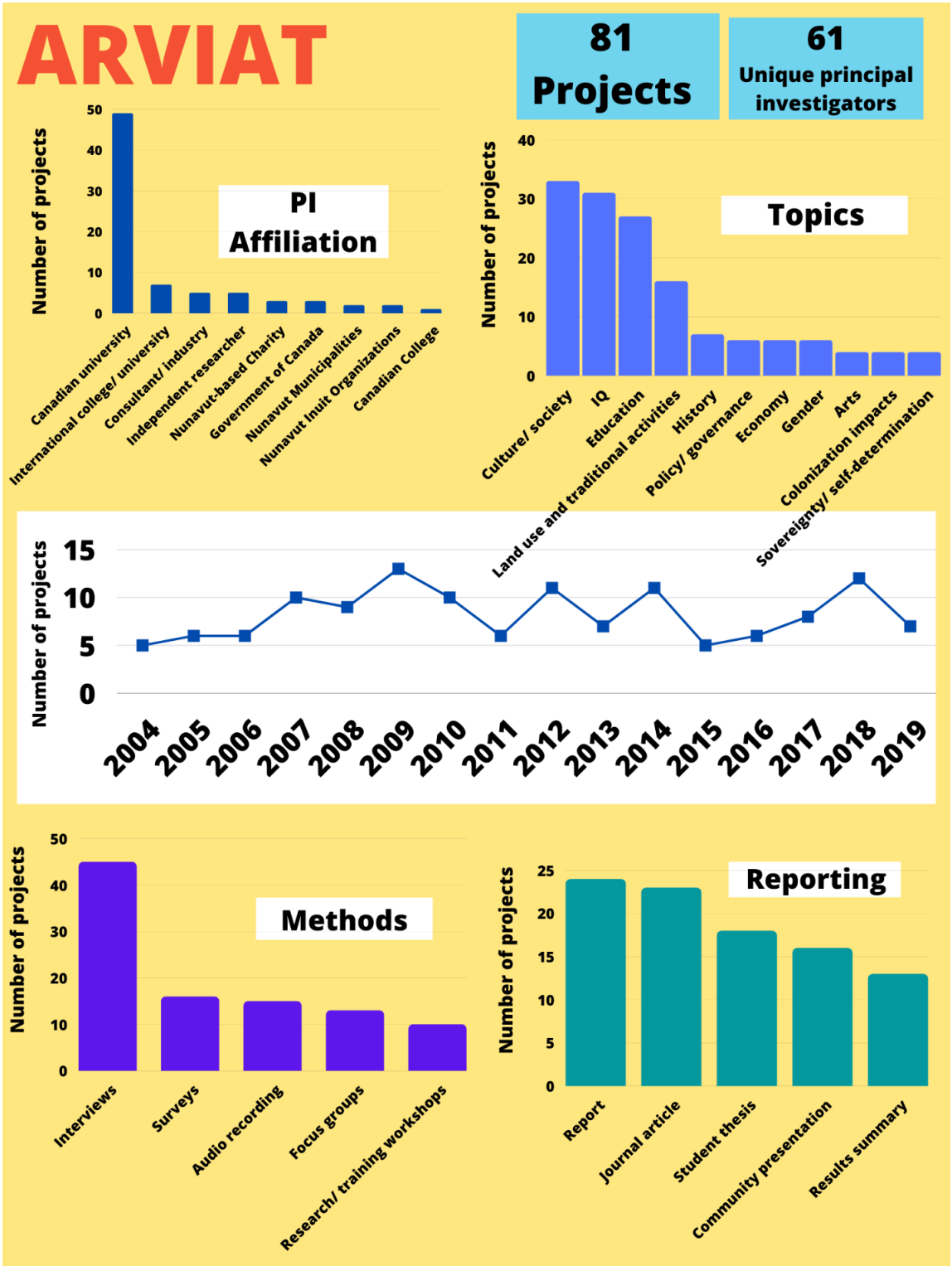

Figure 5.7: Research trends in Arviat, Nunavut

5.2.2.2 Research in Whale Cove

Social science research in the Kivalliq region is least intense in Whale Cove. It has fluctuated over the years, with peaks (5 projects) in 2007, 2010, and 2018, and lows (1 project) in 2014 and 2015 (Figure 5.8). A total of 29 projects have been undertaken in Whale Cove, led by 27 unique principal investigators. The majority of research is led by Canadian universities (14), followed by consultants and independent researchers (Figure 5.8). None of the most active researchers undertook research in Whale Cove (Appendix 19), and only one of the most active Nunavut-based researchers (Akearok, 2010). Marjorie Kaluraq is one of two researchers who led more than one project in Whale Cove, with a focus on IQ in life science curriculum (Kaluraq, 2016), and land-based education (Kaluraq, 2019).

Education (12 projects) was the main topical focus of SS research in Whale Cove, followed by IQ, and culture/society amongst others (Figure 5.9). The most common community-based research method is Interviews (17), followed by surveys (8), and the most common reporting tools in Whale Cove are reports (10) and community presentations (8) (Figure 5.9). Research intensity could be low in Whale Cove due to the lack of infrastructure and resources supporting collaborative research, in addition to Nunavummiut undertaking their own projects in the community. Workshops were held by the NTI in previous years to evaluate polar bear management (NTI, 2006). Additionally, the Qauma Mobile Treatment Program was implemented in Whale Cove to assist with healing from residential school trauma (NTI, 2008). Recent projects in the

community include contamination studies in the Hamlet's downtown core from a previous power plant, and this has left residents under intermittent boil water advisories since 2017 (Government of Nunavut, 2021).

5.2.3 Social science research in the Kitikmeot region over time

The Kitikmeot region experiences the lowest concentration of SS projects in Nunavut (See Chapter 4.2). Over half of the projects that occurred in the Kitikmeot region took place in the Hamlet of Cambridge Bay (Table 5.3), where other communities like Kugluktuk and Gjoa Haven experience moderate research intensity compared to other Nunavut communities (Figure 4.3). Communities in the Kitikmeot region with the lowest amounts of SS research include Taloyoak and Kugaaruk. Former outpost camps like Bathurst Inlet and Umingmaktok observed the lowest amounts of SS research in all of Nunavut (they are not considered communities, as they do not have permanent residents, see section 2.4.2.3). Over time, research in the Kitikmeot region was at its lowest in 2008 (9 project), which was followed by a gradual increase to the peak of SS research in 2018 (23). Research in the Kitikmeot region is dominated by Canadian academics (70), followed by consultants (18) (Table 5.3). The topical focus of SS research in the region is IQ (53) closely followed by culture/society (Table 5.3), and the most common research method used is interviews (76). The most common reporting tool in the region is journal articles (43) (Table 5.3).

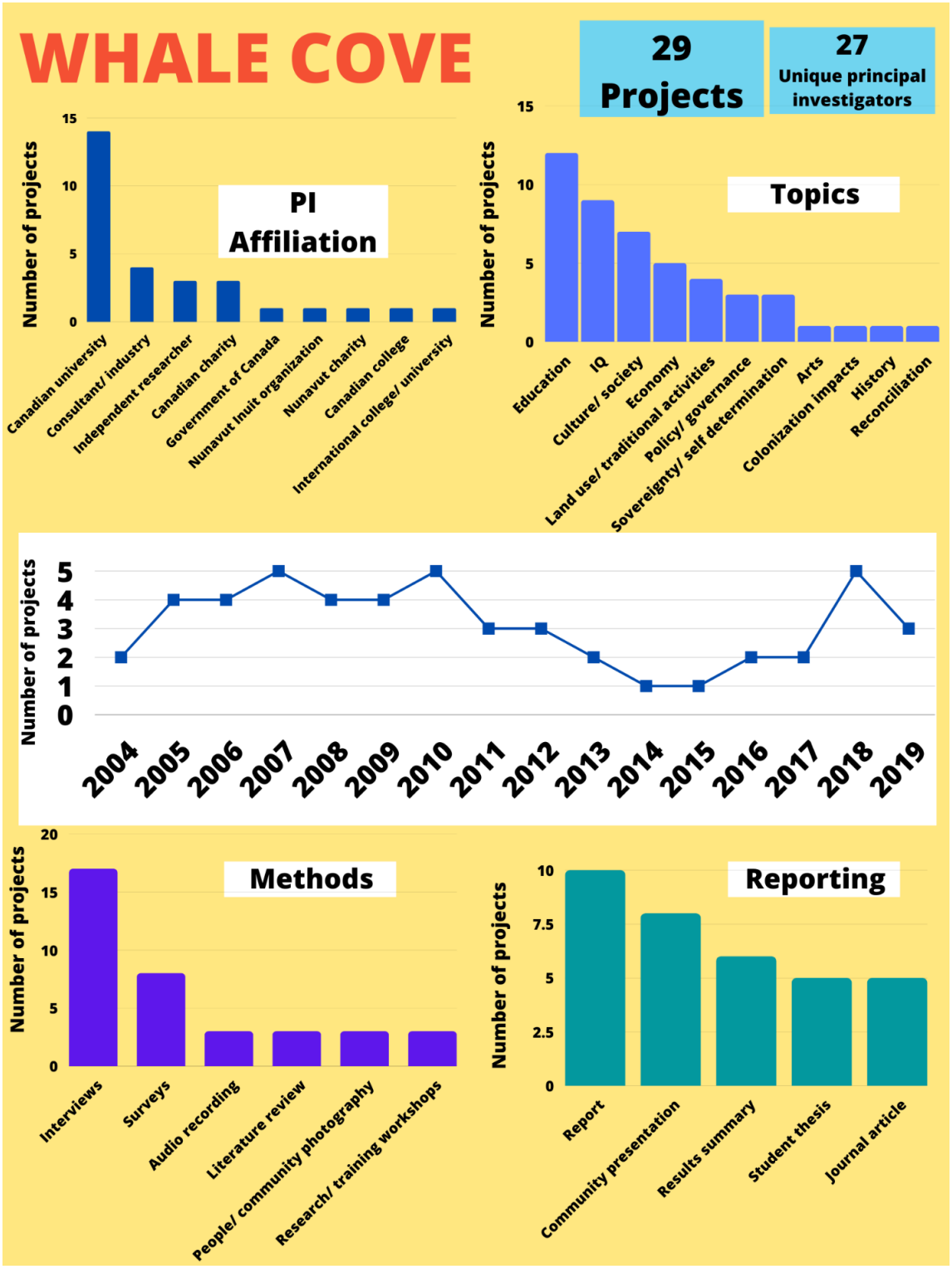

Figure 5.8: Research trends in Whale Cove, Nunavut

5.2.3.1 Research in Cambridge Bay

Cambridge Bay is the fifth most common research location for SS projects in Nunavut (Figure 4.3). Over time, research in Cambridge Bay was its lowest in 2004 (5). Since then, the number of SS project in the community has progressively increased until reaching a high in 2010 and 2011 (10 projects). SS research in Cambridge Bay then declined in 2014 and 2015 (7), although peaked again in 2018 (Figure 5.5).

There are 67 unique PIs undertaking research in Cambridge Bay, illustrating an active and long-term research engagement in the community. Research in Cambridge Bay is dominated by academics, where Canadian Universities led 43 projects. The second-most common PI affiliation is consultants, however the number is much lower (Figure 5.5; Appendix 12). Four of the 12 most active SS researchers have led projects in Cambridge Bay (Appendix 19) related to resource development (Gustavson, 2011; Klein, 2004), and local knowledge of marine areas (Carter, 2016). Additionally, three out of the nine most active Nunavut PIs led research in Cambridge Bay related to socioeconomic effects of public behavior (Egeni, 2009), strengthening communities (Crockatt, 2009), and Montessori school evaluation (Mearns, 2019). Other notable researchers active in the community include Janet McGrath, who dedicated time to investigate Inuit knowledge creation (McGrath, 2009), and decolonization (McGrath, 2010). Research was not led by institutions of public government or the federal government, amongst others (Appendix 15).

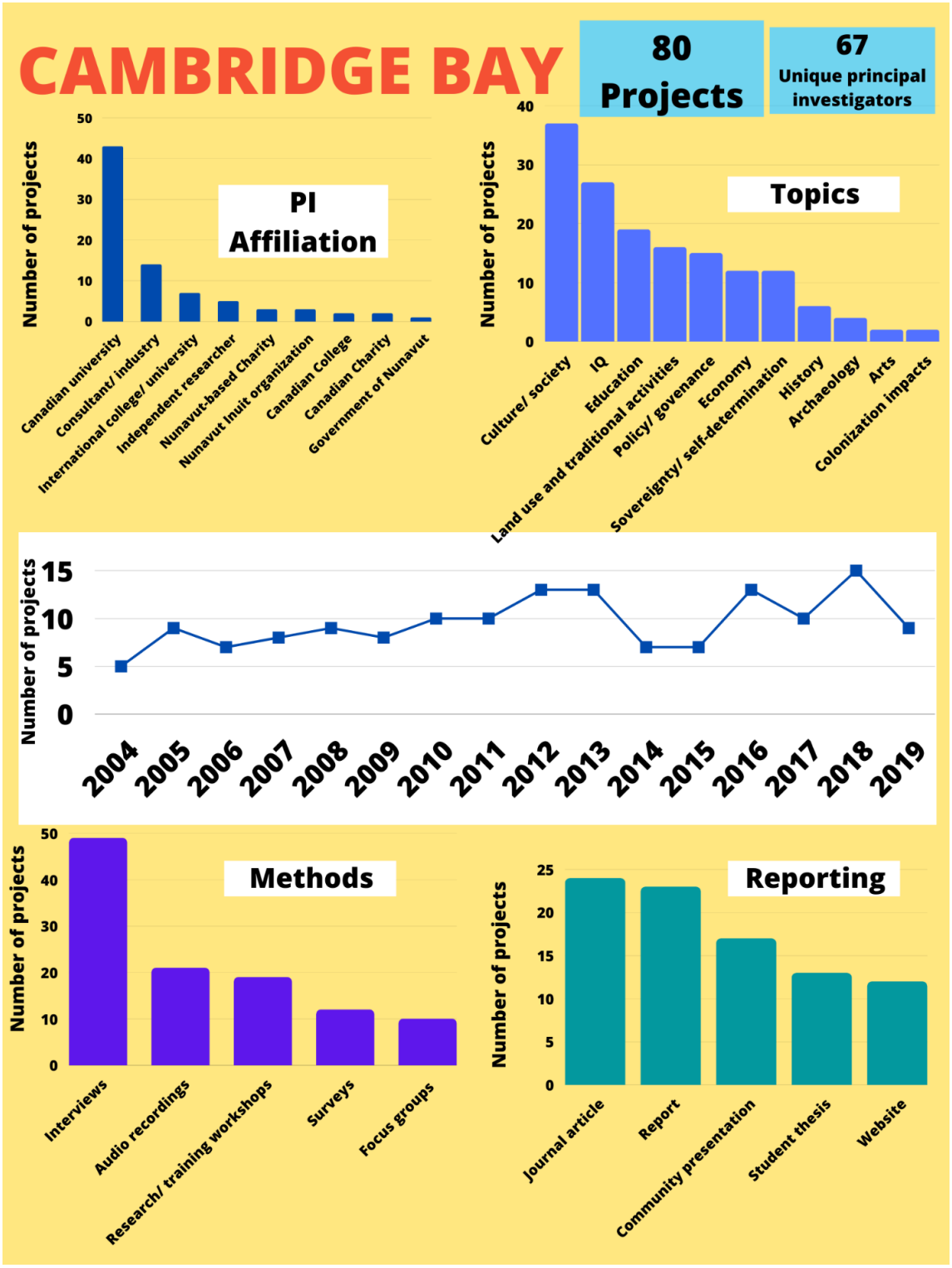

Figure 5.9: Research trends in Cambridge Bay, Nunavut

The topical focus of SS research in Cambridge Bay is cultural and society research (37), followed by IQ (Figure 5.7). The detailed research topic mining and society was used more frequently than some broad topics (Appendix 12). This is attributed to the concentration of IQ and baseline studies led by consultants in the community (Klein, 2004; Davidson, 2007; Gustavson, 2012). The most commonly used research methods in Cambridge Bay are interviews (49), followed by audio recordings and research/training workshops (Figure 5.9). Lastly, journal articles were the most proposed reporting tool (24), however this was closely followed by reports (23). Research occurring during this time was community-driven and involved clean ups of past DEW line sites (NTI, 2004). Elders were also holding meetings in the community to discuss climate change (NTI, 2004). As research intensity increased over time (Figure 5.9), there was an associated increase in community-based research, including an emphasis on Inuit knowledge in research about arctic ecosystems (Gould et al, 2010). The drop in SS research occurred during a time where community-led organization Kitikmeot Heritage Society began facilitating employment training programs (NTI, 2013-2014). The NTI also held their annual general meeting in Cambridge Bay in October 2015 which is an important time for Nunavummiut to address community priorities (NTI, 2015). During this time, the Hamlet of Cambridge Bay was also immersed in the development of the new Canadian High Arctic Research Station (CHARS).

Overall, there is an abundance of resources available to researchers who undertake projects in Cambridge Bay. Its proximity to Inuit organizations and state of the art research facilities makes this an enticing place for researchers to work within and

beyond the community. The Kitikmeot Heritage Society (KHS) is a local research leader in Cambridge Bay, and follows the values and priorities laid out by community members since 1996 (Kitikmeot Heritage Society, n.d). The KHS supports collaboration through partnerships with government, academics, "and all parties interested in preserving and renewing Inuinnait culture" (Kitikmeot Heritage Society, n.d). Current research priorities include i) Inuinnaqtun language survival; ii) Knowledge transfer and renewal; iii) Digital strategies; iv) Inuinnait archaeology; and v)Building for a sustainable future (Kitikmeot Heritage Society, n.d).

The Kitikmeot Inuit Association (KIA) is also located in Cambridge Bay and is responsible for managing land and preserving cultural values of the Kitikmeot Region (Kitikmeot Inuit Association, 2021). The organization has a Department of Social and Cultural development which oversees programs and services that reflect the needs of Inuit living in the region. Current areas of focus for the KIA include the Indigenous Skills and Employment Training program designed with a goal of increasing Inuit self-determination and skills development for future employment (Kitikmeot Inuit Association, 2021).

A third critical contributor to the capacity for research in Cambridge Bay is the presence of CHARS. The development of CHARS was first announced by the Government of Canada in 2007, and construction of the new research facility began in 2014.

The station's completion in 2017 was followed by a steady increase in the number of SS projects occurring in the community. The facility was designed to provide researchers from all areas of study with facilities and accommodations to undertake research (Government of Canada, 2022). CHARS includes a main research building, apartment-style accommodations for 44 researchers, and field and maintenance buildings offering labs, storage, and meeting space (Government of Canada, 2022). An interesting component of the CHARS facility is the inclusion of knowledge-sharing spaces reflecting the importance of IQ in northern research (Government of Canada, 2022).

5.2.3.2 Research in Kugaaruk

SS research in Kugaaruk is less concentrated and remained relatively constant \ between 2004 and 2019 (Figure 5.10). Research peaked in 2012 (10) and was its lowest (3) in 2004 and 2019 (Figure 5.10).

A total of 35 projects have been led by 28 unique PIs in the community. In terms of research leadership, research in Kugaaruk is mostly led by Canadian academics (15), followed by consultants, and Nunavut charities (Figure 5.10). Two of the most active PIs who led research in Kugaaruk are consultants, and facilitated baseline studies (Klein, 2007) of the Hacket River (Gustavson, 2012), and Back River Project (Gustavson, 2012). Darren Keith (representing the Kitikmeot Heritage Society) was the only active Nunavut-based PI to lead research in the community (Appendix 20), with a focus on IQ and polar bear habitat (Keith, 2006), and oral history (Keith, 2006).

The topical focus of research in Kugaaruk is heavily related to cultural studies (Appendix 13), followed by education and economy (Figure 5.10). Interviews are the most common research method, and reports are the most proposed reporting tool in Kugaaruk. This could be associated with the strong presence of baseline studies. Researchers in Kugaaruk have been interested in Inuit knowledge for several decades, where early projects included the investigation of healthy eating habits (Willows, 2002).

More recently, research seeks to understand IQ for the benefit of mining corporations undertaking baseline studies in their communities (Klein, 2007). The peak in research in Kugaaruk in 2012 is attributed to baseline studies in support of large-scale resource development such as the Izok Project (Thorpe, 2012), Hackett River (Gustavson, 2012), and Back River Project (Gustavson, 2012). Research intensity could be low in Kugaaruk due to the time and resources allocated to mining development that is already occurring in the community. Thorough consultation is critical for meaningful research (ACUNS, 2003; Aqqiumavvik Society, n.d; Gearheard & Shirley, 2007; ITK, 2018; ITK & NRI, 2007; Kitikmeot Inuit Association, 2021; McGrath, 2018; Oceanwise, 2018; QHRC, 2019; Wilson et al, 2020; Wong et al, 2020), and Institutions of Public Governance like the Nunavut Planning Commission have facilitated multiple meetings with Kugaaruk community members to address community priorities related to mining development and environmental protection (Nunavut Planning Commission, 2014).

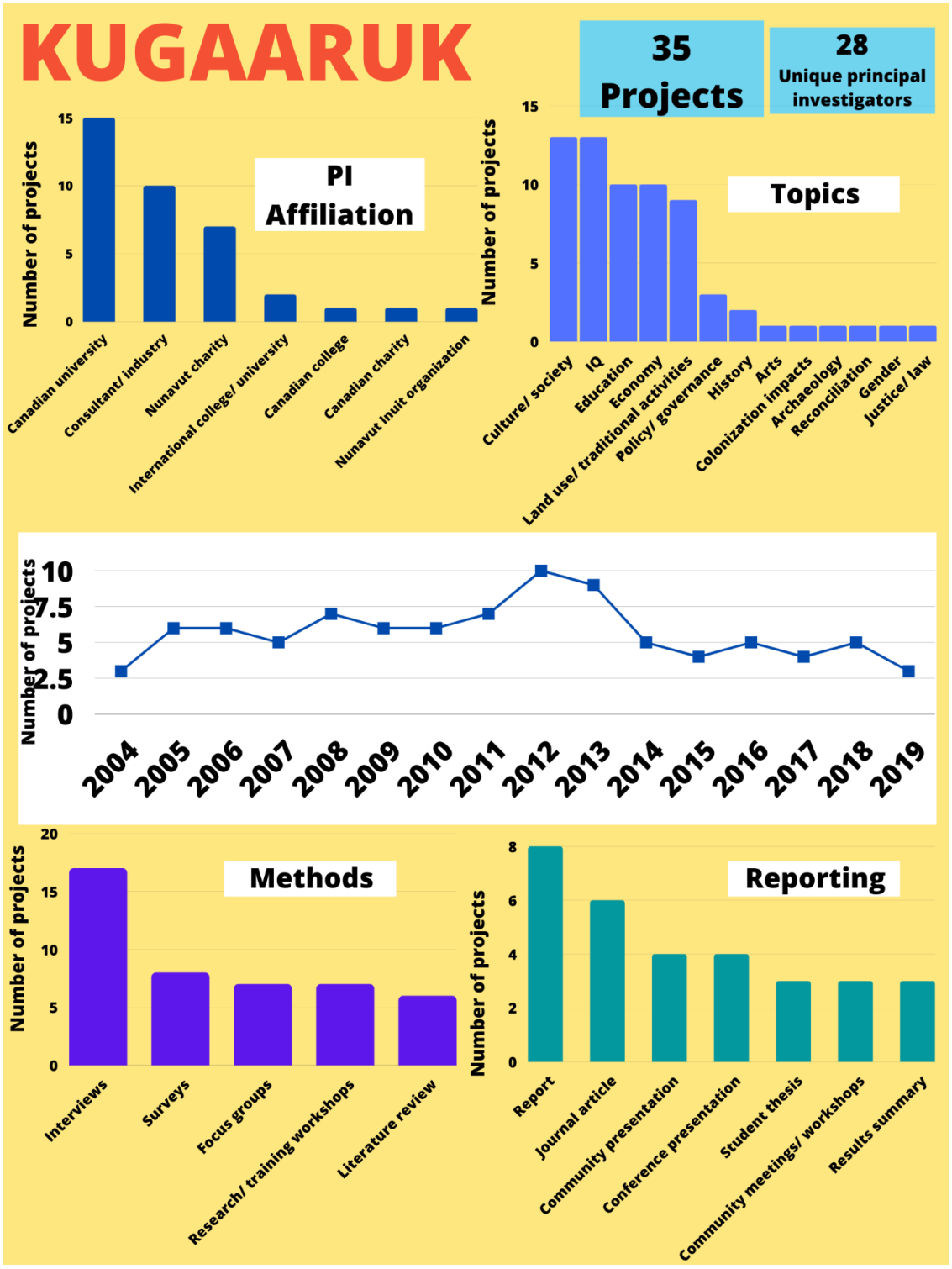

Figure 5.10: Research trends in Kugaaruk, Nunavut

5.3 Duration of social science projects in Nunavut

The majority of research projects in Nunavut are one year in duration, and the number of research projects decreases as the duration increases (Figure 4.1, Appendix 12). Out of the 412 SS annual research projects that occurred in Nunavut between 2004 and 2019, there were 360 individual PIs leading these projects. This means that some researchers undertake multiple annual projects (e.g., Nunavut-based PI Shirley Tagalik undertook five annual research projects on a variety of climate change, young hunters, and health adaptation topics (Tagalik, 2014; 2018).

Following the general research trends, annual projects were most concentrated in the City of Iqaluit (Table 5.5). Examples of short-term research in Iqaluit cover a broad range of research topics ranging from investigations of dog slaughters in the mid-20th century (Levesque, 2004), to northern housing (Chen, 2012), to research trends in Nunavut (Ljubicic, 2019). In contrast, long term projects (i.e., five years or longer) are not concentrated in communities that have typically high intensity of SS research such as Rankin Inlet (6) and Kugaaruk (6) and focus on economic and resource development topics.

One example of long-term research in Rankin Inlet includes Arn Keeling's investigation of industrial development and Arctic communities (Keeling, 2010). The motives for this project relate to the increasing proposals for mineral development in the Kivalliq region, with the goal to understand the key community interests in resource development to better inform government officials and policymakers of community-

based priorities. Another 5-year project led in Rankin Inlet Andrew Muir's investigation of Inuit participation in the local economy (Muir, 2012). The In Kugaaruk, the Izok Project occurred over more than 5 years, and is related to the proposed Izok Corridor zinc mine designed to extract zinc, copper, and lead concentrates (MMG Resources, 2012). This large-scale project raised many community concerns related to environmental impacts and food sources (CBC News, 2012). MMG Resources is the company leading the project, and they recognized the importance of public engagement as part of the mine proposal development. They collaborated with consultant Heidi Klein to gain additional community insights regarding the project, and it was Klein who led two six-year projects to undertake socioeconomic and IQ studies of the Izok Project region. MMG recognizes the importance of collaborative research with a focus on "open relationships with our local communities" (MMG, 2012).

Funding continuity is a key factor influencing the duration of a project (Castleten et al., 2012, Gearheard & Shirley, 2007; ITK, 2018a; Nickels & Knotsch, 2015; Ljubicic et al., 2021), although Mahy (2015) for example still undertook a longer-term pilot project to monitor ecological integrity in Auyuituq National Park in Pangnirtung. It is also important to note that the licensing requirements are different for Nunavut-based PI (See Chapter 2) therefore the full scope of research undertaken by Nunavut researchers is not in the NRI database.

Table 5.4: Project duration vs community location

	Annual	2-year	3-year	4-year	5-year	Over 5-year
Arctic Bay	27	5	3	4	1	3
Arviat	59	5	11	4	1	1
Baker Lake	48	5	9	4	3	1
Bathurst Inlet	15	0	5	3	0	3
Cambridge Bay	52	7	8	9	1	3
Chesterfield Inlet	26	3	4	4	2	1
Clyde River	47	7	6	4	2	2
Coral Harbour	29	1	3	5	1	1
Gjoa Haven	31	3	6	8	0	4
Grise Fiord	21	0	3	2	1	1
Igloolik	54	7	7	4	1	3
Iqaluit	179	20	14	10	2	3
Kimmirut	25	2	6	3	1	2
Kinngait	27	4	8	4	1	2
Kugaaruk	18	2	5	4	1	5
Kugluktuk	37	8	5	6	1	3
Naujaat	28	2	4	3	1	1
Pangnirtung	51	9	13	5	2	2
Pond Inlet	55	16	7	6	1	3
Qikiqtarjuaq	23	3	7	2	2	2
Rankin Inlet	48	5	3	6	5	1
Resolute Bay	21	3	3	2	1	1
Sanikiluaq	28	1	4	2	1	1
Sanirajak	20	1	3	4	1	2
Taloyoak	22	1	5	5	0	3
Umingmaktok	13	0	5	3	0	3
Whale cove	22	1	3	2	0	1
Nunavut wide	11	0	3	1	0	1
Other location	3	2	0	0	0	0

For research to optimize its local relevance and engagement with Inuit, funding agencies must consider the level of local interaction and the temporal constraints in the relationship-building process (Brunet et al., 2016; Castleten et al., 2012; Felt & Natcher, 2011; ITK & 2018a, b; Nickels & Knotsch, 2015; McGregor et al., 2010). Inuit are increasingly calling on western institutions and funding agencies to provide multi-year funding opportunities and to support researchers – especially northern and Inuit researchers – who are working to address community priorities (ITK, 2018; Pfiefer, 2018). In recent years, funding agencies like SSHRC have put an emphasis on community engagement and effective knowledge mobilization (Government of Canada, 2019). Additionally, researchers applying for federal research funding based at the Polar Continental Shelf Logistics Hub in Resolute Bay undergo special consideration if "traditional knowledge" is included in their proposals (NRCan, 2021).

The abundance of annual SS research projects in Nunavut also increases the workload for NRI administrative staff who are issuing the research licenses. NRI staff need to coordinate regional and community review of each annual license, which can create significant review burden (time and capacity) for organizations that receive a lot of license applications. To renew a multi-year license NRI staff review and approve annual reports and updated plans, but the full community review is only requested every three years (NRI, 2018), thereby reducing time and resources needed. This can be most challenging in smaller communities such as Grise Fiord. For example, they receive a large proportion of physical science licenses to review as the closest community to remote field sites on Ellesmere Island (Polidoro et al, 2022).

5.4 Social Science research leadership

Matrix query outputs from NVivo (Section 3.7.2) were used to facilitate a more in-depth analysis of relationship between research leadership and project duration, research topic, community and field research methods, and reporting (Appendix 12-18). In this section PI leadership categories such as academics (447 projects), consultants (40 projects), government (25 projects), and Nunavut-based researchers (84 projects) are assessed for broad trends. This analysis also enables comparison with the most active researchers in Nunavut to assess whether they are reflecting broad trends or unique approaches.

5.4.1 Academics

5.4.1.1 Academics over time

Nunavut research led by academics peaked in 2009 at 53 projects, followed by fluctuations but a generally higher sustained level of research compared to pre-2009 (Figure 5.11). Academic research increased during the International Polar Year (2006-2008), and investments in IPY likely resulted in the peak of 2009.

The peak in academic research in 2012 could also be a result of new research infrastructure projects being completed across Nunavut (Section 5.2.1.1). Many academics also propose new projects in an effort to address SS knowledge gaps. For example, Wenzel (2014; 2015) aimed to address a gap in understanding of food insecurity and public policy, topics identified of pressing concern in his license

applications. Rodon (2012) was also inspired to undertake an education project due to the lack of available information about student success in Nunavut.

It is difficult to determine the causes of research license trends when funding sources or uses of specific research infrastructure are not systematically tracked in the NRI licensing database (i.e., they are not required license application elements). Nevertheless, that would not explain all the trends in academic (or other kinds of) research. Some research is responding to community priorities and/or established relationships. These kinds of projects such as Ljubicic's (2012) caribou and community well-being project in Gjoa Haven, or Gearheard's (2004; 2006) projects building on a pilot study of human and sea-ice relationships in Clyde River, are independent of particular funding or infrastructure investments.

5.4.1.2 Academic research topics

SS research led by academics is heavily focused on culture and society (224) topics, followed by IQ (180), with land use/traditional activities, education, and policy/governance also being common topics (Figure 5.8). The most active academic researchers reflect this focus with a common emphasis on culture and society, and IQ research (Appendix 19). Inuit knowledge and culture are being considered on a range of topics, including light geese management (Carter, 2017), shipping corridors and marine areas (Carter, 2016, 2019), understandings of community-based tourism (Blangy, 2007), and the impacts of mining on Inuit lifestyles (Blangy, 2013, 2014, 2015). Sea ice research has also been a prominent focus for long-term IQ and community-partnered research

related to understanding ice conditions from community perspectives, travel safety, sea ice hunting, and observations of change (e.g Gearheard, 2004; 2006; 2008; Laidler, 2004; Wilson, 2018). Research topics such as education and policy/governance were a strong focus across all academics (Figure 5.11) but were less commonly studied amongst the top 12 most active academics. Gearheard (2014) developed curricula for northern post-secondary students as part of the Sustainable Futures North Project "designed to build capacity" by understanding linkages between water, food, energy security, climate change, and natural resource development. Rodon (2012) also has a strong education research emphasis, including the monitoring of "educational and professional success amongst Inuit of Nunavut who have registered in a post-secondary program" (Rodon, 2012).

Topics that were less common in general include archaeology (although archaeological projects are permitted under different legislation, see Section 2.4.1), along with justice/law, reconciliation, gender, and colonization impacts, sovereignty and self-determination (Appendix 8). Part of the goal of this licensing database analysis is to use these trends in Nunavut research to identify areas of research gaps or overlap (Ljubicic, 2019), which can ultimately contribute to developing research priorities that better align with – and inform – community and regional decision-making.

5.4.1.3 Academic research locations

The City of Iqaluit is most common location for academics to undertake SS research (Figure 5.11, Appendix 24), where they led 190 projects between 2004-2019.

The concentration of research decreases dramatically after that, with 66 projects in Pond Inlet, followed closely by , Pangnirtung, Arviat, Igloolik, and the rest of the top 10 (Figure 5.11). Academic research intensity was the lowest in Bathurst Inlet and Umingmaktok, with 10 and 11 projects undertaken in the research period, respectively. Other communities with relatively little academic research being undertaken include Whale Cove, Sanirajak, and Taloyoak, Kugaaruk, and Grise Fiord (Appendix 24).

Amongst the most active academic PIs, Clyde River is the most common location for academic research (i.e., led by Fox/Gearheard and Wenzel). Each of Shari Fox's five research projects have all occurred in Clyde River, dating back to 2004. Over time, Fox has developed research relationships that have motivated her research projects, such as the *Silalirjiit Project,* which "brings together Inuit and scientists to study weather patterns in Clyde River" (Gearheard, 2008). Gearheard (2008) explains the rationale for Clyde River as the location for this long-term research project, stating:

> "Clyde River was chosen for this study because of a long relationship with the applying researcher (Gearheard) who lives in that community. The community and Gearheard have worked together to design and carry out several projects related to Inuit knowledge of the environment and combining Inuit knowledge and science; this project builds on those. Also, Clyde River is located in a good region to study weather patterns in Nunavut because of its diverse landscape and topography and because the community is very active on the land."

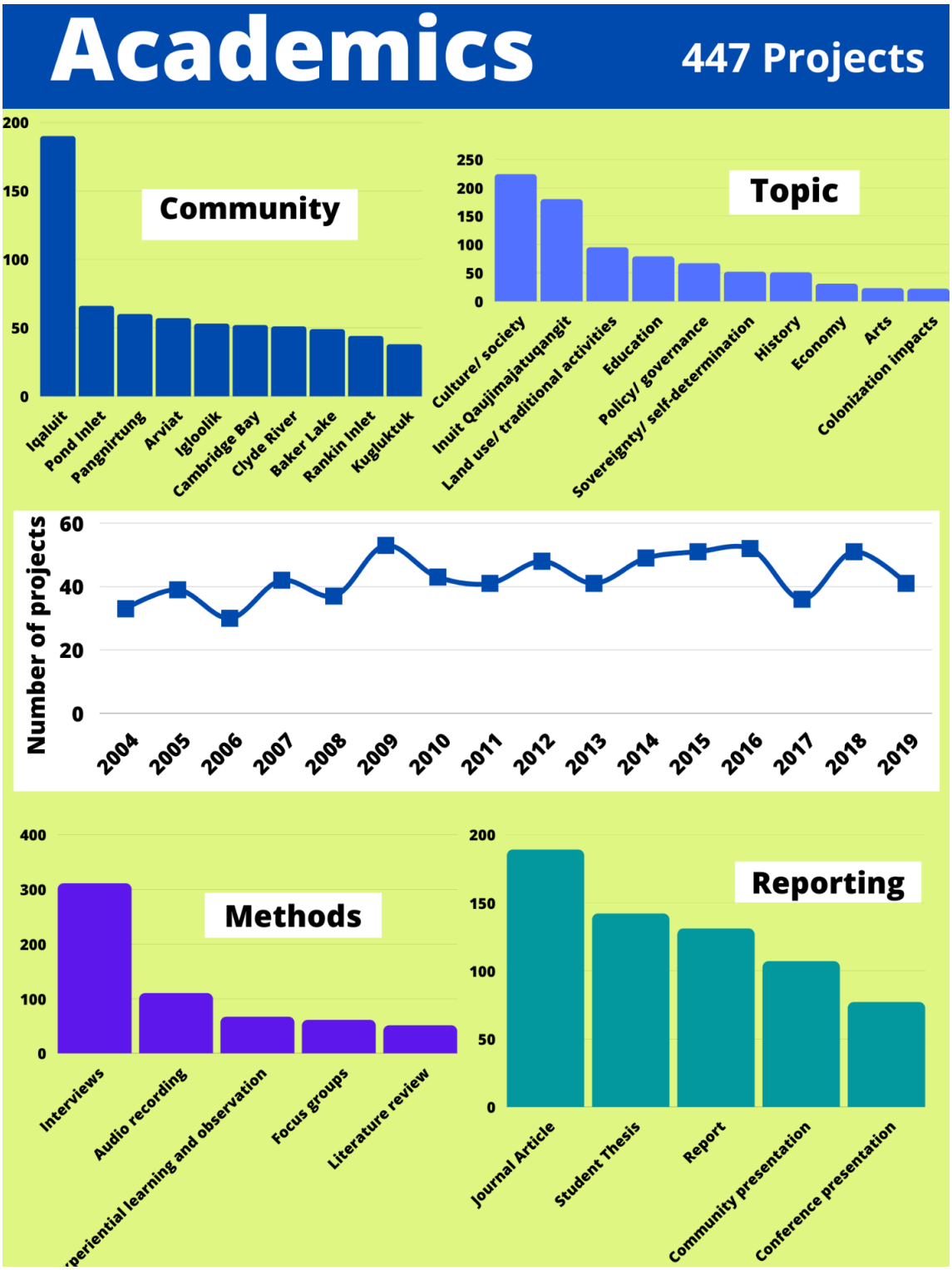

Figure 5.11: Research trends for Academics in Nunavut

In addition, five of the six projects led by George Wenzel have also occurred in the Hamlet of Clyde River. Wenzel has worked in Clyde River for over 11 years, and his earlier projects were motivated by previous research trips in 2002 (Wenzel, 2008). George Wenzel has facilitated multiple projects in Nunavut that are beyond the timeline of the licensing database with a focus in Inuit economy and subsistence practices (Wenzel, 1989; 1996). The long-term research relationships established by academic researchers demonstrate a contributing factor to the intensity of research in some Nunavut communities.

Iqaluit is the second most popular research location amongst the most active academics, (Appendix 19). This contrasts with the trend for all academics described above. Active academics like Heidi Klein, Kent Gustavson, Gita Ljubicic, Natalie Carter, George Wenzel, Thierry Rodon, and Shari Fox have all undertaken research in Iqaluit (Appendix 19); however, there is little explanation available in their project summaries as to why Iqaluit is part of their research. Some projects occur in multiple communities, where Iqaluit is included (Rodon, 2009) Some academics are also drawn to communities like Kinngait that is recognized "as the capital of Inuit art" (Blangy, 2014), and Arviat was attractive to Lisa-Jo Van den Scott (2012) for her music-based research as the Hamlet "is widely acknowledged for as one of Nunavut's most traditional and musical communities" (she also lived there between 2004-2009).

5.4.1.4 Academic research methods

Interviews were the most proposed community-based research method by academics (311 projects), followed by audio recordings (Figure 5.11). Interviews are a widely used method for learning about complex and in-depth topics. Interviews provide opportunities for Inuit to voice concerns (Van den Scott, 2010), and to learn from their experience with, for example employment history (Wenzel, 2014), weather changes (Gearheard, 2008), light geese (Carter, 2017), sea ice (Ljubicic, 2004), caribou (Ljubicic, 2012), biodiversity and wellbeing (Blangy, 2007), among many other topics. Amongst the most active academic researchers' workshop were also a common method, which could be attributed to the capacity and relationships developed in collaborative research such as in the Arctic Corridors and Northern Voices project (Carter, 2016).

The use of field methods was less common in SS research compared to academics overall (See chapter 4), however, the most used field method by academics was wildlife sampling (11 projects). This was followed by environmental observation (9), wildlife monitoring and waste sampling (6), and ground truthing for remote sensing (4). Shari Fox implemented weather monitoring, and environmental photography and observation to investigate human-sea ice relationships (Gearheard, 2006), and Wenzel (2018) used environmental observation for seismic activity (Wenzel, 2018). In contrast, field methods such as core sampling, gas and flux monitoring, invertebrate sampling, paleo reconstruction, rock sampling, and UAVs are simply not relevant for SS research and were not used.

5.4.1.5 Academic reporting tools

Academic researchers most commonly proposed journal articles (189) as their means of reporting on research results, followed by student thesis and report, and to a lesser extent community and conference presentations (Figure 5.11). Reporting tools that were least common amongst academics included the use of individual meeting/updates (3), and TV (4) (Appendix 11). It is challenging to assess research reporting because this is not consistently included in license applications (i.e., not a formal requirement). While journal articles are most prominent amongst the more active academics, many are also going above and beyond to incorporate diverse results dissemination strategies, particularly with an emphasis on community presentations. Although not as common, many active academic researchers incorporate a variety of community-specific reporting tools, such as newspapers, brochures, radio presentations, and websites (Appendix 19). It is important for results to be shared with communities in ways that can be easily understood diverse audiences (Carter et al, 2019; Henri et al, 2019; ITK, 2018; ITK & NRI, 2007; Polidoro et al, 2022), and this is clearly represented in applications of active researchers who have worked closely with communities over a longer time frame.

5.4.2 Consultants

5.4.2.1 Consultant research over time

Nunavut research led by consultants was lowest in 2004 (2 project) and increased to a peak (10) in 2010. Since then, consultant-led research has declined (Figure 5.12).

Research around 2010 included a variety of projects motivated by community-identified priorities and consulting firms. Additional socioeconomic studies and IQ studies for different proposed mining sites such as the Izok Project (See Section 5.3) and Mary River Project (Cook, 2010). Communities were hiring consultants to lead projects involving long-term land use strategies in Coral Harbour (Grosset, 2010). Consultants are also aiming to assist communities with land use planning in relation to understanding caribou population dynamics (Panayi, 2010).

It is challenging to address why consultant-led research has decreased since 2010; however, there is a potential for community research fatigue from multiple repetitive engagements and IQ studies. Consultant-led research that investigates the impacts of mining on surrounding communities, such as Cook's harvest studies for the Mary River Project (2005; 2010), takes years to facilitate and can last up to ten years. Resource development corporations are often worth hundreds of millions of dollars and can fund projects that take time to execute. The concentration of mining research led by consultants suggests a possibility of research fatigue from community members. As most consultant-led research has a focus on IQ, communities may be tired of having their culture and knowledge researched. Another implication of consultant-led research is accessibility to results. Inuit access and ownership of results is a critical component to achieving Inuit self-determination in research (ITK, 2018). Community reports are easier to access compared to that of resource development corporations who require payment to access certain project reports in Nunavut (Verisk, n.d).

5.4.2.2 Consultant research topics

The main topical focus for consultants is IQ (19), followed by land use/traditional activities, and culture and society (Figure 5.12). Culture and society, economy, and policy and governance are also common topics. A similar trend is exhibited for active consultants Heidi Klein and Kent Gustavson, as both consultants seek traditional knowledge about the community to help "flesh-out the picture of the biophysical environment" to assist with development of the proposed project (Klein, 2004). It is also important for consultants to collect IQ in proposed mining sites to "preserve" the knowledge of the Elders in proposed communities (Klein, 2007). Additionally, collecting information regarding land use and local culture assists consulting firms with updating socioeconomic profiles of the community (Gustavson, 2012). Examples of proposed mining sites include the Hope Bay belt where consultants are responsible for evaluating the socioeconomic state of the surrounding communities (Sundby, 2010; Wen, 2015).

Consultants will often have two social science and traditional research licenses issued for their projects. One license is issued for a project focused on socioeconomic evaluation, and the other to gain Inuit knowledge of the community. This is visible in projects led by Kent Gustavson who has undertaken socioeconomic studies for Hope Bay, Hackett River, and Back River mining locations (Gustavson, 2011; 2012; 2012). The explanation as to why socio-economic studies are undertaken are rather unclear in project summaries and simply state the project will help identify potential issues within the community (Klein, 2008).

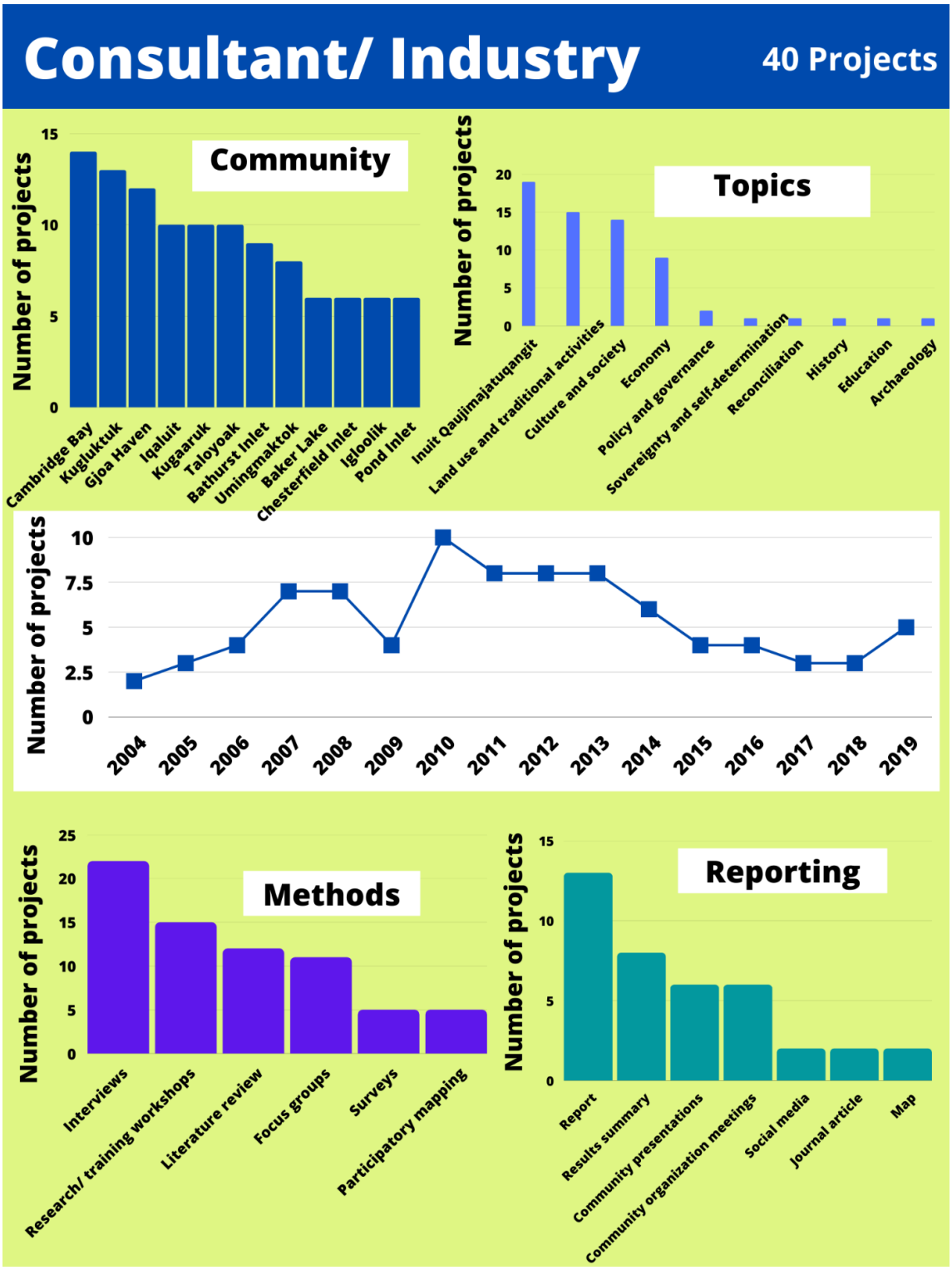

Figure 5.12: Research trends for consultants/ industry

5.4.2.3 Consultant research location

Consultants are undertaking a majority of their research in the Kitikmeot region, with Cambridge Bay being the most concentrated location (14, including 6 led by Heidi Klein), followed by Kugluktuk, Gjoa Haven, among others (Figure 5.9, Appendix 19). In contrast, consultant research intensity was least concentrated in the Qikiqtani region, where Sanikiluaq and Grise Fiord had only 1 project each.

The rationale for research being undertaken in communities in the Kitikmeot region is the proximity of proposed mining infrastructure. It is important for consultants to understand potential development impacts on communities and how Inuit knowledge can inform and mitigate the consequences of mining within and beyond communities (Klein, 2007). A common location for active researchers Heidi Klein and Kent Gustavson is the Back River mining site. There is a combined total of four socioeconomic, land use, and IQ studies on the site that were undertaken by both Heidi Klein and Kent Gustavson between 2004 and 2015. The need for IQ studies in Back River was first identified after geologists located multiple gold deposits during field work sessions between 2005 and 2008 (Klein, 2008). After recognizing the potential for resource development because of the presence of gold deposits, Sabina Gold and Silver undertook an IQ baseline study to collect local knowledge that would support an environmental impact assessment (Klein, 2008). More recent research involving Back River refers to the site as a common location for resource development, as the "area holds a potential of ore deposits that are being investigated" (Gustavson, 2011). Inuit organizations such as the Nunavut Planning

Commission, KIA, and Nunavut Impact Review Board are heavily involved with the development of these projects (Sabina Gold and Silver, 2016). The baseline studies help support the documentation necessary to facilitate negotiations between communities and developers.

It is also important to note that consultant-led research in less-popular research locations such as Grise Fiord and Sanikiluaq include Inuit workforce studies (Mills, 2019). In contrast, some projects led by active PIs include Iqaluit as part of the research location in their application, however, the project location (i.e., Back River) is not in Iqaluit. The information available in the project summaries led by active consultants is limited, and minimal detail is provided regarding how each community listed in the license application is involved in the proposed research.

5.4.2.4 Consultant research methods

The most common community-based research methods used amongst consultants is Interviews (22), followed by research/ training workshops, literature review, and focus groups (Figure 5.12). Interviews are being used to inform baseline data collection for mining projects (Gustavson, 2011; 2012), and to explore the creation of a sustainable fishery in Gjoa Haven (Gustavson, 2014). Focus groups and workshops were also facilitated by consultants to collect community perspectives on resource development projects like Mary River (Kamermans, 2019).

The only field methods used in SS research led by consultants include environmental observation, ground truthing, vegetation sampling, and weather

monitoring (each method used a maximum of 2 times throughout all 40 projects led by consultants) (Appendix 12). Field research methods were also used in projects where consultants were undertaking investigations of IQ and caribou land use (Panayi, 2010) and infrastructure land use planning (Grosset, 2010).

5.4.2.5 Consultant reporting tools

Reports (13 projects) are the most common reporting tool used by consultants followed by results summaries, community meetings and presentations (Figure 5.12). The majority of reporting tools are not proposed by consultants, and journal articles are one of the least proposed reporting tools for this PI affiliation (Appendix 12). A challenge with reports as is the lack of public access to the outcomes of these projects. Consultants are not compelled to publish (or make public) their findings to share with community members. Reports are written for the company (or community organization) that hired them and can be challenging to access and costly to purchase (Verisk, n.d). Local knowledge and IQ are meant to be shared with one another (Karetak et al, 2017; Pedersen et al, 2020; Tagalik, 2009), and there is a great barrier in place when consultants are not sharing the knowledge they gathered.

5.4.3 Government officials

Research led by government officials was dominated by Government of Canada (17 projects), followed by Government of Nunavut (6), and other provincial/ territorial government (2) (Figure 5.13). It is also important to note that three out of the top 12 most

active PIs are affiliated with the Government of Canada (Appendix 19), and one of those active PIs (Jason Akearok) is Nunavut-based (Appendix 20).

5.4.3.1 Government research over time

Over time, SS research led by government officials was relatively low from 2004 and 2005. There was only one SS project led by government in 2006, 2007, and 2009, and no government-led projects in 2011. Research steadily increased from 2015 onwards and peaked in 2018 (10). During this peak in government research, two federal research facilities completed construction (See Chapters 5.2.1.2; 5.2.3.1). In the peak of government research in 2018, it was all led by Government of Canada staff. Active government PIs were also undertaking projects to better understand local knowledge for National Park health and management (Routledge, 2014; Mahy, 2017).

5.4.3.2 Government research topics

Research led by government officials is heavily focused on IQ (20), followed by land use and traditional activities and culture and society (Figure 5.13). A similar trend is also exhibited when looking at the most active PIs who are undertaking SS research with government affiliations. To elaborate, nine out of 12 projects led by active government PIs use IQ to answer research questions such as light geese population dynamics (Carter, 2017), and climate change vulnerability of national park ecosystems (Mahy, 2017). A motivation for IQ projects is due to the gaps in existing research regarding goose populations and their negative impacts on surrounding vegetation (Carter, 2017).

Additionally, it is important to understand Inuit knowledge regarding National Parks to help inform future park programming initiatives (Routledge, 2014).

5.4.3.3 Government research location

Government researchers are conducting the majority of their research in the Qikiqtani region in the Hamlet of Pangnirtung (9), closely followed by Iqaluit and Qikiqtarjuaq (Figure 5.13). In the Qikiqtani region, Clyde River was the only Hamlet without any government-led research, while in the Kitikmeot region, only Cambridge Bay had government-led research (Appendix 12).

Government-led projects in Pangnirtung are associated with National Park research undertaken by active researchers (See chapter 5.2.1.3, Appendix 20). Other researchers in Pangnirtung facilitated land use and environmental assessment for the Iqaluit Hydroelectric Project (Flaherty, 2006; Kerr, 2013), where researchers aimed to investigate “land use information to understand the present and historic use of the candidate sites” (Flaherty, 2006). It is challenging to identify how involved Pangnirtung community members or organizations were in the development of the Iqaluit Hydroelectric project, as the project summaries provide little detail about the research locations themselves.

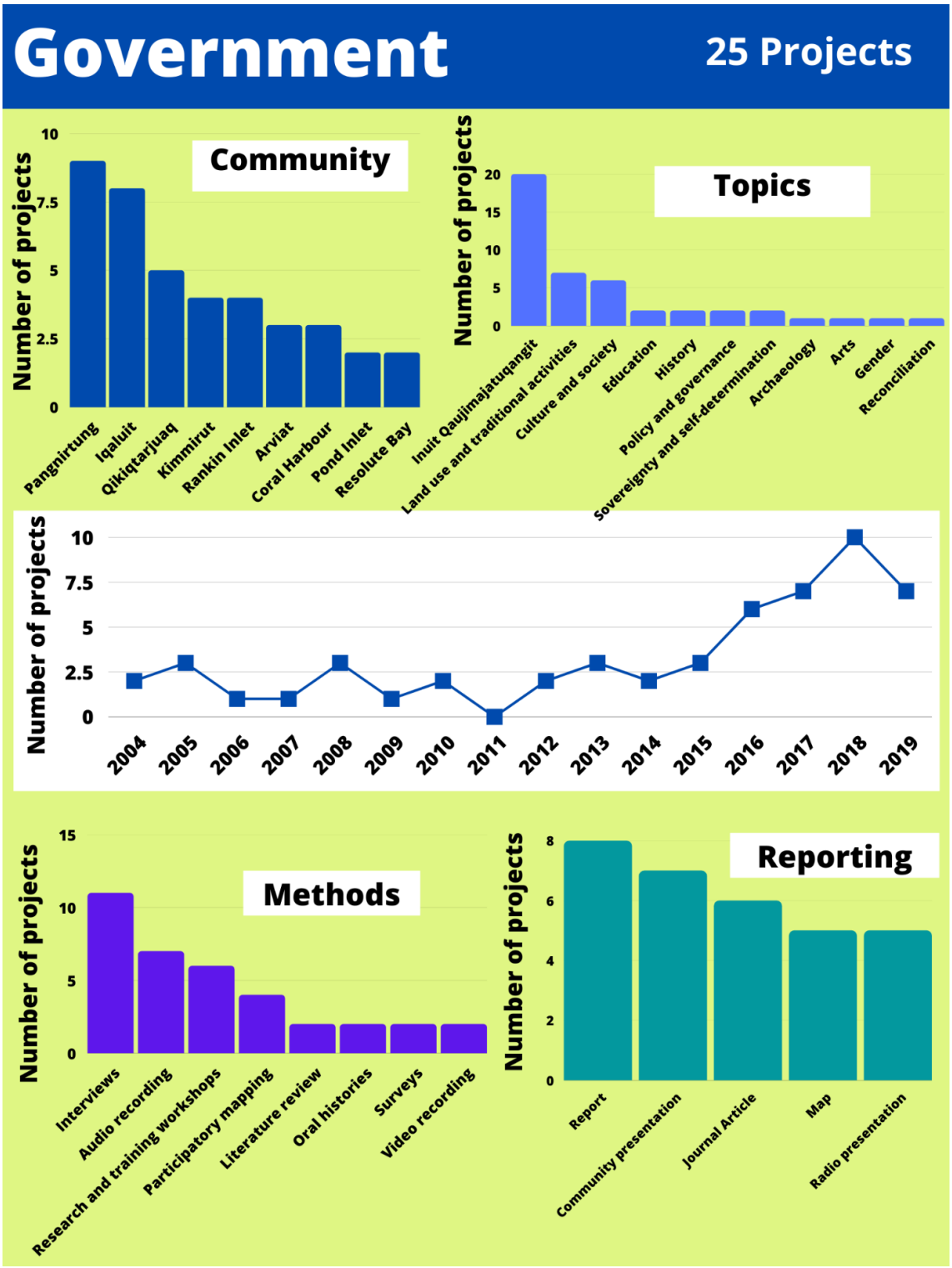

Figure 5.13: Research trends for government-led research

A similar trend is also exhibited for research in Qikiqtarjuaq where four out of the five projects in the community are undertaking projects in Auyuttuq National Park. Research led by government in Iqaluit is undertaken by federal and provincial/ territorial government. Research was undertaken by the British Columbia Centre of Excellence for Women's Health to understand the needs of Northern homeless women across all territories. The project had support from the Qaujigiartiit Health Research Centre which is based in Iqaluit (Poole, 2012). Research was also facilitated by Government of Canada officials in Iqaluit to identify park management strategies for Quttinirpaak National Park (Frampton, 2008). In recent years, federal researchers were undertaking investigations of polar bear health (Henri, 2018). The majority of government research in Iqaluit was facilitated by Government of Nunavut staff involving the Iqaluit Hydroelectric Project (Flaherty, 2006 Kerr, 2013), and training programs evaluation (Egeni, 2005).

5.4.3.4 Government research methods

The most common community-based research method used by government researchers is interviews (11), followed by audio recordings and research and training workshops (Figure 5.13). For example, interviews have been used to learn "stories about the whaling days" (Routledge, 2008), while Henri (2016) used interviews to evaluate the effectiveness of wildlife research, and Frampton (2008) to explore Inuit oral histories.

Field methods are only used in two projects led by government researchers, including environmental photography (e.g., to observe changing sea ice conditions (De Abreu, 2005) and wildlife observation (e.g., to identify population dynamics of Arctic

Tern (Akearok, 2010). The lack of field methods used by government researchers (and all other PI affiliations) reflects that field methods would be more dominant in natural science research, and that community-based research methods are more common (and relevant to) SS research.

5.4.3.5 Government reporting tools

The most common reporting tool proposed by government PIs was reports (8), followed by community presentations and journal articles (Figure 5.10). It is challenging to identify reporting tools amongst active government researchers as some PIs do not include this information in their project summaries. However, some researchers propose books and maps in majority for reporting on project results, as well as some include journal articles and maps(Appendix 19). In contrast, active Nunavut-based PIs representing government organizations proposed community presentations and posters (Appendix 20) recognizing the importance of accessible communications (Gearheard & Shirley, 2007; ITK, 2018; ITK & NRI, 2007). Reporting tools that are less common amongst government researchers include student thesis, newspapers, magazines, individual meetings/ updates, and community meetings/ updates (Appendix 12).

5.4.4 Nunavut-based PI

5.4.4.1 Nunavut-based PI research over time

The number of projects led by Nunavut PIs was the lowest in 2004 (2), followed by a dramatic increase to the peak in 2009 (17) (Figure 5.14). Research projects led by Nunavut-based PIs in early years were both led by some of the most active Nunavut PIs

in the territory, including investigations of local knowledge on climate change and marine birds (Akearok, 2004), and oral history camps for youth in Bathurst Inlet (Keith, 2004). Research led by Nunavut-based PIs in 2009 covered a variety of research topics ranging from IQ studies regarding traditional medicines (Akulujuk, 2009) and the influence of Elders in schools (Kavik, 2009). Additionally, Shari Gearheard was wrapping up a project investigating human and sea ice dynamics (Gearheard, 2006). Research led by Nunavut-PIs declined after 2009 and is increasing in recent years. It is difficult to determine what is causing these trends, however, the capacity for Nunavut-based research has been influenced by available funding in the past. The Strategic Investments in Northern Economic Development (SINED) program led by the Federal Government has assisted over 1000 projects in the north that foster partnerships with northern organizations and help facilitate the sharing of knowledge (Government of Canada, 2018). A similar trend is also exhibited in 2018 where Inuit organizations and Government departments received funding from the federal government to facilitate projects in social development (NTI, 2018). In recent years, Nunavut-PIs have facilitated a variety of projects, ranging from evaluations of small business support programs (Morrill, 2017), violence reduction initiatives (Michaels, 2018), and relationships between student success and culturally relevant course content (Willis-Leake, 2019).

5.4.4.2 Nunavut-based PI affiliation

It is important to note that most research led by Nunavut-based PIs are affiliated with Canadian Universities (32), followed by Nunavut-based charities, and organizations

(Figure 5.14). This is attributed to the presence of Canadian University programs located in Nunavut, and PI's who are based in Nunavut are affiliated with the organization connected to the research license application (See Chapter 3). In 2011, a Master of Education program was created in partnership with the Department of Education, University of Prince Edward Island, and St. Francis Xavier University (UPEI, 2021). The program is based in Rankin Inlet and is designed for Nunavummiut to further their studies in education. 21 out of the 32 academic Nunavut-PI are affiliated with UPEI. Additionally, active Nunavut-based PIs who are academically affiliated, such as Camilius Egeni, are undertaking investigations of "GN training programs of the purpose of determining whether the current training programs meet both GN and staff needs" (Egeni, 2005). Research led by the most active Nunavut-based PIs is most associated with Inuit organizations such as the Kitikmeot Heritage Society, and Aqqiumavvik Society (Appendix 20).

Nunavut-based PIs were not affiliated with hospitals, Nunavut Arctic College, or Institutions of Public Government. It is interesting that Institutions of Public Government are not undertaking research of their own, however most institutions are heavily engaged with the research licensing process itself and collaborate on projects as research license reviewers (Appendix 5). It is also important to remember that Nunavut-based PIs could be leading more projects in practice, but they may not be included in the database as individual Nunavummiut do not require a scientific research license under the Scientists Act (Polidoro et al, 2022).

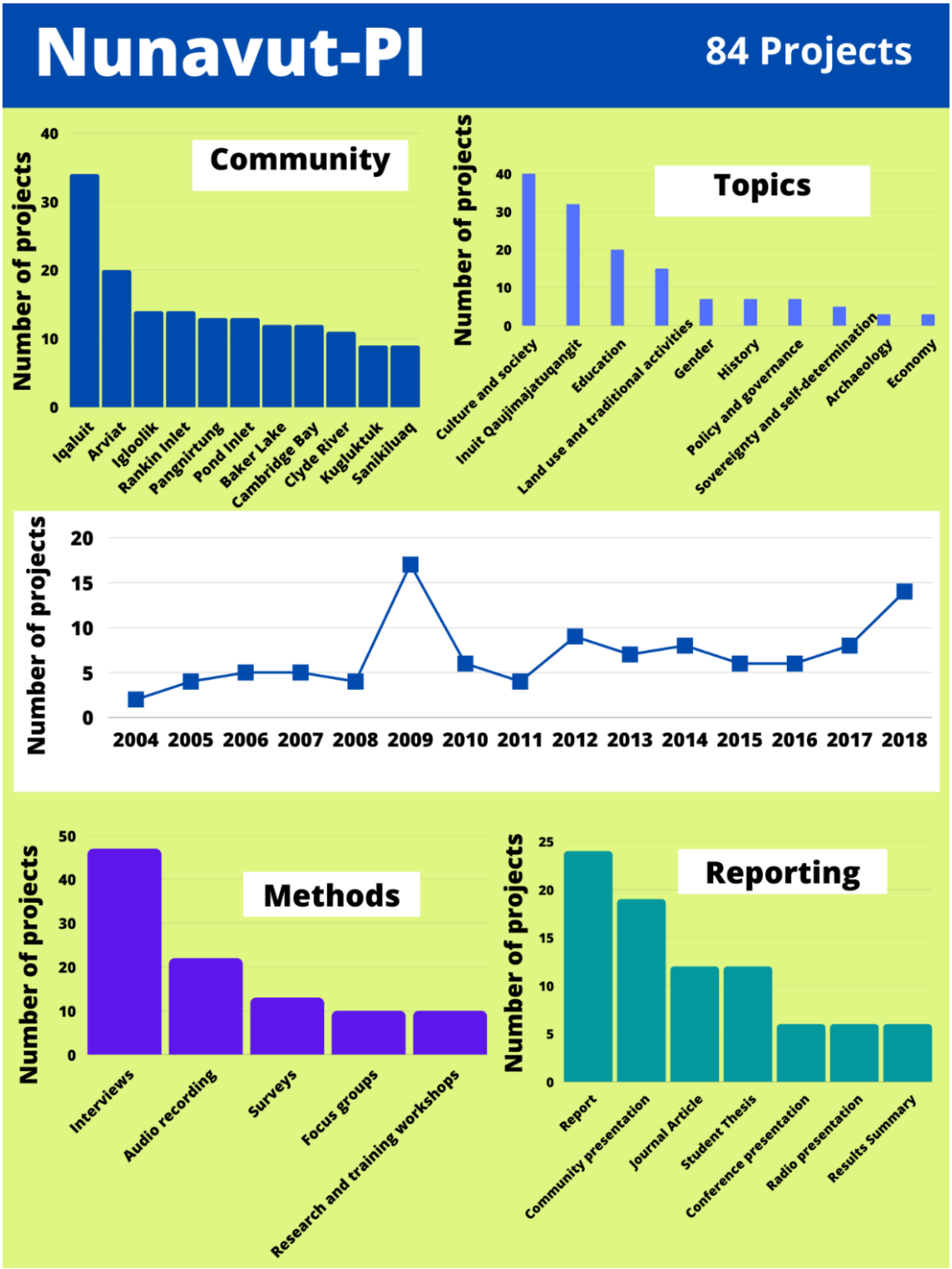

Figure 5.14: Research trends for Nunavut-based PI

5.4.4.3 Nunavut-based PI research topics

The majority of research led by Nunavut-based PIs focuses on culture and society (40) followed by IQ, land use and traditional activities, education, and gender (Figure 5.14). Active Nunavut-based PIs work on a variety of research topics, supported by a range of partners (Appendix 20, 23). Active researcher Maryse Mahy uses IQ as the topical focus for majority of her research which focuses on gathering IQ to evaluate the health of national parks in the territory (Mahy, 2016; 2017). Other active Nunavut-based PIs also use IQ to better understand wildlife migration patterns (Akearok, 2004). Additionally, the Aqqiumavvik Society has developed a community-based research approach of community wellness and wellbeing in Arviat (Aqqiumavvik, 2021), while the Kitikmeot Heritage Society focuses their research on Inuinnait cultural preservation in Cambridge Bay (Kitikmeot Heritage Society, n.d).

Research topics not undertaken by Nunavut-based PIs were reconciliation and colonization impacts. After investigating project summaries for research led by Nunavut PIs, the impacts of colonialism are inspiring a range of projects; however, this is not explicitly stated in the summaries. To elaborate, projects are asking questions such as "how can Inuit regain control of their education through land-based education?" (Kaluraq, 2019). Although the application did not explicitly state "colonization impacts", the research can be interpreted as being motivated by the colonial history of the residential schooling system. However, in following my coding protocols (See Chapter 3) it limited the extent of interpretation I could make.

5.4.4.4 Nunavut-based PI research location

Nunavut PIs conducted majority of their research in Iqaluit (34), followed by Arviat (Figure 5.14). Nunavut PIs undertook research in all Nunavut communities; however, intensity was the lowest in locations with little to no population such as Bathurst Inlet and Umingmaktok (3), followed by Kugaaruk (Appendix 16). Nunavut-based PIs are conducting a variety of projects in different communities, rather than facilitating less projects that are longer in duration. To elaborate, only one active Nunavut-based PI (Maryse Mahy, see Appendix 20) undertook research that was longer than two years (Appendix 20). The presence of community members facilitating research in their own community illustrates community engagement and self-determination, however, there is limited information available from the project summaries explaining why research is occurring for a specific time period.

Research led by active Nunavut-PIs in Iqaluit is supported by organizations such as the Qikiqtani Inuit Association (QIA), Government of Nunavut, and Qaujigiartiit Health Research Centre which are all located in Iqaluit (See Section 5.2.1). Beveridge (2011) facilitated a project in affiliation with the QIA investigating language development, while Crockatt (2006) represented the Nunavut literacy council in an investigation of literacy development. In Arviat, the majority of research is led by Shirley Tagalik who represented the Arviat Health Committee, Hamlet of Arviat, Aqqiumavvik Society, in SS projects (Appendix 20).

5.4.4.5 Nunavut-based PI research methods

Community-based research methods mostly frequently used by Nunavut-based PIs include interviews (47) and audio recordings (22), followed by surveys, focus groups, and research and training workshops (Figure 5.14). Community-based research methods not used by Nunavut-based PIs include epidemiological and interventional studies, and land camps. This could be because these research methods are more closely associated with the health and physical science which is beyond the scope of this SS license review. Interviews are used to investigate "links between oral Inuit language and literacy development" (Crockatt, 2006), and to identify determinants of school completion (Healey, 2017). It is important to note the emphasis on collaborative research methods amongst Nunavut-based PIs, suggesting an increase in Inuit self-determination in research whereby community organizations are setting the research agenda (Gearheard & Shirley, 2007; ITK & NRI, 2007; ITK, 2018a,b).

Field methods were used infrequently amongst Nunavut-based PI and were only incorporated in eight projects (Appendix 16). Wildlife monitoring was the most used field research method (4), while others such as environmental monitoring and observation were less common (Appendix 16). In recent years, Nunavut PIs used wildlife monitoring to evaluate coastal restoration needs across all Nunavut communities (Owen, 2018). Overall, field methods do show up in some projects, but are understandably less common for Nunavut-based social scientists as they are more relevant to physical science research.

5.4.4.6 Nunavut-PI reporting tools

In projects led by Nunavut PIs, the most common reporting tool is reports (24) followed by community presentations (19), journal articles and student thesis (Figure 5.14). Reporting tools not proposed amongst Nunavut PI include brochures/ pamphlets, Individual meetings/ updates, magazines, and newspapers. Community-based reporting tools such as community presentations and reports provide research results that can be understood by communities themselves (Carter et al, 2019; Gearheard & Shirley, 2007; ITK, 2018; ITK & NRI, 2007; Polidoro et al, 2022). However, four out of the nine most active Nunavut PIs did not have include reporting tools in their project summaries, illustrating the challenges associated with understanding research application content to inform research decision-making.

5.5 Community engagement in SS projects in Nunavut

Respectfully engaging Inuit organizations and community members is regarded as a responsibility, and critical in addressing the legacies of extractive research as well as ensuring that community needs and priorities are met in research (Brunet et al., 2016; Gearheard & Shirley, 2007; ITK & NRI, 2007; ITK, 2018a; McGrath, 2018; Wong et al, 2020). It is important to assess what researchers are proposing in relation to community engagement, compared with what happens in practice. The scope of research permits in Nunavut presents limitations promoting effective community engagement (Brunet et al, 2016). This is visible in the NRI application process as researchers are encouraged to engage with communities, however there is currently no mechanism to assess what

happened, other than NRI annual and final reports. These reports are in various formats making it a challenge to systematically assess. Although collaborative research is increasing over time, there continues to be a call for more partnership and Inuit-led research, which includes consideration of diverse audiences in sharing results (Carter et al, 2019; ITK, 2018).

5.5.1 Community-partnered research

Over time, community-partnered research was the lowest in 2004 and 2013 (1 project) and is gradually increasing over time where it peaked in 2018 (7) (Figure 5.15). There has been an increase in information available over time regarding the importance of partnerships in meaningful community-based research (ITK, 2018; McGrath, 2018; Wilson et al, 2020; Wong et al, 2020) supporting this trend over time. Three out of the top 12 most active PIs have described a formal research partnership in their research license application. Examples include the TUKTU-2 project led by Sylvie Blangy, which is described as a "community research project" that was "developed at the request of Baker Lake Inuit workshop participants" to better understand equitable partnerships regarding mining extraction (Blangy, 2019). Blangy (2007) has also investigated "the interactions between biodiversity, community wellbeing; culture and ecotourism, in partnership with the community members" of Kinngait (Cape Dorset). Gita Ljubicic addresses the investigation of research trends in Nunavut as a partnership between the NRI and southern universities by sharing the "leadership, decision-making, and supervision of students in this project" (i.e. this project I am part of) (Ljubicic, 2019).

Shirley Tagalik (who is one of the most active PIs overall and Nunavut-based PIs) facilitated partnered research as well. There were also three out of the top nine most active Nunavut-based PIs who facilitated research partnerships, including Scott (2014) on understanding community change in North Baffin and the Kivalliq region, (Scott, 2014), and Tagalik (2015) (See Section 5.2.2.1) who helped lead the Arviat Engaging Climate Change Project that has "strong intra-community partnerships".

Community-research partnerships are mostly occurring in Iqaluit (16), followed by Cambridge Bay and Pond Inlet (Figure 5.15). In Iqaluit, active researchers are partnering with the NRI itself to undertake investigations of SS research trends (Ljubicic, 2019). Additionally, partnered research in Cambridge Bay includes collaborative projects between university historians and the Kitikmeot Heritage Society (Lakenbauer, 2011). Community-partnered projects occur in all Nunavut communities; however, they are lowest in communities with low research intensity such as Sanirajak, Whale Cove, and Umingmaktok (Appendix 17).

Canadian academics dominate the scope of SS partnered research (30), followed by Nunavut-based charities and Nunavut Inuit Organizations. This partnered approach to research supports the Inuit research capacity and expands Inuit leadership in the research process (Figure 5.15). In contrast, community-research partnerships did not appear for multiple PI affiliations, including Government of Canada or consultants (Appendix 17). Academics have a greater interest in research collaboration and are also the ones talking about its importance (Carter et al, 2019; Ljubicic et al, 2018; Tulloch et al, 2016). An

example of community-partnered research led by academics is the SmartICE project in Pond Inlet, where Academics from Memorial University are partnering with a management committee Sikumiut (people of the sea ice), who "govern and evaluate this project according to their IQ principles and extensive experience with sea ice" (Wilson, 2018). The topical focus for community-partnered research is dominated by cultural studies, with most partnerships focusing on culture and society (18) followed by IQ (Figure 5.15). A similar trend is also exhibited when looking at the topical focus of active researchers who are undertaking community-partnered projects. To elaborate, Gita Ljubicic undertook a project to learn about caribou and community well-being in Gjoa Haven, partnering with community members "to help document knowledge of caribou ranges" (Ljubicic, 2012, 2021). Additionally, researchers have undertaken collaborative projects involving traditional knowledge because of "the need for hands-on experiential learning opportunities" that have been expressed by Inuit Elders (Rahm, 2016).

Community-based research methods are regarded by active PIs as an effort to support, and be guided by, Inuit leadership (Ljubicic, 2016). Community-based research methods most used in community-partnered projects include interviews (20), followed by research and training workshops and focus groups (Figure 5.15). The interviews facilitated could have been group interviews, however the type of interview itself was not captured in the coding framework I worked with.

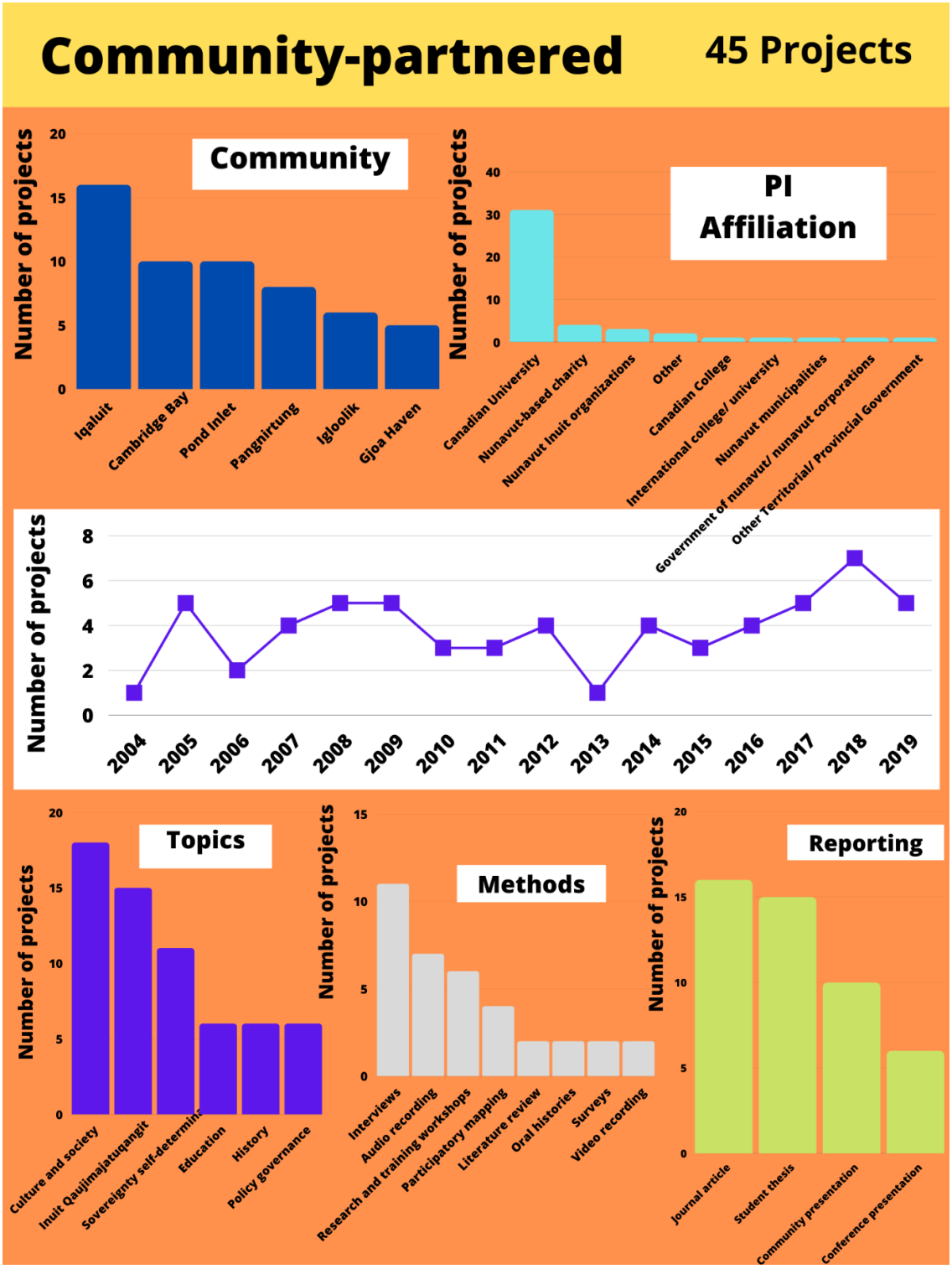

Figure 5.15: Research trends for community-partnered projects

A similar trend is exhibited amongst active Nunavut PIs, who are using popular community-based research methods such as research and training workshops for "various monitoring and data collection processes in the areas of weather" (Tagalik, 2015). Additionally, other active researchers are using interviews "to contribute to the participatory mapping evaluation" as part of a research methods class (Ljubicic, 2016). Field research methods were used in only six community-partnered projects, where wildlife monitoring and weather monitoring were the most popular (2). Wildlife monitoring was used by active researchers leading projects "to preserve caribou livelihood while improving local population well-being" (Blangy, 2014). The most common reporting tools proposed in community-partnered research are journal articles (16), closely followed by reports and community presentations (Figure 5.15).

A common theme amongst community-partnered projects is the motivation to improve community well-being by addressing a local priority. Ensuring that research will benefit the communities involved is considered a foundation for meaningful community-based research (ACUNS, 2003; Aqqiumavvik Society, n.d; Gearheard & Shirley, 2007; ITK, 2018; ITK & NRI, 2007; McGrath, 2018; Oceanwise, 2018; QHRC, 2019; Wilson et al, 2020; Wong et al, 2020).

5.5.2 Community-Connected Research

When looking at the most active PIs and Nunavut-based PIs in community-connected projects, there are multiple ways in which communities are involved in SS research without explicitly stating a research partnership (Table 5.5). There are three

community-connected projects led by active Nunavut-based PI, and eight projects that were led by the most active PIs. Over time, community-connected projects were the lowest in 2006 (7) and peaked in 2015 (27). Community involvement is generally increasing, suggesting an increase in collaborative efforts between researchers an Inuit (Figure 5.16).

Community-connected projects are mostly occurring in Iqaluit (44), followed by Pond Inlet and Clyde River (Figure 5.16). Clyde River was not part of the top five most intense SS research locations; however, it was the most common location for projects led by active researchers like Shari Gearheard (Appendix 19), who lived in Clyde River year around the time of the research (Gearheard, 2008). The long-term relationships established from living in the community help facilitate collaborative projects. Other collaborative projects in Clyde River include IQ studies on energy development, as PIs address "that Clyde River has been fighting seismic testing" (Johnson, 2015). Iqaluit is the most common location for collaborative projects as it houses the most resources and is accessible to researchers as previously discussed in this chapter. In contrast, collaborative research was the lowest in locations such as Umingmaktok and Bathurst Inlet, and low intensity communities such as Whale Cove and Taloyoak (Figure 4.3). This is partly due to smaller populations, and possibly the focus on the impacts of mining and resource development in the area.

Table 5.5: What Active PIs are saying about community involvement in community-connected projects

PI Name	Project Title	How is the community involved?
Heidi Klein (2004-2007)	IQ for High Lake and Ulu	"A site visit to High Lake by Elders and Gartner Lee personnel"
George Wenzel (2018-2019)	Arctic ULINNIQ: Inuit Knowledge of and Experience with Earthquakes and Tidal Waves	"To develop this part of the project, it is important that can only be done successfully through collaboration with knowledgeable people in Clyde River and Mittimatalik"
Shirley Tagalik (2018)	Young Hunters Ujjiqsuiniq Project Evaluation	"The Young Hunters Program is a community-based project designed to develop sustainable harvesting in youth between the ages of 8-25. In the 5 years that the project has been operating, extensive work has been done with community Elders to document the knowledge and skills"
Gita Ljubicic (2012-2015)	Connecting Inuit Elders and Youth: Learning about caribou, community, and well-being	"Our research approach is guided by a local research advisory committee"
Sylvie Blangy (2015-2017)	Mining Impacts and Sustainability in Qamanit'uaq, Nunavut. Developing Strategies and Models for an Equitable Partnership. Inuit/Saami Youth Exchange	"Collaboration with our established network of local institutions, mining company representatives and residents"
Jason Akearok (2010)	Inuit Qaujimajatuqangit on declines of Arctic terns near Rankin Inlet and Whale Cove	"Working with local HTOs gathering IQ on arctic terns"
Kim Crockatt (2013-2014)	The Northern Men's Research Project	"The Nunavut Literacy Council has human resources available in these communities to ensure smooth direction of data collection and management"
Natalie Carter (2016-2019)	Integrating Local Knowledge of Ecologically Sensitive and Culturally Important Marine Areas in Arctic Canada.	"Ikaarvik youth student researchers in Pond Inlet and Cambridge Bay will co-facilitate the project"
Shari Gearheard (2014-2015)	Sustainable Futures North: Water, Energy, and Food Security in the North: Building community capacity for sustainable futures	"These are community-identified themes that have emerged from a long history of collaboration of our project team"

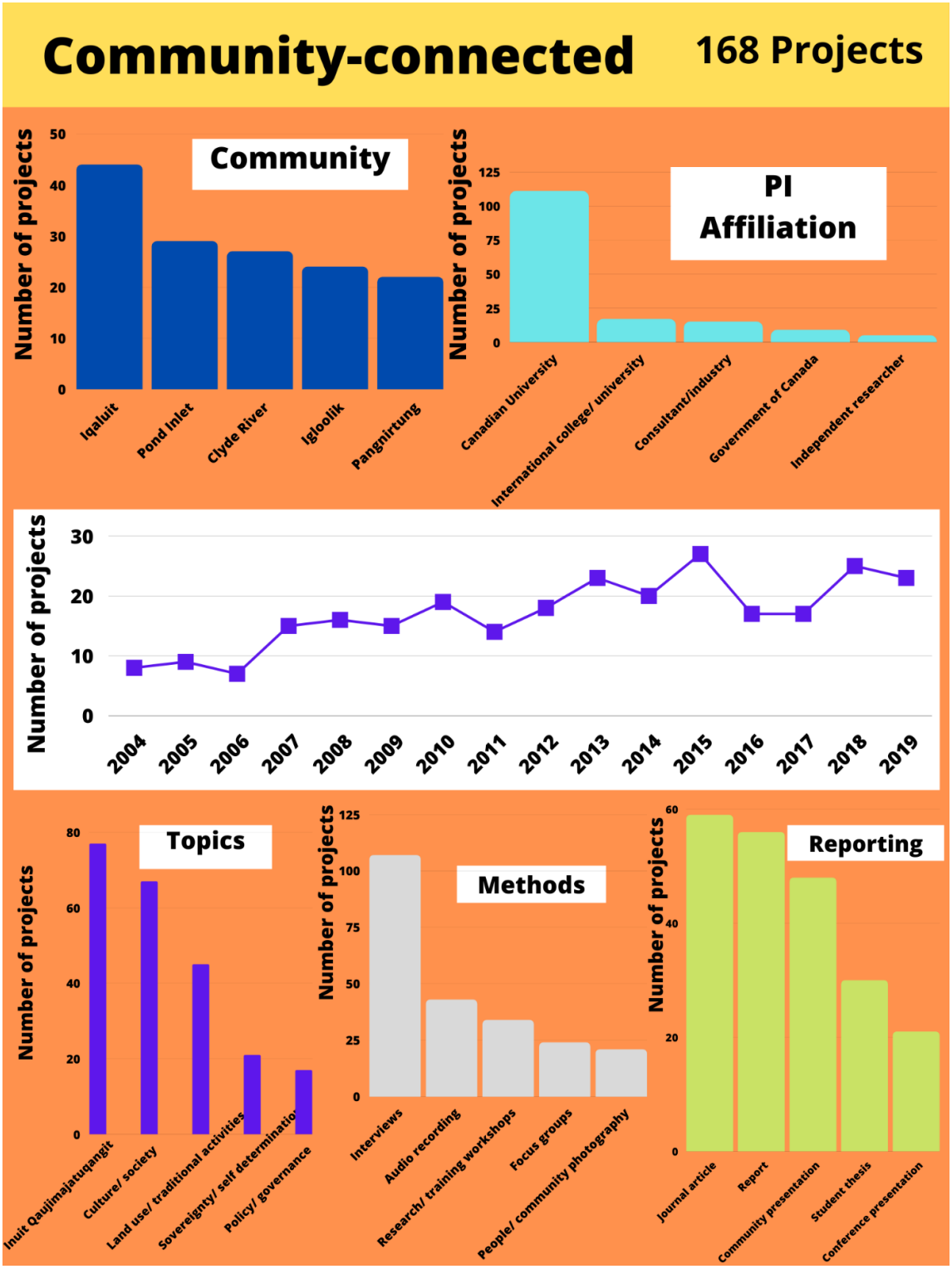

Figure 5.16: Research trends for community-connected projects

Community-connected projects are dominated by Canadian Universities (111) followed by international college/ universities (Figure 5.16, Appendix 19, 22). Other PI affiliations such as government researchers are collaborating with communities to help identify issues such as Arctic Tern population dynamics (Akearok, 2010), while consultants are hiring community members as interpreters in interview to learn about IQ of the land surrounding a proposed mining site (Gustavson, 2012). Available funding could influence the capacity for collaboration, and academics might be able to allocate funding to facilitate collaborative research more than other PI affiliations.

The topical focus for community-connected projects is IQ (77) followed by culture and society (Figure 5.13). This contrasts the topical focus of community-research partnerships where culture and society research were most common (Figure 5.15). Other popular research topics in community-connected projects include land use and traditional activities, and sovereignty and self-determination (Appendix 18).

The most common community-based research method in community-connected projects is Interviews (107), followed by audio recordings, and research and training workshops (Figure 5.16). The dominance of interviews is supported by active researchers hiring community members to act as facilitators and interpreters for interviews they are undertaking (Carter, 2017). Interviews provide an opportunity for researchers to collaborate with communities through various roles, such as a community research liaison, mentors, interpreters (Dowsley, 2007; Harder & Wenzel, 2012; Routledge, 2011). Field methods were used often in collaborative projects, with the majority of projects

including environmental observation (Appendix 18). This is evident in projects led by active researchers that collaborated with Inuit who were “hired as sea ice monitors” (Gearheard, 2006).

It is important to remember that research reporting is also part of the collaborative research process and is the foundation for developing partnerships in science (Gearheard & Shirley, 2007; Henri et al, 2019; ITK, 2018; Tondu et al, 2014). In terms of research reporting, the most common reporting tool in collaborative projects is journal articles (59) followed by reports, and community presentation (Figure 5.16). The intensity of journal articles resulting from collaborative projects is due to the dominance of academics leading research collaboration (Figure 5.12, 5.13). Frequent research reporting helps inform community members and maintain transparency in the research process (Gearheard & Shirley, 2007). This is evident in the work of active researcher Natalie Carter who facilitated community presentations in an effort to share research results with interested community members (Carter et al, 2017). In addition to reporting, it is critical for the researcher to seek consent and guidance about consent and the potential impacts of sharing results (ITK, 2018). This is visible in Sylvie Blangy’s TUKTU-2 application, where research reporting is facilitated with the community through co-authors on journal articles, videos taken by students in the community, and participatory workshops (Blangy, 2014). Although some researchers propose research reporting in their project summaries, Inuit continue to call for improved community-based research reporting (Carter et al, 2019; ITK, 2018). This is supported in my analysis as majority of collaborative projects propose Journal Articles as the most common reporting tool

(Figure 5.15; 5.16), which is not targeted to a community audience. This presents a challenge in how community-based research is undertaken in the North as researchers are called upon to create meaningful and relevant dissemination strategies (Gearheard & Shirley, 2007; ITK, 2018; Tondu et al, 2014).

CHAPTER 6.0: CONCLUSION

6.1 Key takeaway messages from results

This research aimed to identify social science and traditional knowledge research trends across Nunavut communities using Thematic Coding Analysis of research license application summaries. Findings help to understand the scope of general and specific research topics, research leadership, location, community research methods, field research methods, community research involvement, reporting tools, and interdisciplinary research between 2004 and 2019. To answer my research question (Chapter 1.3) I conclude that the range of research trends is dominated by one-year projects led by Canadian academics, is mostly concentrated in Iqaluit, and has a predominant focus on topics related to culture and society. Central to this research landscape is the use of interviews and journal articles as a means of conducting and reporting on research, respectively. I learned that Iqaluit is the central location for research as the city offers the largest abundance of resources and community organizations supporting research (Appendix 21) in addition to being the most affordable for travel and local accommodations. In addition, some of the most active researchers are conducting their research based on personal relationships established in communities, such as Clyde River, Arviat, and Baker Lake. (Appendix 19). Interestingly, IQ research is most undertaken by government workers and consultants, due to the large number of baseline studies conducted in the Kitikmeot region to inform land use planning and proposed resource development. Last, community-engaged research projects exhibited similar

trends to that of the entire SS research landscape, and there is an increase in community collaboration in SS licenses over time. In contrast, the number of partnered projects remains relatively unchanged.

6.2 Significance of my work in relation to achieving Inuit self-determination in research

6.2.1 How my analysis can contribute to future community involvement and leadership in research

My research aims to contribute to increasing community involvement in all phases of the research process, from design to dissemination (Gearheard & Shirley, 2007; ITK, 2018; ITK & NRI, 2007; McGrath, 2018; Oceanwise, 2018; QHRC, 2019; Wilson et al, 2020; Wong et al, 2020). I built on the previous documented knowledge of the transition of unethical colonial research practices in Nunavut (Macdonald et al, 2014; Martin, 2009; Mosby, 2013) to participatory (Aporta, 2011; Freeman, 2011), to more collaborative research (Table 2.1), to ensure that my thesis fostered community collaboration with Jamal Shirley on behalf of the NRI.

My results and analysis inform the NRI of the SS research landscape in Nunavut, including an understanding of gaps in the research licensing process (See Chapter 2). It was a bigger and more complex task to interpret trends from the NRI licensing database than initially anticipated. However, cross-checking the database for accuracy and completeness, and developing recommendations for improving the database and developing a public research portal, all contribute to improving data ownership and

accessibility for the NRI and for Nunavummiut. This is a critical component of Indigenous governance in research (ITK, 2018), fostering approaches of leadership and self-determination. As we keep working to make this new database publicly accessible, it is rewarding to know that by understanding research trends, Nunavummiut will be able to more easily identify what research is taking place in and around their home communities and address community-specific research priorities.

6.2.2 How my own processes evolved to ensure accurate and relevant results

Although I did not have extensive community collaboration, it is important to reflect on how my own methodology evolved according to the Piliriqatigiinniq Partnership Model (Figure 3.1). In drawing on the principles outlined in Piliriqatigiinniq (Healey and Tagak, 2014), I aimed to foster meaningful collaboration with Jamal, as well as to ensure accurate and relevant results.

The QHRC recognizes Pittiarniq (being good or kind, Section 3.2.1) in relation to the emergence of research ethics when working with Indigenous communities (QHRC, 2019). I initially addressed this principle in the planning stages of my project by facilitating background research, however after completing this project I recognize that I was taking into consideration what the NRI would like to see throughout all stages of my research. I felt a sense of responsibility to make sure my research results best represented the needs of the NRI, and this was illustrated in the infographics I created in my analysis (Chapter 5). These figures were designed to be as easy to understand as possible for a broad community audience, while also illustrating important results. From this project, I

learned the importance of community considerations throughout all stages of the research ,which contribute to the ethical considerations of Pittiarniq (QHRC, 2019).

I also adapted Inuuqatigiinniq (being respectful of others, Section 3.2.2) in the planning stages of my research. This principle encourages research reflexivity (Healey & Tagak, 2014) which I primarily followed during early consultation with Jamal to understand the importance of increasing Inuit governance in research. After completing this project, I recognize that I was drawing on Inuuqatigiinniq in all stages of my research, as I constantly asked myself questions such as: How will the NRI and Nunavummiut feel about these results? Are my results easily understood? Did I explain as much as I could? Not only did I think about those who will be reviewing my research now, it was also important to think about future generations of Nunavummiut who may benefit from this research in the years to come (QHRC, 2022). This project solidified my personal commitment to fulfilling, and improving relational accountability (Ljubicic et al., 2022) in community-engaged research to the best of my ability.

The third principle of the Piliriqatigiinniq Model, Unikkaaqatigiinniq (the power and meaning of storytelling, Section 3.2.3), was applied in the results and analysis chapters of my thesis. Initially, I found it challenging to consider how I could meaningfully tell the stories of SS research trends in Nunavut. And I realize there are limitations to my ability to do this, without having spent extensive time in Nunavut communities. However, as I became more aware of what the NRI would like to see (e.g. a breakdown of the top reporting tools), I understood that I did not have to

overcomplicate the results. With the SS research landscape at hand, policymakers, research officials, and community leaders can make their own interpretations, to better understand past and present research trends to inform research policy in in ways that are relevant to their specific interests. Additionally, license reviewers can gain more context on the range of research conducted in and around their communities and can use the results to engage with researchers on specific priorities related to research topics, methods, and reporting. Results of the licensing analysis can also be used to help identify areas of overlap or gaps in specific research focus, and communities that may be experiencing research fatigue and/or being overlooked in SS research.

I applied Iqqaumaqatigiinniq (when ideas or thoughts come into "one", Section 3.2.4) in interpreting the results of my research. Jamal, Gita, and I synthesized ideas to connect my results to the initial research question and objectives (Healey & Tagak, 2014). Together, we helped tell the story of what SS is happening where in Nunavut, and how it has changed over time. This principle draws on researchers immersing themselves into their data and discussing with their collaborators, throughout all stages of research. I am proud to say I worked closely with Jamal throughout the research process (including in refining thesis writing and analysis), to ensure that my methods and results appropriately represented NRI priorities.

6.3 Future considerations

6.3.1 For the NRI

6.3.1.1 For the coding framework

My thesis research brought to light refinements in both the coding framework and research licensing process that can be considered in updating the research license application and review process. When applying the coding framework to the NRI database, the codes can be used by NRI staff and researchers as "tags" or "keywords" to define and understand the focus of research projects. This requires a revised coding framework of SS broad topics, methods, and reporting tools to better understand key research themes. The broad topic "Geography" can be removed from the list of research topics as this is too broad and considers most aspects of SS research. Additionally, "archaeology" can be demoted to a detailed research topic similar to other research topics that require separate research permits, such as "parks/protected areas" (Table 2.3). Other less common broad topics such as "reconciliation" and "justice/ law" can also be demoted to a detailed research topic as they did not come up frequently in the scope of SS research. It is also important for "history" to include oral histories as part of its name to be inclusive of all aspects of history in Nunavut. This was something I did during the coding process, but I find it necessary to address this as part of the code itself, or at least in the description.

In terms of research methods, changing "Community-based research methods" to "Social and Health research methods", and "Physical research methods" to "Land and

Water research methods" would better illustrate the difference between an NRI research license and other permits that are required for true physical science research (Table 2.3). Some codes were also considered unnecessary after data collection, such as audio recording, as it is expected that all researchers will be recording their projects in some way. Oral histories can also be removed as a community-based research method as it was used less frequently, and I anticipated and can be combined with Interviews. If "oral histories" remains in the coding framework it is necessary for the NRI to make sure researchers are explicit as possible in the kinds of interviews researchers are facilitating (group, unstructured, semi-structured, oral history, etc.)

When there was a new reporting tool proposed in a project summary, it was added into the framework, therefore there is no need to modify the current list. It can be useful for researchers to explicitly comment on who they are sharing their results within the community, as a community can be represented by an individual person (for my own research, Jamal is representing the community on behalf of the NRI) or a group of individuals.

Overall, the coding framework successfully helped track SS research trends in Nunavut from 2004 to 2019. It can be useful to have descriptions for each code in the coding framework as a resource for the NRI, researchers, reviewers, and public users of the future Nunavut research portal, aiding to ensure research is easily understood from a community perspective (ACUNS, 2003; Aqqiumavvik Society, n.d; ITK, 2018; ITK & NRI, 2007; QHRC, 2019; Wong et al, 2020).

6.3.1.2 For the research licensing application process

There are also limitations with the NRI research licensing application process itself that make it challenging to understand the scope of community engagement in Northern research. Based on the licensing database content, I was only able to investigate trends based on what was proposed in SS research in project summaries. Therefore, it is not possible to examine how closely projects followed what they proposed or analyze based on what actually occurred in practice over the course of a project. Additionally early relationship building, and community contact efforts were not required on this part of the application (Appendix 1). To address this limitation, the NRI can include more questions in their application to identify who they contacted to initiate a research project and how/ if they support a project (Table 6.1). The NRI could also include a checkbox on the application to identify if researchers are addressing a community-based priority as the motive for their own project (Table 6.1).

The NRI can adapt an automated research application process where researchers are prompted to answer questions about their proposed projects.This would refine the process and minimize the amount of missing information within project summaries. This would also accommodate the capacity of the current NRI workforce as all required information is submitted. Questions to consider for a refined application process include early community engagement and what kinds, who was involved in the research, and if the research is solving a community-based priority. Other metrics to include in the application process from the project summary includes research topic, method, and

reporting tools (Table 6.1). The coding framework could be modified to better distinguish and track levels of community engagement. This would enhance the detail of information currently gathered from the Nunavut research landscape. Adding team members as part of the project summary could also paint a picture regarding collaborative research (Table 6.1). Currently, we only gathered a scope of research leadership based on the PI affiliation, not those of team members.

Table 6.1: List of Recommendations for the NRI Database and licensing process

Recommendation	Impact
Research License Application	
• Refine research application to track key metrics (e.g., research topics, methods, reporting, location, PI, team members, etc.)	• Eases administration burden at NRI if researchers need to include key information in a consistent format
• Add questions in the application that would help track early relationship-building and community engagement efforts	• Encourages, and provides guidance for, researchers in early engagement
• Add questions (or a checkbox) to identify if the proposed research is addressing a community-identified priority	• Helps to distinguish and track curiosity-driven and community-driven research
• Include all team member names, affiliations, and roles (not just PI) Team member information should be better tracked as well, create a very detailed section to know name, affiliation, and role of team members	• Helps to understand size and composition of research teams • Would help to track community involvement • Would help to track continuity (e.g., a student later continuing research in a government position)
• Request information about funding sources (doesn't have to be a lot of information, but could include sources, amounts, duration of funding)	• Helps to understand the impact of strategic funding initiatives, as well as the impact of investments from particular funders (e.g., ArcticNet, POLAR, Tri-Council) on particular research topics, research programs, communities, field stations, etc.
Research Reporting	
• Add reporting section to the future Nunavut research portal	• Simplified tracking of research metrics
• Streamlined reporting protocol to track annual reports (track and contact PI's who do not submit an annual report)	• Increased consistency of research communication in Nunavut • NRI would have necessary information to better understand reporting strategies
• Require at least one reporting tool in plain language (i.e.: cannot be just a journal article)	• Research reporting that will be easier to understand from a community level
• Add questions in report that help to understand the level of community engagement	• Helps identify how communities were actually involved/ supported in a project, and in what capacity •

For Government Officials and Policymakers and Reviewers	
• Track commentary from the application and review process (long term, once the application portal is active)	• Creates a more public and transparent Nunavut Research Portal • Increases ability to distribute to license reviewers, and for PIs to receive/ respond to comments
• PIs provide commentary of their own (in reporting section of Nunavut research portal)	• Reviewers can understand potential for follow-up studies, or if community priorities were addressed • Fosters two-way communication between reviewers and researchers
• Access to reports (must be accessible to reviewers in some way)	• Identify if conditions for approval were satisfied

A practical solution to this gap in the licensing process could be the introduction of a project summary portal where researchers are required to answer required questions for the project summary (Appendix 1) within the application portal itself, rather than submitting a separate document. This would also increase consistency for communicating research trends and benefit Nunavummiut as more information would be publicly available in the future.

6.3.1.3 For the research reporting process

There needs to be a streamlined approach to track research reporting in Nunavut for maximal use and value in Nunavummiut, and for key metrics tracked by the NRI. The NRI requires researchers to submit an annual report as part of the licensing process (NRI, 2021), however the NRI does not have the capacity to follow-up with researchers who do not share an annual report, nor are they publicly shared. To address this gap, the NRI can establish a reporting portal a specific reporting requirement as part of the application portal where researchers can select from a list of keywords to identify the kinds of

reporting mechanisms shared (Table 6.1; Appendix 6). This can also simplify the process of tracking metrics over time if all metrics are in one location.

This also increases the methods used in their research, and this follow-up information is what should be used in this type of analysis instead rather than using proposed project summaries to create and communicate a research landscape that has less interpretations and more of what occurred in Nunavut. These solutions support the long-term goal of the larger scope of this project (Chapter 1) where I am contributing to efforts making the NRI research licensing database as efficient as possible for community members to view and interpret in the future.

Additionally, there are multiple reports that are missing from the NRI-CU google drive which limit the extent of research reporting analysis if a similar project were to be undertaken with just annual reports submitted to the NRI. With a streamlined reporting protocol (Table 6.1), the NRI would have the necessary information to better understand the reporting strategies submitted to both the NRI and communities, rather than an annual report with limited information included about community involvement (NRI, 2021).

6.3.2 For researchers

The SS research trends in Nunavut clearly illustrate the scope of projects undertaken, however it is not always clear why PIs are doing the work they are currently doing. This can be attributed to the types of questions currently included in the NRI application form, but it is also the responsibility of the researcher to provide a rationale for methods, topics, location, and reporting in their project summaries. It would be

valuable to conduct follow-up interviews with academics to better understand how much funding opportunities influenced their proposed research activities. Listing funding sources, amounts, and duration are not currently a requirement in the scientific license application, but it could be a valuable addition not only for NRI but also for funders to track the influence of their investments. It could also be interesting to follow-up with researchers to learn more about how they identify research priorities to focus on, and how much meaningful engagement occurs to determine these priorities. This could help the NRI better understand how well research is serving Nunavummiut, and how well researchers are understanding the needs of communities they are working in, near, or with.

I encourage researchers to be as clear and concise as possible in their NRI research license applications ensuring research trends can be easily identified and understood. This will encourage a transparent research agenda that Inuit call for to create meaningful and collaborative research (ITK, 2018).

6.3.3 For government officials and policymakers

I also want to make recommendations for both government and review organizations. When considering the long-term goals of this project and creating a publicly accessible research licensing database, it suggests it would be important for reviewers and applicants to track comments and feedback in real time for pending applications involved in the license review process (Table 6.1). Integrating review committee feedback, researcher responses, and NRI notes in the licensing database would

not only help NRI staff to keep track of review completion and comments, but it could also help improve two-way communication between reviewers and researchers. Tracking commentary from research organizations would help to minimize the overlap in research intensity and encourage researchers to address priorities listed by reviewer organizations. Additionally, it would be important to have researchers provide commentary on their projects as well within the database to address any follow-up studies or if community needs were addressed through the scope of their work. Last, there needs to be increased access to reports (Table 6.1). This can be done by making reports distributable within the Nunavut research portal itself. Reviewers need to be able to identify if conditions for approval in the research license were satisfied or not.

6.4 Future directions for the project

Results communication is the next phase of the project including various dissemination tools such as conference presentations, website updates, reports, results summaries, posters, open access journal articles, and webinars to share with a diverse group of Nunavummiut, academics, government, and Nunavut-based organizations. It is also critical to ensure the NRI database will address some of the proposed solutions in this research.

Moving forward, this research is a part of a new 5-year SSHRC funded project led by Gita and Jamal, where I will expand on my existing contributions as a Ph.D. student. Here, we aim to facilitate case studies to investigate community experiences with research involving the most intense research communities in Nunavut (Ljubicic et al,

2020). I plan on working closely with a Case Study Lead and NRI Research Associate to gain insights on community feedback of the research licensing and review process, and better understand research priorities and initial use of the NRI database (Ljubicic et al, 2020). This is an exciting opportunity to engage with Nunavummiut in-person and to contribute to the existing landscape of collaborative Northern research in the territory.

Overall, my research provides information that will contribute to inform capacity-building and Inuit governance in research, as a long-term goal of this project is to enhance Inuit involvement in the research regulation process. Additionally, understanding SS research trends helps identify the challenges associated with research in Nunavut such as research intensity and fatigue. Understanding these challenges will help enhance the ethical conduct of research in Nunavut, and the Case Studies I plan to facilitate as a Ph.D. student will assist in creating new methods of tracking research that is beneficial and relevant to Nunavummiut. Additionally, my research helps ensure Inuit access, ownership, and control over data and information through creating a research database that is designed based on community-identified needs. This will include relevant research licensing information such as reports, community-collaborators, project summaries, and research locations. My thesis research is a starting point to investigate the Social Science and Traditional Knowledge research landscape throughout Nunavut. However, I am aware that there is much more work to do to understand and improve the ways in which research licensing can support community engagement and ensure that research is addressing Nunavummiut priorities. I look forward to contributing to capacity building in Nunavut-based research in the years to come.

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APPENDIX 1: NRI Social Science Research License Application

SCIENTIFIC RESEARCH LICENCE APPLICATION
SOCIAL SCIENCES RESEARCH

Before completing this application form, please carefully review the following documents:

- *"Obtaining a Research License under Nunavut's Scientists Act: A Guide for Applicants"* (available at https://www.nri.nu.ca/licensing-resources); and
- *Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans – TCPS 2 (2018) available at:* https://ethics.gc.ca/eng/policy-politique_tcps2-eptc2_2018.html

IMPORTANT

Please be advised your application cannot be processed until you submit all necessary supporting documents, including:

-confirmation of approval from your institutional research ethics board (REB);
-plain language summary and participant consent forms (translated to Inuktut);
-full research protocol;

These attachments can be uploaded with your online application, or submitted by e-mail, in the following formats: MS Word, Adobe PDF or jpeg.

SECTION 1: APPLICANT INFORMATION

1. Project Title _____

2. Applicant's full name and mailing address:
_____ Phone: _____
_____ Fax: _____
_____ Email: _____

3. Field Supervisor's name and mailing address:
_____ Phone: _____
_____ Fax: _____
_____ Email: _____

4. Other Research team members to be included on the license (first and last name)

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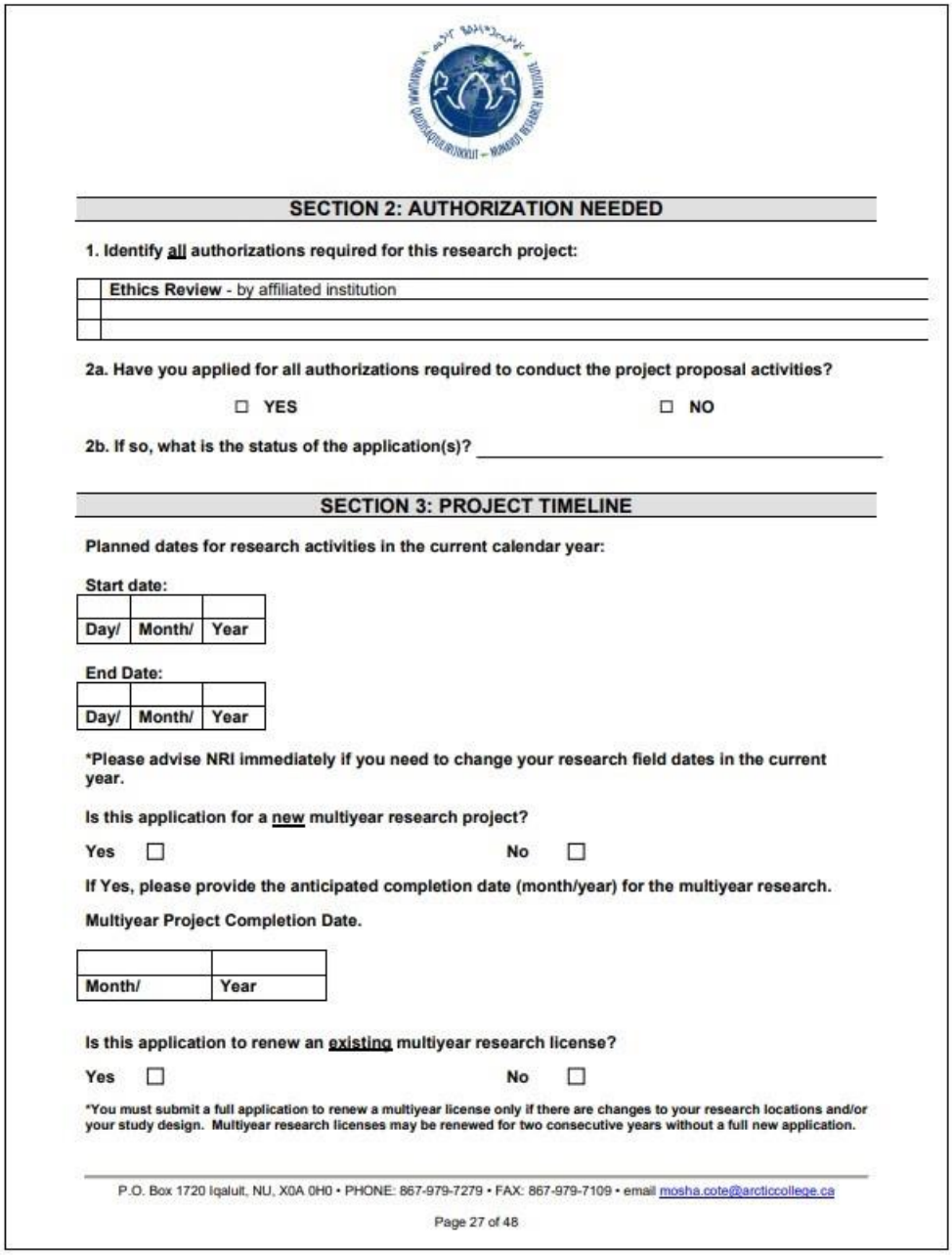
APPENDIX 1 CONTINUED: NRI Social Science Research License Application



SECTION 2: AUTHORIZATION NEEDED

1. Identify all authorizations required for this research project:

	Ethics Review - by affiliated institution

2a. Have you applied for all authorizations required to conduct the project proposal activities?

☐ **YES** ☐ **NO**

2b. If so, what is the status of the application(s)? _____

SECTION 3: PROJECT TIMELINE

Planned dates for research activities in the current calendar year:

Start date:

Day/	**Month/**	**Year**

End Date:

Day/	**Month/**	**Year**

***Please advise NRI immediately if you need to change your research field dates in the current year.**

Is this application for a new multiyear research project?

Yes ☐ **No** ☐

If Yes, please provide the anticipated completion date (month/year) for the multiyear research.

Multiyear Project Completion Date.

Month/	**Year**

Is this application to renew an existing multiyear research license?

Yes ☐ **No** ☐

***You must submit a full application to renew a multiyear license only if there are changes to your research locations and/or your study design. Multiyear research licenses may be renewed for two consecutive years without a full new application.**

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APPENDIX 1 CONTINUED: NRI Social Science Research License Application

Locations of Research in Nunavut

Community name(s):

SECTION 4: NON-TECHNICAL PROJECT PROPOSAL DESCRIPTION

Please attach a non-technical description of the project proposal, no more than 500 words, in English and Inuktitut (+Inuinnaqtun, if in the Kitikmeot). The project description should outline the following:

- Project Title;
- Lead Researcher's Name and Affiliation;
- What research questions does the project hope to answer?;
- What are the research objectives and why is the study needed?;
- Where, when, and for how long will the field research be undertaken?;
- What methods will be used to conduct fieldwork?;
- What impacts will the research produce to the environment, wildlife, or people?;
- How will the data generated by the research be stored and managed?;
- How will Nunavut residents be involved in the research?; and
- How, when, and to whom will the research results be shared in Nunavut?

SECTION 5: TECHNICAL PROJECT PROPOSAL DESCRIPTION

Please attach a technical project proposal description including the following information:

a) Objectives: Provide well-defined short-term and long-term objectives for the project.
b) Background and Rationale: Provide an overview of the problem, topic, or question being investigated. Explain the significance of the project and why it is needed.
c) Progress to Date: Describe the results of any work completed to date. This section should also include information on any progress in the areas of capacity building, communications and/or the use of Indigenous knowledge.
d) Methodology: Describe project design, field research methodology, data analysis techniques, where and when the work will be carried out over the lifetime of the project.
e) Data management: Describe your data management plan, including where and when the data and metadata records will be stored.
f) Research outputs: Describe the major research outputs to be generated through the project (academic theses, publications, presentations, reports, etc.); describe specifically how and when research results will be communicated to research participants and interested organizations in Nunavut.

SECTION 6: PARTICIPANT CONSENT FORM

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APPENDIX 1 CONTINUED: NRI Social Science Research License Application

Please submit a copy of the actual form(s) that will be used during the study. The consent form(s) must be in English and Inuktitut, and must include:

- Project title;
- The principal investigator's name, address, e-mail address, and phone number;
- A description of the research being conducted, including the purpose, objectives, aims of the study at a reading comprehension level that is appropriate for the participant;
- A description of the activities/tasks that the participant will complete for the research, and an estimated time commitment for taking part, at a reading comprehension level that is appropriate for the participant;
- A clear description of any potential risks that may be associated with taking part in the research;
- Details of any financial remuneration, incentive or other compensation to be provided to the participant for taking part in the research;
- A statement of informant rights:
  "I have been fully informed of the objectives of the project being conducted. I understand these objectives and consent to being interviewed for the project. I understand that steps will be undertaken to ensure that this interview will remain confidential unless I consent to being identified. I also understand that, if I wish to withdraw from the study, I may do so without any repercussions."
- Details on the type of data that will be collected from the participant and how privacy and confidentiality will be maintained;
- Conditions for release of recorded information;
- Printed name of participant, signature of participant, date of consent.

SECTION 7: COMMUNITY INVOLVEMENT & REGIONAL BENEFITS

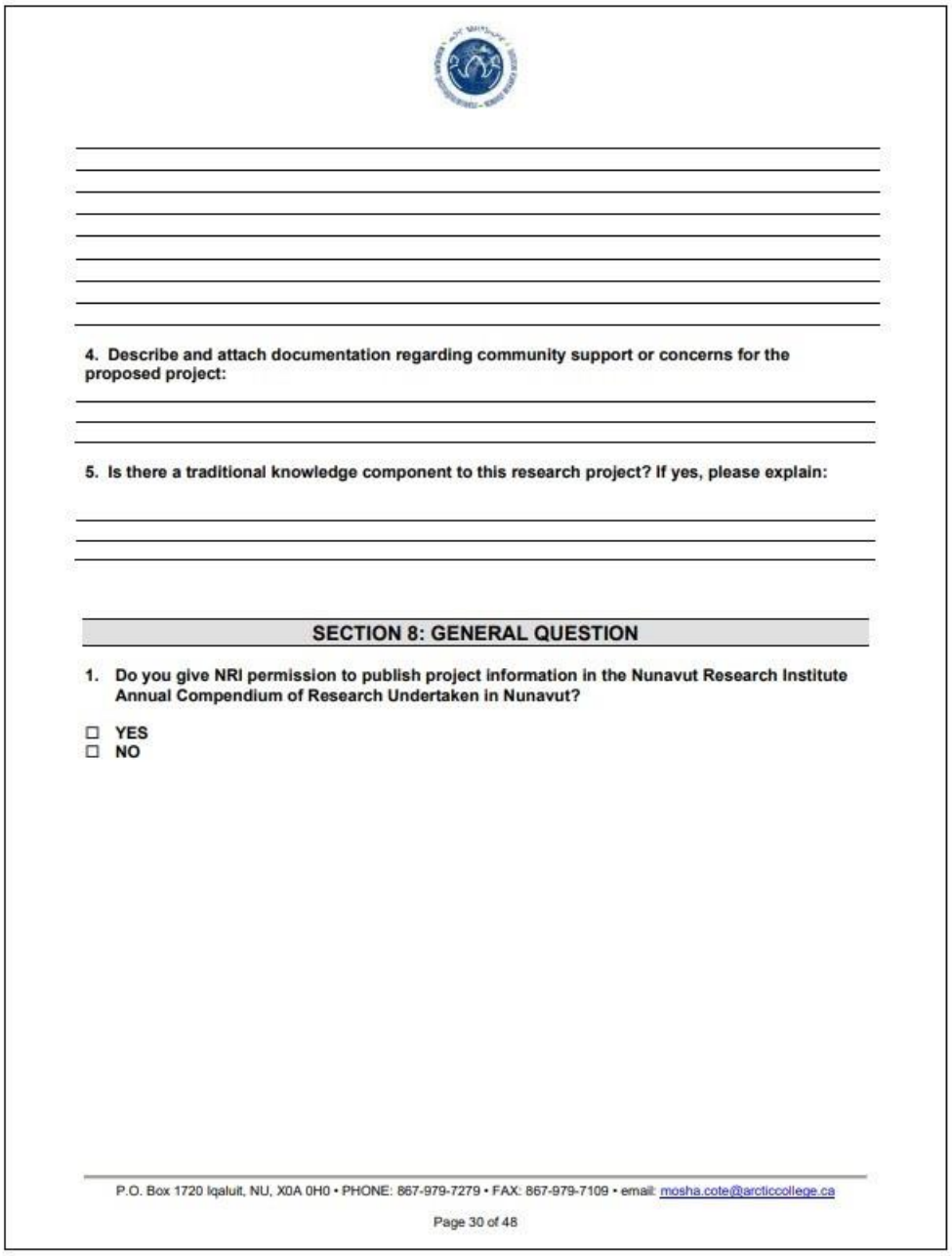
1. List the community representatives that have been contacted and provide the minutes of the meetings if available:

Community	Name	Organization	Date Contacted

2. What role will Nunavut residents play in the research?

3. What potential risks does the research pose for Nunavut residents?

APPENDIX 1 CONTINUED: NRI Social Science Research License Application



4. Describe and attach documentation regarding community support or concerns for the proposed project:

5. Is there a traditional knowledge component to this research project? If yes, please explain:

SECTION 8: GENERAL QUESTION

1. Do you give NRI permission to publish project information in the Nunavut Research Institute Annual Compendium of Research Undertaken in Nunavut?

☐ YES
☐ NO

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APPENDIX 1 CONTINUED: NRI Social Science Research License Application

2. **If your research is related to climate change, do you agree to share your annual summary report with the Nunavut Climate Change Centre at climatechange@gov.nu.ca?**

YES ☐ **No** ☐

(Highlight or Check one)

Applicant:

Signature	Title	Date

APPENDIX 2: Field in NRI database

Field Name	Used in cross-check (Y/N)	Explanation
Project Title	Y	Following the transfer of information from MS Access to Nunaliit, some project titles were truncated or incomplete. It was necessary to cross-reference the project title with the NRI-issued research license to insert the correct title into the database.
Objectives/ Summary	Y	Project objectives were cross-referenced with the "Objectives of research" section on the research license, or the Research Compendia issued by the NRI. The license must have the most detailed description of the project whether it comes from the license or compendia. It was critical to have as much of a detailed description of the research as possible so Nunavummiut can best understand what research is occurring on their land.
License Number	Y	License numbers were cross-referenced with the research license. License numbers are issued based on geographic location and year of project and its year of occurrence, (table 3.3 in text)
Year of License	Y	Cross referenced with the number on the research license ensuring the "year of license" field matches the year the license was issued in the database.
Amended? Registry?	Y	If a research license were amended or a registry, the name would appear on the end of the research number. For example, the research license "04 065 12N-M" would appear as "04 065 12N-M-Amended" if there was an amendment in the license. To properly track amendments and registries across Nunavut, the "Amended" or "Registry" box was selected in the database, and the name is removed from the license.
First Name	Y	The name of the person whom the research license is issued to was cross-referenced with the "Applicant Name" field in the NRI database.
Last Name	Y	The name of the person whom the research license is issued to was cross-referenced with the "Applicant Name" field in the NRI database.

APPENDIX 2 CONTINUED: Field in NRI database

Department	Y	Some affiliations, for example, the Government of Canada, provided their department in their research license and license application. If it is missing from the database but visible on the license or application, the department title was inputted into the "Department" field in the database.
Affiliation	Y	See section 3.5.1.3 in-text
Affiliation Type	Y	See section 3.5.1.3 in-text
Additional Affiliation details	N	
Contact	Y	Contact information was cross-referenced the database entry with the full mailing address on the research license in the "Contact" field in the database. Additionally, the phone number was provided in this field as well if available.
Email	Y	The second field requiring contact information is "Email". Applicant Email information was available with the full mailing address on the research license.
Roles	N	
Field researchers	N	
Team members	Y	Team members were listed on the license, and their roles and affiliations were listed on the license application. All available information regarding each person involved in the project must be included in the database ensuring completeness. A text box was added for each team member within the field "Team members". An example of a properly inputted team member field is "Alexis Polidoro, graduate student, McMaster University".
Nunavut origin/ Inuit	N	
Gender	N	
Number of days	N	
Total person days	N	
Initial data collection	Y	Database entries were cross-referenced with research license application to confirm dates of data collection. Once selected, the calendar within the

		"Initial data collection" field was used to select exact dates and year.
Final data collection	Y	Database entries were cross-referenced with research license application to confirm dates of data collection. Once selected, the calendar within the "Final data collection" field was used to select exact dates and year.
Request for duration of license	N	
Discipline	Y	The discipline for each license entry is already inputted into the database, however, it was necessary to cross-check with the license application ensuring the discipline listed on the license matches that of the database entry. Any discrepancies in discipline were discussed with Jamal on behalf of the NRI. The "discipline" field is either filled with H (health sciences), P (Physical/ natural), and SS (social sciences/ traditional knowledge). For the scope of this project, I was responsible for ensuring all SS projects matched the discipline on the respective application.
Discipline branch	N	
Research type	N	
Methodologies	N	
Transportation	N	
Funding	N	
Additional funding source details	N	
Location	Y	See section 3.5.1.4 in-text
Region	Y	See section 3.5.1.4 in-text
Distribution	N	

APPENDIX 2 CONTINUED: Field in NRI database

Distribution list	Y	The "Distribution list" field in the database represented reviewers (people/ organizations) who receive the research license application for review. Reviewers were often Hamlets or Hunters and Trapper Organizations of the communities where the research is occurring. The distribution list already exists in the database as the "Distribution list" string field. This information was then cross-referenced with the research license ensuring correctness and modified as necessary if there was a discrepancy in the information.
Reviewers	Y	The "reviewers" field was similar to the "Distribution list" field, however, this field has a dropdown list of codes to simplify tracking of reviewers for the NRI. Populating this field included adding a new box for each reviewer and select from the list provided. See table 3.2 in appendix 3 for a complete list of distribution codes tracking potential reviewers used by the NRI.
Number of organizations reviewing	N	
Review start date	N	
Review end date	N	
License granting date	Y	The license granting date was visible on the research license, which was cross-referenced in the databased and inputted in the "License granting date" field using the calendar box provided.

APPENDIX 2 CONTINUED: Field in NRI database

NIRB number	Y	The Nunavut Impact Review Board (NIRB) is an institution of public government responsible for the assessment of any potential environmental threat to a community from a proposed research activity (NIRB, n.d). NIRB is also responsible for reviewing license applications where an environmental threat may be prevalent (most commonly in physical/ natural projects and not as common in social sciences/ traditional knowledge research). NIRB provides a number for each license its reviewed (example: 20YN021) and is sent back to the NRI in the form of a screening decision letter. The NIRB number was often included in the research license application and is also located in a separate folder in the NRI google drive as a "NIRB screening decision letter". The NIRB number was already in the database, therefore it must be cross-referenced with the application or screening decision letter to confirm accuracy.
Annual report received	N	
Final report received	N	
Date of DB update	Y	This field was for personal use and tracked the date in which the database entry was cross-checked. This field used a calendar to select the date of database update.
Publications received	N	
Notes	Y	The "Notes" field was a text field for personal use and was extremely important when cross-checking database entries. It was important to add text here to describe any questions or statements regarding entries where information is missing or if a record is unable to be cross-checked, and the reason why. For example, if an application was missing from a project, one is unable to confirm team member roles and affiliations, therefore the statement "application missing, unable to confirm team member info" was inserted in the field.

APPENDIX 2 CONTINUED: Field in NRI database

Step 1 review	Y	Cross-checking the database was monitored by the NRI using the "Step 1 Review" and "Step 2 review" fields selected using the check box provided for each field. At this point in the greater scope of this project, all database entries only had "Step 1 review" selected. Step 1 review informs the NRI of the validation of database entries despite information that could be missing. Step 2 review is still under review with the NRI and will not be used for the scope of my thesis research. At the end of cross-referencing a database entry with the corresponding file in the Google Drive, "Step 1 review" was selected.
Step 2 review	N	

APPENDIX 3: Detailed Timeline

Step 1: Cleaning up the database (Summer 2019 – Fall 2020)			
Step	**Date**	**Activity**	**Details**
1	08/19	Hired as RA	•Initial consultation on the project •Introductions to team members and express my eagerness to learn •Defining my role
2	08/19	Background research	•Gain context of NRI, research licensing, and database structure
3	08/19	Initial planning meeting	•Describe how we will connect throughout my RA term. We had to recognize that technological difficulties may result in more phone than virtual calls with Jamal
4	08-09/19	Cross-checking database	•Initial cross check of 2011-2014 in the NRI licensing database while other students across Canada worked on other years •Took personal notes of inconstancies between my years and other students'
5	09/19	Follow-up meeting	•Discuss progress over the summer •Initiate discussion of database discrepancies and need for further review and cross-checking. •Relationship building with Jamal as I am showing careful attention and willingness to further assist in cross-checking initiatives
6	04/20	Planning meeting	•Plan my role in the second RA term •Introduce myself to others who I may not have met •Take meetings notes for myself and for Gita; important to reflect on the key takeaways from the meeting in defining priorities for NRI •Expressed willingness to assist in the cross-checking process in any way possible
7	04-08/20	Cross-checking	•Clean up discrepancies in the database from previous summer. Important for the NRI to have the database as consistent as possible, which is why I offered to review each license entry between 2004-2019
8	04-08/20	Input missing database entries	•It was suggested by Jamal to review all compendia and the google drive to input any missed records into the database •This was completed over my second RA term for all years and disciplines •By this point, the database was as complete as possible for the next phase: uploading documents
9	09/20	Follow-up meeting	•Discuss what I have completed over the summer and how we will transition this work into my MA thesis research
10	12/20	Arctic Change 2020	•Present preliminary findings from coding the NRI database at Arctic Change 2020 •Important for us to address how we can facilitate Inuit self-determination in research through updating the NRI licensing database

APPENDIX 3 CONTINUED: Detailed timeline

Step 2: Coding project summaries (Fall 2020 – Winter 2021)			
Step	**Date**	**Activity**	**Details**
1	09/20	Defining MA objectives	•Consultation with Jamal solidifying the need to analyze research topics by discipline •Take notes about how to code software to use, and plan for next steps
2	09/20	First TCA group call	•Reach out to two undergraduate students who I will be mentoring as we facilitate the same methodology •Introductions of new group members
3	10/20	Planning meeting and downloading summaries	•Familiarizing Jared and Saud with NRI database operations and structure •Consultation with Jamal suggested beginning the process with downloading project summaries for conversion into PDF and upload into the database •Converting all files into PDF ensures consistency and improved database structure for users long-term
4	10-12/20	Download and convert summaries	•Download SS project summaries from google drive into PDF •Multiple downloads may occur per license as some have translated versions in Inuktitut, French, or Inuinnaqtun •Not all license entries in the database had a license application or project summary in the google drive, resulting in having to use the project description from the NRI compendium. This limited the amount of information available for some project summaries in the coding process
5	10-12/20	Upload summaries into Database	•Once all project summaries were downloaded and converted to PDF, each summary had to be uploaded to the first year of occurrence for the project. This method was suggested by the NRI ensuring simplified querying for multi-year projects, as all information for multi-year projects will occur in one place
6	10-12/20	Establish relations in the database	•Once project summaries were uploaded into the first year the project occurred, use the "add relation" field to attach subsequent years to the initial project
7	12/20-01-21	Follow up emails	•Inform each other of our progress and confirm a time to discuss TCA

APPENDIX 3 CONTINUED: Detailed timeline

Step 3: TCA (Winter 2021 – Fall 2021)			
Step	**Date**	**Activity**	**Details**
1	01/21	Planning meeting	•Discuss the experience of uploading project summaries and establish we are ready for the next phase of the project •Consult with Jamal ensuring he is up to date with our progress
2	01-02/21	Execute TCA	•Complete TCA in NVivo •This is the heart of my thesis project; it is important to pay close attention and read each project summary carefully
3	02/21	Consult Jared and Saud	•Reach out to the two undergraduate students I am mentoring about their progress and concerns with the coding process
4	02/21	Finish coding	•Complete coding of SS project summaries, confirm progress with team members
5	02/21	Establish preliminary graphics	•Consult with Jared and Saud to determine most suitable results •Important to consider what the NRI would like to see as preliminary graphics
6	02/21	Matrix queries	•Conduct matrix coding queries in NVivo to identify which codes are associated with one another in the dataset
6	02/21	Topical analysis meeting	•Share preliminary graphics with Alison & Gita •Discuss what is most interesting and how we can refine these preliminary results to best suit community interests ahead of our meeting with Jamal
7	02-03/21	Prepare for meeting with Jamal	•Consult with Jared and Saud about the queries we should establish for our meeting with Jamal •Engage in daily group chats on Facebook messenger discussing our progress and challenges
8	03/21	NRI Preliminary results meeting	•Share preliminary results in a semi-formal presentation format with Jamal •Jared, Saud, and I shared our results as three separate PowerPoint presentations •Jamal was overwhelmed with the rich detail of information we retrieved from TCA and requested us to refine our results into three major takeaways. This is important as he must forward our extensive results to his supervisors and president of the NRI in as easily communicable format •Discussed our progress and next steps
9	03/21	Email Jamal	•Refined my results from our preliminary meeting and forwarded four major takeaways back to Jamal • emphasized the importance of summarized results in communicating back to the NRI

APPENDIX 3 CONTINUED: Detailed timeline

Step 4: Analysis of results and dissemination (Winter 2021 – Spring 2022)		
Date	**Activity**	**Details**
03/21	Planning meeting	• Discuss my overall progress with this project and briefly touch upon analytical approaches to TCA analysis • This progress must also me considered with Jamal but is more academically tied to my research
04 - 05/21	Email Antonio	• Reach out to Dr. Antonio Paez for insight on how to approach statistical analysis from coded NVivo results
06/21	ICASS Conference	• Introduce the project to a new audience and present preliminary results from the TCA through an academic conference presentation • It will be important to discuss what to present with Jamal ensuring his priorities and those of the NRI are communicated
09/21	Travel to Iqaluit (DEPENDENT ON COVID-19)	• Travel to Iqaluit and present preliminary results to NRI • It will be critical to plan a presentation ahead of time with Gita and Jamal, further consultation will need to be explored in the future
09-12/ 21	Analysis of results	• Establish an appropriate analysis of the TCA for the corresponding chapter of my thesis • Consultation with Gita and Antonio will be required
12/21 01/22 – 04/ 22	Arctic Change 2021 Write up analysis and conclusion	• Present update progress of our project including TCA results and next steps with the database • Complete second draft of thesis including analysis and discussion

APPENDIX 4: NRI Database cross-checking workflow

Setting Up
Open https://nri.gcrc.carleton.ca
Sign in to main site
Sign in to your account (to edit)

- Login button upper right hand side - also use to make new account

Use the three drop-down menus in the top right to filter by:

1. Reviewed Documents
2. Location (location filter not useable in any reliable way yet, need to verify and consolidate)
3. Year

Select "All (documents)" and "Year" to see all licenses to review in a particular year

- See on the top left right above the table the indicator of how many rows (license entries) to review
- E.g. 2016, All = 134 rows

Click on any of the column headings to sort entries

- best to sort by Applicant Name in order to match folder structure of NRI files, i.e. by last name

Click on the project/entry of interest to see the full project details in the window on the right

- Scroll down to bottom of project details window and select EDIT

Open Licensing Docs folder (in Google Shared Folder in a separate browser or on your computer if working at NRI) to use as cross-reference

NOTE: application might be in a previous year if it's a multi-year license (but each year should have it's own license document)
NOTE: reports are often saved in the year following the year reported on (but year of report received should match license year reported on, e.g. a report submitted in Feb 2017 for a license expiring Dec 2016 - it may be saved in a 2017 reports folder but should be listed as a 2016 report in the DB)
NOTE: more than one person can work on database at the same time as long as they are working on different records
NOTE: You can search for entries by word or license number using the search bar in the database to retrieve information from a recurring record. It is helpful to have the database open in two tabs so you are able to view information and update a record simultaneously

Review PART 1 - Cross Checking Database with Google Drive

1. Cross-reference all license entries with the NRI License (see notes on editing specific database fields beginning on page 7).
2. Cross-reference all license entries with the original project License Application
3. Cross-reference license entries with NIRB # as needed
4. Edit/add info as needed to ensure completeness and consistency of entries
5. SAVE all changes being made
6. Do not edit if you are not sure, keep track and questions and we can talk about them

APPENDIX 4 CONTINUED: NRI Database cross-checking workflow

7. If ANY information is missing, use the Notes text box while editing a record to indicate what documentation is missing, uncertainties, or observations. Ex: *"Application and NIRB information missing, unable to confirm"*

"Information missing from google drive, unable to update"
"3 page license missing, unable to update distribution list"
"Team member information is different on application"
NOTE: It can be assumed that if the project folder is missing, the 3 page license is missing as well

8. Check the Step 1 Review box at the end of editing and SAVE

Review PART 2 - Cross Checking Database With Compendium

1. Cross-check year in database with year in compendium (the compendium usually contains additional records missing from the database, and can be accessed here.) It is important to update the database with those missing records to ensure accurate representation.
2. Have the compendium open in one tab and the database open in another.
3. Scroll through the compendium, and make sure all records present exist in the database. The compendium is not in alphabetical order, so there will be a lot of back and forth scrolling. **Note: Sort the Database by "Applicant Name" in alphabetical order to assist you with your search**
4. Once you find matching records between the compendium and database, make sure the information is similar by reading each record.
5. If the summary in the compendium is more detailed than what is showing in the database, copy and paste into the Objectives/Summary field of the database. If the database summary is already more detailed than what is in the compendium, leave it as is (do not update).
6. Update the "date of db update" at the bottom of the record. DO NOT SELECT "STEP 1 REVIEW" (It needs to be checked with the Google Drive - see next section) Press SAVE.
7. If you come across a record in the compendium which is not in the database, press "Create Document" located to the left of the search bar in the database. (See notes on Entering a new record on page 12).
8. The compendium only includes Project Title, Summary, License Number (2007 onwards), Number of Team Members, Community, Location. INFORMATION THAT IS NOT FOUND IN THE COMPENDIUM WILL HAVE TO BE UPDATED USING INFORMATION IN THE GOOGLE DRIVE. (It is best to save this part until the end after all records have been checked, to eliminate continuous back and forth from the google drive, compendium, and database)
9. Once the record has been added to the database, fill in the Notes text box that the record was "added from compendium". Press date of db update and SAVE.
10. Repeat this process for all years before moving on to the steps below.
11. Review new records added from the compendium with supporting documents from the Google Drive

APPENDIX 4 CONTINUED: NRI Database cross-checking workflow

1. Sometimes the new records added from the compendium have supporting documentation in the Google Drive (Ex: Licenses, applications)
2. After completing a cross-check between the compendium and database for a specific year, use the first drop down menu in the database to select "Exclude Step 1 Reviewed Documents". This will allow you to see new records that were added from the compendium review to make cross-checking easier.
3. In the database, you can click the record, press "EDIT" at the bottom of the screen, and fill in appropriate information found in the google drive using the same steps as Review - Part 1 (see detailed instructions p. 7 - 11).
4. If you cannot locate information in the google drive, you can also search the database for a project as it might be recurring (i.e. the application may be in an earlier year). This could be useful for determining a distribution/ reviewers list.
5. If the record is missing ANY information (Such as 3 page license), fill it in at the bottom of the record in the "Notes" section. The record should have something such as *"Added from compendium, 3 page license and application missing"* in the notes text box.
6. Make sure to select "STEP 1 REVIEW" and date of update when complete. Press SAVE.

NOTE: If you come across a record that does not have Step 1 Review but is not added from the compendium, SKIP that record as you will complete the remaining Step 1 Review documents in "Review PART 4" on page 6.

Review PART 3 - Add missing records from Google Drive

1. There are a few cases where licensing documents on a project are in the google drive, but are missing from both the database and compendium. It is important to double check the docs in google drive against database records to catch these missing records.
2. For ease of review, have the database open in one window and the google drive open in another.
3. Select the year you wish to start with in the database. Select the "Signed Licenses" folder in the respective year of the google drive
4. Sort the database by the Applicant Name field in order to show licensings in alphabetical order, then scroll through the database and google drive to check that records match. If there is a license found in the google drive that is not in the database, follow the protocol of Entering a new record on page 12.
5. If ANY INFORMATION is missing, please fill in the "Notes" text box.
6. When all possible information is updated, select "Step 1 Review" and "date of db update". Press SAVE.
7. Repeat process for all years.

APPENDIX 4 CONTINUED: NRI Database cross-checking workflow

Review PART 4 - Complete Step-1 Review

1. Sign into the database and select a year.
2. Use the first drop-down menu to "Exclude Step 1 Reviewed Documents"
3. In alphabetical order, select a year and press EDIT on the record you wish to start with.
4. Scroll through the record and ensure all information is in proper format.
5. If the "Notes" text box is filled in with missing information, select "Step 1 Review", and update the date of db update. Press SAVE.
6. If there is no information in the text box, you will have to search through the google drive to determine what information is missing. FILL IN MISSING INFORMATION IN THE "NOTES" TEXT BOX. Press "Step 1 Review" and date of DB update. Press SAVE.
7. Repeat for all years and records.
8. Make sure all records are a Step 1 Review by using the drop down menu to "Exclude Step 1 Reviewed documents". If there are no records showing up, carry on with the following year.

NOTE: Once all records in a year have been updated to "Step 1 Review", they will disappear from the drop-down menu. In order to retrieve them, change the first drop down menu to ALL rather than Exclude All Reviewed Documents.

<u>Research Project</u>

Project Title - cross-reference with license

Objectives/Summary - cross-reference with license

- Ensure this matches with the Objectives of Research section on licence, not the Summary of Research section

License Number - cross-reference with license

- License format should be with spaces e.g. 04 065 12N-M
    - First 2 numbers "04" represent the region where the research is located (e.g. 04 = Kitikmeot)
        - 01 = South Baffin
        - 02 = North Baffin
        - 03 = Kivalliq
        - 04 = Kitikmeot
        - 05 = Multiregion (for projects with field research activity in two or more regions * note: when tallying the # of projects conducted in each region annually, multiregional licenses are added to the tally for each region included in the license and are thus double (or triple counted).
        - 06 = Outside Nunavut (this needs to be updated for all projects that occur outside the territory, and this should not be lumped into the Multiregion

APPENDIX 4 CONTINUED: NRI Database cross-checking workflow

        - category - *need to check with Jamal on implications of changing license numbers*)
        - NOTE: this is just to help understand the license code, you will click on the appropriate regional boxes later (and this will be according to the License/Application info)
    - Second 3 numbers "065" represents the number of licenses issued in a year for that region (e.g. this was the 65th license issued in the Kitikmeot in 2012)
    - Third 2 numbers "12" represents the year the license was issued (i.e. 2012)
    - "N-M" represents information about whether or not the license is new or a renewal, and annual or multi-year
        - First letter will be either N (new) or R (renewal)
        - Second letter will be either A (annual) or M (multi-year)
            - NOTE: even for Multi-Year licenses they will have a unique license number (i.e. numbers based on region, license # and year) each year, for the same project
        - Some License # fields are annotated with "Registry" or "Amended"
            - Registry = a license granted without a full review (i.e. low risk or concern, or at the discretion of NRI)
            - Amended = the license has been amended at some point in the year, but the license number remains the same (it replaces the previous license)
            - If you come across this text in the License # click on the appropriate box (see below), and REMOVE the text from the License # field

Year of License - cross-reference with license

Amended? - Click this box only if text saying "Amended" appears in the License #, and then remove text from License # (otherwise leave blank)

Registry? - Click this box only if text saying "Registry" appears in the License #, and then remove text from License # (otherwise leave blank)

<u>Applicant</u>
First Name - cross-reference with License

Last Name - cross-reference with License

Department - University/Government/Organization department (if applicable), cross-reference with License/Application

Affiliation - Organization name, cross-reference with License/Application
Affiliation Type - Dropdown menu (select representative type of Organization)

APPENDIX 4 CONTINUED: NRI Database cross-checking workflow

Contact - full mailing address on License and add phone/email from Application

Email - copy from Contact

Roles - Applicant's role - check Application for indication, and if unclear leave it blank

Team Members - cross-reference with License and Application, include each name in an individual text box (small plus sign to add a new box), and include affiliations within text box if available

Personnel On Site
Number of days - cross-check with Application

Total person days - cross-check with Application

Period of Operation
Initial data collection - cross-check with application (uses calendar for date selection)

Final data collection - cross-check with application (uses calendar for date selection)

Discipline
Discipline - already filled out, cross-check with type of Application submitted
H = Health
P = Physical/Natural
SS = Social Science/Traditional Knowledge
Location
Locations - research location(s), cross-check with License and Application (click on small plus sign to add a location), add as many as necessary typing location/community to search and select

Region - select all that apply, cross-check with License and Application

- Qikiqtani = All of North Baffin and South Baffin communities
- North Baffin = Arctic Bay, Clyde River, Grise Fiord, Hall Beach, Igloolik, Pond Inlet, Resolute Bay
- South Baffin = Cape Dorset, Iqaluit, Kimmirut, Pangnirtung, Qikiqtarjuaq, Sanikiluaq
- Kivalliq = Arviat, Baker Lake, Chesterfield Inlet, Coral Harbour, Rankin Inlet, Repulse Bay, Whale Cove
- Kitikmeot = Bathurst Inlet, Cambridge Bay, Gjoa Haven, Kugaaruk, Kugluktuk, Taloyoak, Umingmaktok

License Review Distribution

Distribution List - These are the reviewers (i.e. people/organizations who were sent the Application for review) initially input in the DB, cross-reference with License to make sure they are correct

- If they are NOT EXISTENT ON RECORD, COPY AND PASTE FROM LICENSE OR REVIEWER CHECKLIST

APPENDIX 4 CONTINUED: NRI Database cross-checking workflow

Reviewers - add as many Reviewers as necessary to match the Distribution List (an add/remove any that were missing or not matching the License issued), use the small plus sign to add Reviewers individually, match the old organization reference to the appropriate entry in the dropdown list (see NRI distribution codes in Google drive to verify reviewers, or ASK if you are unsure)
License granting date - cross-check with License

NIRB number - cross reference with NIRB Screening Decision letter

Final report received - hard to confirm, will be important for future tracking

Date of DB update - select date that you last edited and saved the entry

Notes - add text to describe any questions arising from review, entries that could not be cross-referenced (and the reason why), or issues encountered

Document review - click box according to review step completed

- Step 1 review - to be checked even if there is documentation MISSING. Completed after reviewing all non-highlighted fields, and completing necessary edits
- Step 2 review - Process is still being determined

Entering a new record
This process is similar to updating records on (p. 7 - 11), however you must first prompt the database to create a new document

1. Log into the database
2. To the left of the magnifying glass you will see a "Create Document" option. Select this.
3. A blank record will appear that looks identical to a record you were previously editing. Here, you will fill in any information following the protocol on page 7-11.
4. If you are adding a record from the compendium, write "added from compendium" in the Notes text box at the bottom of the editing screen.
5. Select "date of db update" and press SAVE.
6. DO NOT PRESS STEP 1 REVIEW at this point, Alexis will complete Review PART 4 in order to confirm if Step 1 Review has been completed.
7. Repeat as necessary.

KEY TERMS
Several Terms are used throughout this workflow needing clarification

- 3-Page License: Looks very similar to the beige 1-page PDF signed license, however, this document is an automated letter distributed to the reviewers of a license containing information similar to the 1-page license. The "3-page license" is used to confirm the distribution of reviewers for a license.
- Reviewer Checklist: This document is found in the project folder titled "reviewer checklist". This is also the last page of the 3-page license

APPENDIX 5: Data preparation for TCA workflow

Getting Started in the Nunavut Research Licensing Database (uses Nunaliit Atlas framework)

- After logging into the database, exclude all reviewed documents and filter desired discipline. Sort by PI last name and find the earliest year of each project.

Identifying and Saving Project Summary documents from license applications

- Identify the project summary from the first year of a multi-year project in the database, or the only year of an annual project, and identify the project summary document in project folder (This is typically a separate document from the application). Convert all project summaries to PDFs using the naming convention:

PI Last Name_first year-last year_short title_first year research license #_language (EN = English, IN = Inuktitut, INN = Inuinnaqtun, FR = French)

i.e.g. Laidler_2004-2006_Ice-through-Inuit-eyes_0100504N-M_EN

- it is important to upload project summaries into the database (for the first year of each multi-year project) and in the Google Drive.

Importing and Coding Documents in NVivo

- Import all project summaries for coding into NVivo and set up each metric as the **Nodes** ("SS broad topics", "SS detailed topics"), and the broad and detailed topics within these as the **Codes.** Review the project summary text carefully to identify research topics covered and select text to associate with relevant codes. For topics not covered in available codes, add a new code: **Other: general topic**

File Classification

**This process was added later to the topical coding of research to identify additional perspectives of research trends in Nunavut. Since it was decided after coding the documents that we should identify additional variables, it was suggested that using file classification would be a more efficient method rather than manually coding a selection of text in each file.*

- In NVivo, the "file classification" function was selected where new attributes were classified for location (community and region). Additionally, a Boolean (yes/no) classification was created for Nunavut PI to associate whether the PI of a project was Nunavut-based. Attributes were assigned based on the information on the NRI research license application

APPENDIX 6: Coding framework (all codes)

*note that descriptions were only added if clarification was needed during coding

Code	Description (If available)
BROAD PHYSICAL CODES	
Air/atmosphere	
Birds	if research focused on birds specifically (if it's about hunting, egg/feather collection, etc. that would be coded in SS...in some cases could be both)
Climate/weather	
Climate change	
Ecosystems	
Engineering	
Fish	if research focused on fish specifically (if it's about fishing practices or fisheries that would be coded in SS...in some cases could be both)
Freshwater	anything to do with lakes, rivers, streams, drinking water, etc.
Hazards	
Infrastructure	
Insects	
Invertebrates	
Land and landforms	anything to do with terrestrial environments, geology, permafrost, glaciers
Marine	anything to do with ocean, sea, coastal areas, sea ice
Plants	
Resource development	
Transportation	
Wildlife	if research focused on wildlife specifically (if it's about hunting or trapping that would be coded in SS...in some cases could be both)
Other: _____	
BROAD DETAILED CODES	
Air quality	
Airstrips	
Biodiversity	
Bird health	
Buildings	
Climate projections	
Climate change adaptation/vulnerability	

APPENDIX 6 CONTINUED: Coding framework (all codes)

Climate change mitigation	greenhouse gas emissions, carbon pricing, carbon sequestration, etc.
Coastal zone	anything along coastal marine areas, also related to coastal landforms, erosion
Contaminants and environmental health	contaminants research with particular concern for environmental health, impacts on fish/birds/wildlife, bioaccumulation, etc.
Ecosystem processes	
Energy exchange	e.g. atmosphere/ocean energy exchange
Extreme weather events	
Fish health	
Flooding	
Food webs	
Glaciers	
Greenhouse gas fluxes	
Habitat	related to specific species
Hydrology	
Ice Islands	
Icebergs	
Invasive species	
Historical climate	includes paleoclimate analyais
Historical weather trends	
Lakes	
Landslides	
Limnology	
Migration	related to animals, birds, fish
Mining and environment	anything related to mining exploration, development, environmental impacts
Ocean acidification	
Ocean circulation	
Oil/gas	
Ozone layer	
Pathogens	
Permafrost	
Phenology	e.g. plant flowering timing, seasonal changes, etc.
Pollution	
Renewable energy	
Rivers	

APPENDIX 6 CONTINUED: Coding framework (all codes)

Roads	
Rocks/minerals	
Sea ice	
Sea-level rise	
Sediment	anything to do with sediments (under water)
Soils	anything to do with surface or sub-surface soils (but not under water)
Technology innovation	foucsed on environmental technology
UV effects	this needs to specifically relate to ultraviolet radiation effects (if talking about solar radiation generally do not select this)
Utilidor lines	
Vegetation change	relating to long-term change (due to climate change or environmental disturbance/degradation)
Wastewater	
Waste management	
Water flow	
Water quality	
Water quantity	
Watersheds	
Weather monitoring or forecasting	
Wetlands	
Wildlife health	
Wildlife population dynamics	
Other: _____	
BROAD HEALTH TOPICS	
Clinical/medical research	Taking place in a hospital/medical centre, medications, looking at a clinical issue or treatment, NOT community-based health work
Community wellness	
Environmental health	
Epidemiology	including prevalence studies
Health services	
Health Systems and monitoring	infrastructure, administration associated with health and healthcare
Health practitioners/workers/learners	
Population health	
Professional training/accountability	
Public health and health promotion	

APPENDIX 6 CONTINUED: Coding framework (all codes)

Rehabilitation	
Wellbeing	used to code more encompassing community-focused work (considering multiple factors that influence wellbeing)
Other: _____	
DETAILED HEALTH TOPICS	
Addictions/Substance Use/Recovery	
Allergies	
Cancer	
Cardio/heart health	including heart defects
Child Health	including child development and pediatrics
Chronic disease	
Country food	traditional Inuit foods (e.g. fish, caribou, seals, birds, eggs, plants, etc. that are consumed for food), Inuksiutit
Contaminants and human health	implications for human health e.g. lead, mercury, etc.
Death and dying	including palliative care
Drinking water	
Elder health	including home care for Elders
Family relations and well-being	
Food security	includes food safety, access, cultural importance, sovereignty, food sharing, community freezers
Infant health	
Internal medicine	e.g. digestive health
Healing	
Health-promoting practices	
Health-related impacts of climate change	
Health infrastructure	
Historical perspectives on health and medicine	
Infectious disease/illness	including vector-borne illness
Injuries	including intentional/unintentional injury, accidents
Inuit pathways to wellbeing	
Maternal/reproductive Health	
Medical interventions	i.e. treatment, vaccine, procedure, testing
Men's health	
Mental health	including psychology/psychiatry, emotional well-being, ecological grief
Metabolic disorders/illness	

APPENDIX 6 CONTINUED: Coding framework (all codes)

Midwifery	
Mortality/morbidity	
Nursing education/training	
Patient experiences	
Physical Abuse & Recovery	any form of abuse, violence, services for victims of abuse
Physical health and activity	
Program evaluation	
Occupational/physiotherapy	
Out of Territory care	whenever a project refers to research occurring in a southern hospital or any kind of care/treatment that occurs outside of Nunavut
Recruitment/retention of health care practitioners	
Remote medicine	including telehealth and telemedicine
Respiratory Health	including Tuberculosis
Risk management	
Safety	related to travel, abuse, accidents, living conditions, etc.
Sexual health and relationships	
Social determinants of health	
Spiritual health	
Stress	
Suicide	including determinants, protective factors, prevention
Traditional medicines	
Trauma-informed care	
Viruses	
Vitamin and iron deficiencies	
Women's health	
Youth issues/engagement	
Zoonoses	
Other: _____	
BROAD SOCIAL SCIENCE AND TRADITIONAL KNOWLEDGE TOPICS	
Archaeology	Studies pertaining to archaeology in some way
Arts	Not limited to visual arts, but also song, dance, film
Colonization Impacts	Impacts of colonialism on Indigenous populations
Culture/society	Research pertaining to Inuit culture, ways of life, systems, values, skills, practices

APPENDIX 6 CONTINUED: Coding framework (all codes)

Economy	Including traditional, mixed, and subsistence economy
Education	Anything related to education, such as curriculum development, evaluations of educational systems
Geography	Studies pertaining to geography, physical or human
Gender	Studies focused on either Male or Female genders, or evaluations of Gender, male or female perspectives
History	not necessarily anything that talks about "the past", look for a specific emphasis on historical perspective/analysis (associated with a more disciplinary approach to history) ...much of IQ research may relate to the past, but keep this coded IQ unless there is an explicit focus on historical analysis)
Inuit Qaujimajatuqangit (Inuit knowledge)	needs to be a specific emphasis on learning from Inuit knowledge (could be any topics), or including IQ principles to guide the research approach...but not just a mention of working with Inuit
Justice/Law	anything to do with the justice, legal, or correctional system (including Inuit laws)
Land use and traditional activities	Research pertaining to how land is used by Indigenous populations, through varies activities such as harvesting, berry picking, sewing
Policy/governance	Research evaluating policy, government, Indigenous relations
Reconciliation	maintaining a relationship between Indigenous and non-Indigenous populations
Sovereignty/self-determination	Research that works towards the ability for Indigenous populations to make choices and manage their own life
Other: _____	
DETAILED SOCIAL SCIENCE AND TRADITIONAL KNOWLEDGE TOPICS	
Agriculture/aquaculture	includes greenhouses
Architecture	
Communities dealing with ...	any study that relates to a community dealing with an issue such as climate change, pollution, food security
Community planning	
Corrections	anything to do with the correctional system, including prison/prisoner experience/programs/rehabilitation
Crafting	
Cultural values/skills/practices/systems	
Cumulative effects	
Curriculum development	
Decolonization	
Digital technologies	anything related to digital communications, educational technologies, technology used for language or heritage preservation, etc.
Disaster preparedness/resilience	

APPENDIX 6 CONTINUED: Coding framework (all codes)

Early years education	
Economic development	
Educational outcomes	
Emergency response	
Employment/ workplace	studies regarding employee experiences or evaluations of working conditions not related to safety
Energy and mineral resources management	
Entrepreneurship	
Environmental management	
Family supports/parenting	
Fishing/fisheries	
Gender studies	
Harvesting	includes gathering plants, eggs, berries, feathers, soap stone, etc. (note: if you see references to gathering soap stone often, it would be good to make this it's own category)
Heritage sites	including culturally important sites
Housing	
Human response to light/darkness	
Hunting	
IK & SK	studies that aim to combine traditional knowledge (TEK, TK) and western science
Infrastructure and transport management	
Institutions of public governance	these are co-management boards established along with the Nunavut land claim e.g. Nunavut Wildlife Management Board, Nunavut Impact Review Board, Nunavut Water Board, etc. (check with me if you're not sure if something falls in this category)
Labour/training studies	
Land claims implementation	
Land use planning	
Language	
Literacy	literacy studies, any age
Literature	
Mobility/migration	anything about the movement of people (current or past)
Mining and society	includes social and economic impacts of mining
Mixed economy	when focused on the interplay of the subsistence and wage-based economies
Music	

APPENDIX 6 CONTINUED: Coding framework (all codes)

On the land travel/navigation	anything to do with travel on the land, water, ice, travel routes, traditional approaches to navigation, land marks, inuksuit, place names, etc. (note: if you see a lot of references to any one of these more specific aspects of travel, it would be good to make it's own category)
Parks/protected areas	could be National Parks, Territorial parks, Indigenous protected areas
Performing arts	
Politics	
Poverty	
Religion	
Restorative justice	Inuit norms and approaches to justice, alternatives to the criminal/legal system
Resilience	
Shipping	
Social economy	
Social Media	the project directly focuses on social media, impacts of social media
Social services	
Student success	
Sustainable development	
Tourism	
Traditional economy	subsistence hunting/harvesting
Trapping	fox, wolverine, hare or other animal trapping for subsistence or commercial purposes
Visual arts	
Water security	access to clean potable water, water treatment, water distribution, water collection for personal use
Wildlife management/conservation	
Women's studies	
Other: _____	
FIELD RESEARCH METHODS	
Air sampling	air quality, indoor/ outdoor
Core sampling	in ice, ground, lakes
Environmental observation	
Environmental photography	
Gas/flux monitoring	
Ground truthing for remote sensing or aerial surveys	for remote sensing or aerial surveys
Human specimen collection	sputum, blood, urine, stool, swabs, etc

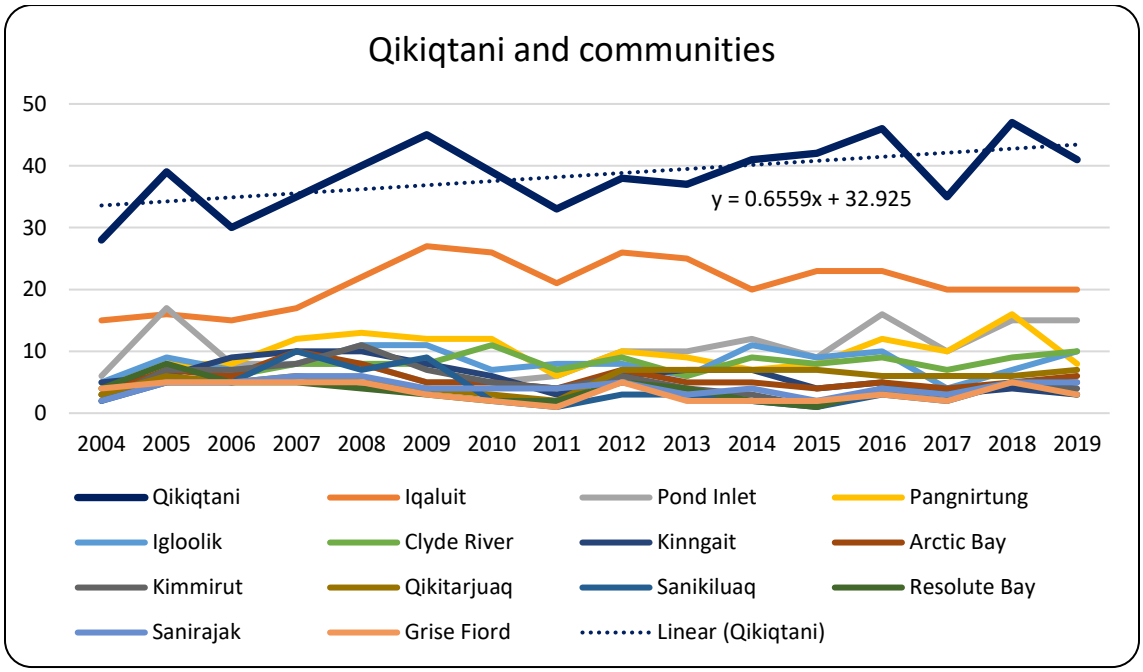
APPENDIX 6 CONTINUED: Coding framework (all codes)

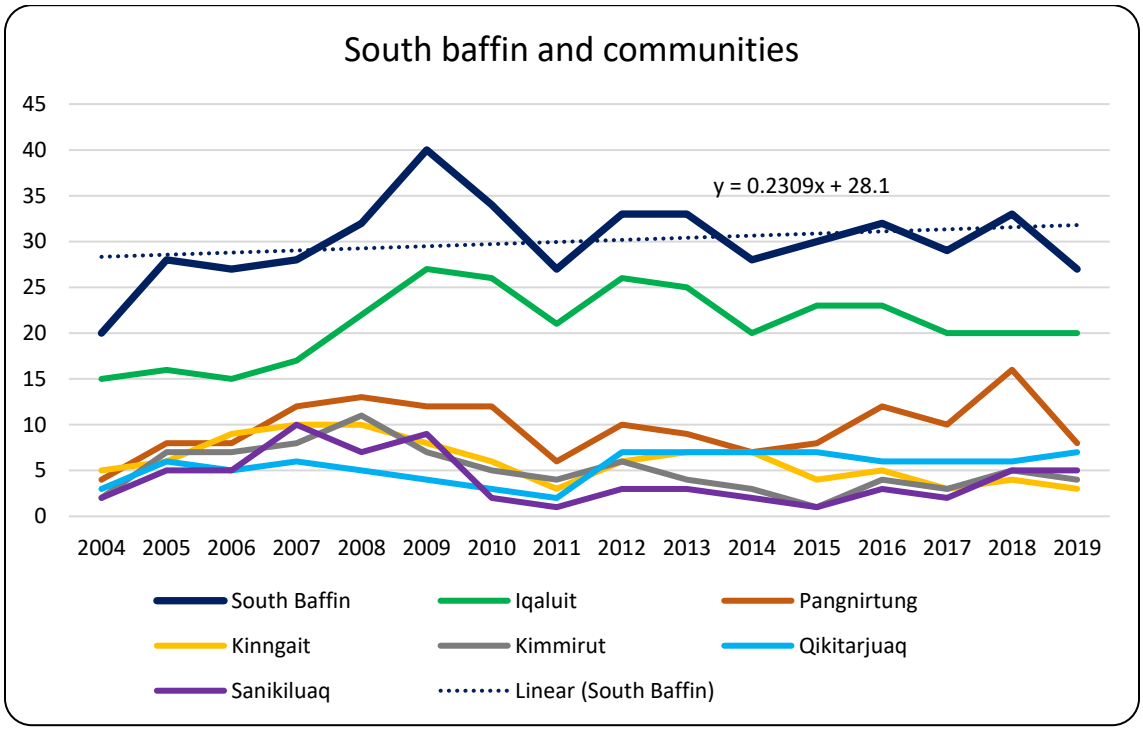
Invertebrate sampling	
Paleo-reconstruction	climate, limnology
Potable water quality testing	
Recording GPS locations	
Rock sampling	
Science camps	
Ship-based research	
Sediment sampling	
Soil sampling	
UAVs	
Vegetation sampling	
Waste sampling	collecting samples from a landfill, sampling from litter..
Water Tank Sampling	
Water sampling	
Wildlife monitoring	surveys, tracking, Inuit guardians, community observers/monitors
Wildlife sampling	walrus for trichinella, beluga for clostridium, etc.
Weather monitoring	weather stations, community observers
COMMUNITY-BASED RESEARCH METHODS	
Archival research	
Audio recordings	
Case studies	
Participatory Action Research]	specific methodology focused on doing research that leads to societal change in some form
Community-connected research	consulting with community organizations, hiring community members, collaborating in certain aspects but still externally driven research
Community-research partnership	explicit co-production of knowledge, researchers and community organizations/individuals working together in all stages of the research process
Creative/artistic methods	art, craft, film, performance, song, storytelling
Descriptive studies (unclear)	
Epidemiological Studies	
Experiential learning and observation	includes participant observation
Grounded Theory	
Focus Groups	
Intervention studies	

APPENDIX 6 CONTINUED: Coding framework (all codes)

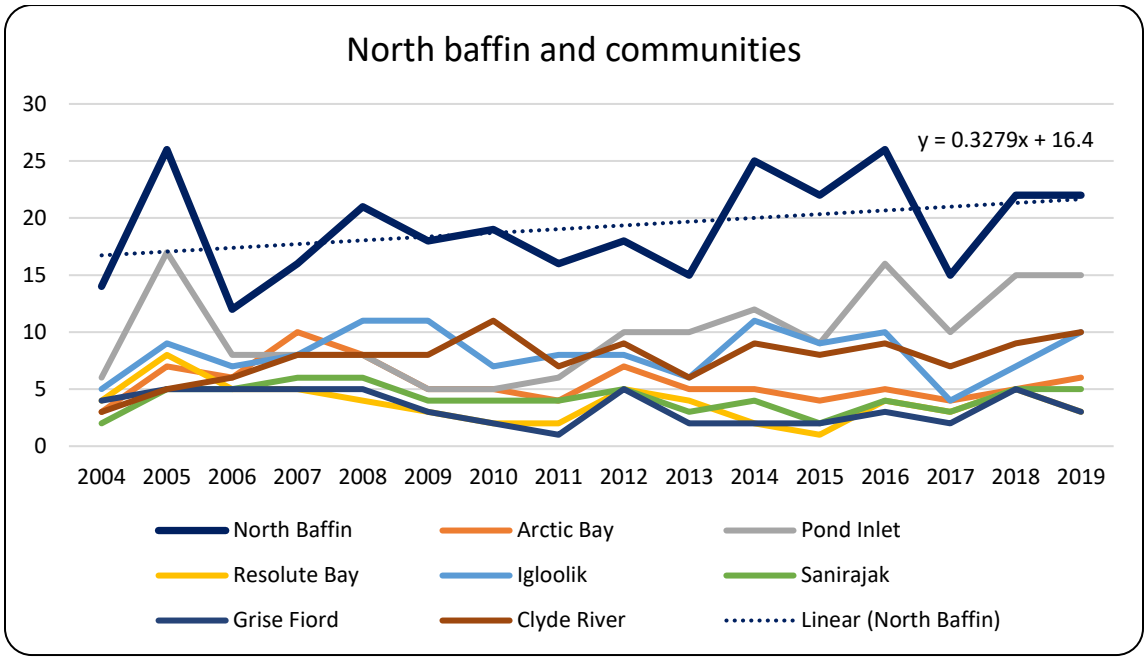
Interviews	
Land camps	
Mixed Methods	
NAC Involvement	Any involvement of the Nunavut Arctic College on a project including faculty, facilities, students.. (could include the use of NRI labs or facilities like offices or meeting rooms, and any involvement of Environmental Technology Program (ETP) students is also a reference to NAC students).
Oral histories	
Participatory mapping	
People/community photography	photo voice
Research/training workshops	
Sharing circles	
Surveys (using questionnaires)	Includes using questionnaires
Video recordings	
REPORTING TOOLS	
Book	
Brochure/pamphlet	
Community organization meetings/updates	
Community presentation	
Conference presentation	
Creative and Artistic Performances	song, dance, play
Film	
Individual meetings/updates	
Journal article	
Map	
Magazine	
Newspaper	
Poster	
Radio presentation	
Report	
Results summary	
Social media	
Student thesis	
TV	
Website	

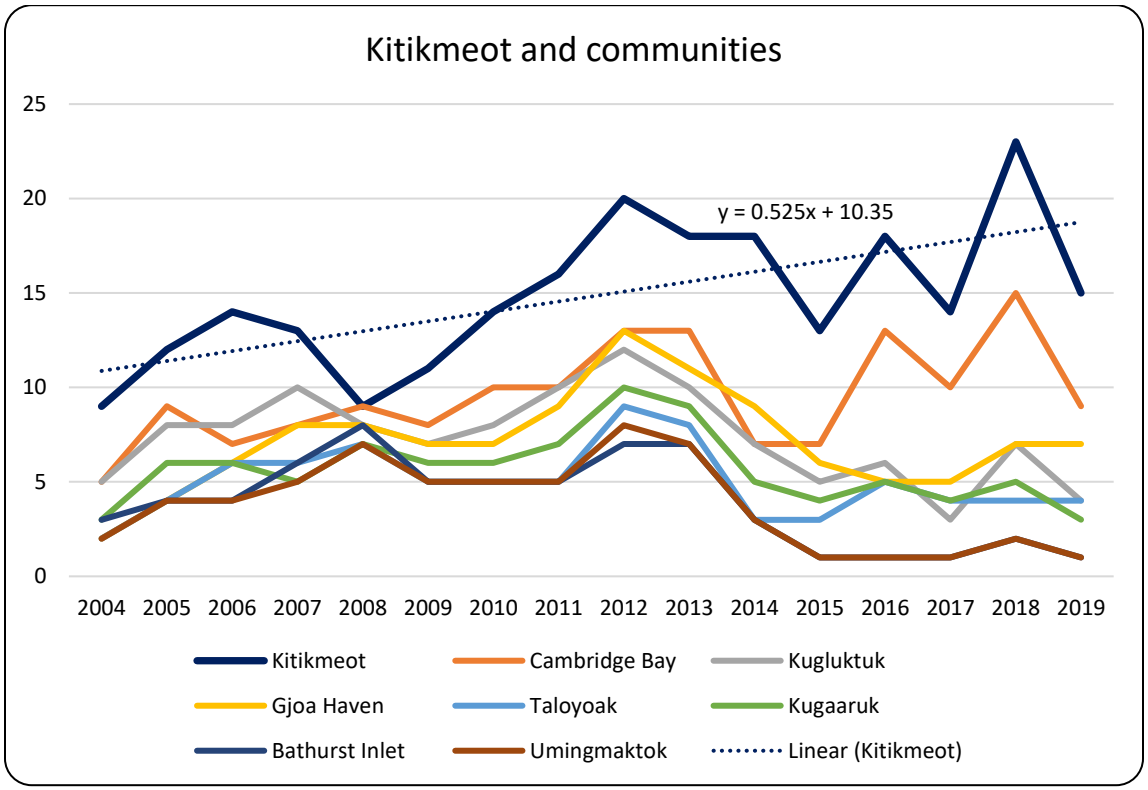
APPENDIX 7: Communities and regions over time



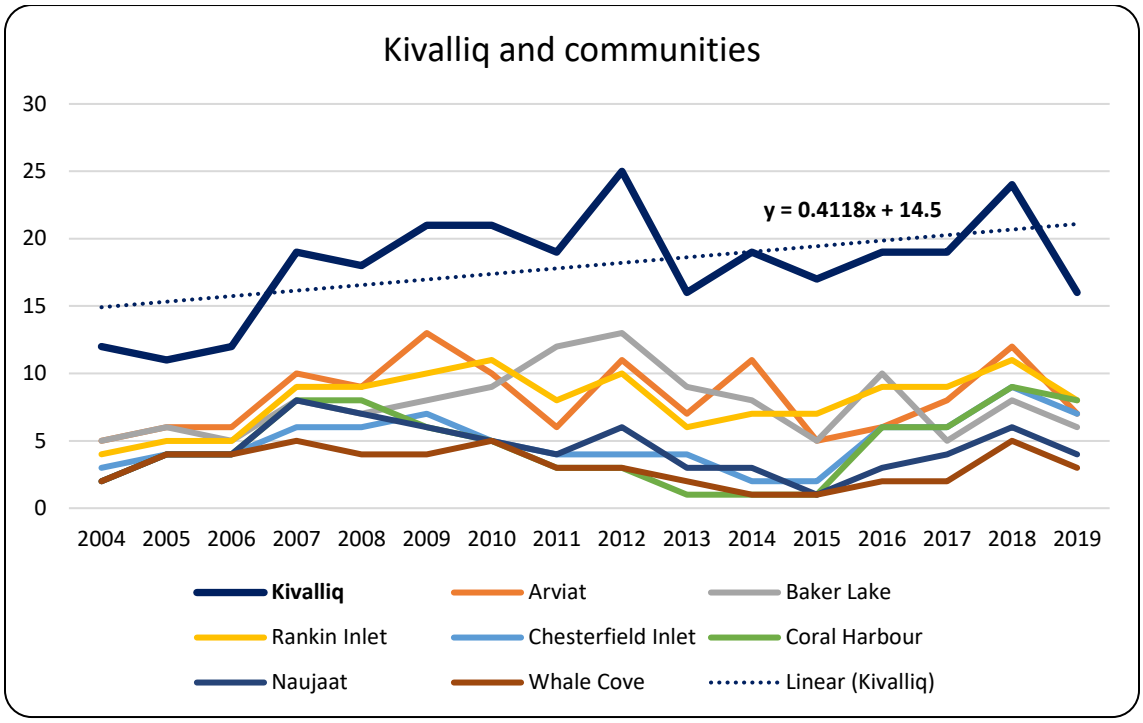


APPENDIX 7 CONTINUED: Communities and regions over time





APPENDIX 7 CONTINUED: Communities and regions over time



APPENDIX 7 CONTINUED: Communities and regions over time

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Arctic Bay	3	7	6	10	8	5	5	4	7	5	5	4	5	4	5	6
Arviat	5	6	6	10	9	13	10	6	11	7	11	5	6	8	12	7
Baker Lake	5	6	5	8	7	8	9	12	13	9	8	5	10	5	8	6
Bathurst Inlet	3	4	4	6	8	5	5	5	7	7	3	1	1	1	2	1
Cambridge Bay	5	9	7	8	9	8	10	10	13	13	7	7	13	10	15	9
Chesterfield Inlet	3	4	4	6	6	7	5	4	4	4	2	2	6	6	9	7
Clyde River	3	5	6	8	8	8	11	7	9	6	9	8	9	7	9	10
Coral Harbour	2	4	4	8	8	6	5	3	3	1	1	1	6	6	9	8
Gjoa Haven	2	4	6	8	8	7	7	9	13	11	9	6	5	5	7	7

APPENDIX 7 CONTINUED: Communities and regions over time

Grise Fiord	4	5	5	5	5	3	2	1	5	2	2	2	3	2	5	3
Igloolik	5	9	7	8	11	11	7	8	8	6	11	9	10	4	7	10
Iqaluit	15	16	15	17	22	27	26	21	26	25	20	23	23	20	20	20
Kimmirut	2	7	7	8	11	7	5	4	6	4	3	1	4	3	5	4
Kinngait	5	6	9	10	10	8	6	3	6	7	7	4	5	3	4	3
Kugaaruk	3	6	6	5	7	6	6	7	10	9	5	4	5	4	5	3
Kugluktuk	5	8	8	10	8	7	8	10	12	10	7	5	6	3	7	4
Naujaat	2	4	4	8	7	6	5	4	6	3	3	1	3	4	6	4
Pangnirtung	4	8	8	12	13	12	12	6	10	9	7	8	12	10	16	8
Pond Inlet	6	17	8	8	8	5	5	6	10	10	12	9	16	10	15	15

APPENDIX 7 CONTINUED: Communities and regions over time

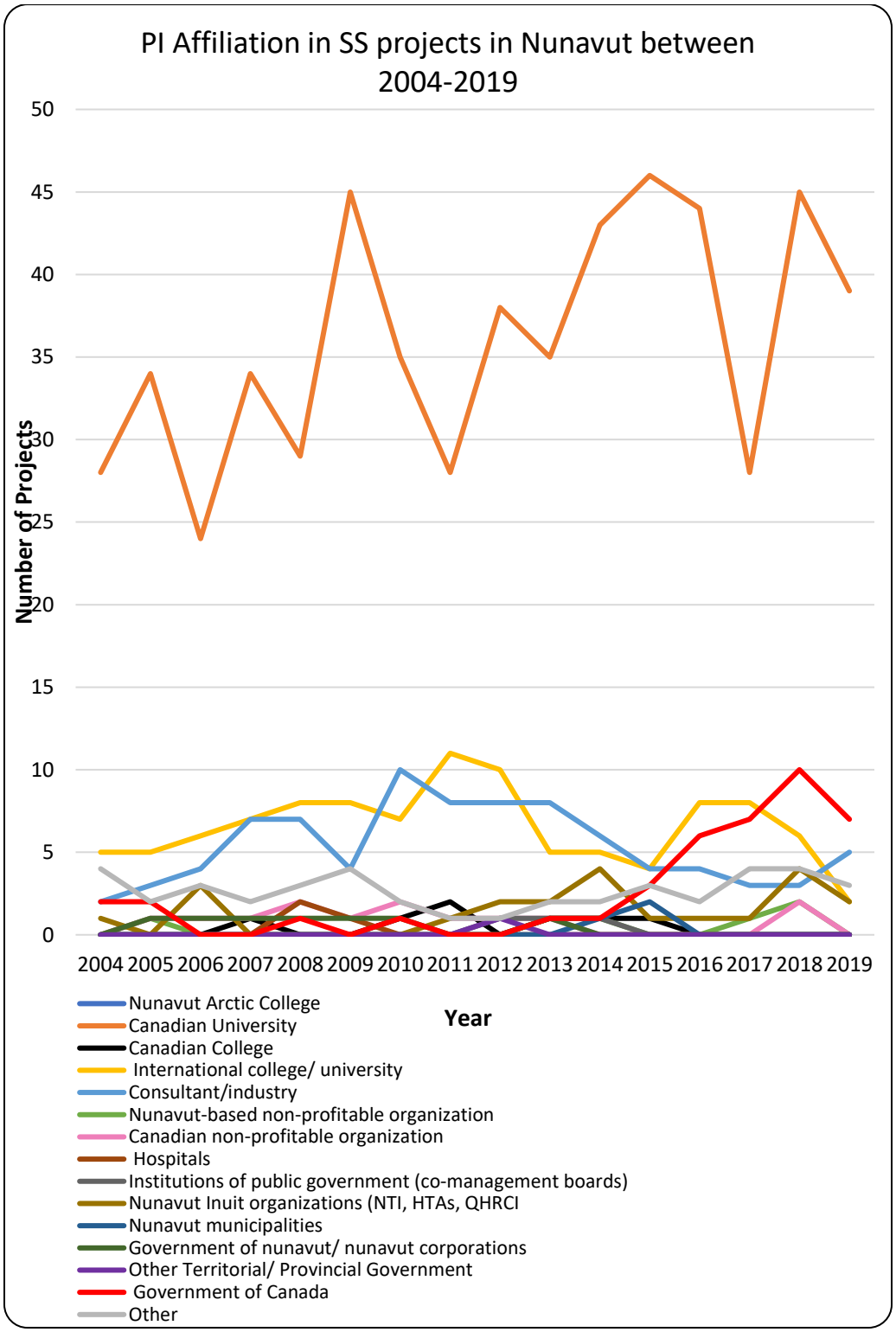
Qikiqtarjuaq	3	6	5	6	5	4	3	2	7	7	7	7	6	6	6	7
Rankin Inlet	4	5	5	9	9	10	11	8	10	6	7	7	9	9	11	8
Resolute Bay	4	8	5	5	4	3	2	2	5	4	2	1	4	3	5	3
Sanikiluaq	2	5	5	10	7	9	2	1	3	3	2	1	3	2	5	5
Sanirajak	2	5	5	6	6	4	4	4	5	3	4	2	4	3	5	5
Taloyoak	2	4	6	6	7	5	5	5	9	8	3	3	5	4	4	4
Umingmaktok	2	4	4	5	7	5	5	5	8	7	3	1	1	1	2	1
Whale Cove	2	4	4	5	4	4	5	3	3	2	1	1	2	2	5	3
Nunavut Wide	2	4	4	5	3	3	2	1	2	1	1	0	1	1	2	1
Outside community	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	4

APPENDIX 7 CONTINUED: Communities and regions over time

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Qikiqtani	28	39	30	35	40	45	39	33	38	37	41	42	46	35	47	41
South Baffin	20	28	27	28	32	40	34	27	33	33	28	30	32	29	33	27
North Baffin	14	26	12	16	21	18	19	16	18	15	25	22	26	15	22	22
Kivalliq	12	11	12	19	18	21	21	19	25	16	19	17	19	19	24	16
Kitikmeot	9	12	14	13	9	11	14	16	20	18	18	13	18	14	23	15
Outside Nunavut	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1

Region	**Rate of Change (Projects/ Year)**
Qikiqtani	0.6559
North Baffin	0.3279
South Baffin	0.2309
Kivalliq	0.4118
Kitkmeot	0.525

APPENDIX 8: PI Affiliation over time

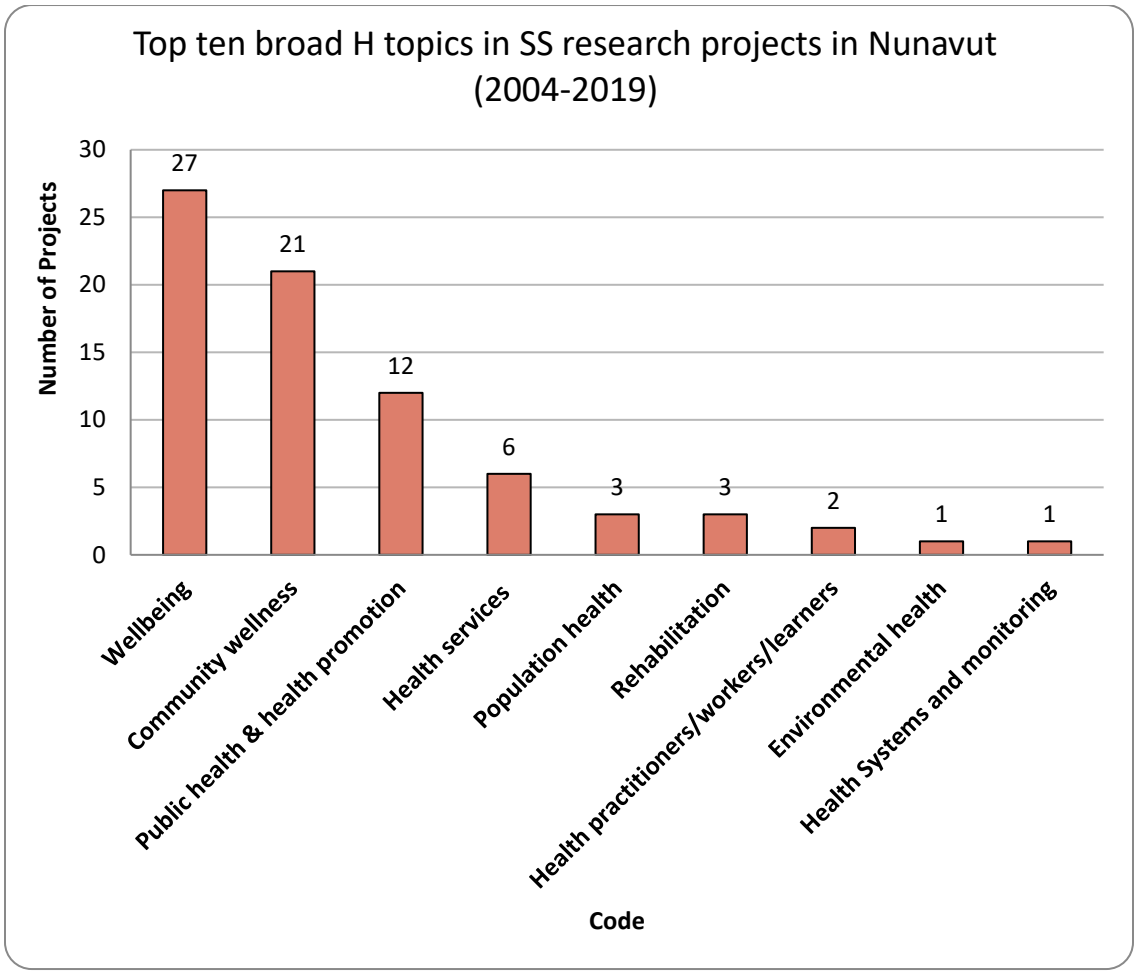


APPENDIX 8 CONTINUED : PI Affiliation over time

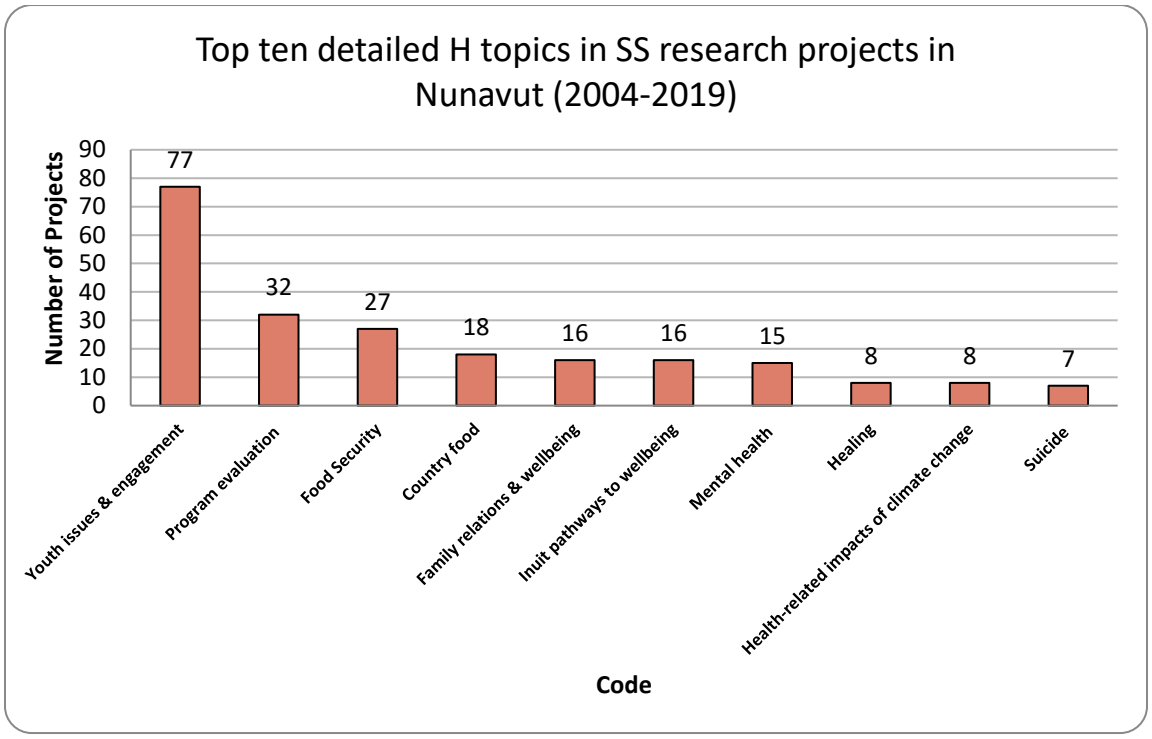
PI Affiliation	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Nunavut Arctic College	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Canadian University	28	34	24	34	29	45	35	28	38	35	43	46	44	28	45	39
Canadian College	0	0	0	1	0	0	1	2	0	1	1	1	0	0	0	0
International college/ university	5	5	6	7	8	8	7	11	10	5	5	4	8	8	6	2
Consultant/industry	2	3	4	7	7	4	10	8	8	8	6	4	4	3	3	5
Nunavut-based non-Profit organization	0	1	0	0	0	0	0	0	0	1	1	0	0	1	2	0
Canadian non-Profit organization	0	1	1	1	2	1	2	1	1	1	0	0	0	0	2	0
Hospitals	0	0	0	0	2	1	0	0	0	0	0	0	0	0	0	0
Institutions of public government (co-management boards)	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0
Nunavut Inuit organizations (NTI, HTAs, QHRCI	1	0	3	0	0	0	0	1	2	2	4	1	1	1	4	2
Nunavut municipalities	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0
Government of nunavut/ nunavut corporations	0	1	1	1	1	1	1	0	0	1	0	0	0	0	0	0
Other Territorial/ Provincial Government	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
Government of Canada	2	2	0	0	1	0	1	0	0	1	1	3	6	7	10	7
Other	4	2	3	2	3	4	2	1	1	2	2	3	2	4	4	3

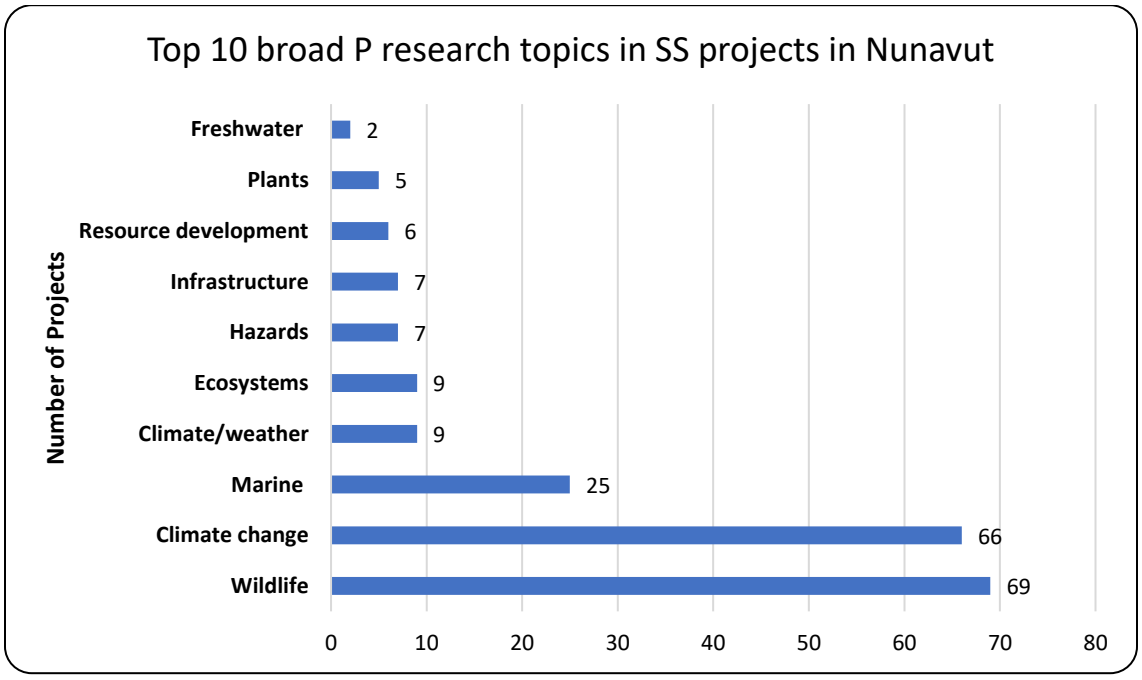
PI Affiliation	Rate of Change (Projects/ Year)
Canadian University	0.825
Government of Canada	0.4838
Nunavut Inuit organizations (NTI, HTAs, QHRCI	0.1294
Nunavut-based non-profit organization	0.0471
Nunavut municipalities	0.0279
Other	0.0176
Institutions of public government (co-management boards)	0.0132
Canadian College	0.0015
Other Territorial/ Provincial Government	0.0015
Nunavut Arctic College	0
Consultant/industry	-0.0147
Hospitals	-0.0279
Canadian non-profit organization	-0.0426
Government of Nunavut/ Nunavut corporations	-0.0662
International college/ university	-0.075

APPENDIX 9: Top 10 broad and detailed P and H topics

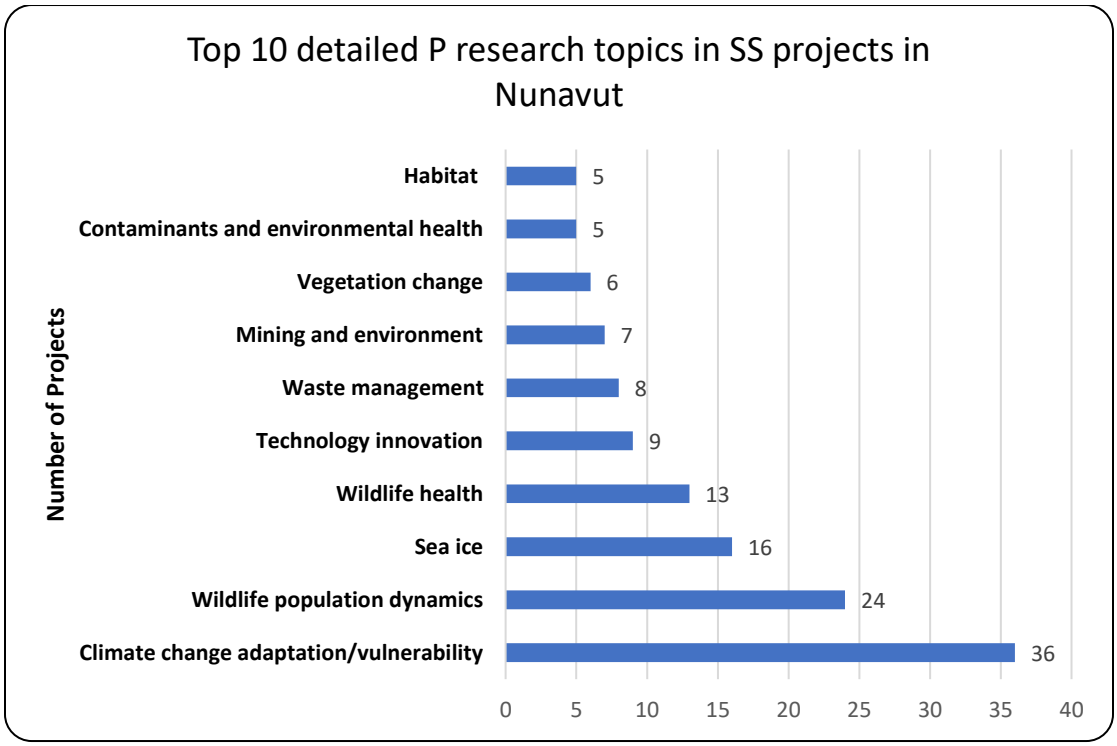


APPENDIX 9 CONTINUED: Top 10 broad and detailed P and H topics

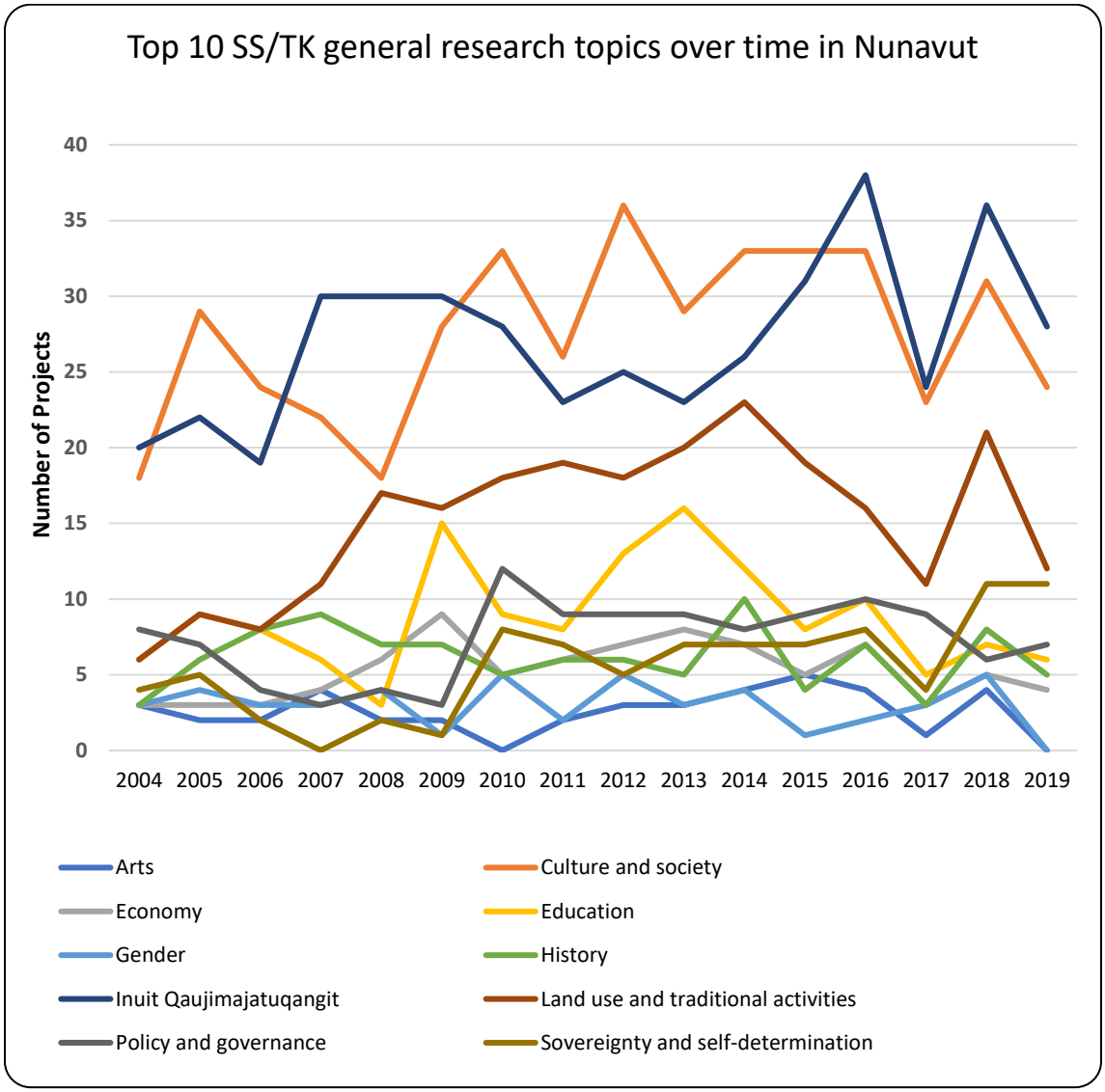




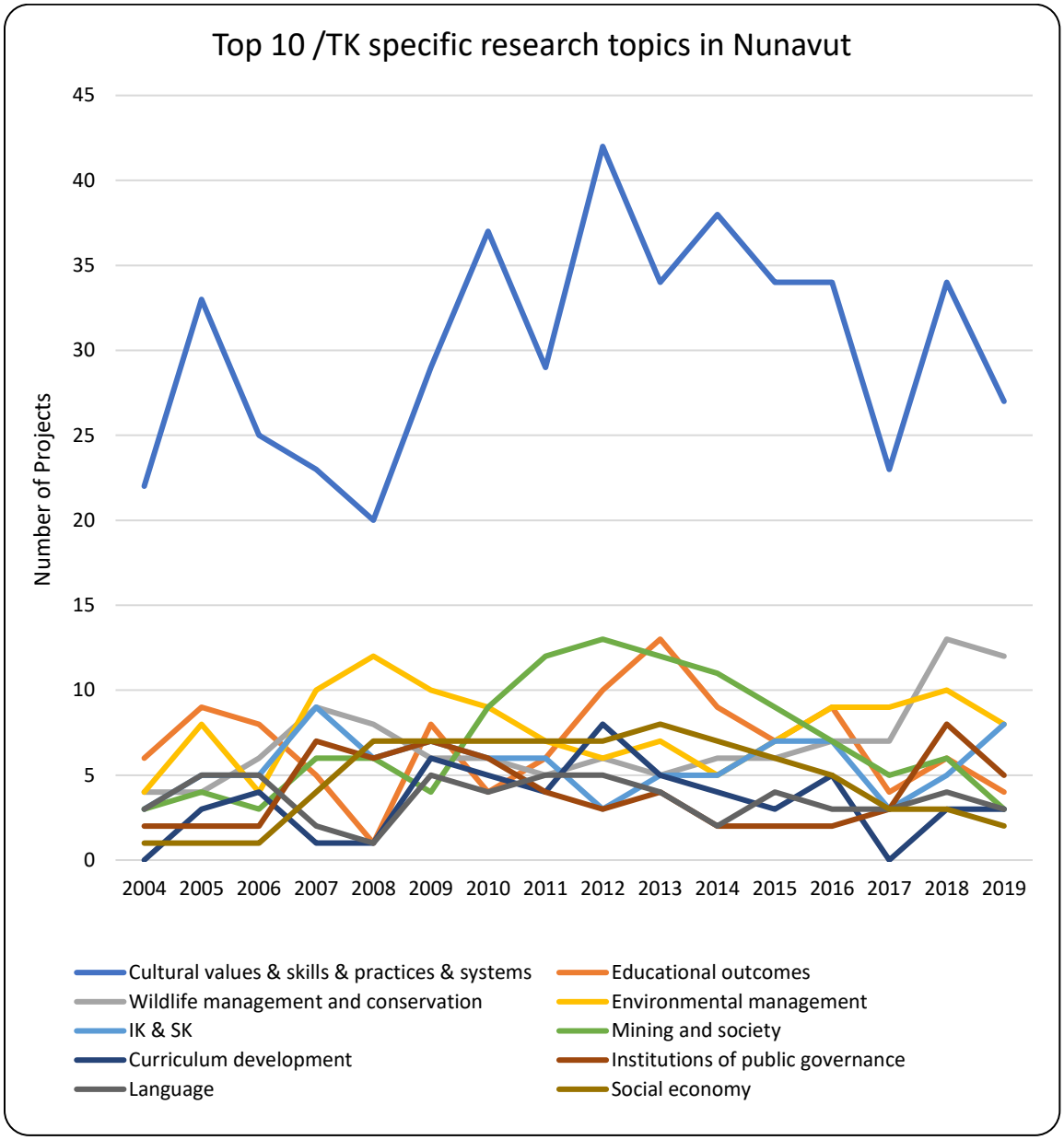
APPENDIX 9 CONTINUED: Top 10 broad and detailed P and H topics



APPENDIX 10: Top 10 broad and detail topics, topics used less than 5 times; H & P & SS Topic totals and over time



APPENDIX 10 CONTINUED: Top 10 broad and detail topics, topics used less than 5 times; H & P & SS Topic totals and over time



APPENDIX 10 CONTINUED: Top 10 broad and detail topics, topics used less than 5 times; H & P & SS Topic totals and over time

Social sciences codes used less than five times		
Geography (4)	Decolonization (4)	Poverty (4)
Water security (4)	Corrections (3)	Cumulative effects (3)
Mixed economy (3)	Restorative justice (3)	Early years education (2)
Literature (2)	Agriculture/ aquaculture (1)	Crafting (1)
Human Responses to light/ darkness (1)	Trapping (0)	
Social science codes used less than five times		
Geography (4)	Decolonization (4)	Poverty (4)
Water security (4)	Corrections (3)	Cumulative effects (3)
Mixed economy (3)	Restorative justice (3)	Early years education (2)
Literature (2)	Agriculture/ aquaculture (1)	Crafting (1)
Human Responses to light/ darkness (1)	Trapping (0)	

SS Codes	**Total**
Cultural values/skills/practices/systems	295
Culture/society	273
Inuit Qaujimajatuqangit (Inuit knowledge)	234
Land use and traditional activities	128
Education	91
Policy/governance	79
Educational outcomes	72
Sovereignty/self-determination	66
Wildlife management/conservation	65
Environmental management	63
History	59
IK & SK	59
Mining and society	55
Economy	43
Curriculum development	42
Institutions of public governance	36
Language	32
Social economy	32
Gender	28
Community planning	28

APPENDIX 10 CONTINUED: Top 10 broad and detail topics, topics used less than 5 times; H & P & SS Topic totals and over time

Gender studies	28
Communities dealing with ...	27
Arts	26
Hunting	25
Land use planning	25
Colonization Impacts	24
Student success	23
Digital technologies	21
Harvesting	20
Economic development	19
Politics	17
Sustainable development	17
Energy and mineral resources management	16
Parks/protected areas	16
Reconciliation	15
Traditional economy	15
Labour/training studies	14
Resilience	14
Women's studies	14
Disaster preparedness/resilience	13
Family supports/parenting	13
Tourism	13
Fishing/fisheries	12
Employment/ workplace	11
Mobility/migration	10
Music	10
On the land travel/navigation	10
Visual arts	10
Archaeology	9
Justice/Law	9
Housing	9
Literacy	9
Performing arts	8
Social services	8
Shipping	7

APPENDIX 10 CONTINUED: Top 10 broad and detail topics, topics used less than 5 times; H & P & SS Topic totals and over time

Emergency response	6
Heritage sites	6
Land claims implementation	6
Religion	6
Social Media	6
Architecture	5
Entrepreneurship	5
Infrastructure and transport management	5
Geography	4
Decolonization	4
Poverty	4
Water security	4
Corrections	3
Cumulative effects	3
Mixed economy	3
Restorative justice	3
Early years education	2
Literature	2
Agriculture/aquaculture	1
Crafting	1
Human response to light/darkness	1
Trapping	0

SS BROAD TOPIC	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Archaeology	1	1	1	0	0	1	2	1	1	1	2	2	1	1	1	1
Arts	3	2	2	4	2	2	0	2	3	3	4	5	4	1	4	0
Colonization impacts	4	3	1	2	3	1	1	1	3	3	6	3	1	0	1	1
Culture and society	18	29	24	22	18	28	33	26	36	29	33	33	33	23	31	24
Economy	3	3	3	4	6	9	5	6	7	8	7	5	7	3	5	4
Education	6	9	8	6	3	15	9	8	13	16	12	8	10	5	7	6
Gender	3	4	3	3	4	1	5	2	5	3	4	1	2	3	5	0
History	3	6	8	9	7	7	5	6	6	5	10	4	7	3	8	5
Inuit Qaujimajatuqangit	20	22	19	30	30	30	28	23	25	23	26	31	38	24	36	28

APPENDIX 10 CONTINUED: Top 10 broad and detail topics, topics used less than 5 times; H & P & SS Topic totals and over time

Justice and law	0	1	0	0	1	1	0	1	1	1	3	1	2	3	3	2
Land use and traditional activities	6	9	8	11	17	16	18	19	18	20	23	19	16	11	21	12
Policy and governance	8	7	4	3	4	3	12	9	9	9	8	9	10	9	6	7
Reconciliation	1	1	0	0	2	1	1	2	1	3	0	1	0	0	3	2
Sovereignty and self-determination	4	5	2	0	2	1	8	7	5	7	7	7	8	4	11	11

SS DETAILED TOPIC	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Agriculture and aquaculture	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Architecture	0	0	0	1	2	0	0	0	1	0	1	1	0	0	1	0
Communities dealing with ...	3	2	2	5	4	3	4	7	6	4	6	5	2	1	2	1
Community planning	2	2	2	4	2	2	2	2	0	1	2	4	4	5	4	3

Corrections	0	1	0	0	0	0	0	0	1	1	1	0	0	1	1	0
Crafting	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Cultural values & skills & practices & systems	22	33	25	23	20	29	37	29	42	34	38	34	34	23	34	27
Cumulative effects	1	1	1	0	0	0	1	0	0	1	0	0	0	0	0	0
Curriculum development	0	3	4	1	1	6	5	4	8	5	4	3	5	0	3	3
Decolonization	0	1	0	0	0	0	0	0	0	2	2	1	1	0	0	0
Digital technologies	3	2	2	0	0	3	2	0	2	3	4	4	5	1	1	2
Disaster preparedness and resilience	0	0	0	2	1	2	0	0	0	0	1	1	1	2	4	4
Early years education	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
Economic development	1	2	0	1	0	5	2	1	0	1	1	2	2	1	2	2
Educational outcomes	6	9	8	5	1	8	4	6	10	13	9	7	9	4	6	4
Emergency response	1	0	0	1	1	0	0	0	0	0	0	0	1	1	0	2
Employment (workplace)	0	2	0	1	1	0	0	0	0	0	0	2	2	1	2	4

APPENDIX 10 CONTINUED: Top 10 broad and detail topics, topics used less than 5 times; H & P & SS Topic totals and over time

Energy and mineral resources management	0	1	0	1	0	0	2	0	2	2	4	4	3	3	2	1
Entrepreneurship	0	0	0	1	0	2	0	0	1	0	0	0	0	1	0	0
Environmental management	4	8	4	10	12	10	9	7	6	7	5	7	9	9	10	8
Family supports and parenting	1	0	1	0	1	6	0	0	1	1	1	2	2	3	1	0
Fishing and fisheries	0	0	1	1	0	1	0	0	0	1	2	2	2	5	4	2
Gender studies	0	1	1	0	0	0	1	1	0	2	1	0	0	0	1	0
Harvesting	0	0	0	1	1	1	4	3	3	1	4	5	3	3	6	3
Heritage sites	0	0	1	1	1	1	0	0	0	0	2	2	1	0	1	2
Housing	0	0	0	1	1	0	0	1	3	0	2	2	1	0	0	0
Human responses to light and darkness	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Hunting	2	1	1	1	4	2	3	3	3	2	6	5	3	2	3	3
IK & SK	3	5	5	9	6	7	6	6	3	5	5	7	7	3	5	8
Infrastructure and transport management	0	0	0	0	0	0	1	0	0	1	1	2	2	1	1	0
Institutions of public governance	2	2	2	7	6	7	6	4	3	4	2	2	2	3	8	5
Labour and training studies	0	1	0	1	1	0	0	1	2	2	2	2	2	0	2	4
land claims implementation	0	0	0	1	1	1	1	0	2	1	1	1	1	0	0	0
Land use planning	2	2	1	3	3	3	7	4	6	6	4	4	3	2	4	2
Language	3	5	5	2	1	5	4	5	5	4	2	4	3	3	4	3
Literacy	0	1	4	1	0	1	1	0	1	1	1	0	0	0	1	1
Literature	0	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0
Mining and society	3	4	3	6	6	4	9	12	13	12	11	9	7	5	6	3
Mixed economy (subsistence and wage-based)	0	0	0	0	2	0	0	0	0	0	1	1	1	1	1	1
Mobility and migration	0	0	0	2	1	1	0	1	0	0	1	2	2	1	1	1
Music	0	2	1	3	1	0	0	0	2	1	1	2	0	0	1	0
On the land travel & navigation	1	2	1	1	0	0	2	1	1	0	1	1	1	0	1	2
Parks and protected areas	0	3	0	2	2	0	0	0	2	1	1	3	6	6	7	6
Performing arts	1	0	0	1	1	0	0	1	1	1	1	0	1	0	2	0

APPENDIX 10 CONTINUED: Top 10 broad and detail topics, topics used less than 5 times; H & P & SS Topic totals and over time

Politics	3	3	2	3	2	0	2	0	0	2	0	0	3	1	2	1
Poverty	0	0	0	1	0	0	0	0	1	1	0	1	0	0	0	0
Religion	2	1	2	2	1	1	1	1	2	1	0	0	0	0	0	0
Resilience	1	0	0	1	0	1	3	1	2	2	3	3	1	3	4	2
Restorative justice	0	1	0	0	0	0	0	0	1	1	1	0	0	1	1	0
Shipping	0	1	1	1	1	0	0	0	0	1	0	0	2	2	1	2
Social economy	1	1	1	4	7	7	7	7	7	8	7	6	5	3	3	2
Social media	0	0	0	0	0	1	0	0	0	1	0	1	2	1	2	0
Social services	0	0	0	0	1	0	1	0	2	2	1	2	2	2	0	0
Student success	0	1	3	0	0	3	3	2	4	5	2	2	0	3	2	3
Sustainable development	2	3	2	0	1	0	0	0	0	0	2	0	5	3	3	3
Tourism	0	1	2	3	2	2	3	1	1	1	1	2	2	0	0	1
Traditional economy	0	0	0	1	1	2	0	1	5	4	5	4	3	1	2	1
Trapping	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Visual arts	2	0	1	1	1	3	1	1	2	2	1	1	1	0	0	0
Water security	0	0	0	0	1	0	0	0	0	0	1	1	1	0	1	1
Wildlife management and conservation	4	4	6	9	8	6	6	5	6	5	6	6	7	7	13	12
Women's Studies	3	4	2	2	1	0	1	1	3	2	3	1	2	2	3	0

SS broad topic	**Rate of Change (Projects/ Year)**
Inuit Qaujimajatuqangit	0.5926
Land use and traditional activities	0.5559
Sovereignty and self-determination	0.4956
Culture and Society	0.4882
Policy and Governance	0.2074
Economy	0.0897
Education	0.0338
Arts	0.0162
History	-0.0338
Gender	-0.0735

APPENDIX 10 CONTINUED: Top 10 broad and detail topics, topics used less than 5 times; H & P & SS Topic totals and over time

SS specific topic	Rate of change (Projects/ year)
Cultural values & skills & practices & systems	0.4588
Wildlife management and conservation	0.3147
Mining and society	0.1809
Social economy	0.1
Environmental management	0.0956
Curriculum development	0.0662
Institutions of public governance	0.0426
IK & SK	0.0382
Educational outcomes	0.0015
Language	-0.0294

Health Codes	Total
Youth issues/engagement	77
Program evaluation	32
Wellbeing	27
Food security	27
Community wellness	21
Country food	18
Family relations and well-being	16
Inuit pathways to wellbeing	16
Mental health	15
Public health and health promotion	9
Healing	8
Health-related impacts of climate change	8
Suicide	7
Women's health	7

APPENDIX 10 CONTINUED: Top 10 broad and detail topics, topics used less than 5 times; H & P & SS Topic totals and over time

Health services	6
Death and dying	6
Addictions/Substance Use/Recovery	5
Physical Abuse & Recovery	4
Risk management	4
Traditional medicines	4
Population health	3
Rehabilitation	3
Elder health	3
Maternal/reproductive Health	3
Out of Territory care	3
Respiratory Health	3
Safety	3
Health practitioners/workers/learners	2
Contaminants and human health	2
Drinking water	2
Health-promoting practices	2
Health infrastructure	2
Infectious disease/illness	2
Men's health	2
Patient experiences	2
Environmental health	1
Health Systems and monitoring	1
Child Health	1
Infant health	1
Historical perspectives on health and medicine	1
Injuries	1
Medical interventions	1
Mortality/morbidity	1
Nursing education/training	1
Occupational/physiotherapy	1
Social determinants of health	1
Stress	1
Trauma-informed care	1
Viruses	1

APPENDIX 10 CONTINUED: Top 10 broad and detail topics, topics used less than 5 times; H & P & SS Topic totals and over time

Clinical/medical research	0
Epidemiology	0
Professional training/accountability	0
Allergies	0
Cancer	0
Cardio/heart health	0
Chronic disease	0
Internal medicine	0
Metabolic disorders/illness	0
Midwifery	0
Physical health and activity	0
Recruitment/retention of health care practitioners	0
Remote medicine	0
Sexual health and relationships	0
Spiritual health	0
Vitamin and iron deficiencies	0
Zoonoses	0

H BROAD	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Clinical and medical research	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Community wellness	6	3	2	1	1	1	2	1	4	1	2	3	0	4	1	1
Environmental health	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Epidemiology	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Health services	1	0	0	0	0	0	2	0	1	0	0	1	1	0	0	0
Health systems and monitoring	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
Population health	0	0	1	0	0	0	1	0	0	0	0	1	0	0	0	0
Professional training and accountability	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Public health and health promotion	2	1	1	0	3	1	4	0	0	0	0	1	0	0	1	0
Rehabilitation	0	1	0	0	0	0	0	0	0	0	0	0	0	2	1	0
Wellbeing	1	2	1	2	1	1	2	1	3	3	6	6	4	4	3	2

APPENDIX 10 CONTINUED: Top 10 broad and detail topics, topics used less than 5 times; H & P & SS Topic totals and over time

H DETAILED	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Addictions and substance use and recovery	0	0	0	1	0	2	1	0	1	0	0	0	0	0	0	0
Allergies	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cancer	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cardio and heart health, including defects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Child health and development and pediatrics	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
Chronic disease	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Contaminants snd human health	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0
Country food and traditional inuit foods and inuksiutit	1	0	0	1	0	1	2	1	2	1	4	2	2	2	4	1
Death and dying	1	0	0	0	2	2	2	1	1	1	1	1	0	0	0	0
Drinking water	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	1
Elder health and care	0	0	0	0	0	0	1	0	0	0	0	2	0	0	0	0
Family relations and well-being	1	3	2	1	2	5	0	0	0	0	2	3	2	3	1	0
Food security and safety and access and sovereignty	1	0	0	0	1	0	5	2	3	3	7	7	3	3	3	2
Healing	1	0	0	0	2	3	0	0	1	1	0	0	0	1	0	0
Health infrastructure	0	0	0	0	1	0	0	0	0	0	0	0	0	1	1	0
Health practitioners and workers and learners	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0
Health promoting practices	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Health related impacts of climate change	0	0	0	0	0	0	0	0	0	0	1	3	1	3	1	0
Historical perspectives on health and medicine	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Infant health	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
Infectious disease (including vector-borne illness)	0	0	0	1	1	0	0	0	0	0	0	1	0	0	0	0
Injuries (including accidents)	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0

APPENDIX 10 CONTINUED: Top 10 broad and detail topics, topics used less than 5 times; H & P & SS Topic totals and over time

Internal medicine (digestive health)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Inuit pathways to wellbeing	3	2	2	1	3	3	2	0	2	1	1	0	1	1	0	2
Maternal and reproductive Health	0	0	0	0	1	1	2	0	0	0	0	0	0	0	0	0
Medical interventions	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Men's Health	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0
Mental health (including psychology, psychiatry)	4	2	1	1	0	1	1	0	3	2	2	1	2	1	1	1
Metabolic disorders and illness	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Midwifery	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mortality and morbidity	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
Nursing education and training	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Occupational and physiotherapy	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Outside of Territory Care	0	0	0	0	1	0	1	0	0	0	0	0	0	0	1	0
Patient Experiences	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0
Physical Abuse & Recovery	0	0	0	0	1	1	1	0	1	0	0	0	0	0	1	0
Physical health and activity	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Program evaluation	3	1	0	1	5	1	4	1	3	1	2	6	2	3	3	3
Recruitment and retention of health care practitioners	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Remote Medicine	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Respiraory health (including tuberculosis)	1	0	0	0	2	1	1	1	1	1	1	0	0	0	0	0
Risk management	0	0	0	1	1	0	0	0	0	0	0	1	1	0	0	0
Safety (related to travel, abuse, accidents, living conditions)	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	2
Sexual health and relationships	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Social determinants of health	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Spiritual health	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Stress	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Suicide	1	0	0	0	0	1	0	0	1	0	1	1	2	1	1	1

APPENDIX 10 CONTINUED: Top 10 broad and detail topics, topics used less than 5 times; H & P & SS Topic totals and over time

Telemedicine, telehealth, remote medicine	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Traditional Medicines	1	0	1	0	0	1	0	0	0	0	0	0	0	0	1	0	0
Trauma informed care	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
Viruses	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
Vitamin and iron deficiencies	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Women's health	0	0	0	0	1	1	3	1	1	1	1	0	0	0	0	0	0
Youth issues and engagement	6	9	6	5	4	6	4	3	13	8	13	9	15	10	10	9	
Zoonoses	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Physical Codes	**Total**
Wildlife	69
Climate change	66
Climate change adaptation/vulnerability	36
Marine	25
Wildlife population dynamics	24
Sea ice	16
Wildlife health	13
Climate/weather	9
Ecosystems	9
Technology innovation	9
Waste management	8
Hazards	7
Infrastructure	7
Mining and environment	7
Resource development	6
Vegetation change	6
Plants	5
Contaminants and environmental health	5
Habitat	5
Water quality	5
Weather monitoring or forecasting	5
Extreme weather events	4
Migration	4
Wastewater	4

APPENDIX 10 CONTINUED: Top 10 broad and detail topics, topics used less than 5 times; H & P & SS Topic totals and over time

Oil/gas	3
Pollution	3
Renewable energy	3
Water quantity	3
Fish Health	2
Freshwater	2
Transportation	2
Climate change mitigation	2
Ecosystem processes	2
Fish health	2
Food webs	2
Birds	1
Biodiversity	1
Energy exchange	1
Flooding	1
Invasive species	1
Pathogens	1
Roads	1
UV effects	1
Air/atmosphere	0
Engineering	0
Insects	0
Invertebrates	0
Land and landforms	0
Air quality	0
Airstrips	0
Bird health	0
Buildings	0
Climate projections	0
Coastal zone	0
Glaciers	0
Greenhouse gas fluxes	0
Hydrology	0
Ice Islands	0
Icebergs	0

APPENDIX 10 CONTINUED: Top 10 broad and detail topics, topics used less than 5 times; H & P & SS Topic totals and over time

Historical climate	0
Historical weather trends	0
Lakes	0
Landslides	0
Limnology	0
Ocean acidification	0
Ocean circulation	0
Ozone layer	0
Permafrost	0
Phenology	0
Rivers	0
Rocks/minerals	0
Sea-level rise	0
Sediment	0
Soils	0
Utilidor lines	0
Water flow	0
Watersheds	0
Wetlands	0

P BROAD TOPIC	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Air & Atmosphere	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Birds	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
Climate & Weather	1	1	0	0	1	2	2	3	0	0	0	1	1	0	0	2
Climate Change	4	1	2	7	8	7	7	5	4	6	7	13	10	10	9	6
Ecosystems	1	1	1	3	1	1	1	0	0	1	0	1	2	3	3	4
Engineering	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fish health	0	0	0	0	0	0	0	1	0	0	0	0	1	1	1	1
Freshwater (lakes, rivers, streams)	0	0	0	0	0	0	1	1	0	0	0	0	1	0	0	0
Hazards	0	0	0	1	2	3	1	0	0	0	0	1	1	1	2	2
Infrastructure	1	1	1	2	0	0	2	2	3	3	0	0	0	1	0	0

APPENDIX 10 CONTINUED: Top 10 broad and detail topics, topics used less than 5 times; H & P & SS Topic totals and over time

Insects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Invertebrates	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Land and landforms	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Marine (ocean, coastal areas, sea ice)	1	1	2	4	4	1	0	1	2	2	1	2	7	6	7	7
Plants	1	0	1	0	1	2	1	0	0	0	1	0	0	0	0	0
Resource Development	1	0	0	0	0	0	0	0	0	0	3	0	1	0	1	0
Transportation	0	0	0	0	1	0	0	0	0	0	1	1	1	0	0	0
Wildlife	5	5	6	9	8	6	6	6	6	4	8	7	8	8	14	13

P DETAILED	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Air quality	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Airstrips	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Biodiversity	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
Buildings	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Climate change adaptation and vulnerability	3	2	0	6	4	3	4	2	3	3	4	8	2	6	6	3
Climate change mitigation (greenhouse gas emissions, carbon pricing, carbon sequestration)	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
Climate projections	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

APPENDIX 10 CONTINUED: Top 10 broad and detail topics, topics used less than 5 times; H & P & SS Topic totals and over time

Coastal zone (landforms, erosion)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Contaminants and environmenta l health	0	0	1	0	0	0	0	0	0	1	0	0	1	0	2	1

Ecosystem processes	0	0	0	0	0	0	0	1	0	0	0	0	1	1	1	1
Energy exchange	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
Extreme weather events	0	0	0	1	2	4	1	0	0	0	0	0	0	0	0	0
Flooding	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Food webs	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0
Glaciers	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Greenhouse gas fluxes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Habitat related to specific species	0	0	1	1	2	2	2	2	0	0	1	1	1	0	1	0
Historical climate	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Historical Weather Trends	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hydrology	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ice Islands	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Icebergs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Invasive species	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Lakes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Landslides	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Limnology	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Migrations (animals, birds)	0	0	0	2	2	1	2	1	0	0	0	0	0	0	1	0
Mining and environment	1	1	1	2	0	0	1	3	2	1	1	1	1	0	0	0
Ocean acidification	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ocean circulation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Oil and gas	0	0	0	0	0	0	1	0	0	0	0	0	1	2	0	0
Ozone Layer	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pathogens	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
Permafrost	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Phenology	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pollution	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	1
Renewable energy	0	0	0	0	0	0	0	0	1	1	0	0	0	1	0	0

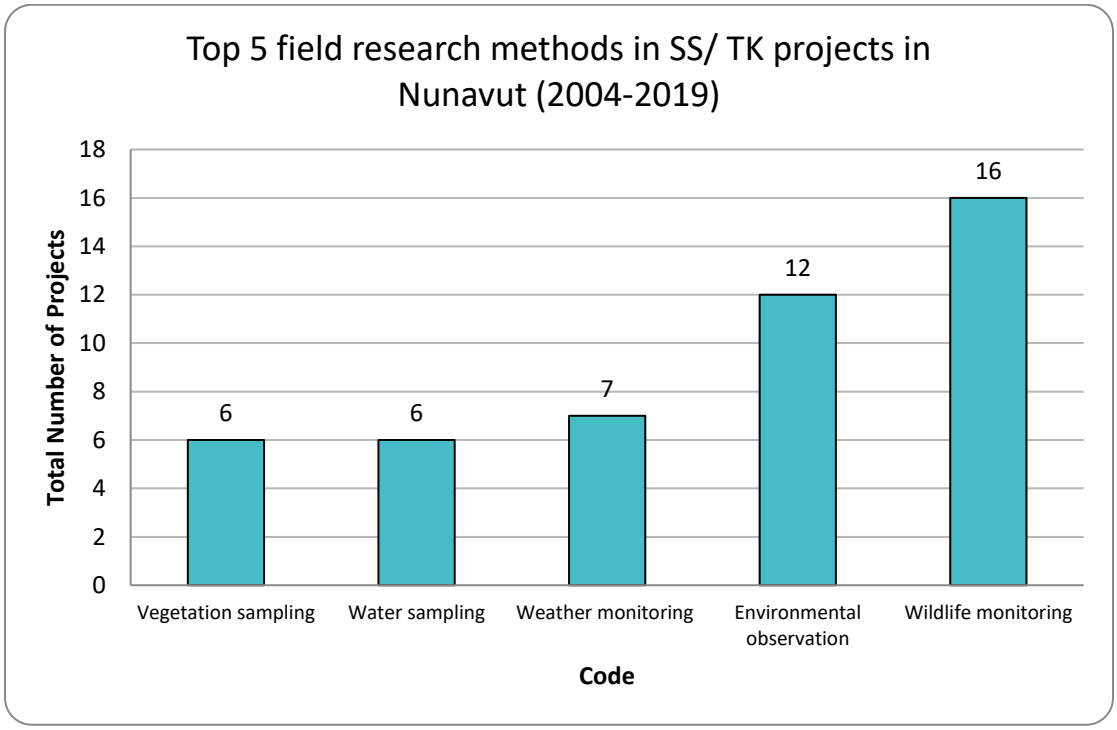
APPENDIX 10 CONTINUED: Top 10 broad and detail topics, topics used less than 5 times; H & P & SS Topic totals and over time

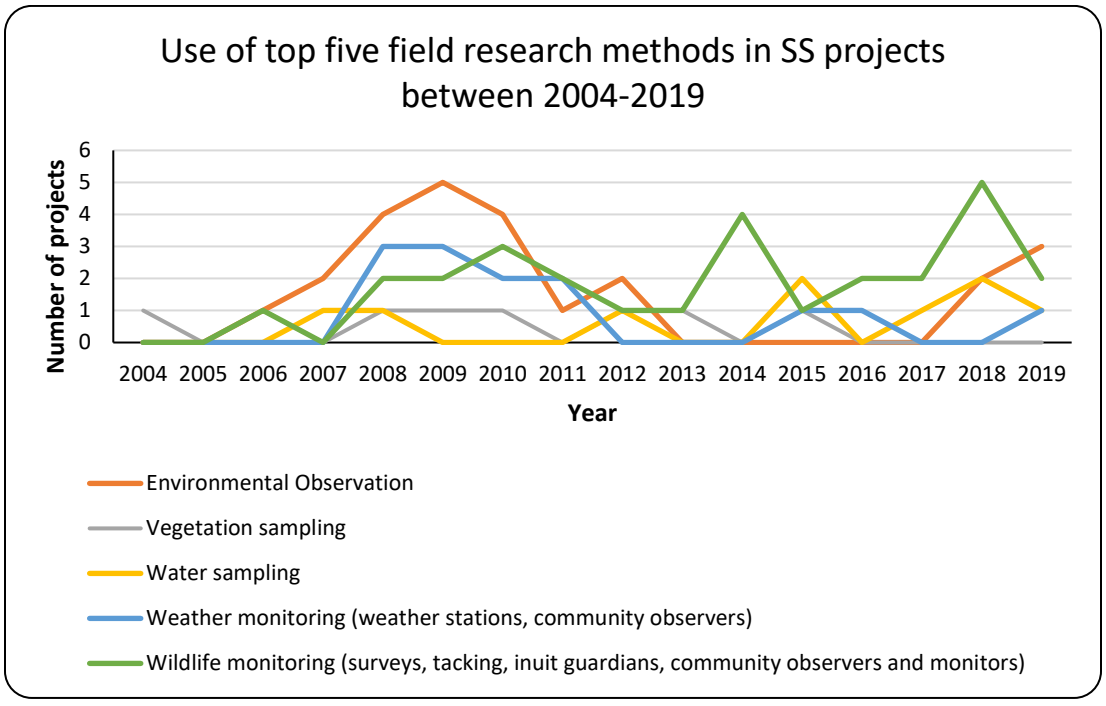
Rivers	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Roads	0	0	0	0	0	0	0	0	0	0	2	2	2	0	0	0
Rocks and minerals	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sea ice	3	2	2	7	5	2	2	2	1	1	1	1	2	0	1	1
Sea-level rise	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sediment	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Soils	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Technology innovation	0	0	0	0	0	0	1	1	2	1	0	1	3	0	2	1
Utilidor lines	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
UV Effects	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
Vegetation change	0	0	0	1	2	2	1	1	1	1	2	2	0	0	0	0
Waste management	0	1	0	0	0	0	0	0	0	0	2	1	1	1	1	1
Wastewater	0	1	0	1	0	0	0	0	0	0	0	0	1	0	1	0
Water flow	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Water quality	0	0	0	0	1	0	0	0	0	0	0	1	1	0	2	1
Water quantity	0	0	0	0	0	0	0	0	0	0	1	2	1	0	0	0
Watersheds	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Weather montoring or forecasting	0	0	0	0	2	3	1	1	0	0	0	0	1	0	0	1
Wetlands	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wildlife health	1	1	1	1	1	0	1	1	1	1	3	3	3	2	5	3
Wildlife population dynamics	1	1	2	2	5	2	2	3	1	2	3	2	4	3	8	8

APPENDIX 10 CONTINUED: Top 10 broad and detail topics, topics used less than 5 times; H & P & SS Topic totals and over time

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Climate Change	4	1	2	7	8	7	7	5	4	6	7	13	10	10	9	6
Wildlife	5	5	6	9	8	6	6	6	7	4	8	7	8	8	14	13
Culture and society	18	29	24	22	18	28	33	26	36	29	33	33	33	23	31	24
Education	6	9	8	6	3	15	9	8	13	16	12	8	10	5	7	6
Inuit Qaujimajatuqangit	20	22	19	30	30	30	28	23	25	23	26	31	38	24	36	28
Land use and traditional activities	6	9	8	11	17	16	18	19	18	20	23	19	16	11	21	12
Policy and governance	8	7	4	3	4	3	12	9	9	9	8	9	10	9	6	7
Youth issues and engagement	6	9	6	5	4	6	4	3	13	8	13	9	15	10	10	9
Cultural values & skills & practices & systems	22	33	25	23	20	29	37	29	42	34	39	35	35	23	34	27
Educational outcomes	6	9	8	5	1	8	4	6	11	13	9	7	9	4	7	4

APPENDIX 11: Research methods and reporting totals and NAC involvement over time





APPENDIX 11 CONTINUED: Research methods and reporting totals and NAC involvement over time

Field research method	Total
Wildlife monitoring	16
Environmental observation	12
Weather monitoring	7
Environmental photography	6
Vegetation sampling	6
Water sampling	6
Ground truthing for remote sensing or aerial surveys	5
Wildlife sampling	5
Human specimen collection	3
Recording GPS locations	3
Ship-based research	3
Soil sampling	2
Waste sampling	2
Water Tank Sampling	2
Air sampling	1
Core sampling	1
Potable water quality testing	1
Science camps	1
Sediment sampling	1
Gas/flux monitoring	0
Invertebrate sampling	0
Paleo-reconstruction	0
Rock sampling	0
UAVs	0

APPENDIX 11 CONTINUED: Research methods and reporting totals and NAC involvement over time

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Air sampling	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Core sampling	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
Environmental Observation	0	0	1	2	4	5	4	1	2	0	0	0	0	0	2	3
Environmental photography	0	1	1	3	3	3	0	0	0	0	0	0	1	0	0	1
Gas and flux monitoring	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ground truthing for remote sensing or aerial surveys	0	0	0	5	3	1	0	0	0	0	0	0	0	0	0	0
Human specimen collection	0	0	0	0	1	1	0	0	0	0	0	1	0	1	1	0
Invertebrate sampling	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Paleo reconstruction	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PoTable water quality testing	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Recording GPS Locations	0	0	0	1	1	0	0	0	1	0	0	1	1	1	1	1
Rock Sampling	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Science camps	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Sediment sampling	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
Ship-based research	0	0	0	0	0	0	0	1	1	0	0	0	1	0	1	0
Soil sampling	0	0	0	1	1	0	0	0	0	0	0	1	0	0	0	0
UAV	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Vegetation sampling	1	0	1	0	1	1	1	0	1	1	0	1	0	0	0	0
Waste sampling	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0
Water sampling	0	0	0	1	1	0	0	0	1	0	0	2	0	1	2	1
Water tank sampling	0	0	0	1	1	0	0	0	0	0	0	0	0	0	1	1
Weather monitoring	0	0	0	0	3	3	2	2	0	0	0	1	1	0	0	1
Wildlife monitoring	0	0	1	0	2	2	3	2	1	1	4	1	2	2	5	2
Wildlife sampling	0	0	0	1	1	0	0	0	1	1	1	0	0	0	3	2

Field based research method	**Rate of Change (Projects/ Year)**
Wildlife monitoring (surveys, tracking, Inuit guardians, community observers and monitors)	0.1765
Water sampling	0.075
Weather monitoring (weather staitons, community observers)	-0.0191
Environmental observation	-0.0324
Vegetation sampling	-0.0441

APPENDIX 11 CONTINUED: Research methods and reporting totals and NAC involvement over time

Community-based research method	**Total**
Interviews	368
Community-connected research	166
Audio recordings	133
Research/training workshops	83
Focus Groups	77
Experiential learning and observation	73
Literature Review	68
People/community photography	60
Surveys (using questionnaires)	60
Video recordings	48
Community-research partnership	45
Participatory Action Research	36
Case studies	35
Archival research	34
NAC Involvement	34
Mixed Methods	32
Oral histories	28
Creative/artistic methods	21
Descriptive studies (unclear)	16
Participatory mapping	15
Sharing circles	9
Land camps	6
Grounded Theory	2
Intervention studies	2
Epidemiological studies	0

APPENDIX 11 CONTINUED: Research methods and reporting totals and NAC involvement over time

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Archival research	2	1	1	3	4	3	5	3	6	7	10	5	5	1	4	3
Audio recording	2	4	3	7	15	21	18	17	16	19	18	21	20	17	26	13
Case studies	1	1	3	4	3	3	2	2	7	7	4	5	1	2	3	2
Community connection	8	9	7	15	16	15	19	14	18	23	20	27	17	17	25	23
Community research partnerships	1	5	2	4	5	5	3	3	4	1	4	3	4	5	7	5
Creative and artistic methods	2	0	1	3	4	3	1	0	3	1	2	2	3	3	3	0
Descriptive studies	2	1	0	1	0	3	1	1	1	1	2	2	1	1	0	3
Epidemiological studies	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Experiential learning and observation	6	4	5	5	4	5	7	3	5	7	11	9	10	9	11	9
Focus groups	2	1	1	9	9	11	13	11	14	10	11	11	12	8	11	5
Grounded theory	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0
Intervention studies	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Interviews	16	17	14	30	36	48	43	44	44	48	50	55	49	35	46	32
Land camps	0	0	0	0	1	0	0	0	1	2	2	3	1	2	2	2
Literature review	3	5	3	8	8	8	7	8	11	10	9	10	6	5	5	1
Mixed methods	3	4	1	2	1	2	4	2	4	4	4	5	2	3	4	6
NAC Involvement	3	5	3	6	5	4	4	4	6	6	6	3	3	2	2	1
Oral histories	2	2	3	2	5	5	4	4	3	6	6	5	4	2	6	3
Participatory action research	0	1	0	3	1	4	2	2	2	3	3	2	1	0	1	1
Participatory mapping	2	2	0	3	3	2	5	4	7	4	11	8	6	6	9	6
People and community photography (Includes photo voice)	2	1	2	5	5	4	5	7	10	9	12	7	7	8	10	9
Research and training workshops	2	3	4	6	9	8	13	12	13	16	17	10	8	8	16	14
Sharing circles	0	0	0	1	1	1	0	0	1	3	3	2	1	0	0	1
Surveys	3	4	4	4	7	7	6	5	9	14	6	8	3	3	7	5
Video recording	2	2	1	3	5	9	6	8	9	11	8	7	4	5	8	5

APPENDIX 11 CONTINUED: Research methods and reporting totals and NAC involvement over time

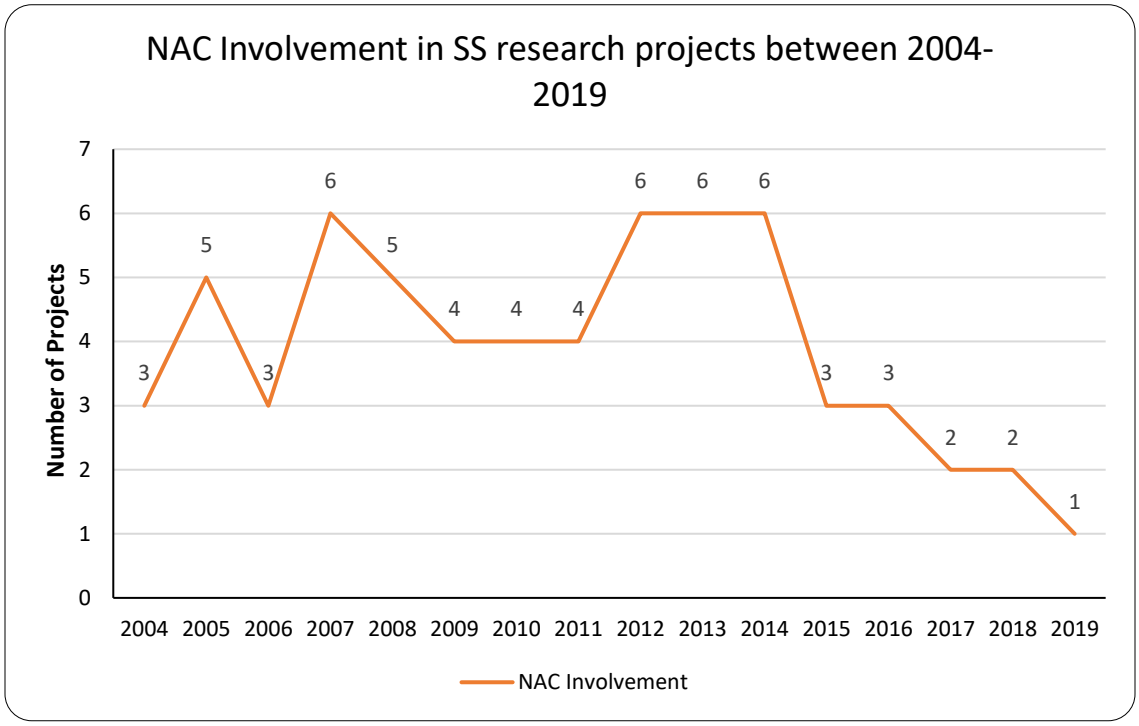
Community-based research method	Rate of Change (Projects/ Year)
Interviews	1.7309
Audio Recording	1.104
Research training and workshops	0.6956
People and community photography (includes photo voice)	0.5515
Experiential Learning and observation	0.4294
Focus groups	0.4221
Surveys	0.2956
Video recording	0.2956
Literature review	0.0074
Participatory action research	0.0029

Reporting tool	Rate of Change (Projects/ Year)
Journal Article	2.1485
Community Presentation	1.225
Report	1.1956
Conference Presentation	0.8853
Student Thesis	0.7221
Book	0.5794
Website	0.5603
Results Summary	0.4956
Radio Presentation	0.3985
Community organization meetings/ workshops	0.1397

APPENDIX 11 CONTINUED: Research methods and reporting totals and NAC involvement over time

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Book	1	0	1	3	6	4	5	5	6	7	11	7	11	7	9	7
Brochure/ Pamphlet	1	0	0	2	3	2	2	3	2	3	4	5	2	2	3	3
community organization meetings / workshops	3	3	2	6	3	3	5	3	6	7	8	5	5	3	3	6
Community presentation	3	2	2	9	13	17	16	12	11	16	15	19	17	17	27	19
Conference presentation	1	1	2	8	4	8	6	9	10	8	11	13	14	11	14	14
creative and artistic reporting	0	0	0	2	3	2	1	2	3	4	5	6	3	4	7	1
Individual meetings and updates	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1
Journal Article	2	3	4	13	18	24	21	25	25	25	35	34	31	29	38	28
Magazine	0	0	0	2	4	3	2	3	1	1	0	1	1	0	0	1
Map	1	1	2	3	2	1	1	3	2	2	1	3	4	5	9	6
Newspaper	1	0	0	0	2	1	1	3	2	1	3	1	1	0	0	0
Poster	1	1	0	3	2	1	1	4	4	4	5	4	2	3	5	7
Radio presentation	1	0	1	4	3	3	2	3	5	8	8	10	3	4	6	6
Recreation	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Report	5	4	2	12	15	19	20	18	20	25	23	24	16	14	24	24
Results Summary	0	0	2	2	9	8	9	9	8	6	8	5	14	11	6	6
social media	0	0	0	0	0	0	1	0	0	1	4	5	2	6	6	3
Student Thesis	10	7	4	11	7	16	13	12	19	15	23	23	20	12	16	13
TV	0	0	0	0	1	0	0	0	1	1	2	2	1	0	0	0
Website	1	0	1	6	3	4	6	7	6	5	8	5	7	7	12	9

APPENDIX 11 CONTINUED: Research methods and reporting totals and NAC involvement over time



APPENDIX 12: Top 5 highest intensity SS research intensity locations and trends

***Italics represent field methods and physical science topics in respective columns*

Community (# of projects)	How many PIs?	Leadership	Top SS 10 broad topics (# of projects)	Top 5 methods (# of projects)	Top 5 reporting (#of projects)	Community Engagement (# of projects)
Iqaluit (229)	208	• Canadian University (159) • International college/ University (30) • Other (11) • Consultant/ industry (9) • Canadian Non-Profit/ Charitable Organization (5) • Government of • Nunavut (5) • Nunavut Inuit Organization (3) • Canadian college (2) • Nunavut-based • Non-Profit/ Charitable Organization (2) • Government of Canada (2)	• Culture & society (113) • IQ (66) • Policy and governance (56) • Education (49) • Sovereignty and self-determination (37), • Land use/ traditional activities (31), • economy (16), • History (16), • Colonization impacts (11), • Gender (11)	• Interviews (166) • Audio recording (54) • Lit review (35) • Surveys (30) • Focus groups (29) • Experiential learning (28) *Environmental observation (5), environmental photography (3)*	• Journal article (90) • Student thesis (67) • Report (64) • Community presentation (53) • Conference presentation (38)	• Community-partnered: 16 • Community-connected: 44

APPENDIX 12 CONTINUED: Top 5 highest intensity SS research intensity locations and trends

Pond Inlet (88)	84	• Canadian university (57), • International college/ university (8), • Consultant/ industry (6), • Other/ independent researcher (5), • Nunavut Inuit organization (4), • Nunavut-based charity (3), • Government of Canada (1), • Canadian charity (1), • Canadian college (1), • Nunavut municipalities (1)	• Culture/ society (39) • IQ (35) • Education (18) • Sovereignty and self-determination (18) • Land use and traditional activities (14), • policy and governance (10), • History (7), • Economy (6), • Arts (4), • Colonization impacts (3)	• Interviews (48) • Audio recording (16) • Surveys (15) • Research and training workshops (14) • Photography (12) • Lit review (10) *Wildlife sampling (4), ship-based research, environmental observation (3)*	• Journal article (28) • Report (26) • Community presentation (25) • Student thesis (15) • Results summary, • website (11)	• Community-partnered: 8 • Community-connected: 29
Pangnirtung (82)	75	• Canadian university (54), • Government of Canada (7), • International college/ university (5), • consultant/ industry (4), • other/ independent researcher (4), • Canadian charity (2), • Government of Nunavut (2), • Nunavut Inuit organization (2), • Canadian college (1), • Nunavut-based charity (1)	• IQ (35) • Culture/ society (26) • Land use and traditional activities (18) • Education (17) • Policy/ governance (10), • History (9), • Arts (6), • Sovereignty/ self determination (5), • Economy (5), • Colonization impacts (4) *Environmental management (13)*	• Interviews (53) • Audio recording (18) • Research and training workshops (13) • Surveys (12) • Experiential learning (11) • Focus groups, photography (10) *Environmental observation, ground truthing, recording GPS, ship-based research, waste sampling, wildlife sampling, wildlife monitoring (1)*	• Journal article (27) • Community presentation (24) • Report (21) • Student thesis (16) • Results summary, • conference presentation (9)	• Community-partnered: 8 • Community-connected: 22

APPENDIX 12 CONTINUED: Top 5 highest intensity SS research intensity locations and trends

Arviat (81)	66	• Canadian University (49), • International college/ university (7), • Consultant/ industry (5), • other/ independent researcher (5), • Nunavut-based charity (4), • Canadian charity (3), • Government of Canada (3), • Nunavut municipalities (2), • Nunavut Inuit Organization (2), • Canadian college (1)	• Culture/ society (33) • IQ (31) • Education (27) • Land use and traditional activities (16) • History (7), • policy and governance (6), • economy (6), • Gender (6), • Arts (4), • Sovereignty/ self-determination (4), • Colonization impacts (4)	• Interviews (45) • Surveys (16) • Audio recording (15) • Focus groups (13) • Research and training workshops (10) • photography (8) *Water tank sampling (2), wildlife monitoring, waste sampling, soil sampling, ship-based research, recording GPS, environmental photography, core sampling (1)*	• Report (24) • Journal article (23) • Student thesis (18) • Community presentation (16) • Results summary (13)	• Community-partnered: 4 • Community-connected: 19
Cambridge Bay (80)	67	• Canadian university (43), • Consultant/industry (14), • international college/ university (7), • other/ independent researcher (5), • Nunavut-based charity (3), • Nunavut Inuit organization (3), • Canadian college (2), • Canadian charity (2), • Government of Nunavut (1)	• Culture/ society (37) • IQ (27) • Education (19) • Land use and traditional activities (16) • Policy and governance (15), • Economy (12), • sovereignty and self-determination (12), • History (6), • Archaeology (4), • Arts (2), • Colonization impacts (2) *Mining and society (15)*	• Interviews (49) • Audio recording (21) • Research and training workshops (19) • Surveys (12) • Focus groups (10) • Lit review, photography (8) *Wildlife sampling (3), wildlife monitoring, water tank sampling, water sampling, ship-based esearch, human specimen collection, environmental photography, air sampling (1)*	• Journal article (24) • Report (23) • Community presentation (17) • Student thesis (13) • Website (12)	• Community-partnered: 10 • Community-connected: 20

APPENDIX 13: Top 5 lowest intensity SS research locations and trends

***Italics represent field methods and physical science topics in respective columns*

Community (# of projects)	**How many PIs?**	**Leadership**	**Top 10 SS broad topics (# of projects)**	**Top 5 methods (# of projects)**	**Top 5 reporting (#of projects)**	**Community Engagement (# of projects)**
Kugaaruk (35)	28	• Canadian university (15), • consultant/ industry (10), • Nunavut-based charity (3), • International college/ university (2), • Other/ independent researcher (2), • Canadian college (1), • Canadian charity (1), • Nunavut Inuit organization (1)	• Culture/ society (13) • IQ (13) • Education (10) • Economy (10) • Land use/ traditional activities (9), • policy and governance (3), • history (2), • Colonization impacts, • archaeology, • arts, • reconciliation, gender, • justice, and law (1) *Mining and society, social economy (9)*	• Interviews (17) • Surveys (8) • Focus groups, • research and training workshops (7) • Lit review (6) *Ship-based research (1)*	• Report (8) • Journal article (6) • Community presentation, • conference presentation (4) • Student thesis, • community workshops (3), • results summary (2)	• Community-partnered: 2 • Community-connected: 6

APPENDIX 13 CONTINUED: Top 5 lowest intensity SS research locations and trends

Resolute Bay (31)	31	• Canadian University (19), • Consultant/ industry (2), • Government of Canada (2), • Other/ independent researcher (2), • Nunavut Inuit organization (2), • International college/ university (1), • Canadian college (1), • Nunavut based charity (1), • Canadian charity (1)	• IQ (12) • Culture/ society, • education (11) • Policy and governance (7) • Land use and traditional activities (4) • History, • sovereignty and self-determination (3), • economy, • colonization impacts, • arts (2)	• Interviews (16) • Surveys (10) • Focus groups, • research and training workshops (5) • Photography , • mixed methods, • audio recording (3) *Environmental photography, ship-based research, wildlife sampling (1)*	• Journal article (7) • community presentation (6) • Report, student thesis (5) • Website (4)	• Community -partnered: 2 • Community -connected: 7
Whale Cove (30)	27	• Canadian University (14), • Consultant/ industry (4), • Other/ independent researchers (3), • Canadian charitable organization (3), • Government of Canada (1), • Nunavut Inuit organization (1), • Nunavut charitable organization (1), • Canadian College (1),	• Education (12), • IQ (9), • culture and society (7), • economy (5), • land use and traditional activities (4), • policy and governance, • sovereignty and self-determination (3), • arts, • colonization impacts, • history, • reconciliation (1)	• Interviews (17), • surveys (8), • audio recording, • literature review, • people and community photography, • research, and training workshops (3) *Wildlife monitoring (2), water sampling, recording GPS locations, ship-based research (1)*	• Report (10), • community presentation (8), • Results summary (6), • Student thesis, • journal article (5)	• Community -partnered: 1 • Community -connected: 5

		• International college/ university (1)				
Saniraja k (31)	30	• Canadian university (16), • Consultant/ industry (4), • Other/ independent researcher (4), • Nunavut based charity (2), • Canadian charity (2), • Nunavut Inuit organization (2), • Canadian college (1)	• IQ, education (13) • Culture/ society (10) • Policy and governance, • land use and traditional activities (4) • economy (2), • History, • sovereignty/ self-determination, • arts, • gender • justice and law (1)	• Interviews (16) • Surveys (10) • Photography , • research and training workshops (6) • Focus group (5) *Wildlife sampling (2), ship-based research (1)*	• Report (11) • Community presentation (9) • Journal article (6) • Results summary, • conference presentation (4) • student thesis (3)	• Community-partnered: 1 • Community-connected: 8
Grise Fiord (28)	28	• Canadian university (16), • other/ independent researcher (4), • Nunavut Inuit organization (2), • International college/ university (1), • Canadian college (1), • Consultant/ industry (1), • Nunavut-based charity (1), • Canadian charity (1), Government of Canada (1)	• Education (12) • Culture & society (10) • IQ, Policy and governance (7) • History (4) • Land use and traditional activities, • Colonization impacts, • Sovereignty and self-determination, • Arts (3), • Reconciliation , • Economy (2)	• Interviews (15) • Surveys (10) • Focus groups (5) • Lit review, • photography , • research and training workshops (3) *Wildlife sampling (1), ship-based research (1)*	• Report (6), • Student thesis, • journal article, • community presentation (4) • Conference presentation (3) • Results summary, • book (2), • website, • map, creative/ artistic reporting (1)	• Community-partnered: 2 • Community-connected: 6

APPENDIX 14: Matrix query outputs for PI affiliation

	Archaeology	Arts	Colonization impacts	Culture and society	Economy	Education	Gender	History	Inuit Qaujimajatuqangit	Justice and law	Land use and traditional activities	Policy and governance	Reconciliation	Sovereignty and self-determination
Nunavut Arctic College	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Canadian University	3	12	20	175	26	71	18	41	150	6	74	58	10	44
Canadian College	0	0	0	2	2	1	0	0	1	1	1	0	0	0
International college/ university	1	11	2	47	3	6	4	10	28	1	20	9	2	8
Consultant/ industry	1	0	0	15	9	0	0	2	20	0	16	2	1	1
Nunavut-based charitable organization	2	0	0	4	0	2	1	2	3	0	1	0	0	0
Canadian charitable organization	0	0	1	1	2	2	1	0	0	0	0	0	0	1
Hospitals	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Institutions of public government (co management boards)	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nunavut Inuit organizations	1	0	0	4	0	3	1	1	5	0	3	2	0	2
Nunavut municipalities	0	0	0	1	0	0	0	0	1	0	1	0	0	1
Government of Nunavut/ Nunavut corporations	0	0	0	3	0	2	0	1	4	0	2	1	0	0
Other territorial/ provincial government	0	0	0	0	0	0	1	0	0	0	0	1	0	0
Government of Canada	1	1	0	4	0	1	0	1	16	0	5	0	1	2
Other	0	2	1	17	1	3	2	1	6	1	5	6	1	7

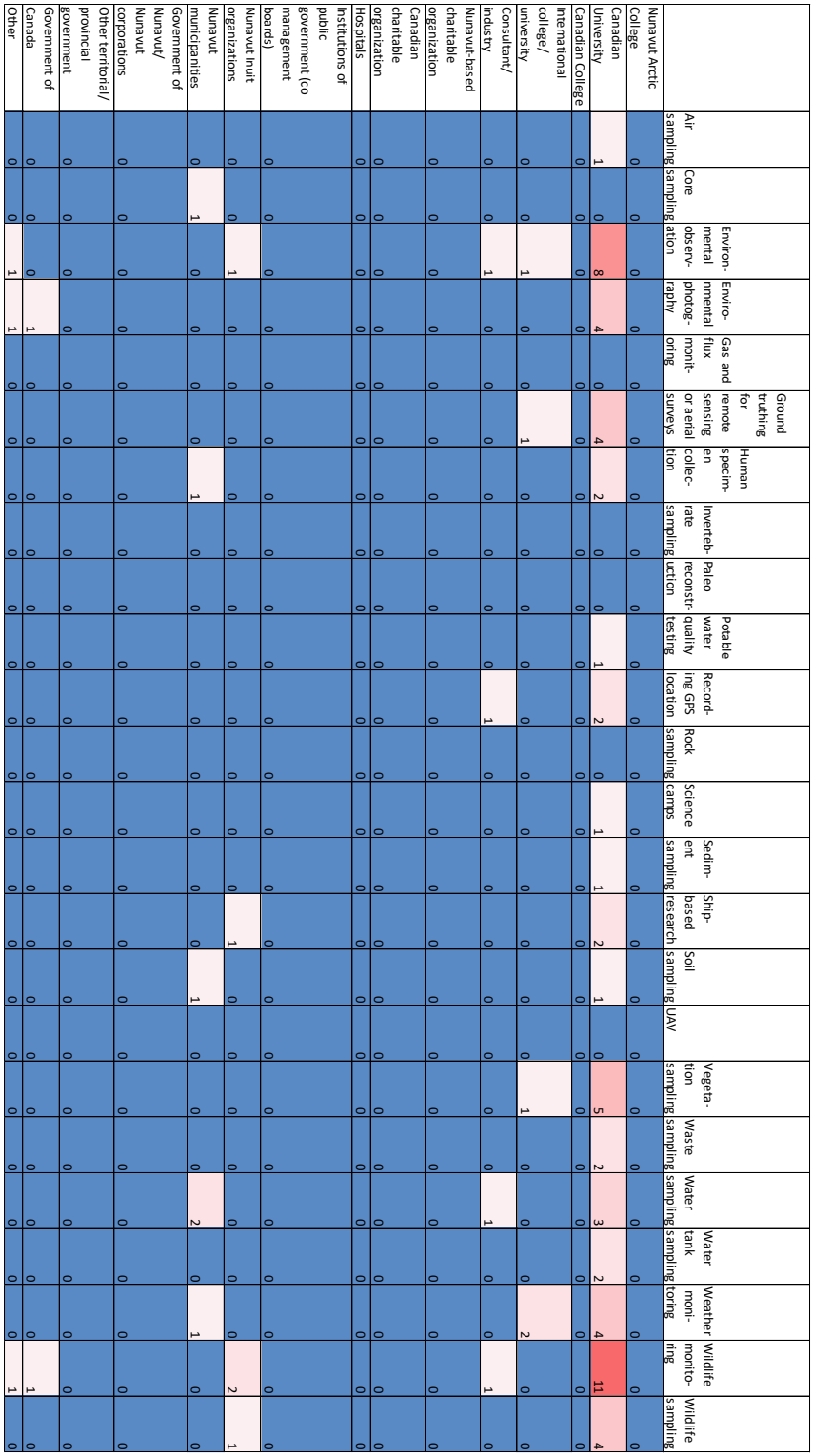
APPENDIX 14 CONTINUED: Matrix query outputs for PI affiliation

	Book	Brochure and pamphlet	community organization meetings and workshops	Community presentation	Conference presentation	creative and artistic reporting tools (film, song, performance, etc)	Individual meetings and updates	Journal Article	Magazine	Map	Newspaper	Poster	Radio presentation	Recreation	Report	Results Summary	Social media	Student Thesis	TV	Website
Nunavut Arctic College	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Canadian University	30	12	27	91	66	18	3	159	11	8	9	18	27	1	115	46	7	113	4	39
Canadian College	1	1	2	4	2	1	0	3	0	0	0	0	1	0	6	0	0	1	0	1
International college/ university	5	1	1	12	9	5	0	27	0	2	1	0	0	0	10	9	0	28	0	9
Consultant/ industry	2	0	6	7	0	0	0	2	0	2	0	0	0	0	14	8	3	0	0	2
Nunavut-based charitable organization	1	0	0	1	1	1	0	1	0	0	0	0	1	0	2	0	1	0	0	1
Canadian charitable organization	0	0	0	3	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Hospitals	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Institutions of public government (co management boards)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nunavut Inuit organizations	1	0	1	3	1	0	0	2	0	1	0	0	0	0	3	2	0	0	0	0
Nunavut municipalities	0	0	1	2	0	0	0	0	0	0	0	1	2	0	1	0	3	0	2	0
Government of Nunavut/ Nunavut corporations	0	0	0	2	0	0	0	1	0	1	0	0	0	0	2	1	0	1	0	0
Other territorial/ provincial government	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Government of Canada	2	2	0	6	1	0	1	6	0	4	0	4	5	0	6	1	1	0	0	0
Other	2	0	2	4	1	2	0	5	1	0	1	2	1	0	4	1	0	1	1	4

APPENDIX 14 CONTINUED: Matrix query outputs for PI affiliation

	Audio record-ing	Case studies	Creative and artistic methods	Descri-ptive studies	Epide-miolog-ical studies	Expe-riential learning and observ-ation	Archival research	Focus groups	Groun-ded theory	Interve-ntion studies	Intervi-ews	Land camps	Litera-ture review	Mixed methods	Oral histories	Partic-ipatory action research	Partici-patory mapping	People and comm-unity photo-graphy (includes photo voice)	Resea-rch and train-ing works-hops	Sharing circles	Surveys	Video recor-ding
Nunavut Arctic College	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Canadian University	92	22	12	10	0	46	24	55	1	1	257	5	34	24	18	12	26	41	43	6	35	28
Canadian College	0	0	1	2	0	1	0	2	0	0	5	0	2	1	0	0	0	1	1	0	2	1
International college/ university	18	4	5	2	0	20	7	4	0	0	49	0	15	2	3	1	0	7	6	1	4	9
Consultant/ industry	3	2	1	1	0	1	1	11	0	0	23	0	12	2	1	0	5	2	15	0	5	1
Nunavut-based charitable organization	1	2	0	0	0	1	0	1	0	0	4	0	0	1	2	1	0	2	4	2	2	0
Canadian charitable organization	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	2	0
Hospitals	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Institutions of public government (co management boards)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nunavut Inuit organizations	2	1	0	0	0	1	0	0	0	0	4	0	1	0	1	0	1	0	0	0	1	3
Nunavut municipalities	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	1	2	0	2	0
Government of Nunavut/ Nunavut corporations	2	1	0	0	0	0	0	1	1	0	3	0	1	0	0	0	0	0	1	0	1	0
Other territorial/ provincial government	1	0	0	0	0	0	0	1	0	0	1	0	1	0	0	0	0	0	2	0	0	0
Government of Canada	6	1	1	0	0	1	1	0	0	0	8	0	0	1	2	1	3	1	4	0	2	2
Other	8	1	1	0	0	2	1	2	0	1	13	1	2	0	1	0	0	5	4	0	4	4

APPENDIX 14 CONTINUED: Matrix query outputs for PI affiliation



APPENDIX 14 CONTINUED: Matrix query outputs for PI affiliation

	Annual	2-year	3-year	4-year	5-year	Over 5-year
Nunavut Arctic College	0	0	0	0	0	0
Canadian University	277	40	28	14	9	4
Canadian College	5	1	0	0	0	0
International college/ university	48	11	3	5	0	1
Consultant/ industry	24	2	3	8	0	3
Nunavut-based charitable organization	9	0	1	0	0	0
Canadian charitable organization	6	0	0	0	0	1
Hospitals	0	0	0	0	0	0
Institutions of public government (co management boards)	0	0	0	0	0	0
Nunavut Inuit organizations	9	1	0	0	1	0
Nunavut municipanities	3	0	0	0	0	0
Government of Nunavut/ Nunavut corporations	4	0	2	0	0	0
Other territorial/ provincial government	2	0	0	0	0	0
Government of Canada	7	4	1	3	1	1
Other	18	3	1	2	1	0

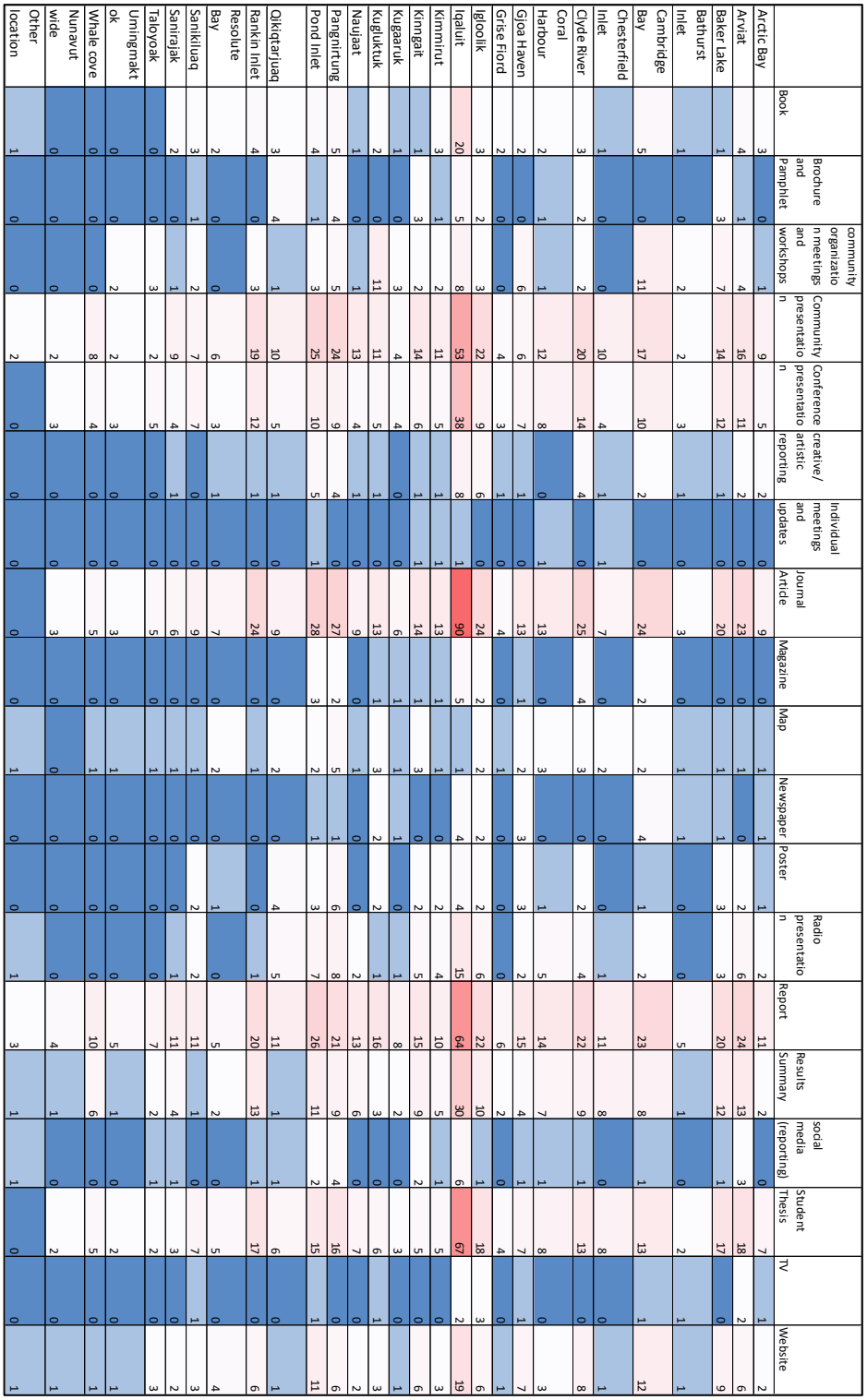
APPENDIX 15: Matrix query outputs for community

	Archaeology	Arts	Colonization impacts	Culture and society	Economy	Education	Gender	History	Inuit Qaujimaj-atuqangit	Justice and law	Land use and traditional activities	Policy and governance	Recon-ciliation	Sovereignty and self-determination
Arctic Bay	0	1	3	15	3	16	0	3	17	1	5	5	2	5
Arviat	0	4	4	33	6	28	6	7	31	2	16	6	3	4
Baker Lake	0	1	1	29	6	16	4	4	27	0	20	7	3	5
Bathurst Inlet	1	1	1	11	8	9	0	2	7	0	6	2	1	1
Cambridge Bay	4	2	2	37	12	19	1	6	27	1	16	15	1	12
Chesterfield Inlet	0	2	1	13	5	13	0	2	16	1	8	6	1	3
Clyde River	0	2	3	25	7	16	4	6	26	1	14	11	3	11
Coral Harbour	0	1	1	12	7	12	1	3	17	1	6	5	2	4
Gjoa Haven	1	1	3	19	10	14	2	5	20	0	13	7	2	4
Grise Fiord	0	3	3	10	2	12	0	4	7	1	3	7	2	3
Igloolik	1	7	4	34	3	23	1	5	33	0	15	6	3	4
Iqaluit	0	8	11	113	16	50	11	16	67	7	31	57	10	37
Kimmirut	0	1	1	15	2	11	0	5	15	1	10	4	1	3
Kinngait	0	4	2	15	2	14	1	6	20	2	6	6	1	2
Kugaaruk	1	1	1	13	10	10	1	2	13	1	9	3	1	0
Kugluktuk	1	1	2	21	10	14	1	3	25	0	12	8	2	6
Naujaat	0	1	3	11	6	16	0	3	13	0	2	4	2	4
Pangnirtung	2	6	4	26	5	17	3	9	39	1	18	10	2	5
Pond Inlet	0	4	3	39	6	19	2	7	35	1	14	10	2	18
Qikiqtarjuaq	0	1	2	13	3	13	1	1	18	1	4	7	1	3
Rankin Inlet	1	3	3	23	9	25	7	4	19	1	6	7	3	5
Resolute Bay	0	2	2	11	2	11	0	3	12	0	4	7	1	3
Sanikiluaq	1	1	1	14	2	16	0	3	17	0	6	2	1	1
Sanirajak	0	1	3	10	2	14	1	1	13	1	4	4	3	1
Taloyoak	1	1	2	12	10	14	0	2	11	0	8	3	1	1
Uningmaktok	0	1	1	9	8	10	0	1	6	0	5	2	1	0
Whale cove	0	1	1	7	5	12	0	1	9	0	4	3	1	3
Nunavut wide	0	1	1	5	2	10	0	1	3	0	0	2	1	0
Other location	2	0	0	2	0	0	0	2	3	0	3	1	0	1

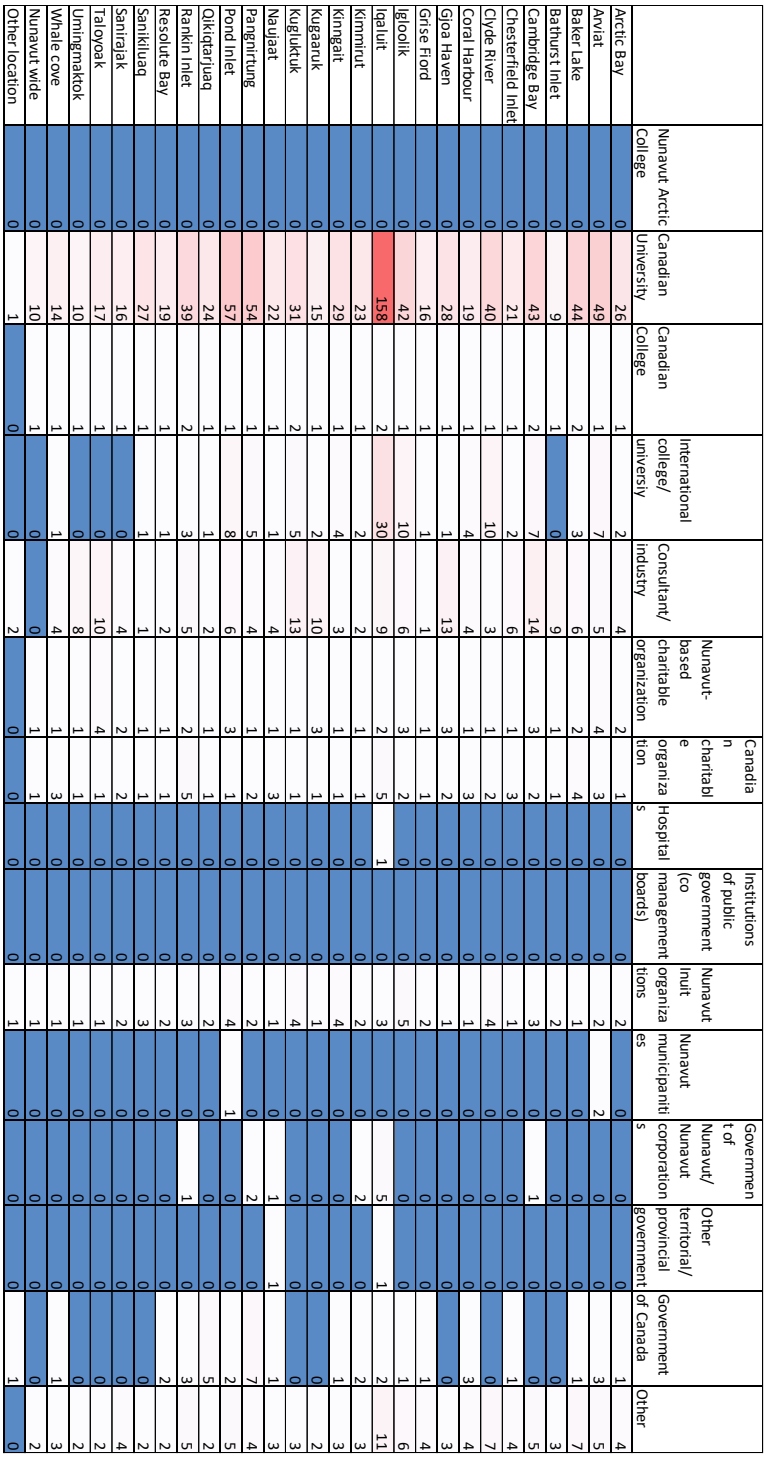
APPENDIX 15 CONTINUED: Matrix query outputs for community

	Annual	2-year	3-year	4-year	5-year	Over 5-year
Arctic Bay	27	5	3	4	1	3
Arviat	59	5	11	4	1	1
Baker Lake	48	5	9	4	3	1
Bathurst Inlet	15	0	5	3	0	3
Cambridge Bay	52	7	8	9	1	3
Chesterfield Inlet	26	3	4	4	2	1
Clyde River	47	7	6	4	2	2
Coral Harbour	29	1	3	5	1	1
Gjoa Haven	31	3	6	8	0	4
Grise Fiord	21	0	3	2	1	1
Igloolik	54	7	7	4	1	3
Iqaluit	179	20	14	10	2	3
Kimmirut	25	2	6	3	1	2
Kinngait	27	4	8	4	1	2
Kugaaruk	18	2	5	4	1	5
Kugluktuk	37	8	5	6	1	3
Naujaat	28	2	4	3	1	1
Pangnirtung	51	9	13	5	2	2
Pond Inlet	55	16	7	6	1	3
Qikiqtarjuaq	23	3	7	2	2	2
Rankin Inlet	48	5	3	6	5	1
Resolute Bay	21	3	3	2	1	1
Sanikiluaq	28	1	4	2	1	1
Sanirajak	20	1	3	4	1	2
Taloyoak	22	1	5	5	0	3
Umingmaktok	13	0	5	3	0	3
Whale cove	22	1	3	2	0	1
Nunavut wide	11	0	3	1	0	1
Other location	3	2	0	0	0	0

APPENDIX 15 CONTINUED: Matrix query outputs for community

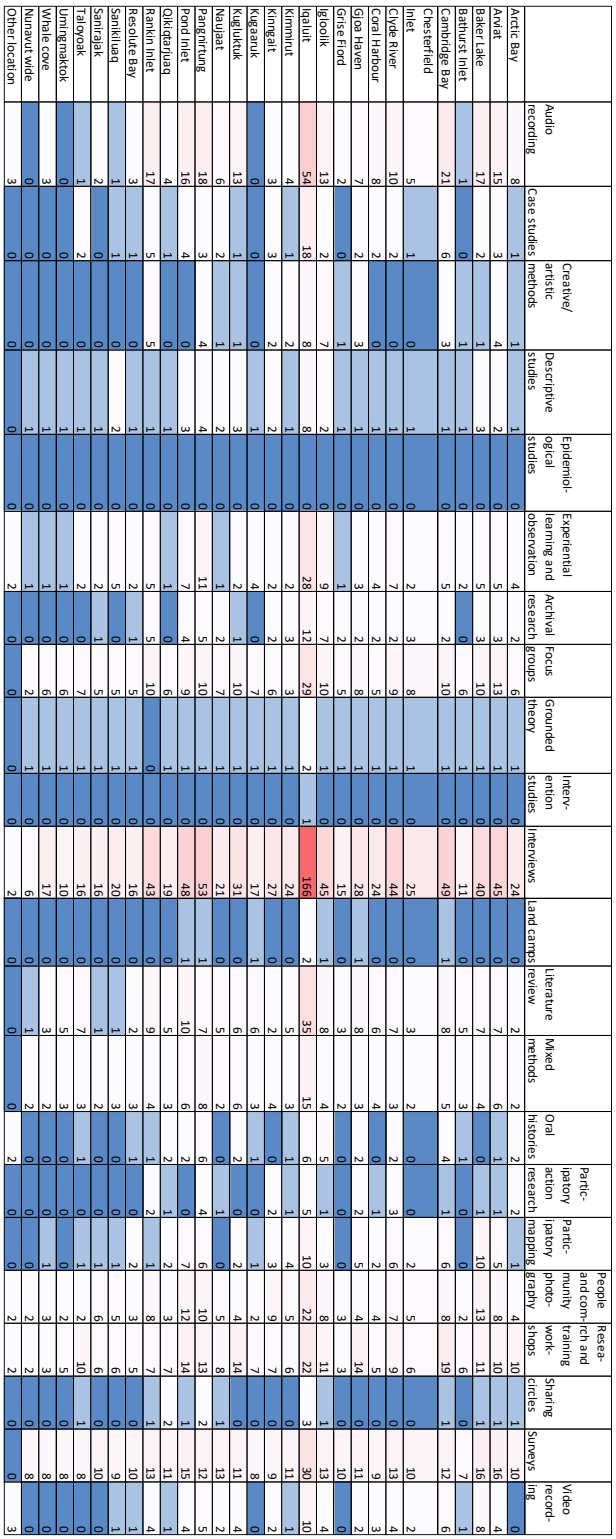


APPENDIX 15 CONTINUED: Matrix query outputs for community



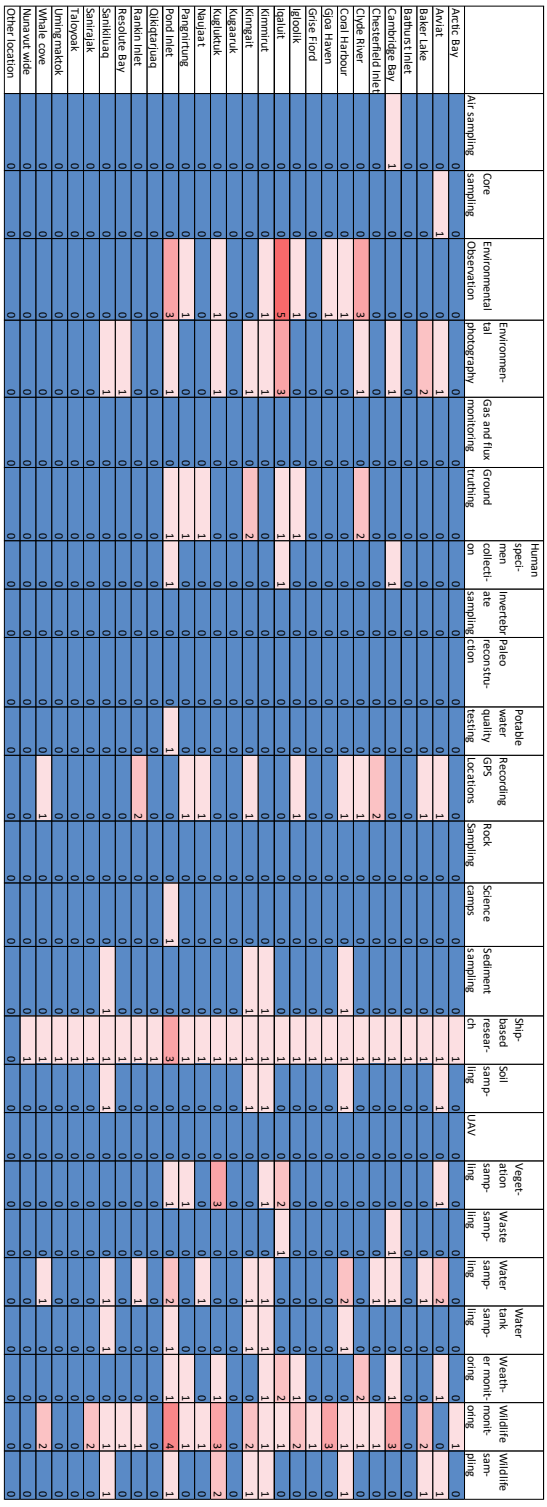
	Nunavut Arctic College	Canadian University	Canadian College	International college/ university	Consultant/ industry	Nunavut-based charitable organization	Canadian charitable organization	Hospitals	Institutions of public government (co management boards)	Nunavut Inuit organizations	Nunavut municipalities	Government of Nunavut/ Nunavut corporations	Other territorial/ provincial government	Government of Canada	Other
Arctic Bay	0	26	1	2	4	2	1	0	0	2	0	0	0	1	4
Arviat	0	49	1	7	5	4	3	0	0	2	2	0	0	3	5
Baker Lake	0	44	2	3	6	2	4	0	0	1	0	0	0	1	7
Bathurst Inlet	0	9	1	0	9	1	1	0	0	2	0	0	0	0	3
Cambridge Bay	0	43	2	7	14	3	2	0	0	3	0	1	0	0	5
Chesterfield Inlet	0	21	1	2	6	1	3	0	0	1	0	0	0	1	4
Clyde River	0	40	1	10	3	1	2	0	0	4	0	0	0	0	7
Coral Harbour	0	19	1	4	4	1	3	0	0	1	0	0	0	3	4
Gjoa Haven	0	28	1	1	13	3	2	0	0	1	0	0	0	0	3
Grise Fiord	0	16	1	1	1	1	1	0	0	2	0	0	0	1	4
Igloolik	0	42	1	10	6	3	2	0	0	5	0	0	0	1	6
Iqaluit	0	158	2	30	9	2	5	1	0	3	0	5	1	2	11
Kimmirut	0	23	1	2	2	1	1	0	0	2	0	2	0	2	3
Kinngait	0	29	1	4	3	1	1	0	0	4	0	0	0	1	3
Kugaaruk	0	15	1	2	10	3	1	0	0	1	0	0	0	0	2
Kugluktuk	0	31	2	5	13	1	1	0	0	4	0	0	0	0	3
Naujaat	0	22	1	1	4	1	3	0	0	1	0	1	0	1	3
Pangnirtung	0	54	1	5	4	1	2	0	0	2	0	2	0	7	4
Pond Inlet	0	57	1	8	6	3	1	0	0	4	1	0	0	2	5
Qikiqtarjuaq	0	24	1	1	2	1	1	0	0	2	0	0	0	5	2
Rankin Inlet	0	39	2	3	5	2	5	0	0	3	0	1	0	3	5
Resolute Bay	0	19	1	1	2	1	1	0	0	2	0	0	0	2	2
Sanikiluaq	0	27	1	1	1	1	1	0	0	3	0	0	0	0	2
Sanirajak	0	16	1	0	4	2	2	0	0	2	0	0	0	0	4
Taloyoak	0	17	1	0	10	4	1	0	0	1	0	0	0	0	2
Umingmaktok	0	10	1	0	8	1	1	0	0	1	0	0	0	0	2
Whale cove	0	14	1	1	4	1	3	0	0	1	0	0	0	1	3
Nunavut wide	0	10	1	0	0	1	1	0	0	1	0	0	0	0	2
Other location	0	1	0	0	2	0	0	0	0	1	0	0	0	1	0

APPENDIX 15 CONTINUED: Matrix query outputs for community

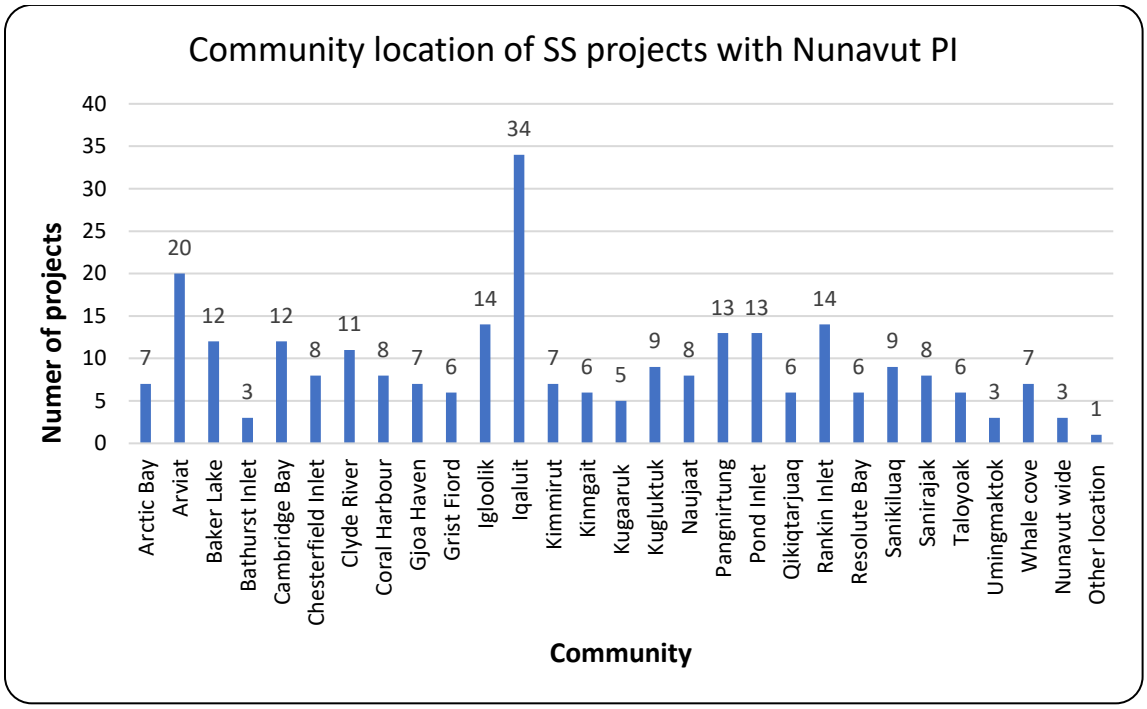


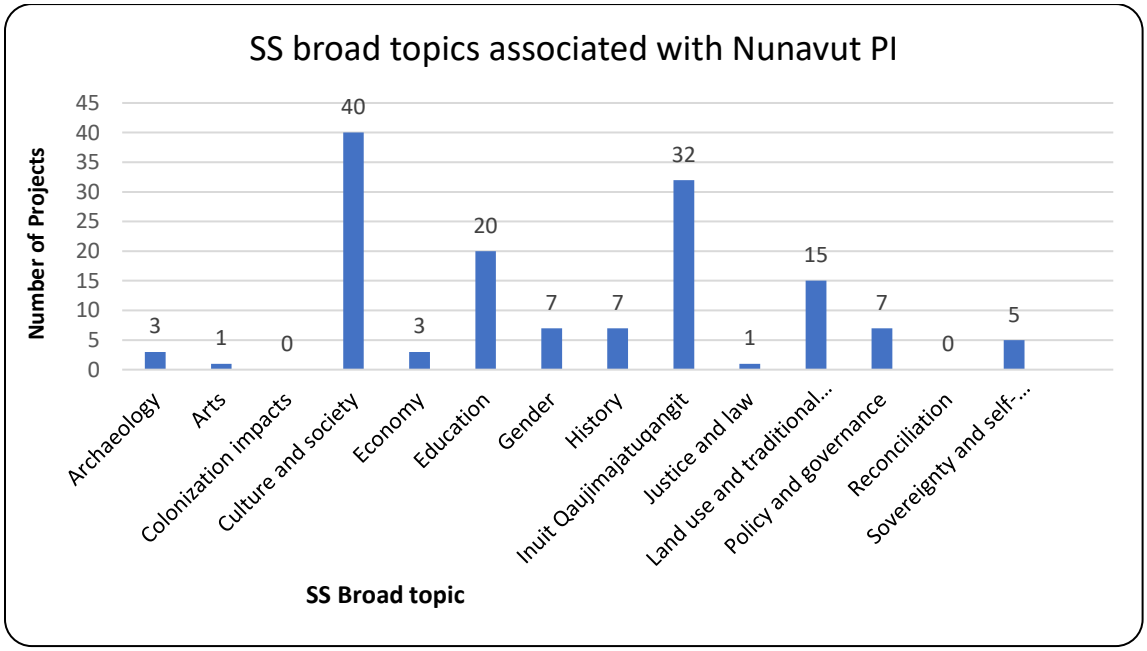
	Audio recording	Case studies	Creative/ artistic methods	Descriptive studies	Epidemiological studies	Experiential learning and observation	Archival research	Focus groups	Grounded theory	Intervention studies	Interviews	Land camps	Literature review	Mixed methods	Oral histories	Participatory action research	Participatory mapping	People and community photography	Research and training workshops	Sharing circles	Surveys	Video recording
Arctic Bay	8	1	1	1	0	4	2	6	1	0	24	0	2	2	2	2	1	4	10	1	10	0
Arviat	15	3	4	2	0	5	3	13	1	0	45	0	7	6	1	1	5	8	10	1	16	4
Baker Lake	17	2	1	3	0	5	3	10	1	0	40	0	7	4	0	3	1	10	13	1	16	8
Bathurst Inlet	1	0	1	1	0	2	0	6	1	0	11	0	5	3	1	0	0	2	6	0	7	1
Cambridge Bay	21	6	3	1	0	5	2	10	1	0	49	1	8	5	4	1	6	8	19	1	12	6
Chesterfield Inlet	5	1	0	1	0	2	3	8	1	0	25	0	3	2	0	0	2	5	6	0	10	2
Clyde River	10	2	0	1	0	7	2	9	1	0	44	0	7	3	2	0	2	7	9	0	13	4
Coral Harbour	8	2	0	1	0	4	2	5	1	0	24	0	6	4	0	1	2	4	5	0	9	3
Gjoa Haven	7	2	3	1	0	3	2	8	1	0	28	1	8	3	2	2	5	4	14	0	11	2
Grise Fiord	2	0	1	1	0	1	1	5	1	0	15	0	3	2	0	0	0	3	8	0	10	0
Igloolik	13	2	7	2	0	9	7	10	1	0	45	1	8	4	5	1	3	8	11	1	13	4
Iqaluit	54	18	8	8	0	28	12	29	2	1	166	2	35	15	6	5	10	22	22	3	30	10
Kimmirut	4	1	2	1	0	2	3	3	1	0	24	0	5	3	1	1	4	5	6	0	11	1
Kimngart	3	3	2	2	0	2	2	6	1	0	27	0	2	4	0	2	3	9	7	0	9	2
Kugaaruk	0	0	0	1	0	4	0	7	1	0	17	1	6	3	1	1	1	2	7	0	8	0
Kugluktuk	13	1	1	3	0	2	1	10	1	0	31	0	6	6	2	0	2	4	14	0	11	4
Naujaat	6	2	1	2	0	1	2	7	1	0	21	0	5	2	0	1	0	5	8	1	13	2
Pangnirtung	18	3	4	4	0	11	5	10	1	0	53	1	7	8	6	4	6	10	13	2	12	5
Pond Inlet	16	4	0	3	0	7	4	9	1	0	48	1	10	6	2	0	7	12	14	1	15	4
Qikiqtarjuaq	4	1	0	1	0	1	0	6	1	0	19	0	5	3	2	1	2	3	7	2	11	1
Rankin Inlet	17	5	5	1	0	5	5	10	0	0	43	0	9	4	1	2	1	8	7	1	13	4
Resolute Bay	3	1	0	1	0	2	1	5	1	0	16	0	2	3	1	0	2	3	5	0	10	1
Sanikiluaq	1	1	0	2	0	2	0	5	1	0	20	0	1	3	0	0	1	5	6	0	9	1
Sanirajak	2	0	0	1	0	2	1	5	1	0	16	0	1	2	0	0	1	6	6	0	10	0
Taloyoak	1	2	0	1	0	2	0	5	1	0	16	0	7	3	1	0	1	2	10	1	8	0
Umingmaktok	0	0	0	1	0	1	0	6	1	0	10	0	5	3	0	0	0	2	5	0	8	0
Whale cove	3	0	0	1	0	1	0	6	1	0	17	0	3	2	0	0	1	3	3	0	8	0
Nunavut wide	0	0	0	1	0	1	0	2	1	0	6	0	1	2	0	0	0	2	2	0	8	0
Other location	3	0	0	0	0	2	0	0	0	0	2	0	0	0	2	0	0	2	2	0	0	3

APPENDIX 15 CONTINUED: Matrix query outputs for community

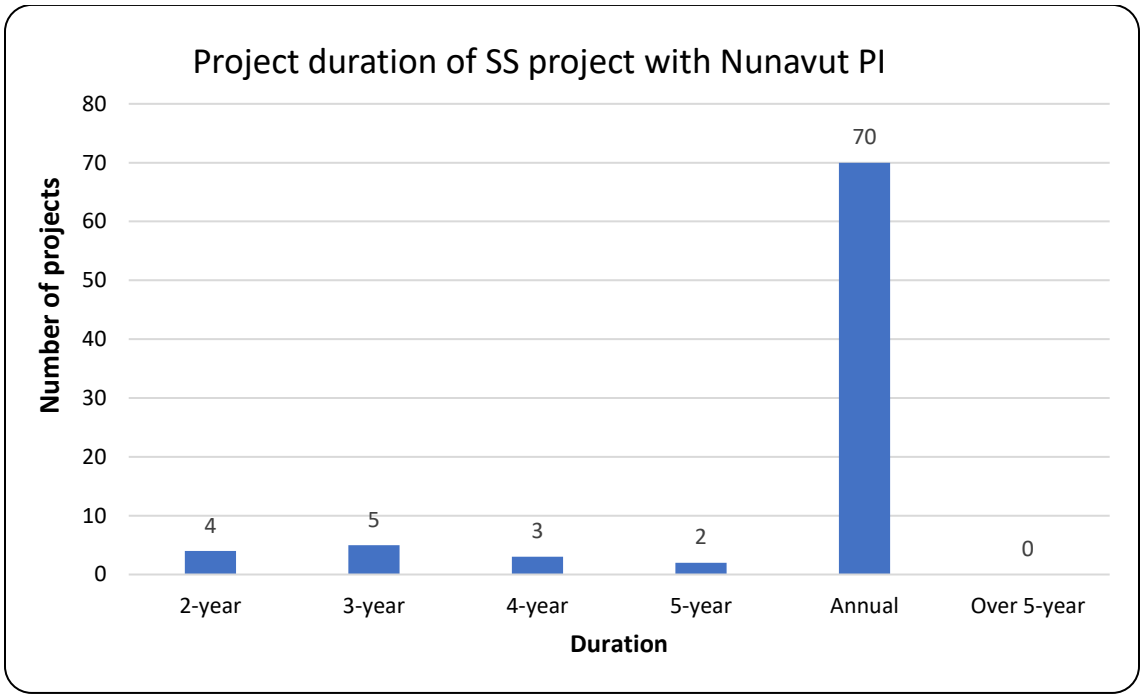


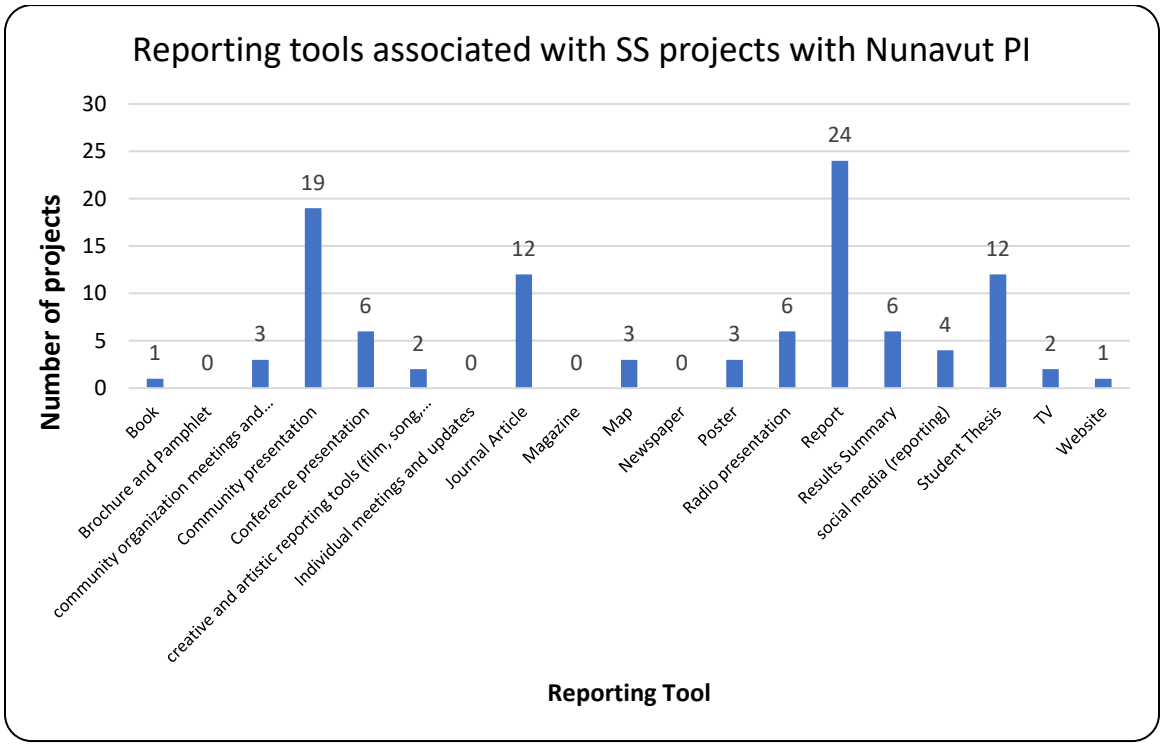
APPENDIX 16: Trends for Nunavut-based PI



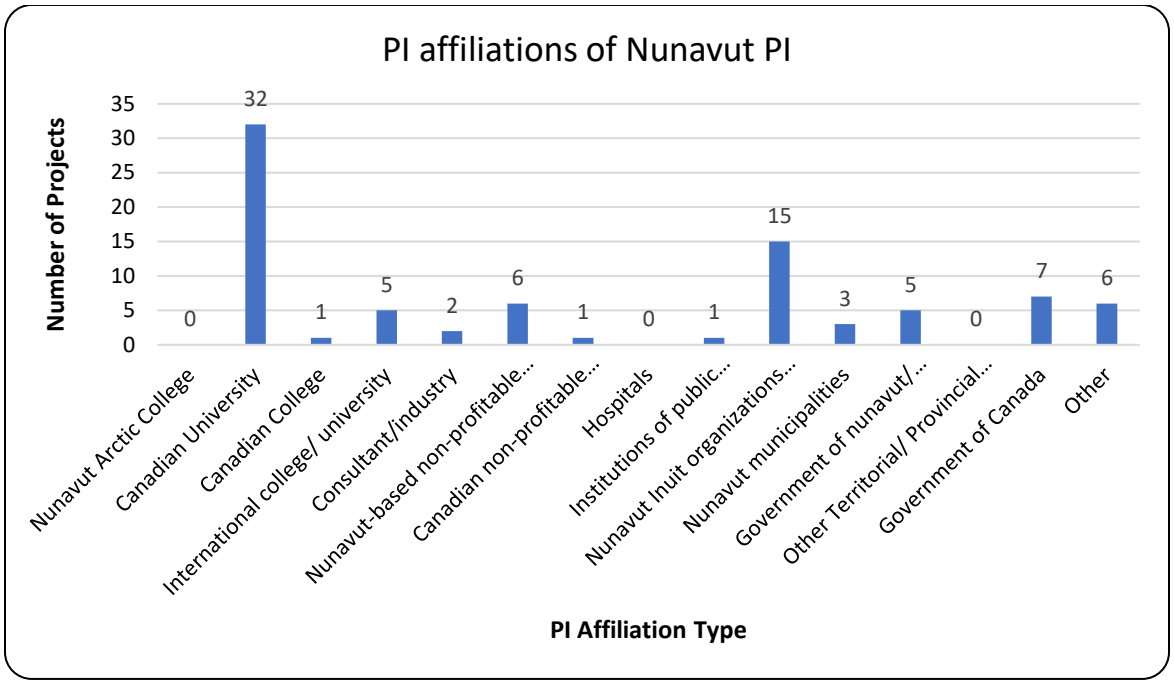


APPENDIX 16 CONTINUED: Trends for Nunavut-based PI

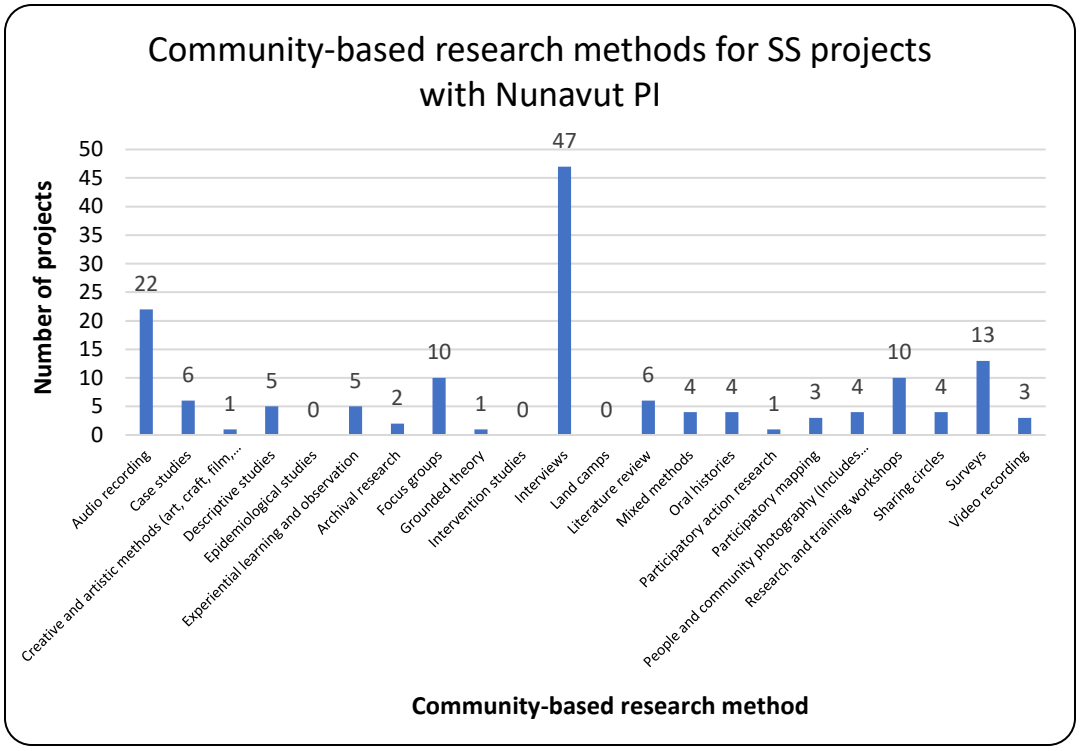


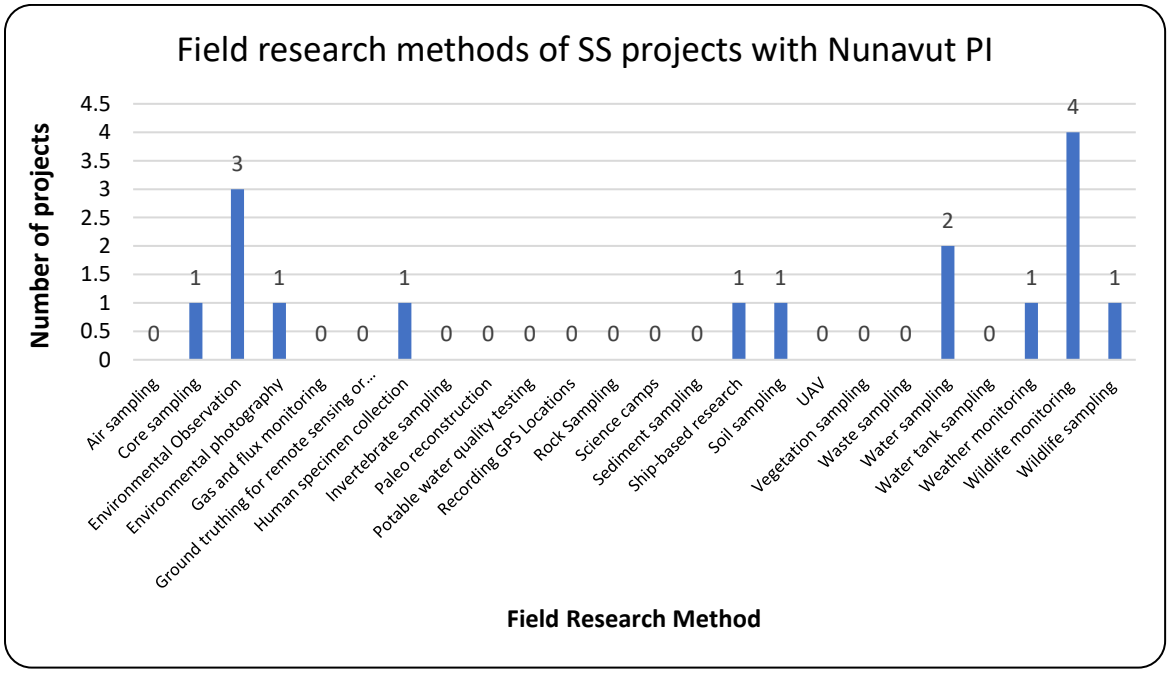


APPENDIX 16 CONTINUED: Trends for Nunavut-based PI

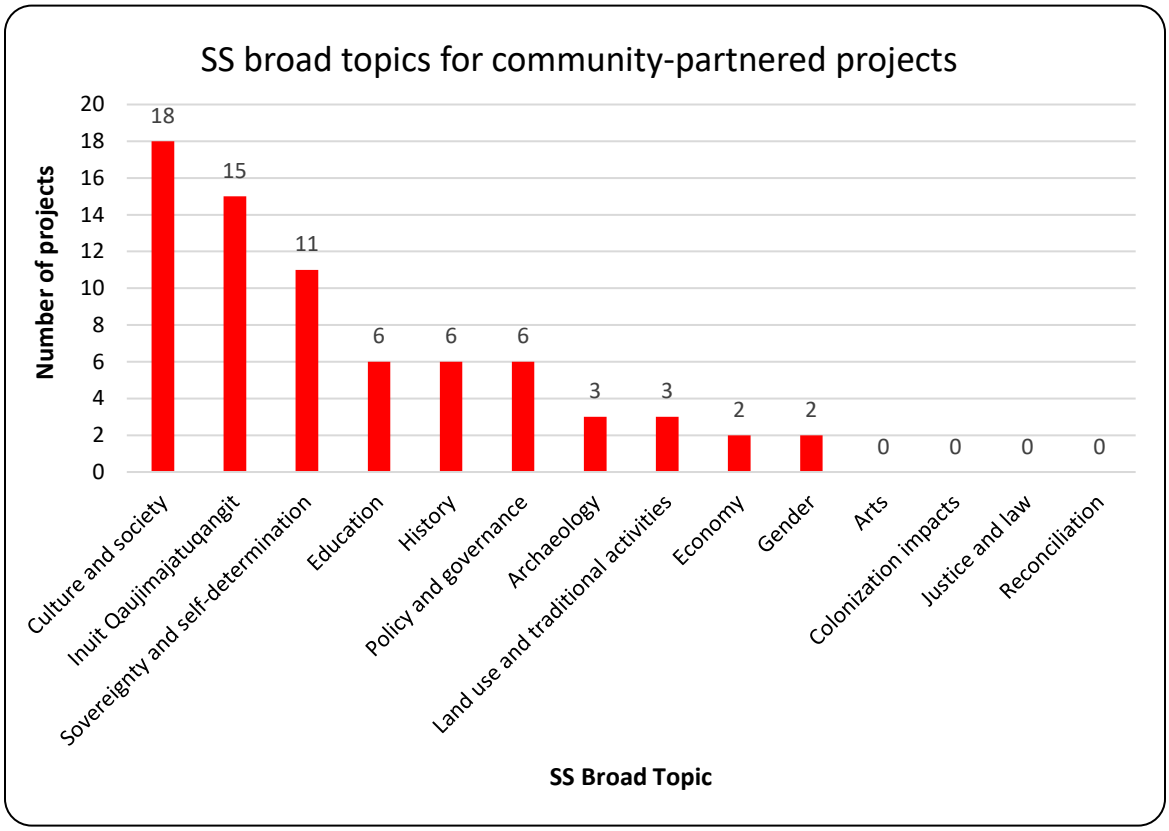


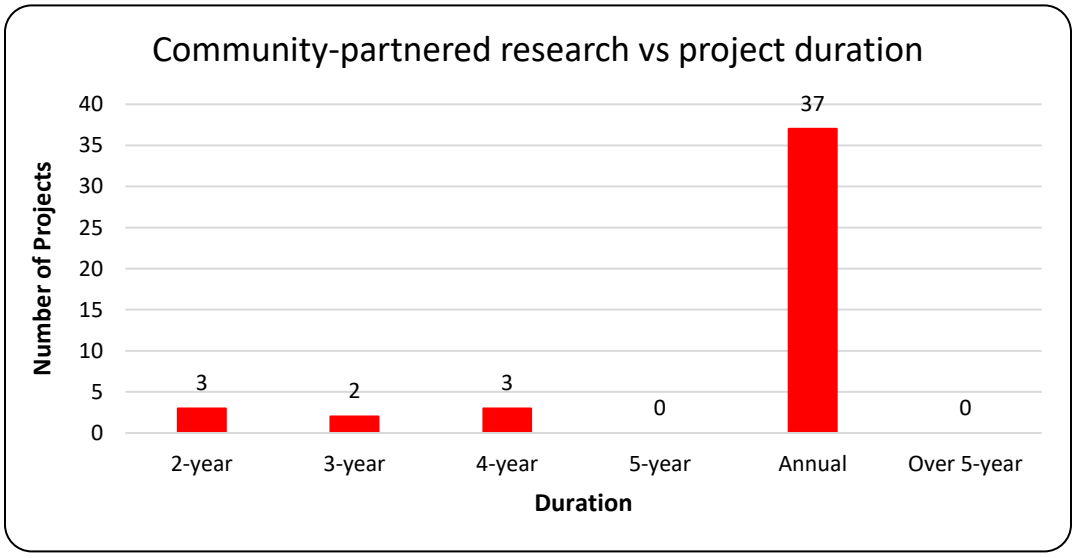
APPENDIX 16 CONTINUED: Trends for Nunavut-based PI



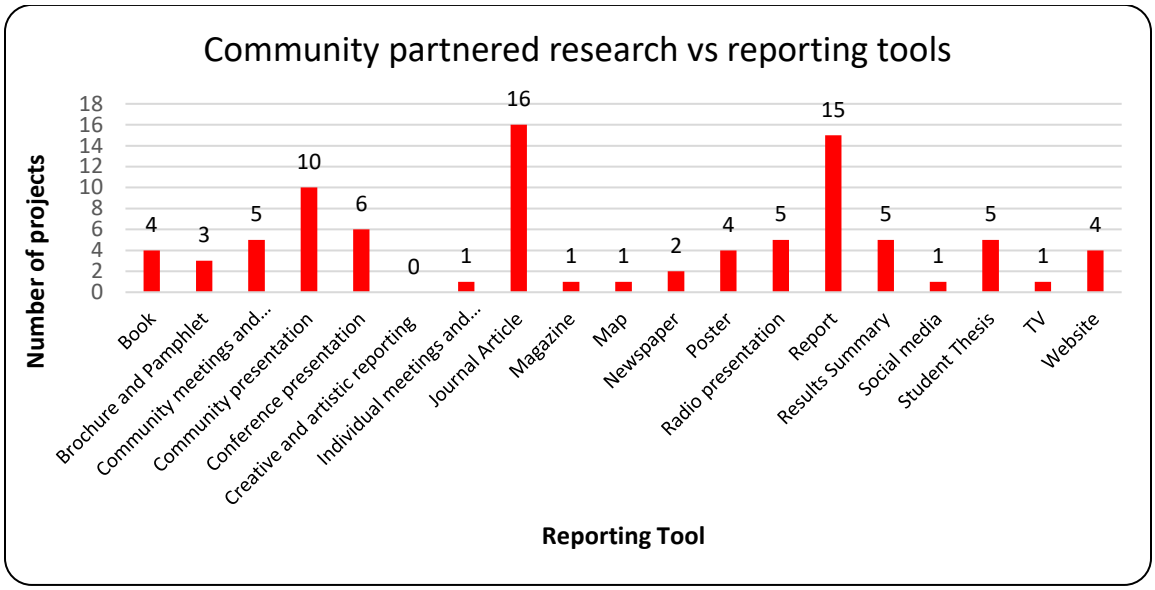


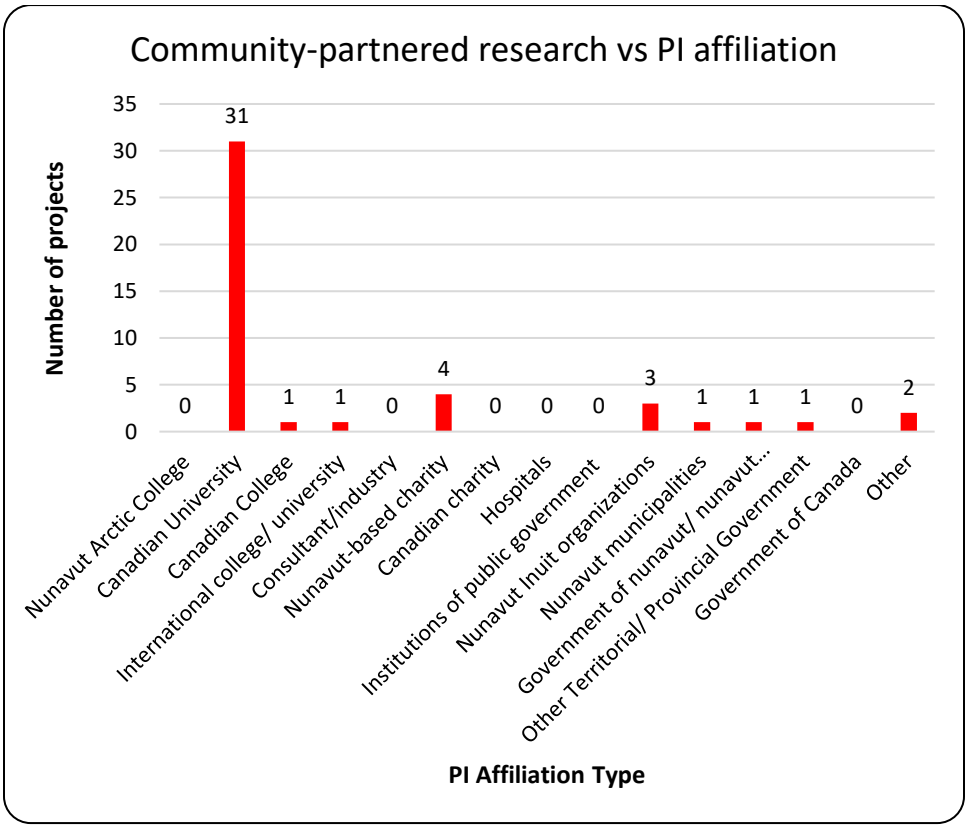
APPENDIX 17: Trends for community-partnered projects



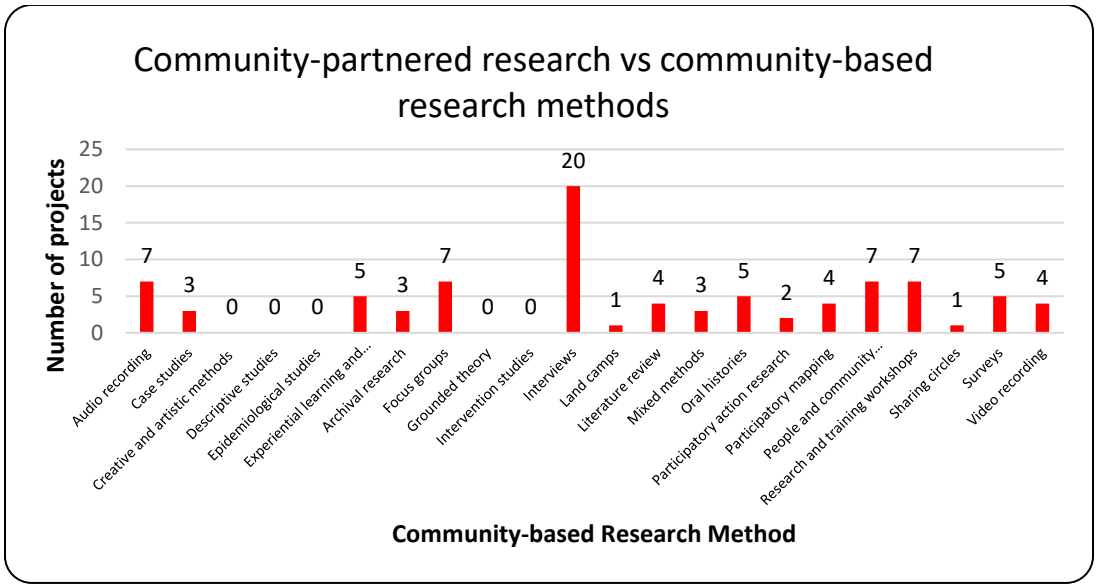


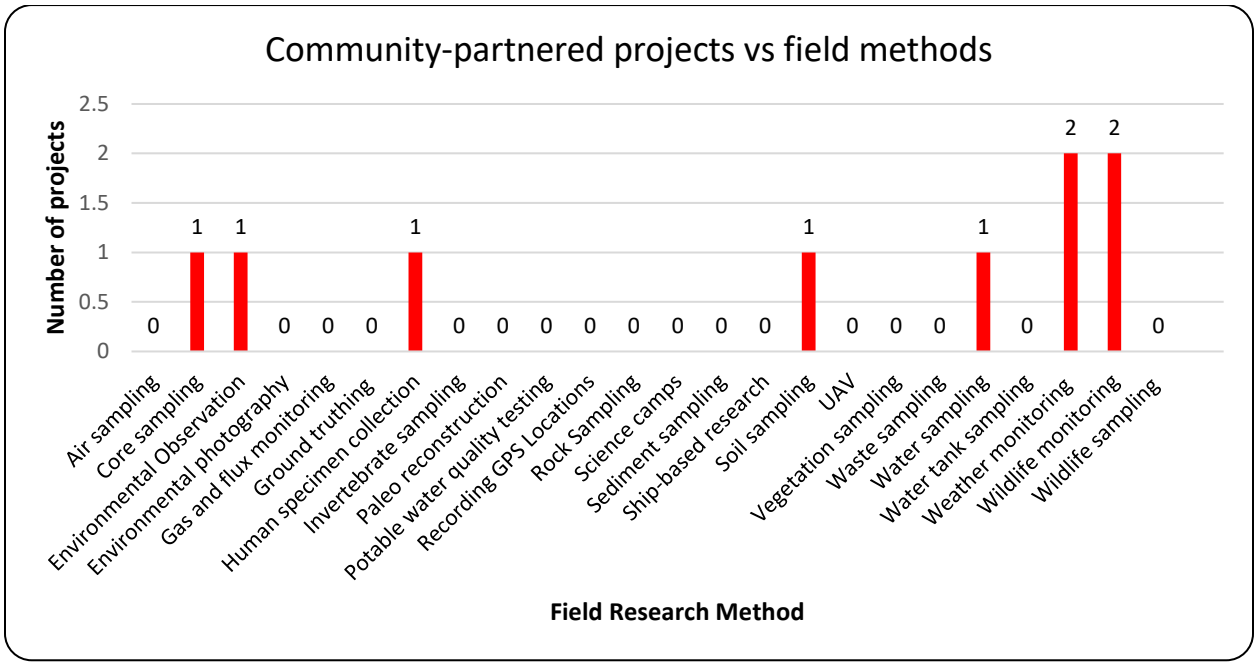
APPENDIX 17 CONTINUED: Trends for community-partnered projects



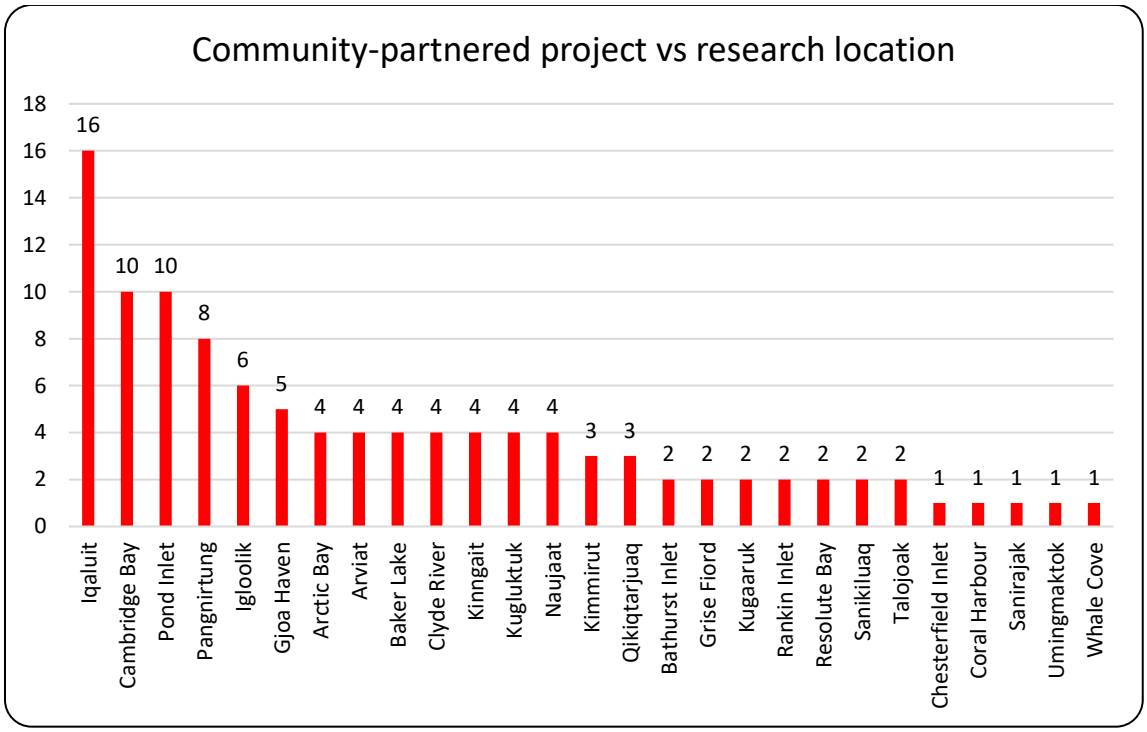


APPENDIX 17 CONTINUED: Trends for community-partnered projects

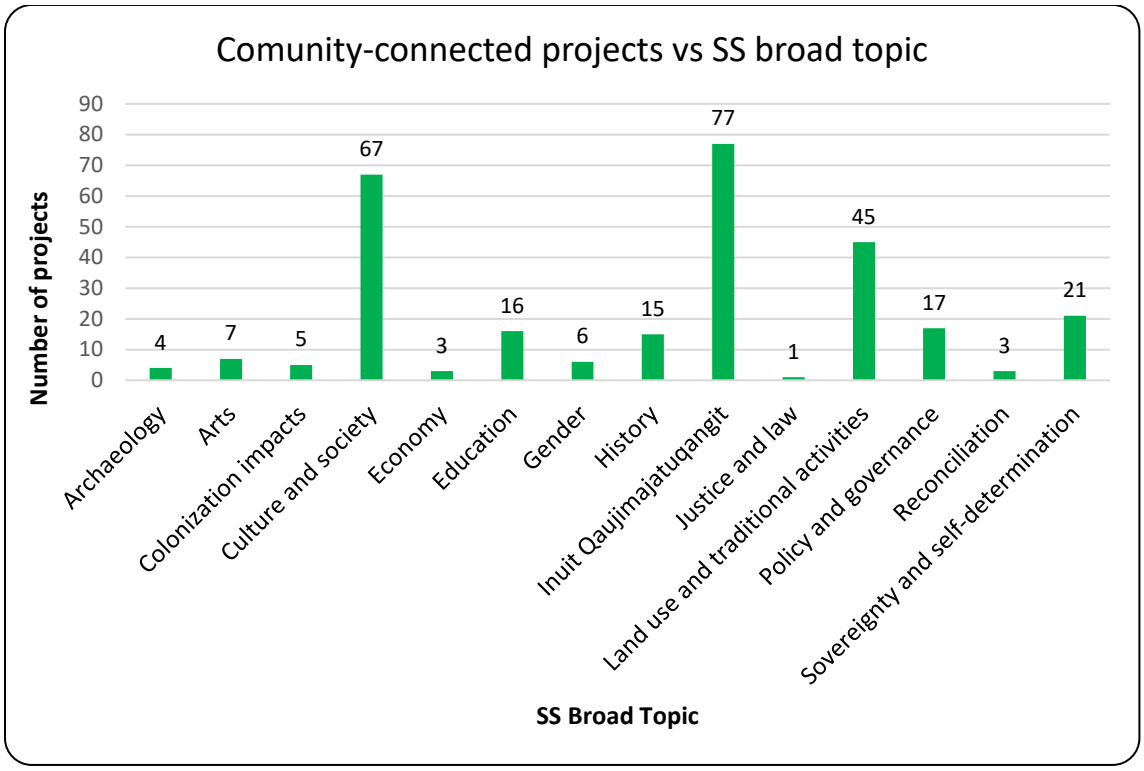


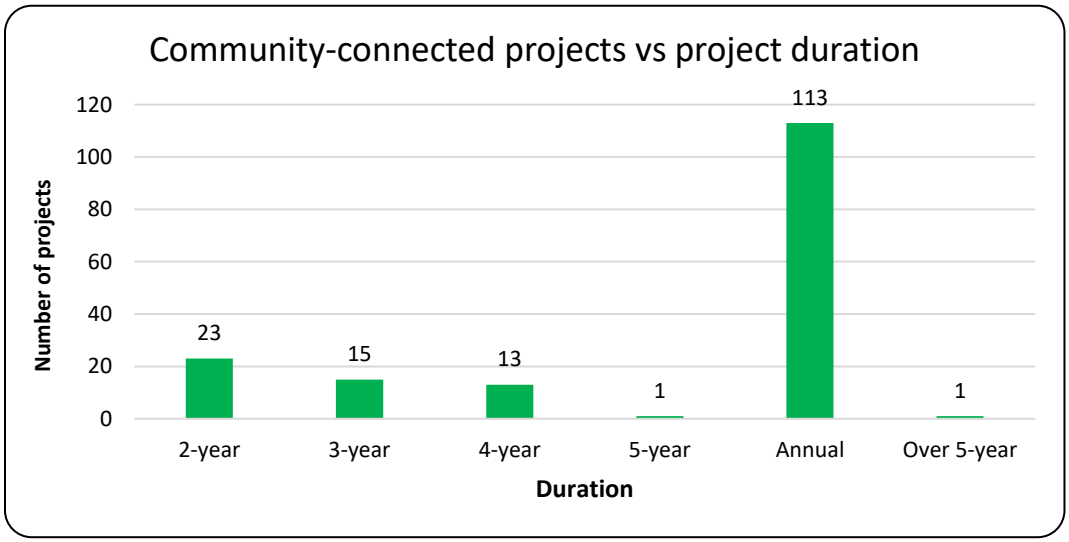


APPENDIX 17 CONTINUED: Trends for community-partnered projects

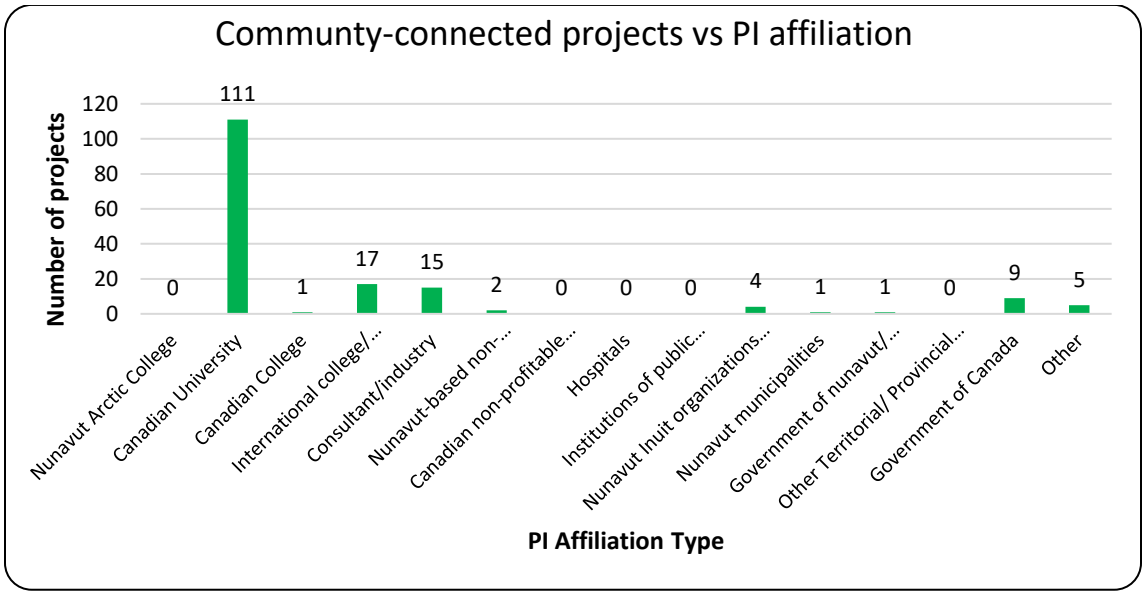


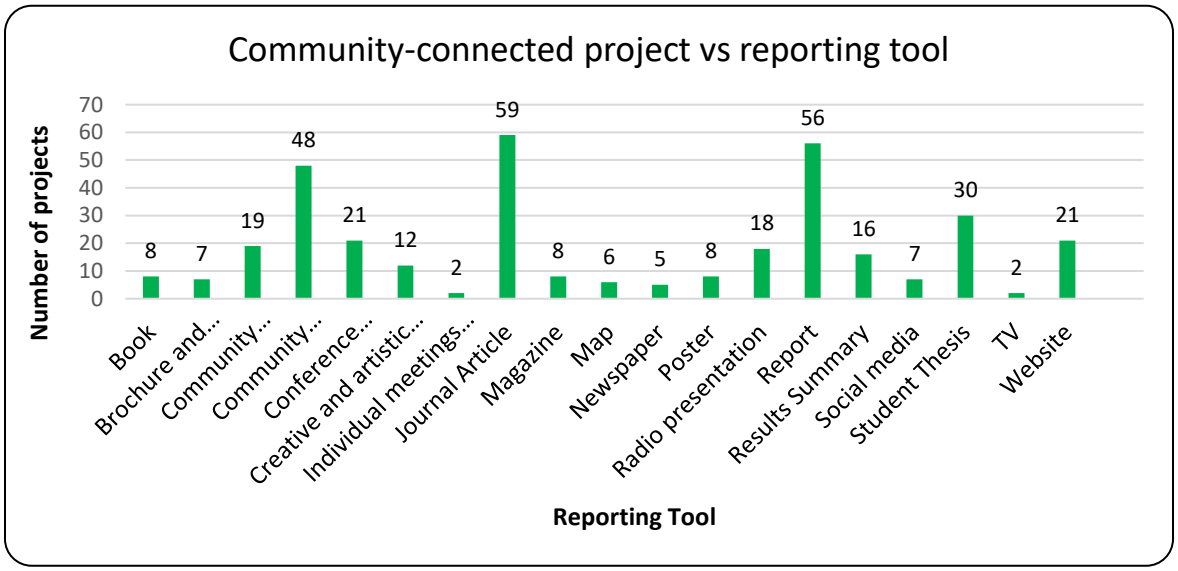
APPENDIX 18: Trends for community-connected projects



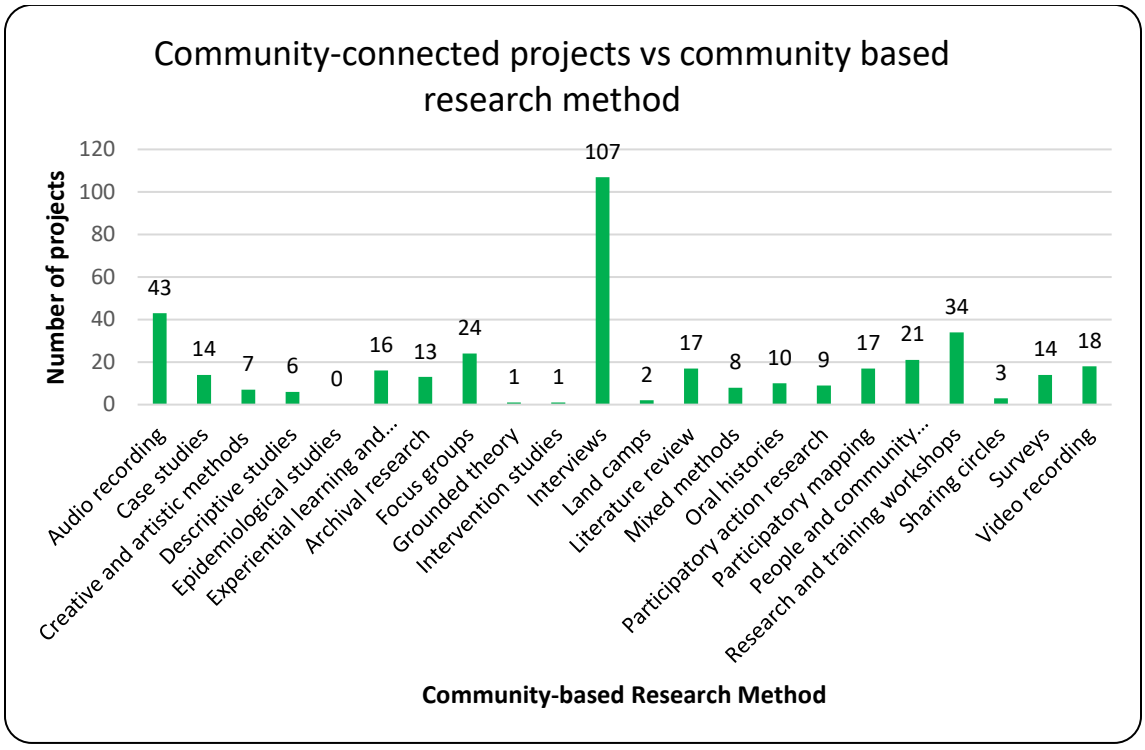


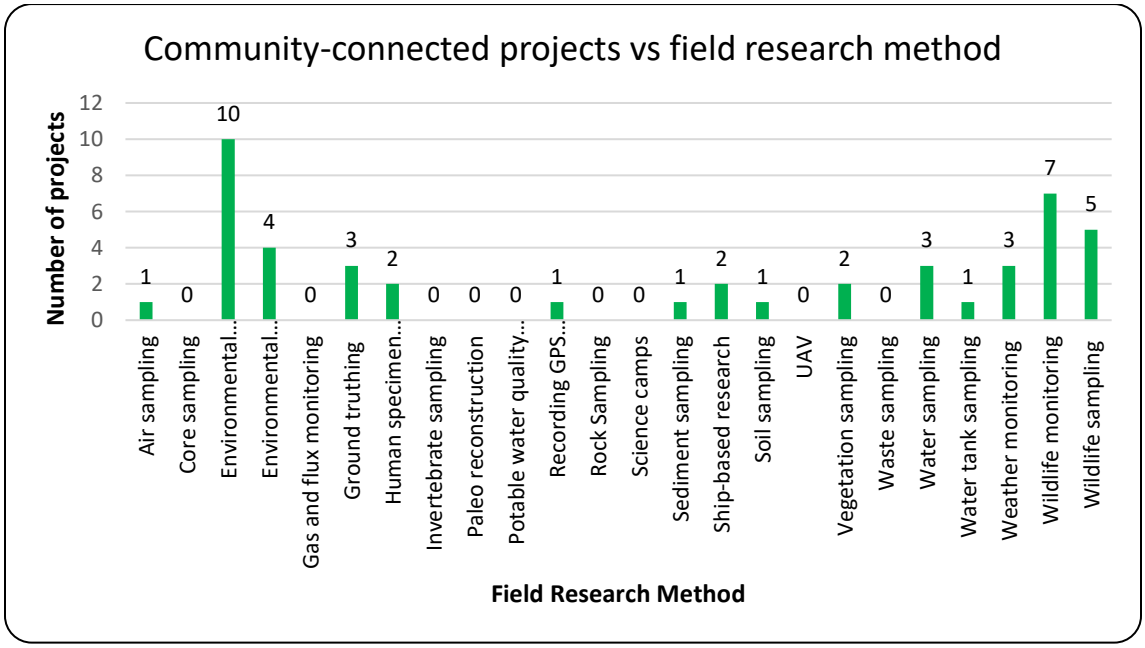
APPENDIX 18 CONTINUED: Trends for community-connected projects



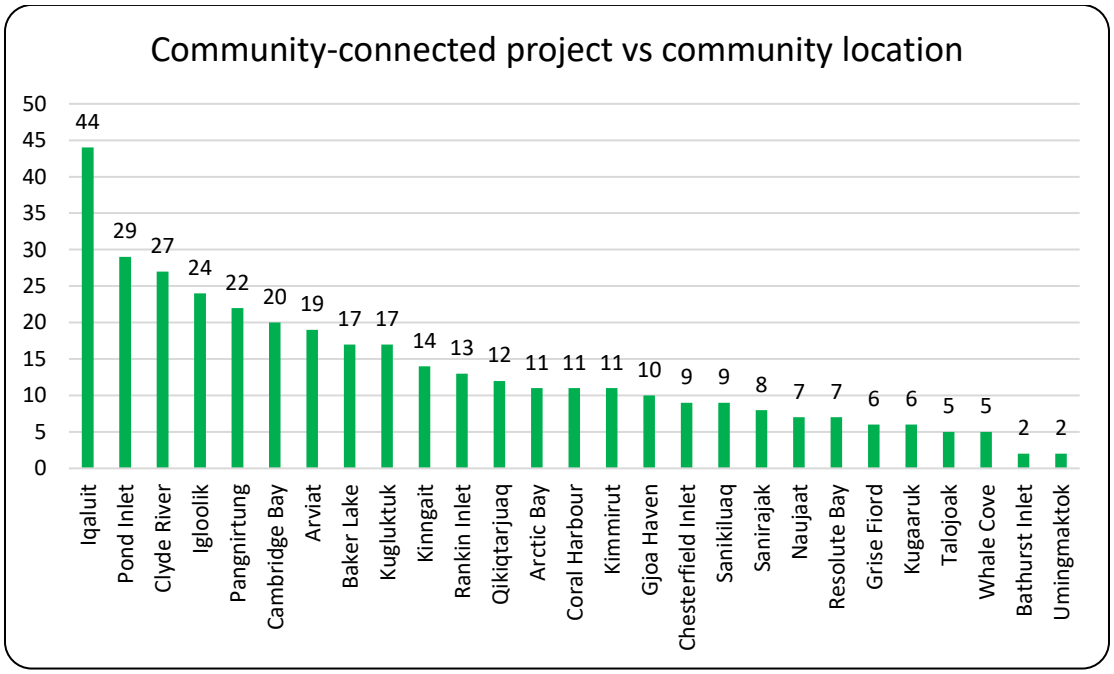


APPENDIX 18 CONTINUED: Trends for community-connected projects





APPENDIX 18 CONTINUED: Trends for community-connected projects



APPENDIX 19: Top 12 most active SS researchers

PI Name	# of Projects	Affiliation Name	Communities worked in	Topics worked on	Methods used	Reporting tools	Community engaged?
Klein, Heidi **(2004-2013)**	7 • *4-yr (2)* • *Annual (3)* • *>5 yr (2)*	• Gartner Lee, • Sanamma nga Solutions, • MMG Resources Inc	• Bathurst Inlet (4), • Cambridg e Bay (6), • Gjoa Haven (4), • Iqaluit (2), • Kugaaruk (4), • Kugluktuk (6), • Talojoak (4), • Umingma ktok (4)	• IQ (5), ecosystem s (1), • economy (3), • land use/ traditional activities (3)	• Research and training workshops (1)	• Map (2), • commu nity organizati on meetings/ workshop s (3)	• Commun ity-connected (1)
Wenzel, Georg e **(2008-2019)**	6 • *Annual (4)* • *5-yr (1)* • *2-yr (2)*	• McGill University	• Iqaluit (1), • Clyde River (5), • Igloolik (1), • Pond Inlet (1)	• IQ (1), • sovereig nty/ self-determinat ion (1), • culture/ society (1), • land use/ traditional activities (5), • gender (2), • economy (4), • history (2),	• Surveys (1), interviews (3), environme ntal observatio n (1)	• N/A	• Commun ity-connected (1)

APPENDIX 19 CONTINUED: Top 12 most active SS researchers

Tagalik, Shirley **(2014-2018)**	5 • *Annual (5)*	• Arviat Wellness Centre, • Hamlet of Arviat, • Aqqiumavvik Society, • Arviat Health Committee	• Arviat (5)	• IQ (3), • land use and traditional activities (2), • culture/ society (3),	• Sharing circles (1), • research / training workshops (2), • people/ community photography (1),	• Book (1), • TV (2), • social media (2), • community organization meetings (1), • community presentations (1), • poster (1), radio presentation (1)	• Community-connected (1), • community-partnered (2)
Routledge, Karen **(2008-2019)**	4 • *2-yr (1)* • *4-yr (2)* • *>5-yr (1)*	• Parks Canada	• Pangnirtung (4), • Qikiqtarjuaq (2)	• Land use/ traditional activities (2), • culture/ society (2), • IQ (3), • archaeology (1)	• Oral histories (2), • interviews (4), • audio recording (3), • research & training workshops (2), • video recording (1), • people/ community photography (1), • experiential learning (1)	• Book (3), • community presentation (2), • student thesis (1), • social media (1), • journal article (2), • map (3), • brochure/ pamphlet (2), • poster (2), • report (1)	N/A

APPENDIX 19 CONTINUED: Top 12 most active SS researchers

Mahy, Maryse **(2015-2019)**	4 • *5-yr (1)* • *4-yr (2)* • *3-yr (1)*	• Parks Canada	• Pangnirtung (2), • Qikiqtarjuaq (2), • Arctic Bay (1), • Pond Inlet (1), • Arviat (1), • Baker Lake (1), • Chesterfield Inlet (1), • Coral Harbour (1), • Igloolik (1), • Naujaat (1), • Rankin Inlet (1)	• IQ (4),	N/A	N/A	N/A
Gustavson, Kent **(2011-2015)**	4 • *Annual (1)* • *4-yr (1)* • *3-yr (2)*	• Rescan Environmental Services	• Bathurst inlet (3), • Cambridge Bay (3), • Gjoa Haven (4), • Iqaluit (1), • Kugaaruk (3), • Kugluktuk (3), • Talojoak (3), • Umingmaktok (3)	• Land use and traditional activities (4), • economy (3), • culture/ society (4),	• Literature review (4), • research training and workshops (3), • interviews (4), • focus groups (3), • participatory mapping (1)	• Community organization meetings/ updates (1), • report (1)	• Community-connected (2)

APPENDIX 19 CONTINUED: Top 12 most active SS researchers

Ljubicic, Gita (Laidler)	5 • *Annual (1)* • *3-yr (2)* • *4-yr (1)*	• Carleton University, • McMaster University, • University of Toronto	• Igloolik (2), • Kinngait (1), • Pangnirtung (2), • Cambridge Bay (3), • Gjoa Haven (3), • Baker Lake (1), • Clyde River (2), • Iqaluit (3), • Arviat (1), • Coral Harbour (2), • Pond Inlet (1), • Sanikiluaq (1)	• IQ (2), • education (1), • culture/ society (1), • sovereignty/ self determination (2),	• Archival research (1), • audio recording (1), • land camps (1), • research and training workshops (1), • participatory mapping (2), • people and community photography (1), • interviews (2), • case studies (1)	• Community organization meetings/ updates (1), • journal articles (4), • newspaper (1), • conference presentation (1), • website (1), • results summary (3), • report (3), • poster (2), • brochure (1), • radio (1), • community presentation (1)	• Community-connected (1), • community-partnered (3)

APPENDIX 19 CONTINUED: Top 12 most active SS researchers

Blangy, Sylvie **(2007-2017)**	4 • *Annual (1)* • *3-yr (1)* • *2-yr (1)* • *4-yr (1)*	• Montellier University, • French National Research Centre	• Kinngait (1), • Baker Lake (3)	• Wellbeing (1), • IQ (1), • Economy (1), • Culture/ society (3), • land use and traditional activities (1),	• Participatory action research (1), • research training and workshops (3), • interviews (1), • focus groups (1), • video recording (2), • people/ community photography (2), • surveys (1)	• Journal articles (2), • community presentation (1), • report (1), • community meetings/ workshops (2), • website (2), • poster (2)	• Community-connected (1), • community-partnered (2)
Gearheard, Shari (Fox) **(2004-2019)**	5 • *Annual (2)* • *4-yr (2)* • *2-yr (2)*	• University of Colourado at Boulder	• Clyde River (5), • Iqaluit (1)	• IQ (4), • land use and traditional activities (1), • culture & society (1), • education (1),	• Weather monitoring (2), • audio recording (2), • oral histories (1), • environmental photography (1), environmental observation (2), • interviews (3), • video recording (1), • research and training workshops (2)	• Community presentation (4), • website (1), • report (2), • journal article (3), • conference presentation (3). • Radio presentation (3), • brochure (1)	• Community-connected (3)

APPENDIX 19 CONTINUED: Top 12 most active SS researchers

Carter, Natalie Ann **(2016-2019)**	3 • *Annual (1)* • *2-yr (1)* • *4-yr (1)*	• Environment and Climate Change Canada, • University of Ottawa	• Arviat (1), • Cambridge Bay (1), • Coral Harbour (2), • Iqaluit (1), • Resolute Bay (1)	• policy/ governance (1), • land use and traditional activities (2), • IQ (2), • culture/ society (2),	• Video recording (2), • audio recording (2), • research training and workshops (1), • mixed methods (2), • participatory mapping (1), • interviews (1)	• Journal article (2), map (2), community presentations (2), website (1), conference presentation (1), radio presentation (1)	• Community-connected (3)
Rodon, Thierry **(2009-2013)**	3 • *Annual (1)* • *2-yr (1)* • *4-yr (1)*	• Carleton University, • University of Laval	• Arviat (1), • Baker Lake (1), • Clyde River (1), • Igloolik (1), • Iqaluit (3), • Kinngait (1), • Naujaat (1), • Pangnirtung (2), • Pond Inlet (1), • Rankin Inlet (1)	• Economy (1), • education (2), • culture/ society (2),	• Literature review (1), • interviews (2), • audio recording (1), • research training and workshops (2), • surveys (2)	• Community presentation (2), • journal article (1), • report (2), • community organization meetings and updates (1)	N/A
Van den Scott, Lisa-Jo **(2008-2012)**	3 • *Annual (1)* • *3-yr (3)*	• Northwestern University	• Arviat (3)	• land use and traditional activities (1), • culture/ society (3),	• Audio recordings (2), • interviews (3)	• Journal Article (2)	• N/A

APPENDIX 20: Top 9 most active Nunavut-based PI

PI Name	# of Projects	Affiliation Name	Communities worked in	Topics worked on	Methods	Reporting tools	Community engaged?
Tagalik, Shirley **(2014-2018)**	5 • *Annual (5)*	• Arviat Wellness Centre, • Hamlet of Arviat, • Aqqiu mavvik Society, • Arviat Health Committee	• Arviat (5)	• IQ (3), • land use and traditional activities (2), • culture/ society (3),	• Sharing circles (1), • research/ training workshops (2), • people/ community photography (1), • *soil sampling (1),* • *weather monitoring (1),* • *surveys (1),* • *water sampling (1),* *core sampling (1)*	• Book (1), • TV (2), • social media (2), • community organization meetings (1), • community presentations (1), • poster (1), • radio presentation (1)	• Community-connected (1), • community-partnered (2)
Mahy, Maryse **(2015-2019)**	4 • *5-yr (1)* • *4-yr (2)* *3-yr (1)*	• Parks Canada	• Pangnirtung (2), • Qikiqtarjuaq (2), • Arctic Bay (1), • Pond Inlet (1), • Arviat (1), • Baker Lake (1), • Chesterfield Inlet (1), • Coral Harbour (1), • Igloolik (1), • Naujaat (1), • Rankin Inlet (1)	• IQ (4),	N/A	N/A	N/A
Keith, Darren (2004-2006)	3 • *Annual (3)*	• Kitikmeot Heritage Society	• Bathurst Inlet (1), • Gjoa Haven (2), • Kugaaruk (2), • Talojoak (2)	• History (2), • culture/ society (2), • archaeology (2), • IQ (1),	• Video recording (1), • oral histories (1), • experiential learning/ observation (2), • research and training workshops (2)	N/A	• Community-partnered (2)

APPENDIX 20 CONTINUED: Top 9 most active Nunavut-based PI

Akearok, Jason	2 • *Annual (2)*	• Environment Canada	• Pangnirtung (1), • Pond Inlet (1), • Rankin Inlet (1), • Resolute Bay (1), • Whale Cove (1)	• Culture/ society (1), • IQ (2), • land use and traditional activities (1)	• Participatory mapping (1), • interviews (2), • audio recording (1), • *wildlife monitoring (1)*	• Community presentation (1), • poster (1)	• Community-connected (1)
Beveridge, Navarana	2 • *Annual (2)*	• Qikiqtani Inuit Association	• Rankin Inlet (1), • Kugluktuk (1), • Iqaluit (1), • Igloolik (1), • Clyde River (1)	• Education (1), • policy & governance (1), • culture/ society (1),	N/A	N/A	N/A
Crockatt, Kim	2 • *Annual (1)* *2-yr (1)*	• Nunavut Literacy Council	• Arviat (1), • Cambridge Bay (1), • Kinngait (1), • Rankin Inlet (1)	• Culture/ society (1), • policy/ governance (1), • gender (1), • education (1)	• Interviews (1), • case studies (1)	• Journal article (1), • conference presentation (1), • community presentation (1), • results summary (1), • report (1)	• Community-connected (1)
Egeni, Camilius	2 • *Annual (2)*	• Canadian University, • Government of Nunavut	• Arviat (1), • Cambridge Bay (1), • Iqaluit (2), • Kuglukuk (1)	• Policy/ governance (1), • IQ (1), • culture/society (1)	• Surveys (1), • interviews (1)	• Student thesis (1)	N/A

APPENDIX 20 CONTINUED: Top 9 most active Nunavut-based PI

Mearns, Ceporah	2 • *Annual (2)*	• Qaujigiartiit Health Research Centre	• Arctic Bay (1), • Cambridge Bay (1), • Igloolik (2), • Iqaluit (1), • Pond Inlet (2), • Rankin Inlet (1), • Sanirajak (1), • Talojoak (1)	• Education (1)	• Research and training workshops (2), • people and community photography (1), • audio recording (1), • sharing circles (1), • interviews (1), • case studies (1)	• Creative/ artistic reporting (1), • social media (1), • community presentation (1), • website (1), • report (1), • radio presentation (1), • conference presentation (1), • journal article (1)	N/A
Scott, Bethany	2 • *Annual (2)*	• Qikiqtani Inuit Organization	• Clyde River (1), • Igloolik (1), • Iqaluit (1), • Kinngait (1), • Pond Inlet (1)	• Economy (1), • sovereignty and self-determination (1),	• Interviews (1), • literature review (1)	• Journal article (2), • conference presentation (1), • report (1), • community presentation (2)	• Community-partnered (2)

APPENDIX 21: Community research organizations in Nunavut

Organization	Organization type	Community	Area of interest
Aqqiumavvik Society	Community organization	Arviat	Community-based, social, environment, family, wellbeing (Aqqiumavvik, n.d)
Inuit Heritage Trust	Other Inuit land claims organizations	Iqaluit	Inuit culture, heritage, and identity (IHT, 2013)
Ittaq Heritage and Research Centre	Research Centre	Clyde River	Inuit knowledge, culture, self-determination, land programming (ITTAQ, 2021)
Kitikmeot Heritage Society	Inuit led charitable organization	Cambridge Bay	Preservation and renewal of local knowledge, culture, language (Kitikmeot Heritage Society, n.d)
Kitikmeot Inuit Association	Regional Inuit association	Cambridge Bay	Social, cultural, political, environmental, economic well-being of Kitikmeot Inuit (Kitikmeot Inuit Association, 2021)
Kivalliq Inuit Association	Regional Inuit association	Rankin Inlet	Heritage, culture, language, wildlife, environment (KivIA, 2018)
Nunavut Impact Review Board	institutions of public government	Cambridge Bay	Promote wellbeing of Nunavummiut and environment through impact assessment (NIRB, n.d)
Nunavut Planning Commission	institutions of public government	Iqaluit	Land use plans/ monitoring, resource development and use (NPC, 2022)
Nunavut Research Institute	Research centre	Iqaluit	Promote and facilitate P, H, and SS research, collaboration, wellbeing (NRI, 2021)
Nunavut Surface Rights Tribunal	institutions of public government	Iqaluit	Dispute resolution, land claims, wildlife, resource use (NSRT, n.d)
Nunavut Tunngavik Inc.	institutions of public government	Iqaluit	Nunavut treaty rights and negotiation (NTI, n.d)
Nunavut Water Board	institutions of public government	Gjoa Haven	Management of water in Nunavut through IQ and scientific knowledge (NWB, 2022)
Nunavut Wildlife Management Board	institutions of public government	Iqaluit	Wildlife management (NWMB, n.d)
Nunavut Wildlife Secretariat	Inuit wildlife organizations	Rankin Inlet	Wildlife, coordination and administration with hunters and trappers regional wildlife organizations (NIWS, n.d)
Qaujigiartiit Health Reesearch Centre	Independent non-profit community research institute	Iqaluit	Community-based, wellbeing, health and wellness, combining IQ and scientific knowledge (QHRC, 2019)
Qikiqtani Inuit Association	Regional Inuit association	Iqaluit	Social, political, economic and cultural interests (QIA, 2022)